

THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number <u>44</u>

Groundwater Monitoring Results Report for Defense Depot Memphis, Tennessee

Volume 1 of 9

Prepared for U.S. Army Corps of Engineers, Huntsville Division

> Prepared by: Environmental Science & Engineering, Inc.

ESE No. 3-93-5021G

January 1994



February 3, 1994

Department of the Army Corps of Engineers, Huntsville Division ATTN: CEHND-PM-ED, Cpt. Michael Dell'Orco 106 Wynn Drive Huntsville, AL 35807-4301

Dear Cpt. Dell'Orco:

RE: Submittal of Groundwater Monitoring Results Report for Defense Depot Memphis, Tennessee; Contract No. DACA87-92-D-0018, Delivery Order D

Enclosed please find four copies of the Groundwater Monitoring Results Report for Defense Depot, Memphis, Tennessee. Three of the enclosed copies do not include Appendix D. Appendix D consists of seven, three-inch ring binders of CLP-like data results for MW-9, MW-10, MW-11, MW-12, MW-22, and MW-37. A disk copy of the report, which does not include appendices, and an 8mm tape of ARC/INFO files are also included.

This Groundwater Monitoring Results Report for Defense Depot, Memphis, Tennessee was directed by Jeffrey P. Bleke, P.E., and reviewed by Paul A. Locascio, P.G., and appears to comply with the current standards and practices exercised in the handling of contamination investigations and groundwater investigations in Tennessee.

If you have any questions or require clarifications to this submittal, please call me at (904) 333-3617. We appreciate the opportunity to be of continued service to the Huntsville Division of USACE.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Project Director

Paul A. Locascio, P.G.

Paul a. Loroscie

Project Scientist

Claire Bain

Project Manager

MCB:srs

Enclosures

DC: R. Wilson (DDMT) (4 copies, 3 w/Appendix D)

D. Lillo (DLA) (1 copy w/out Appendix D)

L. Percifield (CEMRD) (I copy w/Appendix D)

R. Charna (ESE, Inc.) (1 copy w/out Appendix D)

C. Bain (ESE, Inc.) (1 copy w/Appendix D)

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1.0 INTRODUCTION

- 1.1 Environmental Science & Engineering, Inc. (ESE) was contracted in September 1993 by the U.S. Army Corps of Engineers (USACE), Huntsville Division, to collect and analyze groundwater samples from the existing monitor wells at Defense Depot, Memphis, TN (DDMT) under Delivery Order "D" of Contract DACA87-92-0018.
- 1.2 DDMT is a Defense Logistics Agency facility located in Shelby County, TN.
 The facility occupies approximately 640 acres and is located approximately
 5 miles east of the Mississippi River and 1.5 miles north of the Memphis
 Metropolitan Airport, in the southwestern portion of Memphis, TN.
- 1.3 DDMT has been conducting Remedial Investigation/Feasibility Studies (RI/FS) at a number of known or suspected contamination sites to determine the existence and magnitude of environmental contamination and appropriate remedial actions. The installation is on the U.S. Environmental Protection Agency's (EPA's) National Priority List (NPL) for hazardous waste sites. Investigative and remedial activities have been conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA).
- 1.4 Numerous environmental studies have been conducted at DDMT including an RI/FS in 1989 and 1990. As part of the ongoing environmental program, ESE collected groundwater samples in November 1993 to assess changes in groundwater quality since the completion of the RI/FS in 1990. The purpose of the groundwater sampling was to identify and delineate contaminants in the groundwater, and to determine the extent of migration of these contaminants on and around DDMT. The analytical data presented in this report also serve as

followup sampling to questionable results previously obtained and will ultimately be used in the follow-on RI/FS.

2.0 SAMPLING PROCEDURES

2.1 GROUNDWATER SAMPLE LOCATIONS

- 2.1.1 From November 8 through 20, 1993, ESE collected groundwater samples for chemical analysis from 35 monitor wells located on the main installation, Dunn Field, and offsite wells located northwest of Dunn Field (see Figure 1). Of the 38 existing monitor wells, 3 were dry and could not be sampled (MW-2, MW-17, and MW-27).
- 2.1.2 Additional samples included 4 field duplicates, 4 split samples, 4 equipment blanks, 4 split equipment blanks, 13 trip blanks, and 4 samples from purged water exiting the carbon unit treatment system. Quality assurance (QA) sample identifications have the following notations as the modifiers:

DUP = field QC (sample duplicate for ESE laboratory),

SP = field QA (sample split for USACE QA laboratory),

EBLK = equipment (rinsate) blank,

TBLK = trip blank, and

TS = treatment system.

- 2.1.3 Field duplicate samples were collected from monitor wells MW-10 (MW41DUP), MW-12 (MW42DUP), MW-22 (MW43DUP), and MW-37 (MW40DUP) to measure the precision of the sampling process.
- 2.1.4 Split samples were also collected from monitor wells MW-10, MW-12, MW-22, and MW-37 to ensure the precision of the sampling and analytical processes between laboratories. These four split field duplicates and four split equipment blanks were sent to the Missouri River Division Laboratory (MRDL). Split samples were also collected by an EPA subcontractor, Dynamac, from Atlanta, GA, for two of the monitor wells (MW-10 and MW-12). Dynamac

gave ESE three samples (MW-76, MW-77, and MW-78) as blind spikes to measure the precision of the analytical process between laboratories.

- 2.1.5 Equipment blanks for the groundwater samples were collected by rinsing decontaminated sampling equipment with ultrapure water obtained from the laboratory. The rinse water was collected in sample bottles, preserved, and handled in the same manner as the samples.
- 2.1.6 Trip blanks were included with each cooler containing samples to be analyzed for volatile organic compounds (VOCs). Trip blanks were analyzed for VOCs only and consisted of sample vials filled in the ETC and ESE laboratory with organic-free water. The sample vials were sent from the laboratory to the sampling location with the rest of the sample containers. The trip blanks were returned to the laboratory from the sampling location with every shipment of groundwater samples containing VOCs including split samples sent to MRDL. Ten trip blanks were shipped to the ESE laboratory and three trip blanks were shipped to MRDL.

2.2 SAMPLING METHODS

2.2.1 Prior to groundwater sample collection, water levels were measured relative to the reference mark of the top-of-well casing (see Table 2-1). Water levels were measured using a decontaminated electric tape. Water-level data were used to calculate well volume and also to construct potentiometric surface maps for the fluvial deposits aquifer (see Figure 2). Monitor well sampling at the site generally proceeded from the least contaminated wells to the most contaminated wells, as best as could be determined based on existing data. Sampling equipment used at Dunn Field was not used on any of the main installation wells. Sampling equipment used during the field effort was decontaminated between each individual sampling location.

Table 2-1. Water-Level Measurements at DDMT on November 20, 1993

WELL	STATE PLANE	COORDINATES	GROUND SURFACE	DEPTH	WATER LEVEL
NO.			LEVEL	OT	ELEVATION
	EASTING	NORTHING	(ft-mai)	WATER*	+(lam-ft)
MW-2	802244.75	281693.78	289.70	DRY	• • • •
MW-3	802100.69	281596.25	290.40	63.34	228.89
MW-4	B02369.19	281278.87	300.00	70.91	230.39
MW-5	502084.58	281254.49	301.30	75.46	229.04
MW-6	802069.13	280604.17	288.10	59.14	229,36
MW-7	802481.70	281839.88	293.10	64.56	228.54
MW-B	802727.91	282001.04	292.74	59.35	233.39
MW-9	802516.38	281841.17	304.66	. 72.61	232.05
MW-10	802201.30	281662.60	288.96	58.90	230,06
MW-11	802099.00	281353.10	299.59	70.34	229.25
MW-12	802071.20	281067.20	301.40	71.96	229.44
MW-13	802369.17	281033.55	299.95	58.98	230.97
MW-14	802288.95	280003.37	302.44	73.54	228.90
MW-15	801985,40	280348.90	295.23	85.20	230.03
MW-16	807099.60	278837.80	300.19	57.62	242.57
MW-17	803801.60	279061.10	316.18	DAMAGED	
MW-18	802448.12	279136.42	308.25	137.02	171.23
MW-19	800782.30	278945.90	290.86	87.09	203.77
MW-20	800705.20	277677.10	285.19	84.39	200.80
MW-21	600602.40	276473.30	295.11	93.55	201.56
MW-22	800702.10	275912.40	298.06	96.40	201,68
MW-23	801817.10	275791,00	299.D4	98.87	200.17
MW-24	803538.80	275616.10	299.57	106.46	193.11
MW-25	805529.10	275976.10	270.31	71,79	198.52
MW-26	805962.10	276508.20	303.6B	99,48	204.20
MW-27	802547.09	278285.47	304.19	DRY	• • •
MW-28	803154.48	281568.58	294.89	59.84	235.05
MW-29	802863.96	282104.92	273.35	37.80	235.55
MW-30	802013.96	282229.19	273.93	44.23	231,40
MW-31	801783.90	281651.53	287.38	65.09	225.19
MW-32	801615.51	280834.37	285.42	59.45	225.97
MW-33	801561.30	280398.10	277.52	48.31	229,21
MW-34	801917.96	279411.21	300.78	138.59	182.19
MW-35	802070.44	261072.31	301.65	71.03	229.42
MW-36	802887.01	279531.02	311,15	154.31	158.84
MW-37	801616,58	260831.22	285.46	129.61	155.85
MW-38	802450.43	279141.38	308.36	133,38	174.98
MW-39	802598.11	277280.67	296.42	101.99	194,43

^{*}Depth to water was measured from the top of casing.

Source: ESE

⁺ Surveyed top of casing elevations were not available. Therefore, water-level elevations were estimated using surveyed ground surface elevations.

- 2.2.2 A plastic ground cloth was placed beneath all sampling equipment during well purging and sampling to prevent contamination by surface soils. Purging was accomplished by using a stainless steel submersible pump for 32 wells. Monitor wells MW-16 and MW-26 were bailed with a decontaminated Teflon® bailer of the submersible pump. Monitor well MW-18 was bailed because there was not enough water in the well to cover the intake on the submersible pump.
- 2.2.3 A section of stainless steel drop pipe was attached to the submersible pump to serve as an extension from the pipe so that the vinyl discharge hose would not come into contact with the formation water. A new coil of vinyl tubing was used at each well and was containerized in drums of after purging each well. The discharge water was continuously monitored for pH, temperature, and specific conductivity. Pumping continued until three to five well volumes were removed and/or the pH, temperature, and conductivity were stabilized (i.e., until three successive measurements were within 5 percent of one another).
- 2.2.4 The amount of fluid purged was measured and recorded by using a graduated bucket and counting the number of buckets purged and by using a stopwatch and measuring the flow rate of the pump versus elapsed times. All water purged from the well was contained for proper disposal. Monitor well purge volumes were calculated using information obtained from the site monitor well drilling records. Well sampling data forms are provided in Appendix A.
- 2.2.5 Wells were sampled within 6 hours of purging or within 10 hours for slow recharging wells. Wells that recharged very slowly were purged dry and allowed to recharge to at least 80 percent of initial well depth. MW-18 contained very little water and required excessive time to recharge. It was bailed dry twice, and only three 40-milliliter VOC bottles of formation water were collected from this well.

- 2.2.6 After purging each well, the sampling team used disposable vinyl gloves for sample collection. Each well was sampled with a Teflon® bailer. Bailers were precleaned and wrapped in aluminum foil for transportation to DDMT. A clean braided nylon cord was used to lower the bailer in the well. Care was taken to prevent contact of the bailer line with the ground. A separate piece of cord was used for sampling each well and was discarded after one use. The bailer was rinsed with at least one volume of well water before sample collection.
- 2.2.7 Groundwater samples were obtained by bailing with a Teflon® bailer in accordance with the guidelines furnished in EPA's Practical Guide for Ground Water Sampling (1985). Care was taken to avoid aeration of the sample. The sample was poured in a slow, steady stream from the bailer to the prepared sample containers. The process was repeated as necessary to fill each container to the required volume.
- 2.2.8 Samples analyzed for VOCs were collected first to minimize the effects of disturbance of the water surface in the well on the VOC analysis. VOC sample containers were filled completely leaving no air space above the liquid portion to minimize volatilization.
- 2.2.9 Filtration of trace metal samples was performed using the following filtering procedure:
 - Non-contaminated, new tubing was inserted into the appropriate container (i.e., 1-L polyethylene container or glass jar) holding sample water.
 - The tubing was connected to a peristaltic pump with a clean disposable inline filter [0.45 micrometer (μm) opening] attached to the tubing on the discharge (positive pressure) side of the pump.
 - 3. The filtered sample was collected directly into the sample container from the filter discharge.

- 4. Filtration tubing and filters were used once and then discarded. Both the filtered and unfiltered fractions were preserved with acid and chilled with wet ice prior to packaging for shipment/transport to the appropriate laboratory [ESE in Gainesville, FL; MRDL in Omaha, NE; and Environmental Testing and Consulting (ETC) in Memphis, TN (hexavalent chromium samples only)].
- 2.2.10 Chain-of-custody (COC) forms accompanied samples during shipment from the field to the laboratory (see Appendices B and C). COC records initiated in the field were placed in a plastic cover and taped to the inside lid of the coolers for sample transport from the field to the laboratory. This record was used to document sample custody transfer from the field sampler to the laboratory.
- 2.2.11 Samples were delivered to the ESE Gainesville, FL laboratory, MRDL in Omaha, NE, and the ETC laboratory in Memphis, TN. Hard plastic ice chests were used for shipping samples. Bubble wrap was used as packing material to protect the samples from breakage during shipment. All water VOC vials were shipped in the same cooler and were packed inside sealed containers.
- 2.2.12 After packing, coolers were taped shut with COC seals affixed across at least three sides of the cooler. Each container was clearly marked with "THIS END UP" arrows and a sticker containing the originator's address.

3.0 ANALYTICAL RESULTS

- 3.1 Table 3-1 provides a summary of the number of samples collected and the parameters tested during chemical analysis. Container type, container quantities, preservatives, holding times, SW846 Methods, and extraction and preparation methods for each parameter are provided in Table 3-2. Of the 35 monitor wells sampled, only 34 were analyzed. Monitor well MW-18 contained only enough water to collect three volatile fractions. These three VOC bottles were inadvertently set aside and were not checked in by the ESE laboratory. Thus, there are no analytical results for MW-18. However, MW-38 located directly adjacent to MW-18 contained enough water for full analysis.
- 3.2 Due to a 24-hour holding period, hexavalent chromium samples were analyzed by ETC laboratory in Memphis, TN. Total and dissolved hexavalent chromium results indicated that all samples were the below detection limits (see Appendix B).
- 3.3 The chemical data provided by ESE for 28 of the 34 monitor wells is formatted as a standard USACE deliverable, which includes analytical results, sample date, cross-reference and methodologies report, QC summary reports by analytical batch, dilution factor report, and COC and cooler receipt forms (see Appendix C). The chemical data format for the remaining six monitor wells (MW-9, MW-10, MW-11, MW-12, MW-22, and MW-37) (see Appendix D) is a data package similar to CLP format.
- 3.4 Parameters found above detection limits are provided in Table 3-3. For easy reference, Federal and State of Tennessee MCLs have also been included in this table. The shaded numbers indicate constituent levels that are equal to or exceed MCLs. Some parameters have no primary MCLs but have a secondary MCL (e.g., aluminum). The secondary MCL for aluminum is 50 to 200 μ g/L. Parameters in the groundwater samples with concentrations above Federal and

Table 3-1. Types and Number of Groundwater Samples Collected

	T: 14			e/Quality			_, ,
Matrix Analyses	Field Samples	QC(a)	Dups QA(b)	QC(a)	sates QA(b)	QC(a)	<u>Blanks</u> QA(b)
	Jampies	QC(a)	QA(b)	QC(a)	Qv(n)	QC(4)	QA(U
TCL Volatiles (SW8240)	34	4	4	4	4	10	3
TCL Semivolatiles (SW8274)	34	4	4	· 4	4	NR	NR
Polynuclear Aromatic Hydro- carbons (PAHs) (SW8310)	34	4	4	4	4	NR	NR
Organochlorine Pesticides/ PCBs (SW8080)	34	4	4	4	4	NR	NR
Organophosphorus Pesticides (SW8140)	34	4	4	4	4	NR	NR
Thiodiglycol (UW 22)	22	2	2	2	4	NR	NR
Metals (Total)†							
ICAP (SW6010)	34	4	4	4	4	NR	NR
GFAA (SW7000) Selenium (SW7740) Arsenic (SW7060) Lead (SW7421)	34	4	4	4	4	NR	NR
CVAA (SW7470)	34	4	4	4	4	NR	NR
Chromium VI (SW7196)	34	4	4	4	4	NR	NR
Metals (Dissolved)†							
ICAP (SW6010)	34	4	4	4	4	NR	NR
GFAA (SW7000) Selenium (SW7740) Arsenic (SW7060) Lead (SW7421)	34	4	4	4	4	NR	NR
CVAA (SW7470)	34	4	4	4	4	NR	NR.
Chromium VI (SW7196)	34	4	4	4	4	NR	NR.

Note: NR = not required.

QC(a) Analyzed by ESE Laboratory.

QA(b) Analyzed by the USACE Missouri River Division Laboratory.

^{*}Laboratory QC checks included 5-percent sample matrix spike (MS) and sample matrix spike duplicates (MSD). Thus, MS and MSD are not listed in this table.

[†]ICAP (SW6010) -- Barium, Cadmium, Cobalt, Chromium, Copper, Zinc, Aluminum. CVAA (SW7470) -- Mercury.

Table 3-2. Groundwater Sample Containers, Preservation, and Holding Times

Analyses	Container*	Quantity	Preservative†	Holding Time
VOCs (8240)	40-mL VOC vials**	4	Cool 4°C, HCl, pH<2	14 days
B/N/A (8270/3520)	1-L amber glass	2	Cool 4°C	7/40 days††
PAHs (8310/3520)	1-L amber glass	2	Cool 4°C	7/40 days††
Pesticides/PCBs (8080/3520)	1-L amber glass	2	Cool 4°C	7/40 days††
Organopesticides (8140/3520)	1-L amber glass	2	Cool 4°C	7/40 days††
Metals (Total) (6010, 7000)	1-L polyethylene	1	Cool 4°C, HNO ₃ , pH<2	6 months
Metals (Dissolved) (6010, 7000)	1-L polyethylene	1	Cool 4°C, HNO ₃ , pH<2	6 months
Mercury (7470)	1-L polyethylene	1	Cool 4°C, HNO ₃ , pH<2	28 days
Chromium VI (7196)	1-L polyethylene	1	Cool 4°C	24 hours
Thiodiglycol (UW 22)	1-L amber glass	2	Cool 4°C	7/40 days
Fotal Dissolved Solids (160.1)	1-L polyethylene	1	Cool 4°C	7 days

^{*}All containers were sealed with Tefton®-lined screw caps.

Source: ESE.

[†]All samples were stored promptly at 4°C in insulated chest.

^{**}VOA vials were sealed with Teflon® septa secured screw caps.

[#]Extraction: 7 days for water, 40 days for analysis.

State of Tennessee maximum contaminant levels (MCLs) include tetrachloroethene; 1,1-dichloroethene; trichloroethene; carbon tetrachloride; metals; and trace amounts of various other contaminants. All parameter concentrations above the MCLs were detected within the fluvial (upper) aquifer. The Memphis Sand aquifer wells (MW-36 and MW-37) contained only one parameter that exceeded the listed MCLs. Groundwater from MW-37 contained a total lead concentration of 5.7 µg/L.

3.5 Contour maps were generated for six of the parameters which had concentrations detected above their respective MCLs. These parameters occurred in several monitor wells and include 1,1-dichloroethylene (Figure 3), tetrachloroethene (Figure 4), trichloroethene (Figure 5), total aluminum (Figure 6), total chromium (Figure 7), and total lead (Figure 8). When delineating the contaminant plume for each map, some parameters were below detection limits. Thus, the contaminant's respective detection limit value was used as the concentration value when contours were generated. Due to limited space to place contaminant concentration values, contours for aluminum are shown in parts per million, while all other contaminant concentrations contours are in parts per billion.

Table 3-3. Hart Analytical Results for Parameters Above Detection Limits (NM-3 through NM-15)

BLMPICE TO B PARAMETERS	STURET	SME COO	CEDIMEN	₩	144 744 744 744 744 744 744 744 744 744	CONTRACT	PANE COCOMITY		MAN OL	1000	F-000	-	NITHOUS 1	MOST.	State and P	State and Pederal MCLa.
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UC/C	0.0257072	:	;	;	;	:	:	:	0	:	:	;	:	:	:	;
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A ANTHONORURA UG/L	14526 0310/3510-0						0.057	0-008	0.623	9.017	;	1011	0.136	0.003	;	0,2
1/50 (V) PYREAT	14247 #110/3520-G						0.055	0.010	0.021	!	!	100	0.139	600.0	:	9.3
BENTO (B) PLUTINATEIONB UG/L	01106/3520-G						0.089		0.026	0.010	:	2.20	0.325	;	;	;
BIDGEO (CHI) PERTLEMS UG/L	7-025E/01(8							9	0.011	900.0	;	1843	9,066	0.003	;	6.0
BENZO (K) PLEORANTHENE UG/E	0310/3520-G		•						;	;	;			:	;	4
CHATSTATE UG/1.	0310/0169						_	:	:	4(0.0	:	0,150	•	:	;	4
17.	14556 1310/1510-C							0.015	0,050	:	1	2.70	6.11	0.018	;	ì
	34376									0.027	0.00	0,360	0.061	D.010	:	•••
	1446) 5114/1528-5	9	,					;	;		;	1.90	;	:	;	;
EALPHTHALLEME. DG/L	3697C 0-025K/01EB						0 165	:	:	:	;	4.59	0.784	;	:	. 8 :
PRESENTATIONS UC/L	34461							:	;	1.15	:	1.11	1.15	:	;	:
PTALING DC/L	3446 0-025(/0168	0.33		•				;	;	:	1	0.027	:	;		;
ALERITA DE /E.	39330 1010/3420-G			:				;	160.0	i	;	:		:	:	;
7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1931D	;	:	:	:		:	:	L20.0	;	;	;	;	;	;	į.
7,511	0204C	:	:	:	:		: :	;	0 041	0.015	!	:	1	1	;	;
DDT. PP	DOTAL STATE	:	:	:	:						•	;	!	1	;	;
							•	•								

Figure 3 11-DICHLOROETHYLENE CONCENTRATIONS IN GROUNDWATER FOR THE FLUVIAL AQUIFER - NOVEMBER 1993 Second MEMICS STATE UNIVERSITY, ESE, I.A., 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE
U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION

ARMY CORPS OF ENGINEERS HUNTSVILLE DIVISION MEMPHIS, TENNESSEE U.S.

TÉTRACHLOROETHENE CONCENTRATIONS IN GROUNDWATER

FOR THE FLUVIAL AQUIFER - NOVEMBER 1993 SOURCE MENTALS STATE UNDERSTRY, ESE. Inc., 1994

DEFENSE DEPOT

3 10 B

DONI/OSPOT/ALGI/1939

108-

MW-33

SURFACE WATER FEATURE

OFFSITE ROADWAY

BUILDING

ROAD OR PAVED. SURFACE

PROPERTY BOUNDARY

RAIL ROAD

FENCE

CONTOUR LINE

逐

Figure 5
TRICHLOROETHENE CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER - NOVEMBER 1993

DEFENSE DEPOT
MEMPHIS, TENNESSEE
ARMY CORPS OF ENGINEE

NOTE CONCENTRATION OF TRICH-LOXTETHENE IN MONITOR VELL MA-31
VAS CALCULATED OUTSIDE THE STANDARD CALIBRATION CLEVE AND
REPORTED AS 1110 LIGHT. THE LABORATORY DIADVERTENTLY MISSED
THE DILUTION OF THIS SAPPLE THIS VALUE FOR TRICH-CROEPINDNE
SHOULD BE CONSIDERED AND USED ONLY AS AN ESTIMATE

MEMPHIS SAND AQUIFER MONITOR WELL LOCATION

BELOW DETECTION LIMIT

룗

NOT SAMPLED

¥

FLUVIAL AQUIFER MONITOR WELL LOCATION

₩-12 @

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ន

TRICHLORGETHENE CONCENTRATION (PPB)

U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE DIVISION

Figure 6 TOTAL ALUMINUM CONCENTRATIONS IN GROUNDWATER FOR THE FLUVIAL AQUIFER - NOVEMBER 1993 Sovies: HOPPIDS STATE UNDERSTITY, ESE. Inc. 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE
U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION

U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE DIVISION MEMPHIS, TENNESSEE DEFENSE DEPOT

FIGURE 7
TOTAL CHROMUM CONCENTRATIONS IN GROUNDWATER

FOR THE FLUVIAL AQUIFER - NOVEMBER 1993 Sources MEMPHIS STATE UNIVERSITY, ESE, Inc., 1994

DOMINOSTOTABLISE

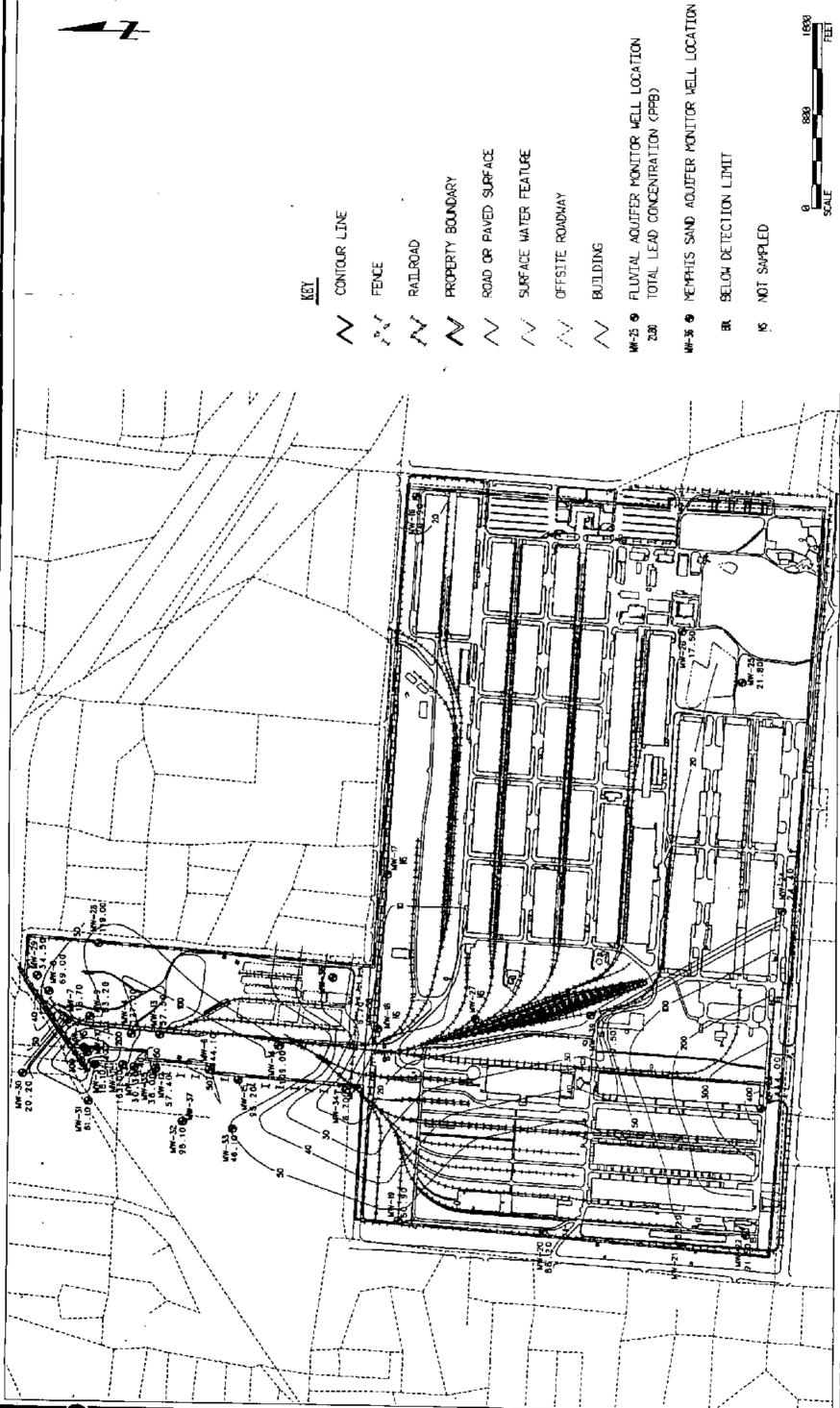


Figure 8

TOTAL LEAD CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER - NOVEMBER 1993

Sources: HERPHES STATE UNEVERSITY, ESE. Inc., 1999

4.0 DATA VALIDATION REPORT

4.1 METAL ANALYSES

4.1.1 METHOD/HOLDING TIMES

Water samples for total and dissolved metals were analyzed using SW846 methods. The following methods were used to analyze metals: inductively coupled argon plasma (ICAP) metals (SW6010), arsenic (SW7060), mercury (SW7470), selenium (SW7740), and lead (SW7421). All water samples were analyzed within the required holding times.

4.1.2 CALIBRATION VERIFICATION

Initial and continuing calibration verifications, and interference check results were all within acceptance criteria.

4.1.3 ACCURACY

4.1.3.1 Standard matrix spike recoveries for the ICAP metals (total and dissolved) were within acceptance criteria. Sample matrix spike recoveries for aluminum (total) and chromium (total) in Batches G44525, G45044, and G44952 were outside the criteria for accuracy, an indication of a possible matrix effect. The unspiked concentration levels [aluminum-174,000 micrograms per liter (μ g/L) and chromium-282 μ g/L] of these metals in Sample CDDMTW*41 were very high and interfered with the recovery. The accuracy of the analyses for total aluminum and chromium was acceptable based on the results of standard matrix spikes.

4.1.3.2 Sample matrix spike recoveries for total arsenic in Sample CDDMTW*26 (Batch G45052) ranged from 13 to 21 percent (criteria 75 to 117 percent), and total lead in Sample CDDMTW*38 (Batch G45540) ranged from 64 to 65 percent (criteria 76 to 126 percent). These recoveries were biased low due to possible matrix interference. Accuracy of arsenic (total) and lead (total) analyses

in these batches was considered acceptable based on the recoveries of standard matrix spikes. Data for mercury analyses were reported as acceptable.

4.1.3.3 Sample matrix spike recoveries for total selenium (Samples CDDMTW*15, 22, 26, 36, and 38) and dissolved selenium (Samples CDDMTW*15, 26, 36, and 40) analyses were very low and outside acceptance criteria due to possible matrix effects. Standard matrix spike recoveries in all batches were within acceptance criteria for accuracy, thus making the analyses acceptable. However, due to the overall matrix effects on selenium analyses, reported results for selenium (total and dissolved) were considered to be biased low and should be used only as estimates.

4.1.4 PRECISION

Relative percent difference (RPD) values for the ICAP metals, selenium, and mercury were within acceptance criteria. RPDs for arsenic and selenium analyses were outside the acceptance criteria due to possible matrix effects. Precision for the analyses of arsenic and selenium was accepted based on the values of standard matrix spikes and calibration verification samples, which were within criteria. However, as mentioned previously, reported data for selenium should be considered and used as estimates due to low recoveries in the sample spikes.

4.1.5 REPRESENTATIVENESS

Method blanks were reported as acceptable. There was no indication of sample cross contamination.

4.1.6 COMPLETENESS

The overall project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent was the goal for this project. This goal was met for the metals analyses.

4.1.7 SENSITIVITY

Method detection limits were reported as acceptable.

4.2 TOTAL DISSOLVED SOLIDS

EPA Method 160.1 was used for total dissolved solids analyses. All samples were analyzed within required holding times.

4.2.1 ACCURACY

Sample or standard matrix spikes were not required for this method.

4.2.2 PRECISION

RPDs for the replicate samples were reported as acceptable.

4.2.3 REPRESENTATIVENESS

Method blanks were reported as acceptable.

4.2.4 COMPLETENESS

The project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent was the goal for this project. This goal was met for the analysis of total dissolved solids in water.

4.2.5 SENSITIVITY

Method detection limits were reported as acceptable.

4.3 VOLATILE ORGANIC COMPOUNDS

EPA Method 8020 was used to analyze for VOCs. All water samples were analyzed for VOCs within the 14-day holding time.

4.3.1 ACCURACY

Matrix, surrogate, and standard spike recoveries were reported as acceptable.

4.3.2 PRECISION

RPDs for the matrix spike/matrix spike duplicate recoveries were reported as acceptable.

4.3.3 REPRESENTATIVENESS

Method blanks were reported as acceptable. The concentration of trichloroethene in Sample CDDMTW*31 was calculated outside the standard calibration curve and reported as 1,110 µg/L. The laboratory inadvertently missed the dilution of this sample. This value for trichloroethene should be considered and used only as an estimate.

4.3.4 COMPLETENESS

The overall project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent was the goal for this project. This goal was met for the analysis of VOCs in water.

4.3.5 METHOD DETECTION LIMITS

Method detection limits were reported as acceptable.

4.4 SEMIVOLATILE ORGANICS

Method SW8270 was used to analyze for semivolatile organics. All water samples were analyzed within the required holding times.

4.4.1 ACCURACY

Sample matrix spike recoveries in several batches were slightly higher than the upper limit of acceptance criteria [i.e., phenol--93 percent (criteria 12 to 89 percent), pentachlorophenol--110 percent (9 to 103 percent)]. Recoveries for 4-nitrophenol; pentachlorophenol (Sample CDDMTW*14); phenol; 4 chloro 3-methyl phenol; 4-nitrophenol; 2,4-dinitrophenol; and pyrene (Sample CDDMTW*16) were reported above criteria. Acceptance criteria for

accuracy are advisory values, and reported results should be considered acceptable. Surrogate spike recoveries reported were acceptable.

4.4.2 PRECISION

RPDs calculated from the sample matrix/duplicate recoveries were reported as acceptable.

4.4.3 REPRESENTATIVENESS

Method blanks were reported as acceptable with the following exception: bis(2-ethylhexyl) phthalate (1.4 and 5.8 μ g/L in Batches G45213 and G45215, respectively). The detection limit for this analyte is 1.0 μ g/L. Bis(2-ethylhexyl) phthalate is a common laboratory contaminant and reported results in the samples are not representative of environmental concentration levels.

4.4.4 COMPLETENESS

The project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent was the goal for this project. This goal was met for the analyses of semivolatile organics.

4.4.5 SENSITIVITY

Method detection limits were reported as acceptable.

4.5 ORGANOCHLORINE PESTICIDES AND POLYCHLORINATED BIPHENYLS

Organochlorine pesticides and polychlorinated biphenyls (OCPs/PCBs) were analyzed using EPA Method SW8080. All water samples for OCPs/PCBs were analyzed within the required holding time.

4.5.1 ACCURACY

Sample matrix spike recoveries were reported as acceptable. Sample matrix spikes were reported in criteria with the following exception: DDT,PP' (Samples CDDMTW*15 and *21) was reported below criteria. Surrogate

decachlorobiphenyl was reported below criteria for numerous samples; however, the pesticide surrogate recovery is only advisory. Surrogate tetrachloro-m-xylene was within criteria for all samples. Data were considered acceptable based on good recoveries for surrogate tetrachloro-m-xylene. Continuing verification sample (CCV) recoveries were within acceptance criteria.

4.5.2 PRECISION

RPDs for all samples were reported as acceptable.

4.5.3 REPRESENTATIVENESS

Method blanks were reported as acceptable.

4.5.4 COMPLETENESS

The project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent or higher was the goal for this project. This goal was met for the analyses of OCPs/PCBs.

4.5.5 SENSITIVITY

Method detection limits were reported as acceptable.

4.6 POLYNUCLEAR AROMATIC HYDROCARBONS

4.6.1 METHOD/HOLDING TIMES

EPA Method 8310 was used to analyze for polynuclear aromatic hydrocarbons (PAHs). All water samples were analyzed within the required holding times.

4.6.2 CALIBRATION VERIFICATION

Initial and continuing calibration verification results were all within acceptance criteria.

4.6.3 ACCURACY

Sample and standard matrix spike recoveries for the PAH analyses were acceptable. Surrogate spike (triphenylene) recoveries in three samples (CDDMTW*20, *34, and *51) in one batch had recoveries below criteria due to a possible matrix effect. PAH results reported for these samples were acceptable based on good recoveries exhibited by sample and standard matrix spikes.

4.6.4 PRECISION

RPD values for PAHs were within acceptance criteria.

4.6.5 REPRESENTATIVENESS

Method blanks were reported as acceptable.

4.6.6 COMPLETENESS

The overall project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent was the goal for this project. This goal was met for the analyses of metals.

4.6.7 SENSITIVITY

Method detection limits were reported as acceptable.

4.7 ORGANOPHOSPHORUS/NITROGEN PESTICIDES

Method SW8140 was used to analyze for organophosphorus/nitrogen pesticides (ONOP). All water samples were analyzed within the required holding times.

4.7.1 ACCURACY

Sample matrix spike, standard matrix spike, and surrogate spike recoveries were reported as acceptable with the following exception: one sample from a set of duplicate standard matrix spikes for guthion was below criteria at 17.5 percent recovery (criteria 59 to 117 percent). No explanation was provided. It appears

to be a spiking error since the other sample matrix spike recovery was within criteria. Thus, the reported data were accepted.

4.7.2 PRECISION

RPD values are reported as acceptable for all standard, matrix, and surrogate spikes with the exception of the sample matrix spike for guthion mentioned previously.

4.7.3 REPRESENTATIVENESS

Method blanks were reported as acceptable.

4.7.4 COMPLETENESS

The project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent was the goal for this project. This goal was met for the analyses of ONOP pesticides in water samples.

4.7.5 SENSITIVITY

Method detection limits were reported as acceptable.

4.8 THIODIGLYCOL

Thiodiglycol analysis in water was conducted by U.S. Army Environmental Center (USAEC) (formerly USATHAMA) Method UW22. All samples were analyzed within the required holding times.

4.8.1 ACCURACY

Standard matrix spike recoveries were within acceptance criteria. A sample matrix spike was not determined for this method.

4.8.2 PRECISION

RPDs determined from standard matrix spike recoveries were acceptable.

4.8.3 REPRESENTATIVENESS

Method blanks were reported as acceptable.

4.8.4 COMPLETENESS

The project completeness is a comparison between the total number of valid samples to the number of samples planned. A value of 90 percent was the goal for this project. This goal was met for the analysis of thiodiglycol in waters.

4.8.5 SENSITIVITY

Method detection limits were reported as acceptable.

4.9 OTHER DATA CONCERNS

No major problems were noted with the analytical data.

4.10 OC CONCLUSIONS

An overall evaluation indicates that sampling procedures and laboratory analyses have been properly conducted, and reported data are usable and generally fulfill the requirements set forth in the Huntsville COE-DDMT Quality Assurance Project Plan (QAPP). Some findings to be considered are:

- The concentration of trichloroethene in Sample CDDMTW*31 was calculated outside the standard calibration curve and reported as 1,110 μg/L. The laboratory inadvertently missed the dilution of this sample. This value for trichloroethene should be considered and used only as an estimate.
- 2. Sample matrix spike recoveries for total selenium (Samples CDDMTW*15, *22, *26, *36, and *38) and dissolved selenium (Samples CDDMTW*15, *26, *36, and *40) analyses were very low and outside acceptance criteria due to possible matrix effects. Standard matrix spike recoveries in all batches were within acceptance criteria for accuracy, thus making the analyses acceptable. However, due to the overall matrix effects on selenium analyses, reported results

44 34

for selenium (total and dissolved) should be considered biased low and should be used only as estimates.

TAB

APPENDIX A WELL SAMPLING FORMS

Well Sampling Data Form	Well No. HU-3
ESE Field Team Leader Claire Bain ESE Project M	o: 3935021G anager Claire Bain
Well Depth 74.71 Well Casing Diameter 74.71 Annular Space Len Date 11/12/93 Time 12.42	eter 2" 2 24 11/11/23 ngth 4550ne 34.71 - 63.1 = 12.6 Stickup 1 10"
WATER LEVEL COLUMN OF WATER Held N/A Casing Leng Cut N/A DTW Top of DTW 43.11 Top of Casing Column of	R IN WELL gth of Casing 43. // Water in Well 12. 89
Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump, bailer, etc.) FIELD ANALYSES Start Mid I Mid II Time pH 5-7 Conductivity Temperature (°C) Signature Mid I Mid II 1330 1339 1349	Mid III End
Volume Purged (Gal)	ED S (EF) (ALC)
Clew Leader	Date

Well Sampling Data Form	Well No. MW-5
Client CEHND Site Location Memphis Tennessee ESE Field Team Leader Claire Bain	ESE Project DDMT ESE Project No. 3935021G ESE Project Manager Claire Bain
Well Depth 79,20 Boring Diameter 8"	Well Casing Diameter 2" Annular Space Length Assure ne_11: 10 Stickup 3,2"
WATER LEVEL HeldN/A CutN/A DTW7.5.34 Top of C	COLUMN OF WATER IN WELL Casing Length 79.20 DTW Top of Casing 75.34 asing Column of Water in Well 3.86
VOLUME TO BE REMOVED Gallons per foot of A.S. (from chat Column of Water or Length of A.S. Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump, bailer, etc.)	Whichever is less) $ \begin{array}{rcl} & & & & & & & & \\ & & & & & & &$
FIELD ANALYSES Start Time [114] pH 5.1 Conductivity 233 Temperature (°C) 16.6 Volume Purged (Gal) 1	Mid I Mid II Mid III End 119 1124 1129 1134. 5 5 5 5 5 2 6 2 2 2 2 2 2 17.5 17.6 17.5 17.9 3.5 7.0 10.5 14.0
Total Volume Purged 19.0 Sample Time/Date 11/1/2/93 1200 FRACTIONS ON THE PURGED STATE OF THE PURGED STA	
Signatures: Crew Leader Man A Gal Reviewer Ludd Waln Reviewer Title Sa HAFF SE	Date 1//6/93 Date 17-6-93

Well Sampling Data Form	Well No. MU-L
Client CEHND	ESE Project DDMT
Site Location Memphis: Tennessee	ESE Project No. 3935021G
PSE Field Team Leader Claire Bain	ESE Project Manager Claire Bain
Well Depth	Well Casing Diameter 2" Annular Space Length
Boring Diameter 6 Time	n 8 00 Stickup 4
Date	1/3
WATER LEVEL CO	DLUMN OF WATER IN WELL
Held <u>N/A</u>	Casing Length 70.2
Cut N/A	DTW Top of Casing 59.86
DTWT9.06 Top of Casi	ng Column of Water in Well 11.14
VOLUME TO BE REMOVED	1
Gallons per foot of A.S. (from chart)	- = 0.73
Column of Water or Length of A.S. (
Volume of Annular Space	= 8.1
Gallons per foot of Casing	= 0.1637
Column of Water	× <u>11.14</u>
Volume of Casing	= 1.6
Total Volume (Volume of A.S. + Vo	
Number of Volumes to be Evacuated	$\begin{array}{c} \times & 3 \text{ to } 5 \\ = & 29.7 \text{ to } 49.5 \end{array}$
Total Volume to be Evacuated	= <u>27.7</u> to <u>47.3</u>
Method of Purging (pump, bailer, etc.)	15 MCC 06 6 PURP @ 1.05 GPM
FIELD ANALYSES Start	Mid I Mid II End
Time	0823 0830 0837 84B
pH <u>4.6</u>	4:8 4.8 4.8 4.9
Conductivity 1544	1200 1200 1278 1299
Temperature (°C)	17.3 17.4 17.2 17.
Volume Purged (Gal)1	9.5 16.8 24.2 30.5
Total Volume Purged 30.5 g	-11
Total Volume Purged 30.5 g Sample Time/Date 11/19/13 0900	allons Sample Number CDD MTW X6
Sample Time/Date 11719773 O 100	Sample Humber
FRACTIONS (310) (3	IP) (NF) (CF)
	10 10 50 s
	MS MS (N/ (2C) S
COMMENTS A 132	
Signatures: Qual 11 B	1 11/10/22
Crew Leader	Date 11/18/73
Reviewer Thursday Whysly	Date 17-6-93
Reviewer Title Sa Staff Scie	nlit.

Well Sampling Data Form	Well No. <i>Piป-7</i>
Client CEHND	ESE Project DDMT
Site Location Memphis, Tennessee	
ESE Field Team Leader Claire Bain	ESE Project Manager Claire Bain
Well Depth 74.30	Well Casing Diameter 2
Boring Diameter 8	Annular Space Length Ausur - Colling - 11-94
Date 11/15 Time	Stickup_
WATER LEVEL C	OLUMN OF WATER IN WELL
Held N/A	Casing Length 76-30
Cut N/A	DTW Top of Casing 64.46
DTW 64.46 Top of Cas	
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart)	= <u>0.73</u>
Column of Water or Length of A.S. ((whichever is less) ×
Volume of Annular Space	=
Gallons per foot of Casing	= <u>aisz</u>
Column of Water	× 11.84
Volume of Casing	= 1.9
Total Volume (Volume of A.S. + Vo	olume of Casing) = 10.5
Number of Volumes to be Evacuated	1 × <u>3</u> to 5
Total Volume to be Evacuated	= 31.5 to 52.5
Method of Purging (pump, bailer, etc.)	-1 9/ An A
FIELD ANALYSES Start	Mid I Mid II End
	1641 1645 1649 1654
	Fa Fo 1611 1624
	2/2 3.7 3.8 3.4
	<u>347</u> <u>347</u> <u>346</u> <u>345</u>
Temperature (°C) 16.5	$\frac{17.0}{11}$ $\frac{17.1}{14.9}$ $\frac{17.1}{20.7}$ $\frac{17.1}{39.7}$
Volume Purged (Gal)	19.9 28.1 37.7
Total Volume Purged 37.7	gallons
Sample Time/Date 18.50	Sample Number CDD MTW + 7
FRACTIONS	(ZNP) (NF)
	MS MS (N) $(2C)$ S (CF) $(4LC)$
COMMENTS USE Railer	38
	
Signatures: O1// 6/12	() ()
Crew Leader Wart &	Date 11 / 15/93
Reviewer Marald Vungla	Date 17-6-93
Reviewer Title St. Star St.	entist
	

Well Sampling Data Form	Well No. MW-R
Client CEHND ESB Project DDMI	
Site Location Memphis, Tennessee ESE Project No. 3	
ESE Field Team Leader Claire Bain ESE Project Manag	
Well Depth 6 9./ Well Casing Diameter_	
Boring Diameter 7 - 2 5 Annular Space Length	
Date 11/12/23 Time 1130 Stice	kup
WATER LEVEL COLUMN OF WATER IN	
HeldN/A Casing Length	69-1
CutN/A DTW Top of Cas	
DTW_57-34 Top of Casing Column of Water	in Well 9.72
VOLUME TO BE REMOVED	2 3
Gallons per foot of A.S. (from chart)	= •/3
Column of Water or Length of A.S. (whichever is less)	·× <u>9.76</u>
Volume of Annular Space	= ///
Gallons per foot of Casing Column of Water	= .1632
Volume of Casing	× <u>9-16</u>
Total Volume (Volume of A.S. + Volume of Casing)	= 3.7
Number of Volumes to be Evacuated	$\times \phantom{00000000000000000000000000000000000$
Total Volume to be Evacuated	= <u>26./</u> to <u>43.5</u>
Method of Purging (pump, bailer, etc.) 535 persible fon @	1.32 GPM
FIELD ANALYSES Start Mid I Mid II Mid	III End
Time	1154 1200
pH <u>4.9 5.0 5.1</u>	5.1 .6.1
Conductivity 275 27/ 275	277 292
Temperature (°C) <u>16.9</u> <u>17.6</u> <u>17.0</u>	17.7 12.3
Volume Purged (Gal)	23.B 31.7
Total Volume Purged 31.7 gallons	
Sample Time/Date 1220 11/17/95 Sample Number CD	DMTWX8
FRACTIONS (ENP) (NF) (CF)	and the same of th
VP VP (SEC) SMS MS MS N	s (46C)
COMMENTS UNA DATA AT LE	
 -	 -
Signatures: Crew Leader Mail H bal Date	11/17/98
Reviewer Crald Which Date	12-6-93
Reviewer Title Sa. STAFF Scientist	

Well Sampling Data Form Well No. <u>Mルータ</u>
(Client CEHND ESE Project DDMT
Client CEHND ESE Project DDMT Site Location Memphis, Tennessee ESE Project No. 3935021G
PSE Field Team Leader Claire Bain ESE Project Manager Claire Bain
An and the second secon
Boring Diameter 8" Annular Space Length Acros 7.4 Fine Const. Stickup U
Date 1173712 Inte 57728 Suckup
WATER LEVEL COLUMN OF WATER IN WELL
Held N/A Casing Length Sp. 0.
Cut N/A DTW Top of Casing 72.6
DTW 72.6 Top of Casing Column of Water in Well 7.4
VOLUME TO BE REMOVED
Gallons per foot of A.S. (from chart) = $\frac{0.73}{3}$
Column of Water or Length of A.S. (whichever is less) × 7.4
Volume of Annular Space $=$ $\frac{5-4}{4}$
Gallons per foot of Casing =
Column of Water × 7.4
Volume of Casing = 1-2 Total Volume (Volume of A.S. + Volume of Casing) = 5-6
10th 10th 10th 10th 10th 10th 10th 10th
Number of Volumes to be Evacuated × 3 to 5 Total Volume to be Evacuated = 16.8 to 28
Total Volume to be Evacuated = 16.8 to 28
Method of Purging (pump, bailer, etc.) Cantal y, Prof C. 1.406Ph
FIELD ANALYSES Start Mid I Mid II Mid III End
Time 0135 0940 0944 0949 0951
pH <u>5.4</u> <u>5.6</u> <u>5.7</u> <u>5.7</u>
Conductivity 354 1/2 304 297 304
Temperature (°C) 18.4 17.9 18.1 18.1
Volume Purged (Gal) 7 12.6 17.6 22.4
Volume Funged (Onl)
Total Volume Purged 22-4 gallons
Sample Time/Date Description Sample Number Coord to 18.9
11/15/91 17/18/96
FRACTIONS $171(1915)$ $(5 MP)$
(7VP) VP VP $(3EC)(3MS)$ MS MS $(N)(2C)$ S $(2A4C)$
COMMENTS
Signatures: Ott / // /
Signatures: Date 11/15/93
Reviewer Leveld Mishy Date 12-6-93
Reviewer Title St. HAFF SCIENTIAL

Well Sampling Data Form	Well No. MU-10
Client CEHND: ESE Project DDM	
Site Location Memphis, Tennessee ESE Project No. 3 ESE Field Team Leader Claire Bain ESE Project Manage	9935021G
Well Casing Diameter	
Boring Diameter SP Annular Space Length	15.5
Date 1712 / 93 Time 1719	ckup
WATER LEVEL COLUMN OF WATER IN	WELL
Held N/A Casing Length_	71.00
Cut N/A DTW Top of Ca	
DTW 58.57 Top of Casing Column of Wate	r in Well 12 - 4.3
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart)	= 0.73
Column of Water or Length of A.S. (whichever is less)	× <u>12-43</u>
Volume of Annular Space	= 9.07
Gallons per foot of Casing	= <u>0.1632</u> x <u>1243</u>
Column of Water	* * 2.03
Volume of Casing Total Volume (Volume of A.S. + Volume of Casing)	<u> </u>
Number of Volumes to be Evacuated	× 3 to 5
Total Volume to be Evacuated	= 33.3 to 55.5
Method of Purging (pump, bailer, etc.) Sub musible 3	14 6 2-35 6PM (1/2/93
	d III End Pusp
700	1742 17 17
	74 1177
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	335
Temperature (°C) 147 16.7 16.9	16.9
Volume Purged (Gal) 0 20.3 34.8	34.8
Total Volume Purged 34-8 gallons	
Sample Time/Date 1800 4/12/95 Sample Number C DD	MTWX 10
FRACTIONS	
VP VP VP EC MS MS MS N C COMMENTS USED BAILER # 25	S
	-
Signatures: On / // 0 0	11/11/02
Crew Leader Date_	11/11/35
Reviewer Luald Wholy Date	17-6-43
Reviewer Title Se. Stoff Scientist	

•



Well Sampling Data For	rm		Well No <u>パ</u> リール
Client CEHND	e F	SE Project DDM	TI.
Site Location Memphis, Tenn	essee F	SE Project No	3935021G
ESE Field Team Leader Clair	re Bain I	SE Project Mana	- · · ·
Well Depth 95.3	Well	Casing Diameter	
Boring Diameter 7 1/4	Annu	ilar Space Length	
Date		55 St	ickup
WATER LEVEL	COLUM	IN OF WATER IN	
Held <u>N/A</u>	1	Casing Length_	86.3
Cut N/A	•	DTW Top of C	asing 78.2
DTW	Top of Casing	Column of Wat	er in Well /6.1
VOLUME TO BE REMOVE	D		
Gallons per foot of A.S.			= <u>0.60</u>
Column of Water or Len		ever is less)	·× <u>/5\/</u>
Volume of Annular Space			= <u> </u>
Gallons per foot of Casin	ıg		= <u>Ø. (632</u>
Column of Water	_		× <u></u>
Volume of Casing			=
Total Volume (Volume of	of A.S. + Volume	of Casing)	= 17.52
Number of Volumes to b			×3_ to5
Total Volume to be Evac	auated		= <u>62.6</u> to 87.5
Method of Purging (pump, ba	ailer, etc.) عمطوع	erible funt	·
· *	5.0		,
FIELD ANALYSES	Start Mid		lid III End
Time ·	0811 081		<u> 10 0830</u>
pH .	55 54		
Conductivity	252 239		137
Temperature (°C)	17.8	<u> 18.7</u>	
Volume Purged (Gal)			_
Total Volume Purged 5	7 gallons		
Sample Time/Date 11/13/5			D DMTW*//
		1000	(P)
FRACTIONS	^-~	We Co	
\ (4\forall VP) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	c)(3ms) ms	MS (N) (2C)	S (EF) (AZZ)
COMMENTS			
<u> </u>		<u> </u>	
Standburgs			
Signatures: Crew Leader,	Jam	Date	11/13/43
0\ \\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	مامر		17/1/02
Reviewer / Market W	15 Jan	Date.	1 - 1 117
Reviewer Title Sa. Sta	DECEMBER 1	<u>1</u>	

Well Sampling Data Form			Well No. <u>Mw 12</u>
	, DCD	Project DDMT	
Client CEHND Site Location Memphis, Tennessee	PSE	Project No. 393	5021G
BSE Field Team Leader Claire Ba	in ESE	Project Manager	Claire Bain
Well Depth 86.8"	Well Cas	ing Diameter	2 4
Boring Diameter 7/4	Annular	Space Length	19.8
Date	Time / 2 40	Stick	ip FLOSH
WATER LEVEL	COLUMN C	F WATER IN W	ELL
Held N/A	C	sine Length .	26.20
Cut N/A	D,	TW Top of Casir	1g 7/.72'
DTW 7/.72' Top	of Casing Co	olumn of Water i	n Well 15.08'
(SOUNDED WELL - SILT AT & BT')	•		
VOLUME TO BE REMOVED			
Gallons per foot of A.S. (from	n chart)		= 0.77
Column of Water or Length of	of A.S. (whichever	is less)	× 15.08
Volume of Annular Space			= /1.0
Gallons per foot of Casing			× 15.08
Column of Water Volume of Casing			= 2.4
Total Volume (Volume of A.	S. + Volume of C	lasing)	= 13.4
Number of Volumes to be Ev	/acuated	۵,	× <u>3</u> to <u>5</u>
Total Volume to be Evacuate			= <u>%0.2</u> to 67.0
Method of Purging (pump, pailer	etc.) TEFLO	U BAILER	· · · · · · · · · · · · · · · · · · ·
FIELD ANALYSES Sta		Mid II Mid	
Time /27		1358	1444
pH		5.8	5.6
Conductivity 29		727	225
Temperature (°C)	.9 18.0	_ <u>/8.0</u> _	17.8
Volume Purged (Gal)	<u> </u>	<u>21</u>	<u>-30</u>
m		KTID - ORANG	14 7 # 12)
Total Volume Purged ~3 C Sample Time/Date /530 - 11/1	gallons Sample N	Jumber CDOMT	ω⊁/ス ルビー/ス
Sample Time/Date_/5/50 - 1///	Bampie i	COOM	W * 42 MW-42 DUP
FRACTIONS (LEXY (17x2)		(3)(3)
VP VP VP VP (EO)	MSTOMS MS	(N) (N)	SWFLEF
COMMENTS TOOK DUT	#42) AND	8747 (S	AME FRACTIONS
FOR DUT)	LC MINISTA
OVM REMOING =	<u>880 PPM W</u>	HEN CALL MI	ts openiers
Signatures:	Jania _	Date	11-11-93
Reviewer Sual Mu	ملم ملم	Date	7-6-93
\sim \sim \sim \sim \sim \sim	ied it		•
			

2935019 CODMTW # 53 MWSJTBLK SENT WITH VOA'S TO MRD LAB.
A-10

Well Sampling Data Form		Well No. <u>MU-/3</u>
Client CEHND Site Location Memphis, Tennessee	ESE Project DDM ESE Project No.	3935021G
BSE Field Team Leader Claire Bain Well Depth 90, 23 Boring Diameter 9"	Well Casing Diameter Annular Space Length	Alson 11.26 AF San
	Time S	nickup
WATER LEVEL	COLUMN OF WATER II	
Held <u>N/A</u> Cut <u>N/A</u> DTW <u>6B. 99</u> Top of	Casing Length_ DTW Top of C Casing Column of Wat	80.25 asing 46.17 er in Well_11.26
VOLUME TO BE REMOVED	-	
Gallons per foot of A.S. (from concolumn of Water or Length of A Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. Number of Volumes to be Evacuated Method of Purging (pump, bailer, et	A.S. (whichever is less) + Volume of Casing) uated	$ \begin{array}{rcl} & = & 0.73 \\ & \times & 11.26 \\ & = & 8.2 \\ & = & 0.1632 \\ & \times & 11.26 \\ & = & 1.8 \\ & = & 1.8 \\ & = & 10.0 \\ & \times & 3.10 & 5 \\ & = & 30.0 & to 5 & 5 \\ & = & 30.0 & to 5 & 5 & 5 \end{array} $
FIELD ANALYSES Time pH Conductivity Temperature (°C) Volume Purged (Gal) Start 112.6 2.36 17.4	Mid I Mid II N	fid III End 1143 1148 5.4 5.3 198 198 17.4 17.4 30 40
Total Volume Purged 90 Sample Time/Date 11/15/55 /53	galions Sample Number	21 ANTH 40
FRACTIONS (FVP) VP VP (3EC/3M) COMMENTS USC RAITER	©F (2 S MS MS (N) (2C 2E B ^{2,3}	NP. SEFALC
Signatures: Crew Leader Reviewer Reviewer Title Se. Staff	Date Date	

Well Sampling Data For	m				
	Partition of the Section of the Sect	:0.00000000000000000000000000000000000	······································	Well No	<u>MW-14</u>
Client_CEHND		_ ESE Pro	oject <u>'DDMT</u>		
Site Location Memphis, Tennes		_ ESE Pro	ject No3	35021G	
ESE Field Team Leader Claire	Bain	_ ESE Pro	ject Manage	r Claire	Bain
Well Depth . 80.01		Well Casing	Diameter_		
Boring Diameter 2.		Annular Spa		17'	
Date	_ Time_	1500	Sticl	ար <i>/</i> /	<u> </u>
WATER LEVEL	CO	LUMN OF V	VATER IN V	VELL.	
Held N/A			g Length	_	0.00
Cut N/A			Top of Casi		2.5/
DTW 72.51 1	op of Casing	g Colun	nn of Water	in Well	
VOLUME TO BE REMOVED		-		_	
			_		A = 3
Gallons per foot of A.S. (fr Column of Water or Lengt	om chart)	L iala :- 1.	>	=	2.75
Volume of Annular Space	11 OI A.S. (W	menever is i	ess)	×	7.99
Gallons per foot of Casing				=	5.5
Column of Water					7./672
Volume of Casing				<u> </u>	7.49
Total Volume (Volume of	AS + Valu	me of Cocin	a)	<u> </u>	1.2
Number of Volumes to be	Fusiciated	ine of Casin	8)		6.7
Total Volume to be Evacua				^ =	1 / to 33 fm
, , , , , , , , , , , , , , , , , , , ,				= <u>_2</u>)./ to <u>33.5</u>
Method of Purging (pump, baile	er. etc.) یا	bnerist 1	_ هم مهددم	1.29	PM .
5 5 4 7,	,, <u></u>			<u>,,,</u>	
FIELD ANALYSES S	tart	Mid I Mi	d II Mid	Ш	End
Time	15:04	15:10 1	514 1	524	1529
pH	5 .3	5.1	5.7	4 8	4.9
Conductivity	229	22/	2.74	2 33-	2.32
Temperature (°C)	17.5	17.4 7	29	7.0	17.9
Volume Purged (Gal)		7.2	3.2 2	5.2	32.5
m	_	_		_	
Total Foliant Larged		lons	_	_	
Sample Time/Date1 545	<u> </u>	imple Numb	er <u> </u>	<u>HTZJ-3</u>	<u> </u>
FRACTIONS	4.3	006	-)		
(1/10) 100 100 A	2500		<	au	a 1
COMMENTS VP OF GEO!	MS) MS	MS (1	Y (\$)	s (44)	9
COMMENTS UN BATTLE	D 189		_ (
					
Signatures: 0. / //	01		_		 _
Crew Leader Man &	27/		Date	11/17/	13
Reviewer Negald W	woly		Date /		
Reviewer Title Se. Staff	C_{1},C_{1}	-z+		~ <u>~</u>	
		<u>al</u>			ì

Well Sampling Data For	rm	Well No	MW-15
Client CEHND	ESE Project I	DMT	
Site Location Memphis, Tenne		lo. <u>**3935021G</u>	
ESE Field Team Leader Clair		Иападег <u>Claire B</u> a	in
Well DepthBO.B	_ Well Casing Diam		<u>. </u>
Boring Diameter 7	Annular Space Le	ngth 2.2.5	<u> </u>
Date11/18/30	Time 1050	Stickup	
Date		. ,	
WATER LEVEL	COLUMN OF WATE	R IN WELL	
Held N/A	Casing Len).8
Cut N/A	DTW Top	·	6-09
DTW 56.09	Top of Casing Column of	Water in Well_2	
		•	24.71
VOLUME TO BE REMOVE	D .		.
Gallons per foot of A.S.		· = <u> </u>	0.60
Column of Water or Len	gth of A.S. (whichever is less)	·×	4.7/
Volume of Annular Space	e	= 1711/12	2.14.8
Gallons per foot of Casir	ıg	= -1	<u> 632</u>
Column of Water	_	× <u> </u>	2.8
Volume of Casing		=)-/
Total Volume (Volume of	of A.S. + Volume of Casing)	- —	8.5
Number of Volumes to b	e Evacuated	× <u> </u>	10
Total Volume to be Eva	cuated	= <u>65</u>	.5 to 278
Method of Purging (pump, b	ailer, etc.) Submersich Pump	@1.49c	<u>m</u>
FIELD ANALYSES	Start Mid I Mid II	Mid III	End
Time	<u> 11:00</u> 11:10 1121	1126	1/37
pH	4.6 5.2 5.3		<u> 5.2 </u>
Conductivity	220 189 189	7 189	187
Temperature (°C)	16.8 17.2 17.	3 17·4 ·	17.9
Volume Purged (Gal)	<u> </u>	29 38.7	1/10/2
i _	- 		251
Total Volume Purged Sample Time/Date 11/18/	gallons <u> 1200</u> Sample Number_	CDDMTUY	15
FRACTIONS	ALL PLANE (U.F.)	(E)	
(2 VP) VP VP (3F	EC) (MS) MS MS (N)	© s	
COMMENTS JACO TO	61'44 45 41 I	<u> </u>	
	-		
Signatures: O. / /	101		
Crew Leader	Est.	Date	23
Reviewer Suala	Manha	Date 12-6-9	<u> 3 </u>
	AFF Scientist		
Reviewer Title 30. 31c	ATT DEIEMNING		

Well Sampling Data Form	Well No. <u>Mw-16</u>
Client CEHND	ESE Project DDMT
Site Location Memphis, Tennessee	ESE Project No. 3935021G
ESE Field Team Leader Claire Bain	ESE Project Manager Claire Bain
Well Depth 75	Well Casing Diameter 2"
Boring Diameter 4"	Annular Space Length 27'
Date Time	e 1012 Stickup FLUSH
WATER LEVEL	COLUMN OF WATER IN WELL
Held N/A	Casing Length 75,00
Cut N/A	DTW Top of Casing 57.61
DTW 57. 61 Top of Ca	sing Column of Water in Well 7.39
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart	= <u>(), 13</u>
Column of Water or Length of A.S.	(whichever is less) × // 37
Volume of Annular Space	= 2.60 = 0.1632
Gallons per foot of Casing	
Column of Water	× - 7, 39 -
Volume of Casing	Volume of Casing) = 5, 44
Total Volume (Volume of A.S. + V Number of Volumes to be Evacuate	——————————————————————————————————————
Total Volume to be Evacuated	= 16.31 to 27.20
Total volume to be Evacuated	
Method of Purging (pump, bailer, etc.)	BAILER # 130
FIELD ANALYSES Start	Mid I Mid II End
Time 1045	1130 1215 1245 1325
pH <u>5.7</u>	5.7 5.8 5.9 6.0
Conductivity 845	736 642 648 630
Temperature (°C)	19.1 19.4 19.6 19.7
Volume Purged (Gal)	5 10 15 20
TurbiDity 153	607 882 71000 897
Total Volume Purged 22 GAL	gallons
Sample Time/Date 1405	Sample Number CDDM TUITIG MWI6
· · · —	- -
FDACTIONS -	0.10.05
FRACTIONS LC LC NF A	·
FRACTIONS LC LC NF A	MS MS N C S EC EC C
VP VP VP VP EC MS	
COMMENTS EC MS	
COMMENTS Signatures: ()	MS MS N C) S EC EC C
VP VP VP VP EC MS COMMENTS Signatures: Crew Leader	MS MS N C) S EC EC C) Date 11/9/93
COMMENTS Signatures: ()	Date 11/9/93 Date 17/6/43

Well Sampling Data Form				Well l	No. MW-17
Client CEHND		ESE	Project D	DMT	
Site Location Memphis, Tennessee		_ ESE	Project N	o. <u>39350210</u>	G
BSE Field Team Leader Claire Bai	n	ESE	Project N	lanager <u>Clair</u>	e Bain
Well Depth			_		
Boring Diameter		Annular	Spaœ Lei	ngth	
Date 11-16-93	Time_	1050	<u> </u>	Stickup_F	ivs #
WATER LEVEL	CO			R IN WELL	
Held <u>N/A</u>		C	asing Len	gth	
Cut				of Casing	
DTW ORY - SOUNDED TOP	of Casing	,	olumn of	Water in We	ll
AT 78.95' &	PFT BOTT	rom,			
VOLUME TO BE REMOVED		•			
Gallons per foot of A.S. (from		1. ? . 1	!- 1 \		
Column of Water or Length of	r A.S. (W	nichever	is less)		
Volume of Annular Space					
Gallons per foot of Casing Column of Water				_	
Volume of Casing					
Total Volume (Volume of A.S	± Volu	me of C	'acina)		
Number of Volumes to be Eva		inic of C	asing)		3 to 5
Total Volume to be Evacuated					to
· ·	•			_	
Method of Purging (pump, bailer,	etc.)				
FIELD ANALYSES Star		Mid I	мы п	Mid III	End
••••	L	MIII	MIO II	Wild III	Liid
Time				_	
pH				_	
Conductivity					
Temperature (°C)		·	- 		
Volume Purged (Gal)	-				
Total Volume Purged	gal	lons			<u> </u>
Sample Time/Date	S	ample N	lumber_	No sam	PLE
					-
FRACTIONS					
VP VP VP EC	MS M	s Ms	N	C S	
COMMENTS				B. 4	
OVM REMO	<u>126 1</u> 5	201	<u> 2001. </u>	ب <u>اهلا</u> :	S DRY
					
Signatures:	ء َ مِذَ	_	r	Date -	16-93
Crew Leader 1 Vant	<u> 7••••</u> ∧				102
Reviewer / Just Mure	~~	1, . 1.	L	Date 1'2-	<u>6-93</u>
Reviewer Title	30.C	X135			

14470 - SOUNDED TOO DO NOT ON 11-19-93 AT 1020

Client CEHND Size Location Memphis Tennessee ESE Project No. 3935021G ESE Field Team Leader Claire Bain ESE Project No. 3935021G ESE Project Manager Claire Bain ESE Project Manager Claire Bain ESE Project No. 3935021G ESE Project Manager Claire Bain ESE Project No. 3935021G ESE Project No. 3935021G ESE Project Manager Claire Bain ESE Project Manager Claire Bain Well Casing Diameter Annular Space Length Column of Water IN WELL Column of Water IN WELL Costing DTW Top of Casing Column of Water IN WELL Cost of Pursy of Casing Column of Water IN WELL Cost of Pursy of Casing Column of Water IN WELL Cost of Pursy of Casing Date 11-19-93 Est Project Manager Clair Bain Pursy of Pursy Pursy of Casing Date 11-19-93	Well Sampling Data Form	44	52	Well N	o MW1P
Site Location Memphis Tennessee	Client CEHND	ESI	E Project D	DMT	3.000 m
Well Depth Well Depth Date (1:15-93 Time 1230 Stickup FLUSH NATER LEVEL Held N/A Cut. N/A Cu	Site Location Memphis, Tennessee	ESI	E Project N	o. <u>= 3935021G</u>	
Well Depth Boring Diameter Annular Space Length Date 1:15-93 11-16-93 - VOR'S NOT COLLECTED THIS DOTE OUE TO RESIDENT IL-16-19. Time 1:15-20 WATER LEVEL COLUMN OF WATER IN WELL Held N/A Cut N/A DTW 171-91 - Top of Casing Olumn of Water in Well ### Phild Of Casing Column of Water in Well ### Phild Of Casing Column of Water in Well ### Phild Of Casing Column of Water in Well ### Phild Of Casing Column of Water in Well ### Phild Of Casing Column of Water or Length of A.S. (whichever is less) Volume of Annular Space ### Call on Space Length ### Phild Of Casing Column of Water in Well ### Phild Of Casing Column of Water or Length of A.S. (whichever is less) ### Volume of Casing Column of Water or Length of A.S. (whichever is less) ### Volume of Casing Column of Water Volume of Casing Total Volume to be Evacuated ### Volume of Casing Total Volume to be Evacuated ### Water Of Casing ### Phild Of Casing Time Phild Conductivity Temperature (*C) Volume Purged (Gal) ### Volume Purged (Gal) Total Volume Purged (Gal) Total Volume Purged (Gal) *## Volume Purged (Gal) Total Volume Purged (Gal) *## Volume Purged (Gal) *## Phild Of Purging (Point Of Purging O	HSE Field Team Leader Claire Bain		z a LLO Jecr Mi	maker « Crane	SDAIII SSSON, TURNOUS SERVE
Boring Diameter Date (1:15-93 Time 1250 Stückup FLUSH 1:16-93	atm))	Well C	ising Diame	ter	1
Date 11: 15: 93 — VOR'S NOT COLLECTED THIS DATE DUE TO RAY WATER LEVEL COLUMN OF WATER IN WELL Held N/A Cut. N/A DTW Top of Casing DTW Top of Casing DTW Top of Casing Column of Water in Well BALLED 2 15 GAL AND BALLED DAY. MATERIAL WATER WAT			- K-sas I se	orth	
Held N/A Cat N/A DTW 171-81 or 11 Top of Casing Column of Water in Well Shirt Removed of A.S. (from chart) Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump bailer) etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged (Gal) FRACTIONS Column of Water of Casing Sample Number Coomtu + 19 mu-18 Sample Time/Date II-19-93 Sample Number Coomtu + 19 mu-18 Sample Time/Date II-19-93 Sample Number Coomtu + 19 mu-18 Sample Time/Date II-19-93 Sample Number Coomtu + 19 mu-18 Sample Time/Date II-19-93 Sample Number Coomtu + 19 mu-18 Sample Time/Date II-19-93 Sample Number Coomtu + 19 mu-18 Sam	Date /1-15-93	Time!630	<u> </u>	Stickup Fa	USH
Held N/A Casing Length DTW Top of Casing DTW 172.91 or 11 Top of Casing Bright 2 1641 and 64med ORV matter in Well Bright 2 1641 and 64med ORV matter were were were were were were were	WATED INVEL		AL MAIN	F WILL ALSO	
Gallons per foot of A.S. (from chart) Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume of Casing Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid II End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged Sample Time/Date II-19-93 Sample Number COOMTU * 18 mu-18 Sample Time/Date II-19-93 VP VP VP EC MS MS MS N C S 1915 converses COMMENTS Rance were barrow on 187. 8 Signatures: Crew Leader Reviewer Pare A Sample Time/Date Signatures: Crew Leader Reviewer Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Pare II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Date II-19-93 Date II-19-93 Reviewer	Held N/A		Casing Leng	gth	<u> </u>
Gallons per foot of A.S. (from chart) Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume of Casing Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid II End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged Sample Time/Date II-19-93 Sample Number COOMTU * 18 mu-18 Sample Time/Date II-19-93 VP VP VP EC MS MS MS N C S 1915 converses COMMENTS Rance were barrow on 187. 8 Signatures: Crew Leader Reviewer Pare A Sample Time/Date Signatures: Crew Leader Reviewer Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Pare II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Date II-19-93 Date II-19-93 Reviewer	Cut N/A	J	DTW Top o	of Casing	
Gallons per foot of A.S. (from chart) Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume of Casing Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid II End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged Sample Time/Date II-19-93 Sample Number COOMTU * 18 mu-18 Sample Time/Date II-19-93 VP VP VP EC MS MS MS N C S 1915 converses COMMENTS Rance were barrow on 187. 8 Signatures: Crew Leader Reviewer Pare A Sample Time/Date Signatures: Crew Leader Reviewer Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Pare II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Pare II-19-93 Reviewer Date II-19-93 Date II-19-93 Date II-19-93 Date II-19-93 Reviewer	DTW 177.81 00 Top of	f Casing (Column of '	Water in Well	·
Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged Sample Time/Date 11-19-93 Sample Number COOMTL ** IS* mu-18 Note: Squeed Oay Activity FRACTIONS Course of MS MS MS N C S 1915. Out of the COMMENTS Activity and the Common of the Coom of	おかしまり シャ へん ちまし ガデン	n division the		Con and there are	IVEL AT 1040
Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged Sample Time/Date 11-19-93 Sample Number COOMTL ** IS* mu-18 Note: Squeed Oay Activity FRACTIONS Course of MS MS MS N C S 1915. Out of the COMMENTS Activity and the Common of the Coom of	Gallons per foot of A.S. (from o	:hart)		- = _	· ·
Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump bailer) etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged (Gal) FRACTIONS COLISCIPO ONLY 3 VP'S. VP VP VP EC MS MS MS N C S 1915. OUR PURSUANT OF STANDARD O	Column of Water or Length of	A.S. (whicheve	er is less)	× _	
Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged (Gal) Total Volume Purged (Gal) FRACTIONS Collected Only 3 VP'S. VP VP VP EC MS MS MS N C S 1915. COMPTED TOTAL SAMPLED TOTAL Sample Time/Date Water Day Arthur 12 Gat. Signatures: Crew Leader Water Day Arthur 137.8' Signatures: Crew Leader Date Total Date 11-19-93 Reviewer Date 12-6-93 Reviewer Date 12-6-93 Reviewer Date 12-6-93				= _	
Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged (Gal) FRACTIONS Collected Only 3 VP'S. VP VP VP EC MS MS MS N C S 1915, only exposed of the collected only exposed only expo				= _	
Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged Sample Time/Date 11-19-93 FRACTIONS Collected Only 3 VP'S. VP VP VP EC MS MS MS N C S 1915. Only exposed Sample Number Coomful (April 1993) Arrive Complete Sample Number Coomful (April 1993) Arrive Coom				× _	_
Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged gallons Sample Time/Date 11-19-93 FRACTIONS Collected only 3 VP'S. VP VP VP EC MS MS MS N C S 1915. Only ended FRACTIONS Ratus will day Attac - 12 Gat. Signatures: Crew Leader Company Attac Date 11-19-93 Reviewer Date 11-19-93 Reviewer Date 11-19-93 Date 11-19-93 Reviewer Date 11-19-93 Date 11-19-93 Reviewer Date 12-6-93	Volume of Casing			=	
Method of Purging (pump bailer) etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged gallons Sample Time/Date 11-19-93 Sample Number COOMTW # 15 MW-18 FRACTIONS COLLECTED ONLY 3 VP'S. VP VP VP EC MS MS MS N C S 1915. ONLY PROBLED ATTERDAY COMMENTS RAILED WELL DRY ARTHL - 12 GAL. Signatures: Crew Leader Come Date 11-19-93 Reviewer Date 11-19-93 Date 11-19-93 Reviewer Date 11-19-93	Total Volume (Volume of A.S.	+ Volume of	Casing)	= _	
Method of Purging (pump bailer etc.) FIELD ANALYSES Start Mid I Mid II Mid III End Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged gallons Sample Time/Date 11-19-93 Sample Number COOMTW ¥ 19 mw-18 FRACTIONS COLLECTED ONLY 3 VP'S. VP VP VP EC MS MS MS N C S 1915. ONLY PROBLED AT SAMPLED AT SEGMENTS TALLED WELL DRY ATTALL 2 GAL. Signatures: Crew Leader Change Date 11-19-93 Reviewer Date 12-6-93 Reviewer Date 12-6-93	Number of Volumes to be Evac	ruated			
Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged Sample Time/Date 11-19-93 FRACTIONS Collected only 3 VP'S. VP VP VP EC MS MS MS N C S 1915. Only FRACE COMMENTS Rails while Dry Arrive - 12 Gal. Signatures: Crew Leader Company Mid II Mid III Mid III End Mid II Mid III Mid III Mid III Mid III End End Sample Number CoomTu) ** 19 mu-18 Note: 841150 Only 18 Note: 841150 Only 18 Note: 841150 Only 19 Signatures: Crew Leader Coom II-19-93 Reviewer Date 11-19-93 Date 11-19-93 Reviewer Date 12-6-93	Total Volume to be Evacuated			= _	to
Time pH Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged	Method of Purging (pump bailer) e	tc.)	· · — —		
Total Volume Purged			Mid II	Mid III	End
Conductivity Temperature (°C) Volume Purged (Gal) Total Volume Purged	Time				
Temperature (°C) Volume Purged (Gal) Total Volume Purged	pH				
Total Volume Purged gallons Sample Time/Date gallons Sample Time/Date Sample Number COOMTW # 18 More: @alleto ORY ADDIN FRACTIONS COLLECTED ONLY 3 VP'S JII-19-93 AT 1100. VP VP VP EC MS MS MS N C S 1915. ONLY ENDUG COMMENTS RALLED WELL DRY AFTAL /2 GAL	Conductivity	·	[·] _ 		
Total Volume Purged gallons Sample Time/Date	Temperature (°C)		_ _	<u> </u>	_
Sample Time/Date 11-19-93 Sample Number COOMTW # 19 MW-18 Note: 841450 ORY 405 N FRACTIONS COLLECTED ONLY 3 VP'S. VP VP VP EC MS MS MS N C S 1915. ONLY ENDUG COMMENTS RAILE WELL DRY AFTAL - 12 GAL. Signatures: Crew Leader Claus Community of 187. 8' Signatures: Crew Leader Claus Community of 187. 8' Date 11-19-93 Reviewer Date 12-6-93	Volume Purged (Gal)				<u> </u>
VP VP VP EC MS MS MS N C S 1915. ONLY ENDUG COMMENTS RAILE WELL DRY AFTEL - 12 GAL. Signatures: Crew Leader Chair Gain Date 11-19-93 Reviewer Date 12-6-93	Total Volume Purged		Number_C4	OOMTW *	ABILED ORY HEST
COMMENTS RAILED WELL DRY AFTER - 12 GAL. WATER AS 3 Signatures: Crew Leader Claime Grain Date 11-19-93 Reviewer Date 12-6-93	FRACTIONS COLLECTED				SAMPLEY AT
Signatures: Crew Leader Come Cram Date 11-19-93 Reviewer Date 12-6-93	VP VP VP EC N	AS MS M	is N		WATER FOR 3
Signatures: Crew Leader Chamber Date 11-19-93 Reviewer Date 12-6-93				_ <u>681.</u>	
Signatures: Crew Leader Come Come Date 11-19-93 Reviewer Date 12-6-93	SOUNDRO BOTTUM	M 187. 8	<u>-</u>		
Reviewer Date 12-6-93	Signatures: A	-		Date H-19	.qa
Neviewed - Charles - Charl	Crew Leader 4 Mount 170				
Reviewer Title SQ, SHAFF SCIENTIST	Reviewer Alard Man	~~~~	¹	Date	<u> ~ ~ </u>
	Reviewer Title SQ. SHAFF	<u>30,623 ist</u>			

Well Sampling Data For	m 	Well No. M W 19
Glass GEHND	ESE Project DDI	vers and the second
Client CEHND Site Location Memphis Tenne		
ESE Field Team Leader Clair		ager Claire Bain
Na. 1111 Charles Control Control Control	100 mars (00 mars (10 m) 10 m) 100 mars (10 m) 100 mars (10 m)	· ·
Boring Diameter 8"	Annular Space Length	
Date/1-19-92	Time S	Stickup Feest
WATER LEVEL	COLUMN OF WATER I	
Held N/A	Casing Length	96.40
Cut N/A	DTW Top of C	Casing PL.PI
	Top of Casing Column of Wa	ter in Well 7.59
VOLUME TO BE REMOVE)	
Gallons per foot of A.S. (from chart)	- = <u>0.77</u>
	gth of A.S. (whichever is less)	× 9.5G
Volume of Annular Space		= 7.0
Gallons per foot of Casin		= 0.16
Column of Water	-	× <u>9.59</u>
Volume of Casing		= 1.5
, <u> </u>	f A.S. + Volume of Casing)	= 2.5
Number of Volumes to be		× <u>3</u> to 5
Total Volume to be Evac	uated	= 25.5 to 42.5
Method of Purging (pump) ba	iler, etc.) GRUNDFOS C	a /4 GAM
FIELD ANALYSES	Start Mid I Mid II I	Mid III End
Time	1.45 1655 1205	1715 1775
pH	55 56	5.6 5.7
Conductivity	192 188 40419.8.18	
Temperature (°C) $n^{e/1}$	17.917.3 18.0 19.8	19.5
1 .	~1 GAL ~3 ~6	~9 -/2
Totalic Larged (Om)		
Total Volume Purged ~/	Zgalions	
Sample Time/Date 11-19-93		DTMW *ZO
FRACTIONS	LEXY KUTKE	
- Tab (Tab)		(WD)
	CXI MS MS NS (N) (C	ng s (ex)
COMMENTS		
Simply and the second s		
Signatures: Crew Leader	() Date	11-19-95
Reviewer That W	Date	17-6-93
Reviewer Title 32. HALF	SCIENTIST	

Well Sampling Data Form	l 	Well 1	10. MW20
Client_CEHND	ESE Pr	oject_DDMT	
Site Location Memphis Tenness		oject No. <u>* 39350210</u>	3
ESE Field Team Leader Claire		oject Manager Clair	е Ваід
Well Depth 100.50	Well Casing		
Boring Diameter 3"		ace Length	
Date	Time / 2.40		FLUSH
WATER LEVEL	COLUMN OF	WATER IN WELL	
Held <u>N/A</u>	Casir	ng Length	100.50
Cut N/A		Top of Casing	P3.96
DTW 87.96 To		mn of Water in Wel	16.54
VOLUME TO BE REMOVED			
Gallons per foot of A.S. (fro		. • • <u>-</u>	0.77
Column of Water or Length	of A.S. (whichever is	less) $\times \underline{}$	un 12-1-16-54
Volume of Annular Space		=	12.1
Gallons per foot of Casing		= _	0.16
Column of Water		× _	16.54
Volume of Casing		_ =	2.6
Total Volume (Volume of A		ng) = _	
Number of Volumes to be E		× -	$\frac{3}{44}$ to $\frac{5}{3}$
Total Volume to be Evacuat	ieo	د =	14.1 to 73.5
Method of Purging (pump) baile	r, etc.) <u>GRUND</u> S	65 @ N/GP/	н
FIELD ANALYSES St	art Mid I M	lid II Mid III	· End
Time /22		240 (250	1300
	<u>7. 5:3</u>	5.3 <u>5.3</u>	5.3
Conductivity 25		261 261	262
Temperature (°C) 17.		18,3 18.4	184
Volume Purged (Gal) ~ 1.0	~10gc 1	20ga! ~30gal	
Total Volume Purged ~ YO			
Sample Time/Date_11-19-91	£ /436 Sample Num	ber CDDT#4W#	<u> 20</u>
FRACTIONS	LCXL (N7	(XL)	(F)
COMMENTS	MS MS MS	N CN S	
USED ERBUK #	16 BAILER (# 1	(02)	
Signatures: 1/1 - C	· PHILE [T]	1.//	
Crew Leader Come	Jam.	_ Date	9-93
Reviewer Missala W	maly_	Date 12-6	-9.3
Reviewer Title Sa Staff	BELENTA	_	

Well Sampling Data Form	
	Well No. <u>Μω - 2/</u>
Client CEHND	* ESE Project DDMT
Site Location Memphis Tennessee	ESE Project No. 3935021G
ESE Field Team Leader Claire Bain	ESE Project Manager Claire Bain
Well Death 109.5	Well Casing Diameter
Boring Diameter 74.	Annular Space Length 23.5
Date_/1- 1/4-43 Time	
	SATEMAN AR SHARED IN SIRE! T
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	COLUMN OF WATER IN WELL Casing Length /09.50
Held N/A	
Cut N/A	
DTW 99.39 Top of Car	sing Column of Water in Wen_ 16.11
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart	= 0,73
Column of Water or Length of A.S.	(whichever is less) ×
Volume of Annular Space	= 11.76
Gallons per foot of Casing	= <u>0,1637</u>
Column of Water	×
Volume of Casing	= 2.63
Total Volume (Volume of A.S. + V	
Number of Volumes to be Evacuate	$ \begin{array}{r} $
Total Volume to be Evacuated	- <u>-1511 to 11.13</u>
Method of Purging (pump, bailer, etc.)_	SUBMETISIBLE PUMP & ~0.75 GPM
FIELD ANALYSES Start	Mid I Mid II Mid III End
Time	1210 1222 1278 1248
pH # 6.0	5.6 5.5 5.6
Conductivity 208	207 208 208 208
Temperature (°C)	18.7 18.8: 19.4. 19.4.
Volume Purged (Gal) I GAL	8 GAL N186M - 706M ~ 786M
Total Volume Purged ~78	gallons
	Sample Number COOMTW + 2/ MW-2/
Sample Time/Date 11-18-93	
FRACTIONS	Lex7) (N7x2)
VP VP VP VP (ECXIMS)	MS MS (N) (CXZ) S (NF) (CF)
COMMENTS	
	SOD ON 11-18-93 DUE TO HETHUY
I ·	,-93
Signatures: Crew Leader Lang Bain	Date 11-16-93 171-21-93
Reviewer Jual Which	. Date 12-4-93
Reviewer Title Sp. Staff Sci	(477)
Vestemen Title 2 K' STATE OCT	<u> </u>

Well Sampling Data Form Well No. Mw Z /	
Client CEHND ESE Project DDMT Site Location Memphis, Tennessee ESE Project No. 3935021G ESE Field Team Leader Claire Bain ESE Project Manager Claire Bain Well Depth 109. 5' Well Casing Diameter 2	
Boring Diameter 8 Annular Space Length Date 11-19-97 Time 1416 Stickup FC-1746	
WATER LEVEL Held N/A Cut N/A DTW Top of Casing P7.12. Top of Casing Column of Water in Well 16.11	
VOLUME TO BE REMOVED Gallons per foot of A.S. (from chart) Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump, bailer, etc.) GRUNDES C	
FIELD ANALYSES Start Mid I Mid II Mid III End Time	5.7 201 181
Total Volume Purged gallons Sample Time/Date_11-18-97 / 700 Sample Number_CDDMTW * 21	
FRACTIONS LEXE (NFXE) VF VP VP ECYT (MS MS MS) (N) (Cre) S COMMENTS COMMENTS	
Signatures: Crew Leader Duald Windly Date 17-16-93 Reviewer Title 80. Sto FF Scientist	

Well Sampling Data Form	Well No. MW-ZL
Client CEHND ESE Project DDM	•
Site Location Memphis, Tennessee ESE Project No. 3	935021G
ESE Field Team Leader Claire Bain ESE Project Manag	er Claire Bain
Well Depth 107. I' Well Casing Diameter	2,
Boring Diameter f Annular Space Length Date 10.7.71 Time 090 Stice	
Date Time Stic	ckup <u>FL086</u>
WATER LEVEL COLUMN OF WATER IN	WELL
Held N/A Casing Length_	107.80
Cut N/A DTW Top of Cas	sing <i>91.75</i>
DTW Top of Casing Column of Water	r in Well // 47
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart)	· = 0.7}
Column of Water or Length of A.S. (whichever is less)	× Thus
Volume of Annular Space	= 8-4
Gallons per foot of Casing	= 0116
Column of Water	×
Volume of Casing Total Volume (Volume of A.S. + Volume of Casing)	= 10.2
Number of Volumes to be Evacuated	× 3 to 5
Total Volume to be Evacuated	= 70.6 to 51.0
Method of Purging (pump bailer, etc.) Sug MARSIGE	e ~ 1415
FIELD ANALYSES Start Mid I Mid II Mid	d III End
Time 1575 1357 1407	1418 1487
pH <u>5.8</u> <u>5.8</u>	5.8
Conductivity 445 760 43L	452 438
Temperature (°C) 17.7 19.1 19.0	~ 35 de - 45 de
Volume Purged (Gal) - 1 can - 1844 - 2554	~ 35 dh 45 dm
Total Volume Purged ~ 45 gallons	, ;
Sample Time/Date 11-17-91 e 1500 Sample Number CDD M	TW # 22 (DU8 #43)
FRACTIONS (LEXZ) N7XL)	4
	De (eF)(NF)
COMMENTS ECXO MS MS MS N CX	28 0
TOOK DUP. + SPATT FOR UFACE	
Signatures: Crew Leader Date_	11-17-97
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	12-6-93
Reviewer Title 30 Staff Scientist	
Manager Time of Co. 1. Dollars of M.	

Well Sampling Data Form	Well No. <u>Mw-73</u>
Client CEHND	ESE Project DDMR
Site Location Memphis, Tennessee	ESE Project Not 3935021G
ESE Field Team Leader Claire Bain	ESE Project Manager Claire Bain
Well Depth /13-60	Well Casing Diameter 2 5
Boring Diameter 8 *	Annular Space Length
Date 11-18-91 Tim	ne D730 Stickup F-0114
_	COLUMN OF WARDS IN WELL
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	COLUMN OF WATER IN WELL
Held <u>N/A</u>	Casing Length 1/7.60
Cut N/A TO CO	DTW Top of Casing 98.87
DTW Top of Ca	asing Column of Water in Well 14.71
VOLUME TO BE REMOVED	new
Gallons per foot of A.S. (from char	
Column of Water or Length of A.S	·/
Volume of Annular Space	= [0.8]
Gallons per foot of Casing	= . 0.16
Column of Water	× <u>/ / / - / J</u>
Volume of Casing	=
Total Volume (Volume of A.S. +	Volume of Casing) = 17.1
Number of Volumes to be Evacuat	ed × <u>3</u> to 5
Total Volume to be Evacuated	= <u>19.7</u> to 65.5
Method of Purging (pump) bailer, etc.)	GRUNDFOX e ~ 6.75 6PM
FIELD ANALYSES Start	Mid I Mid II Mid III End
Time 07.57	0811 0818 0830 0840
pH	6.6 6.5 6.4 6.3
Conductivity 928	493 477 456 454
Temperature (°C)	18.8. 19.0. 19.0. 19.0
Volume Purged (Gal) ~!	-10 -15 -24 -32
Total Volume Purged ~ 33	gallons Complete Number & D.D. M. Till * 27
Sample Time/Date 11-15:41 & 0434	Sample Number <u>CDD MTW * 27</u>
FRACTIONS	Leve (NPXZ)
VP VP VP VP ECX MS	MS MS (N) (CNZ) S (NF) CF
COMMENTS	
BA1-42 #150	
Signatures:	Date
Crew Leader Comp. 13-a	Date 12-6-93
Reviewer lucki Manual	
Reviewer Title Sa Staff Ser	<u>એ. છે</u>

Well Sampling Data Form	Well No. <u>Mw 24</u>
Client CEHND ESE Project DDMI Site Location Memphis Tennessee ESE Project No. 3	935021G
ESE Field Team Leader Claire Bain ESE Project Manag	er Claire Bain
Well Casing Diameter_	2
Boring Diameter 7 kg Annular Space Length	21-2
Date dat 11 10 43 Time 0430 Still	ckup <u>Flusti </u>
WATER LEVEL COLUMN OF WATER IN	
Length Casing Length	
Cut N/A DTW Top of Ca	
DTWlo6 Top of Casing Column of Water	ı in Men 3/1 Pri
	, Ke?
VOLUME TO BE REMOVED	5.73!
Gallons per foot of A.S. (from chart)	= <u>()./ > \\ 4</u>
Column of Water or Length of A.S. (whichever is less)	× — ******
Volume of Annular Space	= 225591 14
Gallons per foot of Casing	× 2/15/1 Hti
Column of Water	= 72-506 432 1951
Volume of Casing	= 0.664 7.232 Buj
Total Volume (Volume of A.S. + Volume of Casing)	× 3 to 5
Number of Volumes to be Evacuated	= 7007 to 3.34
Total Volume to be Evacuated	21.69 36.16
Method of Purging (pump, bailer, etc.)	
Method of Finging (pump, barrer, ever)	
FIELD ANALYSES Start Mid I Mid II M	End FORM ASTA 14-14-14-13
Time	
pH ————————————————————————————————————	
Conductivity	<u>"43</u>
Temperature (°C)	11-11-
Volume Purged (Gal)	
1 On One	
Total Volume Purged gallons	f
Sample Time/Date Sample Number	
	•
FRACTIONS	
VP VP VP EC MS MS MS N C	, 8
COMMENTS	
CLAIRE BAIN RELEASED ETC FIL	ELD CREW AS THEY
WERE TRYING TO PURGE WE	
Signatures. Clos - Clos	भेडि NOW. THIS WELL
Crew Leader 1110 BE SAMPLED UNITE	
Reviewer Date	
Reviewer Title	11-10-93
	•

Well Sampling Data Form	Well No. <u>Mw - ว</u> ป
Client CEHND	ESE Project DDMT
Site Location Memphis Tennessee	ESE Project No. 3935021G
ESE Field Team Leader Claire Bain	ESE Project Manager Claire Bain
Well Depth	Well Casing Diameter 2"
Boring Diameter 747	Annular Space Length 21. Z.
Date 11-14-93 Time	
WATER LEVEL CO	LUMN OF WATER IN WELL
Held N/A	
CutN/A	Casing Length 114.70 DTW Top of Casing 106, 28
DTW 106.28 Top of Casir	
100 01 0001	Column of Water in Wen 3. 42
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart)	= <u>0.73</u>
Column of Water or Length of A.S. (v	vhichever is less) × <u>8.42</u>
Volume of Annular Space	= <u>کا ہو)</u> =
Gallons per foot of Casing	= <u>, 16 32</u>
Column of Water	× <u> </u>
Volume of Casing	= <u>1.37</u>
Total Volume (Volume of A.S. + Vol	<u> </u>
Number of Volumes to be Evacuated	× 3 to 5
Total Volume to be Evacuated	= <u>22.56</u> to <u>37.6</u>
Method of Purging (pump, bailer, etc.)	SUBMERSIBLE PUMP
FIELD ANALYSES Start	Mid I Mid II End // 2/
· · · · · · · · · · · · · · · · ·	1017 1012 1000 1110.00
pH 5.7	
Conductivity 207	5.7 5.6 5.8 5.7 194 208 208
Temperature (°C)	$\frac{111}{21.2} \frac{200}{21.0} \frac{200}{21.1}$
Volume Purged (Gal) 16AL	CCAL 12 CAL 10 CAL
Tolume Larged (Om)	SOM TRUME INGAL 28
	llons
Sample Time/Date 11-14-93 1700	Sample Number Coom T * 24 Mw-24
FRACTIONS	
VP ECEC NP	VP CF NF LCLC)
VP VP VP EC MS M	IS MS N C C
COMMENTS	
Signatures: All .	
Crew Leaden Mane 11 3am	Date /1-/4-9.3
Reviewer Lud Wash	Date 12-6-93
Reviewer Title Se Shaff County	
THE DE THE STEERS	

Well Sampling Data Form	Well No. <u>Mω- 35</u>
Client CEHND ESE Project DD	Section of the sectio
Client <u>CEHND</u> ESE Project <u>DD</u> Site Location Memphis, Tennessee ESE Project No.	200000000000000000000000000000000000000
	nager Claire Bain
Well Depth Well Casing Diameter	
Boring Diameter 74" \$1,4" Annular Space Length	
	Stickup FLOSH
	5den5p
WATER LEVEL COLUMN OF WATER I	IN WELL
Held N/A Casing Length	81.40
Cut N/A DTW Top of	
DTW Top of Casing Column of Wa	
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart)	- = <u>0.73</u>
Column of Water or Length of A.S. (whichever is less)	×9,75
Volume of Annular Space	= 7.12
Gallons per foot of Casing	= <u>9,1632</u>
Column of Water	×
Volume of Casing	=
Total Volume (Volume of A.S. + Volume of Casing)	= 8.28
Number of Volumes to be Evacuated	× <u>3</u> to 5 = 24.89 to 41.4
Total Volume to be Evacuated	=
Method of Purging (pump, bailer, etc.) SUBMERSIBLE GR	LUNDFOS PUMP
	Mid III End
Time <u>0739 0745 0754</u>	0803 0804
pH <u>5.9 5.5 5.5</u>	. <u>5.5</u> <u>5.5</u>
Conductivity 245 355 256	. <u>258</u> 258
Temperature (°C) 18.8 19.3 19.3	19.2 - 19.3
Volume Purged (Gal) 16AL 5GAL 15 GAL	22 GAL 25 GAL
Total Volume Purged 28 gallons	
Total Volume Purged 38 gallons Sample Time/Date 0820 Sample Number 0920	MTW # 25 MW-25
Sample Time/Date D8 20 Sample Number C 20	MI) 00 # 25 / 11 - 5
FRACTIONS - 15	E NP NP
VP ECEC MS NP a	1
VP VP VP EC MS MS MS N C C	TC LC)
COMMENTS	
Signatures:	
Crew Leader Jan Date	e <u>//-/3</u> -93
	e 17-6-93
Reviewer Title St. Staff School St	- <u></u>
MENIEWEL LITTE OF OF OTHER STRONGER	

Well Sampling Data Form	Well No. Mw - 26
Client CEHND ESE Project DE	A CONTRACTOR OF
Site Location Memphis Tennessee ESE Project No.	
	nager Claire Bain
Well Depth 110 Well Casing Diamet	
Boring Diameter 7 1/1 Annular Space Leng	· · · · · · · · · · · · · · · · · · ·
	Stickup Flush
	, , <u>, , , , , , , , , , , , , , , , , </u>
WATER LEVEL COLUMN OF WATER	IN WELL
Held N/A Casing Length	h <u>llo</u>
CutN/A DTW Top of	Casing 99.45
DTW 49.45 Top of Casing Column of W	ater in Well 10.55
VOLUME TO BE REMOVED	
	- 075
Gallons per foot of A.S. (from chart) Column of Water or Length of A.S. (whichever is less)	10.65
Volume of Annular Space	× <u>10.55</u>
Gallons per foot of Casing	= 7.702
Column of Water	× lo.55
Volume of Casing	= 1.722
Total Volume (Volume of A.S. + Volume of Casing)	= 9.424
Number of Volumes to be Evacuated	× 3 to 5
Total Volume to be Evacuated	= 28.7.7 to 47.17
He; 9-11-93	
Method of Purging (pump, bailer, etc.) Sugrections Dump	BAUER # 211
FIELD ANALYSES Start Mid I Mid II	Mid III End
Time 14.14 1609 17.40	
pH <u>5.4</u> <u>5.3</u> <u>5.7</u>	_ <u></u> _ <u>5.5_</u>
Conductivity 412 413 409	<u>405</u> _
Temperature (°C) 19.5 17.9	- <u>- 18.3</u>
Volume Purged (Gal)	_ <u></u>
Total Volume Purged 30 gallons	ļ
Sample Time/Date 1930 11-9-93 Sample Number C	DMTW + 26 MW 26
_	
FRACTIONS EC EC NF C	-\ n48 / LF _\
(VP VP VP VP EC MS MS MS N C	C) 8 (NPNP)
COMMENTS SUBMERIOR Pump delich . Det.	
	~ The Opto
Months to M	be the coopy.
Signatures: Crew Leader / Illand - Dat	te 11-9-93
Reviewer Send Vunty Dat	
(4)	16 73
Reviewer Title SENIOR STAFF Scientist	j
	

JUBNERSIBLE PUMP WORKED MERCHURE WAS CAUSING INTERRUPTER ON GENERATER WAS CAUSING

Well Sampling Data Form	Well No. Mw-27
Client CEHND	2014-1-1-1-2015-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
Site Location Memphis, Tennessee	ESE Project <u>DDMT</u> ESE Project No. 3935021G ESE Project Manager Claire Bain
BSE Field Team Leader Claire Bain	ESB Project Manager Claire Bain
Well Depth 97.6' Boring Diameter 8"	Well Casing Diameter 2 " Annular Space Length ?
Boring Diameter 8	me 1445 Stickup Feela
1) Half 93 (50-20	J. HAD TO HAVE RANDY WESON OUT LOCK OFF
WATER IEVEL	COLUMN OF WATER IN WELL
Held <u>N/A</u>	Casing Length 93.6 DTW Top of Casing Column of Water in Well
CutN/A	DIW Top of Casing
PTW DRY SOURCED TOP OF C PT 94.45' SOPT (VOLUME TO BE REMOVED	Bottom .
Gallons per foot of A.S. (from cha	ort) - =
Column of Water or Length of A.	S (whichever is less)
Volume of Annular Space	S. (whichever is less) ×
Gallons per foot of Casing	= <u></u>
Column of Water	×
Volume of Casing	=
Total Volume (Volume of A.S. +	Volume of Casing) =
Number of Volumes to be Evacua	ated × <u>3</u> to 5
Total Volume to be Evacuated	= to
Method of Purging (pump, bailer, etc. FIELD ANALYSES Start) Mid I Mid II Mid III End
	MIC I MIC II MIC III ENG
Time	
pH	
Conductivity (%C)	_
Temperature (°C) Volume Purged (Gal)	
voidine i tilged (Gai)	
Total Volume PurgedSample Time/Date	
FRACTIONS	
VP VP VP EC MS	MS MS N C S
COMMENTS OVER REMOUNS (
·, ·	
Signatures: Crew Leader Claure Box	Date 11-16-93
Reviewer That	
Reviewer Title St. Ster Sa	<u> </u>
Nonewel Tille (AP) O(PP) AA	<u> </u>

Well Sampling Data Form	Well No. MW-2B
	T 3935021G ger:Claire Bain
Well Depth Well Casing Diameter Annular Space Length	22.47 ckup
WATER LEVEL COLUMN OF WATER IN Held N/A Cut N/A DTW Top of Casing DTW Top of Casing Column of Water	10 A
VOLUME TO BE REMOVED Gallons per foot of A.S. (from chart) Column of Water or Length of A.S. (whichever is less) Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated Total Volume to be Evacuated	$= 0.73$ $\times 11.69$ $= 8.5$ $= 0.1632$ $\times 11.69$ $= 1.9$ $= 1.9$ $= 10.4$ $\times 3 to 5$ $= 31.2 to 52$
Method of Purging (pump, bailer, etc.) Subject b/c FIELD ANALYSES Start Mid I Mid II Mid II	id III End 1750 1752 5.0 5.1 2.09 210 17.9 17. 30.7 36.3
Total Volume Purged 36.3 gallons Sample Time/Date 1830/11/n/13 Sample Number CA FRACTIONS VP VP VP (EC 3MS) MS MS MS COMMENTS	OMTW 7 28 P) PUINTS 3
Signatures: Crew Leader Mark Con Date Reviewer Title 10. Stoff Scientist Date	12-6-93

Weil Sampling Data Form	Well No. MW-29
Client CEHND Site Location Memphis, Tennessee ESE Field Team Leader Claire Bain	ESE Project DDMT ESE Project No: 3935021G ESE Project Manager Claire Bain
Well Depth 54.3 Boring Diameter 2-8.5	Well Casing Diameter 2" Annular Space Length 32-3 O 500 Stickup
	Casing Length 59.3 DTW Top of Casing 3 2-8/
VOLUME TO BE REMOVED Gallons per foot of A.S. (from chart) Column of Water or Length of A.S. (Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Vo Number of Volumes to be Evacuated Total Volume to be Evacuated Method of Purging (pump, bailer, etc.) FIELD ANALYSES Start Time pH 9903 5.3	whichever is less) $ \begin{array}{rcl} $
	365 16.7 13.2 16.3 16.3 16.3 45 allons Sample Number CDDN7U\$29
FRACTIONS TVP VP VP (3EC SMS) COMMENTS NO Key 12 Dell Used Sector # 75	MS MS (D) (2C) S (ACC)
Signatures: Crew Leader Mark Barres Reviewer Title S.R. Staff. Sci	Date 11/17/93 Date 12-6-93

Well Sampling Data Form		Well No. MU-30
Client_CEHND	ESE Project DDMT	cataura (1940-20 decembro e decidado de 1969 (1988) (1999) (1999)
Site Location Memphis, Tennessee.	ESE Project No. 3	
ESE Field Team Leader Claire Bai	n ESE Project Manage	
Well Depth 59./	Well Casing Diameter	2//
Boring Diameter 8 "	Annular Space Length	27.4
Date 11/19/93	Time 1448 Stic	kup /-7 ′
	·	·
WATER LEVEL	COLUMN OF WATER IN	
Held <u>N/A</u>	Casing Length	
CutN/A	DTW Top of Cas	
DTW 49.10 Top of	of Casing Column of Water	in Well 15.0
VOLUME TO BE REMOVED		
Gallons per foot of A.S. (from	chart)	= 0.73
Column of Water or Length of	A.S. (whichever is less)	~× <u>15</u>
Volume of Annular Space		40= 10 11:0
Gallons per foot of Casing		= 01632
Column of Water		× <u>15</u>
Volume of Casing		= 2.5
Total Volume (Volume of A.S.		= 13:5
Number of Volumes to be Eva		$\times \frac{3}{43} = 10 \frac{5}{2}$
Total Volume to be Evacuated		= <u>40.5 to 67.5</u>
Method of Purging (pump, bailer, e	etc.) Submersish Purpe	1.526PM
FIELD ANALYSES Start	Mid I Mid II Mid	III Dad
		<u>1530 1533 </u>
pH <u>5.4</u>	$\frac{S.5}{291} \frac{S.2}{298} =$	<u>5.5</u> <u>5.5</u> 291 291
Conductivity 300	 	$\frac{291}{120}$ $\frac{291}{125}$
Temperature (°C) 17.3		456 50
Volume Purged (Gal)	<u> 15.2 30.7 </u>	45.6 50
Total Volume Purged 50 Sample Time/Date 11/14/75 19	gallons 95 Sample Number CDDF	17W * 30
FRACTIONS (4LC	DEND WEEF	
VP VP VP (FOCA	AS) MS MS (N) (20	S
		3
COMMENTS USED DAIL	GR II .	
Signatures: Out / //	<u> </u>	. / /
Crew Leader	Date	11/19/93
Reviewer I hald the	odu Date_	17-6-93
Reviewer Title SQ, StAFFS	21 ESTIGG	
_		

Well Sampling Data Form	3	Well No. <u>MW-31</u>
Client CEHND Site Location Memphis, Tennesses ESE Field Team Leader Claire Ba	nn ESE Project Man	3935021G ager <u>Claire Bain</u>
Well Depth 82 Boring Diameter 8" Date 11/19/13	Well Casing Diamete Annular Space Length Time 1131	
WATER LEVEL Held N/A Cut N/A DTW 64.80 Top	COLUMN OF WATER I Casing Length DTW Top of Column of Wa	
Gallons per foot of A.S. (from Column of Water or Length of Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.Number of Volumes to be Evacuate Total Volume to be Evacuate	of A.S. (whichever is less) S. + Volume of Casing) vacuated	$ \begin{array}{rcl} & = & \underbrace{0.73}_{\times & 17.2} \\ & = & \underbrace{12.86}_{12.5} & 12.5 \\ & = & \underbrace{12.2}_{\times & 6.1632} & 12.5 \\ & = & \underbrace{2.6}_{\times & 6.1632} & 12.5 \\ & = & \underbrace{15.65}_{\times & 6.153} & 15.3 \\ & \times & 3 & \text{to} & 5 \\ & \times & 3 & \text{to} & 5 \\ & \times & 3 & \text{to} & 5 \end{array} $
Method of Purging (pump, bailer,	etc.) Subners. She puny	o.(w 2:2 GPM.
Time pH Conductivity Temperature (°C) Volume Purged (Gal)	rt Mid I Mid II M 1203 1207 1203 5.3 72 366 362 17 17.2 1 17.6 26.9	Mid III End 12.12 12.20 5.3 5.3 3.63 3.63 17.2 17.2 37.4 55
Total Volume Purged 55 Sample Time/Date 1230 117		ATTW # 31
FRACTIONS (VP) VP VP (3E) (3 COMMENTS SAME USIN		s
Signatures: Crew Leader Reviewer Reviewer Title Sa Staff	Date Date	

Well Sampling Data Form		Well No. <u>MU-32.</u>
Client CEHND	ESE Project_DDN	ЯТ
Site Location Memphis, Tennesse	ESE Project No	
ESE Field Team Leader Claire B	BIR Project Man	ager Claire Bain
Well Depth 67.8	Well Casing Diameter	<u> </u>
Boring Diameter 8"	Annular Space Length	
Date 1/18/93		tickup
WATER LEVEL	COLUMN OF WATER I	N WELL
Held <u>N/A</u>	Casing Length_	67.8
Cut N/A		Casing 59.30
DTW_ 59.30 Top	of Casing Column of Wat	er in Well_B.5
VOLUME TO BE REMOVED		
Gallons per foot of A.S. (fron	n chart)	- = 0.73
Column of Water or Length of	of A.S. (whichever is less)	×8.5
Volume of Annular Space	·	=6.2
Gallons per foot of Casing		$= \underline{0.1632}$
Column of Water		× <u> </u>
Volume of Casing		= 1.4
Total Volume (Volume of A.S. Number of Volumes to be Ev.	5. + Volume of Casing)	= 7.6
Total Volume to be Evacuate		$\times \frac{3}{2}$ to $\frac{5}{2}$
		= 22.8 to 38.0
Method of Purging (pump, bailer,	etc.) Submersible Purpe	1.28 GPM
FIELD ANALYSES Star	t Mid I Mid II M	id III End
Time 1610		
pH 5.0		4.9 1630
Conductivity 149		1418 11.16
Temperature (°C)		16.6
Volume Purged (Gal)	1 9 15.4	20.5 25.6
96	11/18/13	
Total Volume Purged 25.6	gallons	
Sample Time/Date 11/16/23 17	Sample Number <u>CDD</u>	4TW ¥32
FRACTIONS	CO CAP (VE) EF	
VP VP (SEC/SI	MS MS N PC	S
COMMENTS USED BALLER	#127	, 5
Signatures: Mach	2 1	1.01.
	Date_	1./18/93
Reviewer Theald Migh	Date_	12/6/43
Reviewer Title St Staff 3	L'entist	

Well Sampling Data Form	Well No. MU-37
Client <u>CEHND</u> Site Location Memphis, Tennessee PSE Field Team Leader Claire Bain	ESE Project <u>DDMT</u> PSE Project No. <u>3935021G</u> ESE Project Manager Claire Bain
Well Depth 60.0 Boring Diameter 8"	Well Casing Diameter 2 Annular Space Length 21.0 me UB 20 Stickup
WATER LEVEL HeldN/A CutN/A DTW48.08 Top of C	COLUMN OF WATER IN WELL Casing Length 60.0 DTW Top of Casing 48.08 Casing Column of Water in Well 11.72
VOLUME TO BE REMOVED Gallons per foot of A.S. (from charcolumn of Water or Length of A.S. Volume of Annular Space Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Number of Volumes to be Evacuate Total Volume to be Evacuated	S. (whichever is less) $ \begin{array}{rcl} \times & 11.92 \\ & 8.7 \\ & 0.1632 \\ \times & 11.12 \\ & & & & \\ \end{array} $ Volume of Casing) $ \begin{array}{rcl} \times & 10.6 \\ & & & \\ \end{array} $ Volume of Casing) $ \begin{array}{rcl} \times & 3 & \text{to} & 5 \\ & & & \\ \end{array} $ $ \begin{array}{rcl} \times & 3 & \text{to} & 5 \\ & & & \\ \end{array} $ The second sec
Method of Purging (pump, bailer, etc.) FIELD ANALYSES Start Time 0833 pH 5.0 Conductivity 2/2 Temperature (°C) 16.0 Volume Purged (Gal)	Mid I Mid II Mid III End 0840 0845 0850 0855 5.0 4.9 5.0 5.0 204 200 203 203 17.0 17.0 17.0 17.0 11 18.9 26.8 35
Total Volume Purged 35 Sample Time/Date 11/11/13 0920	gallons Sample Number CPDHTU #33
FRACTIONS (TVP) VP VP (JEC AMS) COMMENTS (JEC BAILE PE	MS MS N E S
Signatures: Crew Leader Reviewer Reviewer Title So. Staff Sc.	Date 11-19-93 Date 12-6-93

Well Sampling Data Form				Well No.	M W 34
Client CEHND		ESE Pro	oject <u>DDM</u> I		
Site Location Memphis, Tennesse	e	ESE Pr	oject No. <u>3</u>	935021G	
ESE Field Team Leader Claire F	аіп	ESE Pr	oject Manag	er <u>Claire B</u>	ajn
Well Depth 156.90'		Well Casing	Diameter_	z 4	
Boring Diameter 8"			ace Length_		
Date	Time_	0830	Stic	kup <i>F</i> _	.∪\(\d\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
WATER LEVEL	co	LUMN OF	WATER IN	WELL	_
Held N/A		Casir	ig Length	150	6.90'
Cut N/A		DTW	Top of Cas	sing <u>17</u>	8.18
DTW 138.18 To	p of Casm	g Colu	mn of Water	r in Well_	18.72
VOLUME TO BE REMOVED	· - ! <u>.</u>				ļ
Gallons per foot of A.S. (fro	m chart)	•	-	=	0.77
Column of Water or Length		vhichever is	less)	· ×	18.72
Volume of Annular Space		. •		<u> </u>	<u> 17.7</u>
Gallons per foot of Casing				=	0.16
Column of Water				× —	18.72
Volume of Casing	0 . 17 1		·\	<u> </u>	3:0
Total Volume (Volume of A		ume or Casi	ngj	= =	167 3 to5
Number of Volumes to be I					1 to 21-5
Total Volume to be Evacua	leq			- <u>30</u>	·· (0 <u> </u>
Method of Purging (bump, baile	r, etc.)	GRUND	For e	~ 1 61	<u>'~</u>
FIELD ANALYSES S	art	Mid I N	Aid II Mi	dШ	End
Time 0	715	0925	0935	0945	0955
pH _S	9		5.6	5.6	5.6
Conductivity <u>I</u>	<u>8</u>		169	169.	169
			19.3	19.5	19.8
Volume Purged (Gal)	GAL			-10	mya.
Total Volume Purged / You You Sample Time/Date //-/9-91	<u>, 1930</u>	mons Sample Nun	nber <u>CDDr</u>	7W X 3	· Y
		CK4) (N			
FRACTIONS	·			(e)	F)(NF)
VP VP VP VP ECX	I∕MS N	AS MS	(N) (C_N)	z) s 🖰	
COMMENTS					
USED EABLE ?	* 47 B	ALCRA (#	(804)		
Signatures:	Zair		Date	11-19	7-93
Reviewer Sund Wing	ملاي		Date_ Date_	17-6-	-93
Reviewer Title Sol. Brace	Scil	afist		-	
		1			

Well Sampling Data Form	
Won camping 2 and 4 and	Well No. <u>MW - 35</u>
Client CEHND	ESE Project DDMT
Site Location Memphis, Tennessee	ESE Project No. 3935021G
ESE Field Team Leader Claire Bain	ESE Project Manager Claire Bain
Well Depth & 7.7	Well Casing Diameter 277
Boring Diameter 8"	Annular Space Length 3 2 . 7
	ime //56 Stickup / 2' BGS
WATER LEVEL	COLUMN OF WATER IN WELL
Held N/A	Casing Length 89.7
CutN/A	DTW Top of Casing 77-20
DTW Top of	Casing Column of Water in Well
VOLUME TO BE REMOVED	4.00
Gallons per foot of A.S. (from ch	nart) = 12-5 34 44/19/9 3
Column of Water or Length of A	
Volume of Annular Space	= 7.5
Gallons per foot of Casing	= 126+2:5 0.1632
Column of Water	XIVERY TO THE
Volume of Casing	=
Total Volume (Volume of A.S. +	
Number of Volumes to be Evacu	
Total Volume to be Evacuated	= <u>20</u> to <u>50</u>
Method of Purging (pump, bailer, etc) Subported Lung (d) 2.866ATT
FIELD ANALYSES Start	Mid I Mid II Mid III End
Time (/5%	13.03 1207 94 1/14/3 1211
pH 5.0	5.6 75.0 5.8 5.8
Conductivity 236	$\frac{317}{227}$ $\frac{727}{227}$ $\frac{1}{227}$
Temperature (°C)	18.4 18.6 18.6
Volume Purged (Gal)	20.0 31.5 42.9
Total Volume Purged 42.7	gallons
Sample Time/Date 1730 Win	Sample Number CDDWWW 35
FRACTIONS	5 NP
FRACTIONS	(NF)
<i>── (₹vp</i> ∨p ∨p <i>(7</i> e <i>)</i> (5 _{MS}) MS MS (\Re ($2c$) S (F) ($4LC$)
COMMENTS 1150 BAILOT	93
	
Signatures: Class (11 C) R	
Crew Leader Mak H Bal	Date 11/14/45
Reviewer had Wish	Date 12/6/43
Reviewer Title Sa. SIAFPS	
Verlemen Title 20 21 4 5 5 21	S. Entist

Well Sampling Data Form	
	Well No. Mw-36
Client CEHND	ESE Project DDMT
Site Location Memphis, Tennessee ESE Field Team Leader Claire Bain	ESE Project No. 3935021G
Well Depth 209, 47	ESE Project Manager Claire Bain
Boring Diameter 5 75 "	Well Casing Diameter 2"
	Annular Space Length 115. 4
	e 1900 Stickup FZUSH
WATER LEVEL	COLUMN OF WATER IN WELL
Held <u>N/A</u>	Casing Length 209. 4 0
CutN/A	DTW Top of Casing 154.75
DTW 154.75 Top of Cas	sing Column of Water in Well 54.65
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart	
Column of Water or Length of A.S.	/whichover is less)
Volume of Annular Space	(whichever is less) $\times 54.5$ = 21.31
Gallons per foot of Casing	=
Column of Water	× _54,65
Volume of Casing	= 7 9 3
Total Volume (Volume of A.S. + Vo	olume of Casing) = 30.23
Number of Volumes to be Evacuated	~ ~ ~ ~ ~
Total Volume to be Evacuated	= <u>40.69</u> to <u>/51.15</u>
Method of Purging (pump, bailer, etc.) 5	URMPOSIBLE & PUMP
	2 21 - NO - NO 2 AV COLUMN TO THE PARTY OF T
FIELD ANALYSES Start	Mid I Mid II End
Time <u>1538</u>	1554 1613 1626 1641
pH (4.4)	6.2 6.1 6.1
Conductivity 345	367 342 334 326
Temperature (°C) 17.8 Volume Purged (Gal) 16AL	19.7 19.9 19.0
rotatine i talged (Oat) 1 cont	REMOINES HYDE STRAILIZED
Total Volume Purged 55	gallons WATER IS CLEAR
Sample Time/Date 1715 11/12/93	Sample Number CDOMTWX, 36 MW 36
FRACTIONS 60 60	
VI ECOL LO	LC NF CFC NPNP)
	MS MS N C BMCB
COMMENTS	
	<u> </u>
Signatures:	
Crew Leader	Date 11-12-93
Reviewer Bull Wands	Date 12-6-43
Reviewer Title St. Staff Science	7-

Well Sampling Data Form	
	Well No. MW37
Client CEHND ESE Project DDM	
Site Location Memphis, Tennessee ESE Project No. 33	9935021G
ESE Field Team Leader Claire Bain ESE Project Manag	er Claire Bain
Well Depth 182. 2 Well Casing Diameter	2"
Boring Diameter /o Annular Space Length	
Date	ckup <u> </u>
WATER LEVEL COLUMN OF WATER IN	WELL
Held N/A Casing Length	
	sing 129.65
	r in Well 53.15
VOLUME TO BE REMOVED	
Gallons per foot of A.S. (from chart)	= 403 (11)
Column of Water or Length of A.S. (whichever is less)	× 53-15-0k
Volume of Annular Space	= KEH 54-7 62.2
Gallons per foot of Casing	=
Column of Water	× <u>57.15</u>
Volume of Casing	= 8.5
Total Volume (Volume of A.S. + Volume of Casing)	= 12070.7
Number of Volumes to be Evacuated	10 5 as
Total Volume to be Evacuated	"= 189.6 to 1.6
Method of Purging (pump) bailer, etc.) GRUNDES e ~	212.1 257.5 1 GAM
	d III End
	1007 1013
	4/10 406
Conductivity $\frac{399}{15.6}$ $\frac{420}{19.1}$ $\frac{410}{19.5}$	19.8' 2010'
Volume Purged (Gal) $\frac{17.6}{\sim 1640}$ $\frac{17.5}{\sim 15640}$ $\frac{17.5}{\sim 15640}$	
Volume Finged (Ga) - Valve - V	2,72 2,43
Total Volume Purged ~53 gallons	
Sample Time/Date 11-18-93 e 1130 Sample Number Code	M*37 (DUP * 40)
FRACTIONS (Lexy WAKE)	(363)
UP VP VP YP ECAZONS MS MS (N) (CX	s EFOF
COMMENTS	^y °
Took Dut + SPLIT FOR USACK	
(SAME FRACTIONS for DUF + 8 TH	1-1
Signatures: Date	11-18-97
Reviewer Date Date	12-6-93
Reviewer Title Sa. Staff Scientist	

Well Sampling Data Form Well No
Client CEHND ESE Project DDMT Site Location Memphis, Tennessee ESE Project No. 3935021G ESE Field Team Leader Claire Bain ESE Project Manager Claire Bain
Well Depth
WATER LEVEL Held N/A Cut N/A DTW Top of Casing 133, 18 Top of Casing Column of Water in Well 21, 82
VOLUME TO BE REMOVED Gallons per foot of A.S. (from chart) - = 0.39 Column of Water or Length of A.S. (whichever is less) × 21.82 Volume of Annular Space = 9.51 Gallons per foot of Casing Column of Water Volume of Casing Total Volume (Volume of A.S. + Volume of Casing) Number of Volumes to be Evacuated × 3 to 5 Total Volume to be Evacuated = 3e.21 to 20.35
Method of Purging (pump, bailer, etc.) SUBMERSIBLE PLANE C 205644 FIELD ANALYSES Start Mid I Mid II Mid III End Time 1540 1601 1620 1640 1650 pH 6.0 5.9 5.7 5.7 5.7 Conductivity 240 2/2 204 205 207 Temperature (°C) 17.7' 20.4 21.2' 20.9' 20.9' Volume Purged (Gal) -2 -1L -22 -20 -15
Total Volume Purged ~15 gallons Sample Time/Date 1815 11-15-93 Sample Number Coomtw *38 mw-38 FRACTIONS LC LC LC EC EC NP NP NF CF VP VP VP VP EC MS MS MS N CC 8 COMMENTS
Signatures: Crew Leader Cloud Band Date 11-15-93 Reviewer Title So Stort Scientific Reviewer Title So Stort Scientific

Well Sampling Data Fo	orm		Well No. <u>Mw - 39</u>
Client CEHND		ESE Project_DD	MT.
Site Location Memphis, Ten	nessee	ESE Project No.	
ESE Field Team Leader Cla		ESE Project Mar	iager Claire Bain
Well Depth /15.6	We	l Casing Diamete	
Boring Diameter		ular Space Lengt	
Date 11-15-93			Stickup_ <i>FLOSH</i>
WATER LEVEL	COLU	MN OF WATER I	N WELL
HeldN/A		Casing Length	115,60
Cut N/A	_	DTW Top of	
DTW_102.11	Top of Casing	Column of Wa	iter in Well 13.49
VOLUME TO BE REMOVE Gallons per foot of A.S.			- = 0.73
Column of Water or Le		never is less)	× <u>13,49</u>
Volume of Annular Spa		•	= 9.85
Gallons per foot of Cast	ng		= <u>0.1632</u>
Column of Water			× <u>(3,49 </u>
Volume of Casing			= <u>2.20</u>
Total Volume (Volume		of Casing)	=
Number of Volumes to			$\frac{\times 3}{3}$ to $\frac{5}{3}$
Total Volume to be Eva	icuated		= <u>35.34</u> to <u>58.9</u>
Method of Purging (pump, t	oailer, etc.) <u>SUBW</u>	ersible P	mp
FIELD ANALYSES	Start Mic	ı II biM I I	Mid III End
Time		8 1212	
рН		3 6.0	6.0
Conductivity		39 274	284 293
Temperature (°C)		21.0	21.0 21.0
Volume Purged (Gal)			22 GAL 30 GAL
Total Volume Purged ====================================	33 gallon Samp		
FRACTIONS 11-15	75		10 057
60	EC LO LO LA	LC NF NP	Nr Gr
COMMENTS TO THE TENT OF THE TE	EC MS MS	MS NCC	~ S
COMMENTS			
Signatures: Crew Leader Of Con-	Bain	Date	11-15-93
Reviewer Service	Man edys		12-6-93
Reviewer Title	F 500 P 2		
	· · <u>OCIGON</u> 39		

TAB

APPENDIX B
ETC ANALYTICAL RESULTS



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

November 11, 1993

Ms. Claire Bain Env. Science & Eng. Inc. P.O. Box 1703 Gainesville, FL 32602

Ref: Analytical Testing

ETC Order # 9311251

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

iw

Attachment

79 ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name Env. Science & Eng. Inc. Site ID Huntsville COE-DDMT

Project # 7934082G 0201

Date Arrived 11/09/93

ETC Order Number 9311251

ETC Lab ID 9311251-01 Sample ID: ESE*16/C

Matrix : AQUEOUS

Sample Date :11/09/9314:05:00

TEST	RESULT	UNITS	DETECTION LIMIT	Time Analyzed	date Analyzed by	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0915	11/10/93 SM	3500-D
Conductivity	630	umhos/cm	0.5	1405	11/09/93 CB	120.1
Field Reported pH	6.0	ຮບ		1405	11/09/93 CB	NA

ETC Lab ID 9311251-02 Sample ID: ESE*16/CF Matrix : AQUEOUS

Sample Date :11/09/9314:05:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent Conductivity	<0.004 630	mg/L umhos/cm	0.004 0.5	0915 1405	11/10/93 SM 11/09/93 CB	3500-Đ 120.1
Field Reported pH	6.0	รับ		1405	11/09/93 CB	NA

LAB COORD. PATRICK WILBER Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD. PATRICK WILBE

€ 3	18					44	80		ام	
J. ON BY	0		ļ				ES	PAG	149/643	
CONO	630			į			SED CODE AND NOTES F KNOWN	(NAME/ORGANIZATION/	1 23	/ Temp?Deg C
t ₁ d	6.0						CHARACTERS MAY BE USED (IF REQUIRED), HAZARD CODE DENTIFY SPECIFICS IF KNOWN INTAL SCIENCE & ENGINEETING,	BY	usanaa	ioi
CDDMTW.1 CDDMTW.1	CDDMTW.1 CDDMTW.1	CDDMTW.1 CDDMTW-1	CDDMTW.1 CDDMTW.1	CDDMTW.1 CDDMTW.1	CDDMTW.1	CDDMTW.1 CDDMTW.1		REC'D	Cacrana della commensa della	(#) more samples on Intact? Yes/No Inter , describe:
TIME	1405						ANUMERIC CHAR ELD DATA (IF CUT HAMB: IDENT EDVITORMENTEL	VIA:	Mano de	i li i
LC . DATE	NP 11-9-93 1405	LC NP	LC NP	NP	OT A	LC NP	TO TO 9 ALPHANUMERIC DATA DATE, TIME, FIELD DATA PROVIE HAZMD: THE SAMPLES TO ENVIRONMENT	IME)	1.443	e shipping If Yes, Sea Yes/No: If
RCLE) EC LC MS N	EC EC LC	EC EC LC N NF NP	EC EC LC	EC EC LC	EC EC LC N NF NP	EC EC LC LC	[] [] []	DATE/TIME	1-9-83/	I anticipat 1? <u>Yes/No;</u> Problems?
FRACTIONS(CI C C EC EC IC LC MS MS NP NP	2 SEC	MS MS CF	CS CF MS MS	C CF MS	O S C C S C C C S M S M S M S M S M S	S S S S S S S S S S S S S S S S S S S	IN SITE ID AS NECESSARY INS COLLECTED. ENTER L'OMINALE C-CORPOSIVE R-REACTIVE TO COMPLETED LOGSHEETS WI	(NAME/ORGANIZATION/	7	Yes/No; I Seals Used?
COVE GVLL: GVLL:	GVL: GVL: ETC:	GVL: GVL: ETC:	GVL: GVL: ETC:	GVL:	GVL: GVL: FTC:	GVL: GVL: ETC:	R SITE NS COLI I-IGNIMBU COMPLET	E/ORGAN	(ese	ં જુરૂકો
SITE/STA HAZ? MW15	MW16	MW17	MW 1 8	MW 1 9	MW20	MW21	E OR ENTE D CODES: E RETURN	RELINQUISHED BY: (NAM)	CLARRE BAN	Shipped on USTODIAN: Custatives Audite
क्र. इ. इ. इ	*16	*13	*18	¢1*	*20	B-3	NOTE	RELINC		SAMPLER: SAMPLE C Preserv



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6934

Founded 1972

November 11, 1993

Ms. Claire Bain Env. Science & Eng. Inc. P.O. Box 1703 Gainesville, FL 32602

Ref: Analytical Testing

ETC Order # 9311255

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw .

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Env. Science & Eng. Inc.

Project # 7934082G 0201

Site ID

Huntsville COE-DDMT

Date Arrived 11/10/93

ETC Order Number 9311255

ETC Lab ID 9311255-01 Sample ID: ESE#*26 C Matrix : AQUEOUS

Sample Date :11/09/9319:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0915	11/10/93 SM	3500-D
Conductivity	405	umhos/cm	0.5	1930	11/09/93 CB	120.1
Field Reported pH	5.5	su		1930	11/09/93 CB	NA

ETC Lab ID 9311255-02 Sample ID: ESE#*26 CF Matrix : AQUEOUS

Sample Date :11/09/9319:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0915	11/10/93 SM	3500-D
Conductivity	405	umhos/cm	0.5	1930	11/09/93 CB	120.1
Field Reported pH	5.5	ខប		1930	11/09/93 СВ	NA

LAB COORD. PATRICK WILBER FIELD GROUP: CDDMTW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 19340826 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB

CARBON R						ļ	44 Sat	DA Free	2000	
MRD GETS LOGSHEET				Soh			BE USED HAZARD CODE AND NOTES CS IF KNOWN Engineering, Inc.	NAME/ORGANIZATION/	TC. 1410/53	
CDDMTW.1	CDDMTW.1 CDDMTW.1	CDDMTW.1 CDDMTW.1	CDDMTW.1 CDDMTW.1	CDDMTW.1 5.5	CDDMTW.1 CDDMTW.1	CDDMTW.1	ACTERS MAY REQUIRED) IFY SPECIFIC Science 6	REC'D BY (NAMI	Januara 1 = T	,
DATE TIME C	מס	כ		930		ט) 9 ALPHANUMERIC CHAR TIME, FIELD DATA (IF TE H-OTHER ACUTE HAZARD: IDENT PLES TO ENVIRONMENTAL	VIA	MAND OF UNITED	
FRACTIONS (CINCLE) C C EC EC EC LC LC MS MS MS N NF NP NP	C C EC EC EC LC LC RS MS N NF NP NP	C C EC EC EC LC LC MS MS NS N NF NP NP C CF	C C EC EC EC LC LC MS MS MS N NF NP NP C CF	S C E BC BC TC TC TC	C C EC EC EC	C C EC EC EC LC LC LC NP NP NP NP NP C CF	DATE,	NIZATION/ DATE/TIME)	11-10-93 [0805	
SITE/STA HAZ? LAB MW22SF GVL: GVL: ETC:	MW23 GVL: GVL: ETC:	MW24 GVL: GVL: ETC:	HW25 GVL: GVL: EPC:	MW26 GVL: GVL: ETC: ETC:	MW27 GVL: GVL: ETC:	MW28 GVL: GVL: GVL: EFC:	-CHANGE OR ENTER SITE -CIRCLE FRACTIONS COLI -HAZARD CODES: I-GNITAL	HED BY: (NAME/ORGAN	RE BAN/ESE/	
ESB # 22 **	*23	*24	*25	*26	*27	& 87 * B−6	NOTE -CH	RELINQUISHED	- CA	() () ()

SAMPLER: Shipped on Ice? (Xe2/No; I anticipate shipping 7 (4) more samples on 1/10/3 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

ANALYSIS FOR HEXAVALENT CHROME



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-5384

Founded 1972

November 17, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order #

9311407

Project Description

Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311407

ETC Lab ID 9311407-01

Sample ID: ESE#*4/MW4 C

Matrix : AQUEOUS

Sample Date : 11/15/93 15:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D

ETC Lab ID 9311407-02

Sample ID: ESE#*4/MW4 CF

Matrix : AQUEOUS

Sample Date :11/15/93 15:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METROD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D

ETC Lab ID 9311407-03

Sample ID: ESE#*13/MW13 C

Matrix : AQUEOUS

Sample Date :11/15/93 15:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311407

ETC Lab ID 9311407-04

Sample ID: ESE#*13/MW13 CF

Matrix : AQUEOUS

Sample Date :11/15/93 15:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D

ETC Lab ID 9311407-05

Sample ID: ESE#*23/MW23 C

Matrix : AQUEOUS

Sample Date :11/15/93 09:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D

ETC Lab ID 9311407-06

Sample ID: ESE#*23/MW23 CF

Matrix : AQUEOUS

Sample Date :11/15/93 09:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311407

ETC Lab ID 9311407-07

Sample ID: ESE#*39/MW39 C

Matrix : AQUEOUS

Sample Date :11/15/93 13:40:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D

ETC Lab ID 9311407-08

Sample ID: ESE#*39/MW39 CF

Matrix : AQUEOUS

Sample Date: 11/15/93 13:40:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0845	11/16/93 SM	3500-D



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

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November 17, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order #

9311416

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/16/93

ETC Order Number 9311416

ETC Lab ID 9311416-01

Sample ID: ESE#*7/MW7 C

Matrix : AQUEOUS

Sample Date :11/15/93 18:50:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1525	11/16/93 SM	3500-D

ETC Lab ID 9311416-02

Sample ID: ESE#*7/MW7 CF

Matrix : AQUEOUS

Sample Date :11/15/93 18:50:00

Test	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1525	11/16/93 SM	3500-D

ETC Lab ID 9311416-03

Sample ID: ESE#*9/MW9 C

Matrix : AQUEOUS

Sample Date :11/15/93 17:11:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1525	11/16/93 SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Engineering, Inc. Huntsville COE-DDMT

Site ID

Date Arrived 11/16/93

ETC Order Number 9311416

ETC Lab ID 9311416-04

Sample ID: ESE#*9/MW9 CF

Matrix : AQUEOUS

Sample Date : 11/15/93 17:11:00

TEST	RESULT	UNITS	DETECTION LIMIT	Time Analyzed	date Analyzed by	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1525	11/16/93 SM	3500-D

ETC Lab ID 9311416-05

Sample ID: ESE#*38/MW38 C

Matrix : AQUEOUS

Sample Date :11/15/93 18:15:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED	вч	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1525	11/16/93	SM	3500-D

ETC Lab ID 9311416-06

Sample ID: ESE#*38/MW38 CF

Matrix : AQUEOUS

Sample Date :11/15/93 18:15:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1525	11/16/93 SM	3500 - D

LAB COORD. PATRICK WILBER FIELD GROUP: CDDMTW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB

2						ć	14	91	
MRD GETS CARBON LOGSHEET							CODE AND NOTES	(NAME/ORGANIZATION/ DA	1/15/93 1630
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TIME	0830						TIME, FIELD DATA THE HOTHER ACUTE HAZARD	VIA:	Contract March
DATE	0860 8651-11 AN AN			Į.			7; UP TO 9 ALPHANUMERIC CHAR DATE, TIME, FIELD DATA (IF T-TOXIC MASTE H-OTHER ACUIT MAZARO: IDEN'T TTH SAMPLES TO ENVITORMENTAL		
FRACTIONS(CIRCLE) C C EC EC EC LC KS MS MS N NF NP NP C CF	C EC EC EC CF MS N NF	C EC EC EC LC LC C C C C C C C C C C C C	S MS MS N NF NP NP NP NP CF	S MS MS N NF NP NP CF	C BC BC BC LC LC C C C C C C C C C C C C	C EC EC EC LC LC LC PR NP	S NECESSARY D. ENTER TOSIVE R.REAGIVE OGSHEETS WI	IZATION/ DATE/TIME	
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SITE/STA HAZ? MW22SP	MW23	HW24	MW25	MW26	MW2.7	MW28	ANGE RCLE ZARD EASE	RELINQUISHED BY: (NAME	
ESE #	* 23	* 24	*25	* 56	*27	∞ * B−14	NOTE	RELINO	

SAMPLER: Shipped on Ice? (Yes No; I anticipate shipping (#) more samples on // // / } SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

9 1

LAB COORD. PATRICK WILBER FIELD GROUP: CDDMTW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DOMT LAB

حـ					4	4 .	Q o			
		CARBON		CARBON			92 SEL	DA	(X)	
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				•		i	MAY BE ED) HAZ ECIFICS	BY (NAM	Herround JETS	-
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TIME					0531		IANUMERI ELD DAT CUT HAZARD; EDVITON	VIA:	HAND DAILEDED	
DATE				}	E6-51-11-4N		M-OINER ES TC		#	
LAB FRACTIONS(CIRCLE) GVL: C C EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP STC: C CF	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP NP ETC: C CF	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF/	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	OR ENTER SITE ID AS NECESSARY; UP TO FRACTIONS COLLECTED. ENTER DATE, T CODES: I-IGHIABLE C-CORROSIUE R-ARACTIVE T-TOXIC MASTERTURN COMPLETED LOGSHEETS WITH SAMPL	(NAME/ORGANIZATION/ DATE/TIME	1-11-18-93	
SITE/STA HAZ? MWB	6MM	MW10SP	MW 1 1	MW12SP	MW13	MW14	-CHANGE OR ENT- -CIRCLE FRACTI -HAZARD CODES:	. m	LAURE BAIN	
8 # GSE	6#	• 10	#: *	+12	₽ B -15	*14	NOTE	RELINO		m

Deg C SAMPLER: Shipped on Ice? (Yes)No; I anticipate shipping (4) more samples on 11 1693 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp?

Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

LAB COORD, PATRICK WILBER Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD, PATRICK WILB!

*** SITE / STA HAZ? LAB EACTIONS CIECLE IN NE CODMITW. I CODMITW.	< ✓					44	93
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SAMPLER: Shipped on Ice? (Yes)No; I anticipate shipping 514) more samples on 11 16 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD. PATRICK WILBER

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SAMPLER: Shipped on Icer yes No; I anticipate shipping (4) more samples on ///6/32 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp?

Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

LAB COORD. PATRICK WILBER FIELD GROUP: CDDMTW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB

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13 1700 SAMPLER: Shipped on Ice? (Vec.)No; I anticipate shipping 7 (#) more samples on 11/16/ SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe: 11/16 (4) more samples on

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Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD. PATRICK WILBER

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				-		KED) HAZARD CODE AND NOTES PECIFICS IF KNOWN	BY (NAME/ORGANIZATION/	of human for allules 185	(#) more samples on 11/16/13 (700) tact? Yes/No Interior Temp? Deg C describe:
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SITE/STA HAZ? MW2	· MW3	MW4	MMS	MW6	WW7	-CHANGE OR ENTER SITE ID AS NECESSARY; UP TO CIRCLE FRACTIONS COLLECTED. ENTER DATE, T - HAZARD CODES: I-IGNIABL C-CORDSIVE R-REACTIVE T-TOXIC MASSIC - PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLI	ISHED BY: (NAME/ORGANIZATION/	ARE BON/E	Shipped on CUSTODIAN: Cus
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Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD. PATRICK WILBER

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Ded C 4 (4) more samples on 11/16/93 1700 SAMPLER: Shipped on Ice? Yes No; I anticipate shipping 4 (#) more samples on 11/16/9 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:



ENVIRONMENTAL TESTING & CONSULTING, INC.

2924 Walnut Grove Road • Memphis, TN 58111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

November 17, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order # 9311380

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311380

ETC Lab ID 9311380-01

Sample ID: ESE#*24/MW24 C

Matrix : AQUEOUS

Sample Date :11/14/93 17:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1630	11/15/93 SM	3500-D

ETC Lab ID 9311380-02

Sample ID: ESE#*24/MW24 CF

Matrix :AQUEOUS

Sample Date :11/14/93 17:00:00

TEST	RESULT	UNITS	DETECTION LIMIT		DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1630	11/15/93 SM	3500-D

ETC Lab ID 9311380-03

Sample ID: ESE#*35/MW35 C

Matrix : AQUEOUS

Sample Date :11/14/93 17:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1630	11/15/93 SM	3500-D

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311380

ETC Lab ID 9311380-04

Sample ID: ESE#*35/MW35 CF

Matrix : AQUEOUS

Sample Date :11/14/93 17:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1630	11/15/93 SM	3500-D

44 101 ENVIRONMENTAL TESTING & CONSULTING, INC.



2924 Walnut Grove Road = Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

November 17, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order # 9311342

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/12/93

ETC Order Number 9311342

ETC Lab ID 9311342-01

Sample ID: ESE#*10/MW10SP-C

Matrix : AQUEOUS

Sample Date :11/11/93 18:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	Date Analyzed by	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 sm	3500-D

ETC Lab ID 9311342-02

Sample ID: ESE#*10/MW10SP-CF

Matrix : AQUEOUS

Sample Date :11/11/93 18:00:00

TEST	· RESULT UN		DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD	
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 SM	3500-D	

ETC Lab ID 9311342-03

Sample ID: ESE#*12/MW12SP-C

Matrix : AQUEOUS

Sample Date : 11/11/93 15:30:00

TEST	RESULT UNITS		DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 SM	3500-D

ORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/12/93

ETC Order Number 9311342

ETC Lab ID 9311342-04

Sample ID: ESE#*12/MW12SP-CF

Matrix : AQUEOUS

Sample Date :11/11/93 15:30:00

TEST	EST RESULT (DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор	
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 SM	3500-b	

ETC Lab ID 9311342-05

Sample ID: ESE#*41/MW41DUP-C

Matrix : AQUEOUS

Sample Date :11/11/93

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD	
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 SM	3500-D	

ETC Lab ID 9311342-06

Sample ID: ESE#*41/MW41DUP-CF

Matrix : AQUEOUS

Sample Date :11/11/93

TEST	RESULT UNITS		DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD	
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 SM	3500-D	

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORCANG INORGANIC ANALÝSIS DATA SHEET

Client Name Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/12/93

ETC Order Number 9311342

ETC Lab ID 9311342-07

Sample ID: ESE#*42/MW42DUP-C

Matrix : AQUEOUS

Sample Date :11/11/93

TEST	RESULT UNITS		DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD	
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 SM	3500-D	

ETC Lab ID 9311342-08

Sample ID: ESE#*42/MW42DUP-CF

Matrix : AQUEOUS

Sample Date : 11/11/93

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD	
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93 SM	3500-D	

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⇙

LAB COORD. PATRICK WILBER

CDDMTW. 1

TIME

DATE

乌뙆

Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW

PROJECT NAME: HUNTSVILLE COE - DDMT

PROJECT NUMBER 79340826 0201

HAZ

SITE/STA MW8

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CARBON

CARBON

ð AND NOTES (NAME/ORGANIZATION/ -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER
-HAZARD CODES: I-LUMITABLE C-CORROSNY R-REACTIVE T-1001C MASTE H-0THER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc. BY REC'D HAND DEVUSTAD VIA: LARE AMULESE / 11-18-93/0145 DATE/TIME) RELINQUISHED BY: (NAME/ORGANIZATION/ NOTE

1700 Deg C SAMP WRITH Shipped on Ice? (Yes-No. I anticipate shipping 5 (#) more samples on 1 1/5/SAMP WRITHDIAN: Custody Seals Used? Yes/No. If Yes, Seals Intact? Yes/No Interior Temp? Preservatives Audited? Yes/No Any Problems? Yes/No. If Yes, describe: Preservatives Audited? Yes/No

*** FIELD GROUP: CDDMTW LAB COORD. PATRICK WILBER Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 79340826 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB

							4	4 1	0 (3
DATE TIME PARAMETER LIST CDDMTW.1 CDDMTW.1	CDDMTW.1	CDBMTW.1 CDBMTW.1	11-16-93 1200 CODMIN. 1	CDDMTW.1 CDDMTW.1	CDDMTW.1 CDDMTW.1	UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES OXIC MART H-OTHER ACHE HAZARD: IDENTIFY SPECIFICS IF KNOWN SAMPLES TO Environmental Science & Engineering, Inc.	Į¥. T	HAM 1821 VERENT		4 (4) more samples on 11/17-93 17000 als Intact? Yes/No Interior Temp? Deg C
SITE/STA HAZ? LAB FRACTIONS(CIRCLE) GVL: C	MW3 GVL: C R BC EC EC LC LC GVL: LC LC MS MS NS N NF GVL: NP NP NP ETC: C CF	MW4 GVL: C • EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP NP NP ETC: C CF	MWS GVL: C LC BC EC LC LC LC GVL: LC LC MS MS NS N NF II-	MW6 GVL: C W EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	MW7 GVL: C # 'EC EC EC LC LC COL: LC LC MS MS NS N NF GVL: NP NP NP MS MS NS N NF ETC: C CF	EE	JISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	ALEE BOTH ESE / 11-17-93 / 0850		AMPLER: Shipped on Ice? <u>Vestano;</u> I anticipate shipping AMPLE CUSTODIAN: Custody Seals Used? <u>Yes/No</u> ; If Yes, Se Preservatives Audited? <u>Yes/No</u> Any Problems? <u>Yes/No</u> ; If
#2 #3 #3	m *	*	# 150	9	B-29	NOTE	RELINQUISHED		۳	

LAB COORD. PATRICK WILBER *** FIELD LOGSHEET *** FIELD GROUP: CDDMIW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEE PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT ď

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TIME	1500					ANUMERIC CHA ELD DATA (IF TUT HAZARD IDEN ENVIRONMENTA	VIA:	CERTAIN DESTREAMENT	1	
DATE	11-12-93 1500					PALPH LIME, FI H-OTHER M	A	Supp.	1	1 1 1 1 1 1
ERACTIONS(CIRCLE) C C EC EC EC LC LC LC MS MS N NF NP NP C CF	LC C EC EC EC LC LC LC IN NF I	C C BC BC BC LC LC LC LC MS MS MS N NF NP NP C CF	C C EC EC EC LC LC LC LC MS MS MS N NF NP NP C CF	C C EC EC EC LC LC MS MS NS N NF NP NP C CF	C C EC EC EC LC LC LC. LC MS MS MS N NF NP NP	SCESSARY; SWIER R-REACTIVE ILI	ij			
COVI.: CO	SVI:: DE	GVL: GVL: FTC: CTC:	GVL: GVL: EPC: CRC:	GVL: GVL: ETC: O	GVL: GVL: GVL: EPC: C	SITE I COLLE CMITARE C	ORGANI	11-13	1	1
SITE/STA HAZ? MW2	. MW3	MM	MWS	WW6	MW7	CHANGE OR E CIRCLE FRAC HAZARD CODE PLEASE RETU	ISHED BY: (LAREBAN/ESE/	J ,	
ESE *2	en *	₹	*	9 *	# B-30	NOTE	RELINQU	2	2	m

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SAMPLER: Shipped on Ice? (Yes/No; I anticipate shipping (4) more samples on 11/15/53 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp?

Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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		E COL	ж Ч	S.S.			;				CDDMTW.1		·
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		PER COL	ž Z	ZÜ.							CDDMTW.1		
*10	MW10SP	GVL	ပည္ပ	LC MS	S EC	M M M S	Sz	LC NF			CDDMTW.1	MAD GETS CARBON	NO
				C.F.							CDDMTW.1	LOGSHEET	
*	MW11	GVE	ပည္ပု	LC NEC MS MS	SE SE	SE SE	l3≥	LC NF	EQ 2/7/ AN	0920	CDDMTW.1	9 9 9 9 9 9 9 19	
		ENCE	1	(3					(1.0)	0010	CDDMTW.1		١
*12	MW12SP	GOL	ပည္သန္	C FIGURE	SE SE	2 X	검조	A P C			CDDMTW.1	MRD GETS CARBON	NO
		E CAL		S F F F							CDDMTW.1	1446000	ļ
# # B-3	MW13	GVL	ပည္သ <u>ို့</u>	OE OE	SEG	20 M	S _Z	N.F.	,		CDDMTW.1		
31		BACE		U.S.							CDDMTW.1		
*14	MW14	CAL	ပည္သ	SE SE SE	SEC	32	S S	N N N			CDDMTW.1		
		EPC	èυ	C.Z.							CDDMTW.1		1
NOTE	ANGE RCLE ZARD EASE	OR ENTER SITE ID AS NECESSA FRACTIONS COLLECTED. ENTER CODES: I-10M11ABLE C-00R051VE R-REACTI RETURN COMPLETED LOGSHEETS	CLECT TOTAL	AS N ED.	ECE ENTI	SAR STIME STIME	7, 0 T.T.	P TO	ME, FIE HOTHER ACI	NUMERIC SLD DATA WE HAZARD:	RY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE WE T-TOKIC WASHE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN WITH SAMPLES TO Environmental Science & Engineering	AND NOTES	
<u> </u>	INQUISHED BY: ((NAME/ORGANIZATION	MIZA	TION	[DAT	re/J	ATE/TIME)		VIA:	REC'D BY ()	(NAME/ORGANIZATION/	1 4
	LAIRE BAIN	م/دده/	711	13-9	3/				A.	Three equipment	(B)		. ¦
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Deg C SAMPLER: Shipped on Ice? (Yes, No. I anticipate shipping (4) more samples on 1/15 73 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No. If Yes, Seals intact? Yes/No Interior Temp?

Preservatives Audited? Yes/No Any Problems? Yes/No. If Yes, describe:

LAB COORD. PATRICK WILBER Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 79340826 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD. PATRICK WILBE

ESE #	SITE/STA HAZ? MW22SP	LAB GVL: ETC:	FRAC C C C C C	CTIONS C EC I	ပ္သည္တ	RCLE) EC LC NF NP	NEC	DATE	TIME	PARAICTER LIST CDDMTW.1 CDDMTW.1	MRD (LOGS)	MRD GETS CARBON LOGSHEET
* 23	MW2.3	GVL:	OXO OXO	C EC	S _Z	EC LC NF NP	NPC			CDDMTW.1 CDDMTW.1		į
+24	MW24	GVL	o&o o×o	CF MS	O D	EC LC NF NP	NP			CDDMTW.1 CDDMTW.1		
*25	MW25	GVL	0 \$ C	SE SE	O PZ	EC LC NF NP	LC LC LC //-/3-93		0280	CDDMTW.1 CDDMTW.1	:	
*26	MW26	GVL: GVL: ETC:	OXO	ON RC CP MS	о М ж	EC IC	NEC			CDDMTW.1 CDDMTW.1		
*27	MW2.7	GVL:	OXO	OF MS MS MS CF	NZ NE	EC TC	NA OF			CDDMTW.1 CDDMTW.1		
89 87 * B-32	MW28	GOVI:: GOVI:: GOVI:: FIC::	ONEO	NAGE NAGE NAGE NAGE NAGE NAGE NAGE NAGE	SE SE	MS N	IJK IJK			CDDMTW. 1 CDDMTW. 1		
[변		SITE IS COL	LECTE TED L	S NE	CESS? NTER Recon	LRY;	UP TO 9 DATE, TI MIC WAST H	ME, FII	ANUMERI(ELD DATA THE HAZARO; ENVITODO	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE; UP TO 9 ALPHANUMERIC (IF REQUIRED), HAZARD CODE IN T-10XIC MASH H-OHER ACUTE HAZARD, IDENTIFY SPECIFICS IF KNOWN WITH SAMPLES TO Environmental Science & Engineering,	Y BE USED HAZARD CODE A FICS IF KNOWN & Engineering,	AND NOTES
RELINOU	ISHED B	(NAME/ORGAN	NIZATION,	NOI.		ATE/	DATE/TIME)		VIA:	REC'D BY	(NAME/ORGANIZATION/	FION/ DA
100	TRE BANJ	Se	0-11	3-9	3/			Ť.	HAND BURBLEY	Q-7E		

SAMPLER: Shipped on Ice? (Yes/No; I anticipate shipping (4) more samples on (1/5/93 0800) SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

m

Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD. PATRICK WILBER

			-	2
-1	#85 #36 #36	SITE/STA BAZ? MW36	CAL: C. C. EC EC EC LC LC CONTE TIME GVL: US MS N NF NP NP 11-12-93 1715 ETC: C. C. E. E. E. L.	CDDMTW.1 CDDMTW.1 CDDMTW.1
•	TE*	MW37SP	GVL: C C EC EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP BTC: C CF	CDDMTW.1 MRD GETS CARBON CDDMTW.1
ı	*38	MW38	GVL: C C EC EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP ETC: C CF	CDDMTW.1
1	# 39	6EMW	GVL: C C EC EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP ETC: C CF	CDDMTW.1
1	*40	MW40DUP	GVL: C C EC EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP ETC: C CP	CDDMTW.1
B-:	141	MW41D0P	GVL: C C EC EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP ETC: C CF	CDDMTW.1
33	*42	MW42DUP	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	CDDMTW.1 CDDMTW.1
•	NOTE	-CHANGE OR ENTER -CIRCLE FRACTIONS -HAZARD CODES: I- PLEASE RETURN CC	OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODES: I-IGNIMBLE C-CORROSIVE R-REACTIVE T-IONIC MATE H-OTHER ACHE MARKO: IDENTIFY SPECIFICS IF K RETURN COMPLETED LOGSHEETS WITH SAMPLES TO ENVIRONMENTAL SCIENCE & ENGINEE	C CHARACTERS MAY BE USED A (IF REQUIRED), HAZARD CODE AND NOTES IDENTIFY SPECIFICS IF KNOWN mental Science & Engineering, Inc.

SAMPLER: Shipped on Ice? (Yes)No; I anticipate shipping (4) more samples on (1/15/93 O8to) SAMPLE CUSTODIAN: Custody Stals Used? (Yes/No) If Yes, Seals Intact? (Yes/No) Interior Temp? Deg C Preservatives Audited? (Yes/No) Any Problems? (Yes/No) If Yes, describe:

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(NAME/ORGANIZATION,

REC'D BY

DATE/TIME)

1 CLARKE BAN/ESE/11-13-53,

RELINQUISHED BY: (NAME/ORGANIZATION/

CRECENTIAG ON WHIT



2924 Walnut Grove Road • Memphis, TN \$8111 • (901) \$27-2750 • FAX (901) \$27-6384

Founded 1972

November 19, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order # 9311547

Project Description Huntsville COE DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw,

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE DDMT

Date Arrived 11/18/93

ETC Order Number 9311547

ETC Lab ID 9311547-01

Sample ID: ESE#*6/MW6 C

Matrix : AQUEOUS

Sample Date :11/18/93 09:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93 SM	3500 - D

ETC Lab ID 9311547-02

Sample ID: ESE#*6/MW6 CF

Matrix : AQUEOUS

Sample Date :11/18/93 09:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93 SM	3500-D

ETC Lab ID 9311547-03

Sample ID: ESE#*15/MW15 C

Matrix : AQUEOUS

Sample Date :11/18/93 12:00:00

			DETECTION	TIME	DATE	
TEST	RESULT	UNITS	LIMIT		ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0B40	11/19/93 SH	3500-D

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE DDMT

Date Arrived 11/18/93

ETC Order Number 9311547

ETC Lab ID 9311547-04

Sample ID: ESE#*15/MW15 CF

Matrix : AQUEOUS

Sample Date :11/18/93 12:00:00

TEST	,	RESULT	BTINU	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium -	Kexavalent	<0.004	mg/L	0.004	0840	11/19/93 SH	3500-D

ETC Lab ID 9311547-05

Sample ID: ESE#*37/MW37 C

Matrix : AQUEOUS

Sample Date :11/18/93 11:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93 SM	3500-p

ETC Lab ID 9311547-06

Sample ID: ESE#*37/MW37 CF

Matrix : AQUEOUS

Sample Date :11/18/93 11:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93 SM	3500-D

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE DDMT

Date Arrived 11/18/93

ETC Order Number 9311547

ETC Lab ID 9311547-07

Sample ID: ESE#*40/MW40DUP C

Matrix : AQUEOUS

Sample Date :11/18/93

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93 SM	3500-D

ETC Lab ID 9311547-08

Sample ID: ESE#*40/MW40DUP CF

Matrix : AQUEOUS

Sample Date :11/18/93

TEST	RESULT	UNITS	DETECTION LIMIT		DATE ANALYZED E	¥	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93 8	M	3500-D



2924 Walnut Grove Road • Memphis, TN 58111 • (901) 327-2750 • FAX (901) 327-6334

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November 18, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order #

9311448

Project Description

Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory. in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President

Natur 110

General Manager

jw

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 793482G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/17/93

ETC Order Number 9311448

ETC Lab ID 9311448-01

Sample ID: ESE#*5/MW5 C

Matrix : AQUEOUS

Sample Date :11/16/93 12:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TPME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/17/93 SM	3500-D

ETC Lab ID 9311448-02

Sample ID: ESE#*5/MW5 CF

Matrix : AQUEOUS

Sample Date :11/16/93 12:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/17/93 SX	350D-D

ETC Lab ID 9311448-03

Sample ID: ESE#*44/MW44EBLK C

Matrix : AQUEOUS

Sample Date :11/16/93 16:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/17/93 SH	3500-D

Client Name

Environmental Science and

Project # 793482G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/17/93

ETC Order Number 9311448

ETC Lab ID 9311448-04

Sample ID: ESE#*44/MW44EBLK CF

Matrix : AQUEOUS

Sample Date :11/16/93 16:30:00

					 .	
TEST	RESULT	UNITS	DETECTION LIMIT	TIME	DATE ANALYZED BY	MEMBOD
1231	RESULT UNITS	UNIIB	DIMAL	ANALIZED	ANADIZED DI	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/17/93 SM	3500-D

Holy (1.)
LABORATORY MANAGER



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Founded 1972

November 19, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order #

9311511

Project Description

Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/18/93

ETC Order Number 9311511

ETC Lab ID 9311511-01

Sample ID: ESE#*14/MW14 C

Matrix : AQUEOUS

Sample Date :11/17/93 15:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED	BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1320	11/18/93	SM	3500-D

ETC Lab ID 9311511-02

Sample ID: ESE#*14/MW14 CF

Matrix : AQUEOUS

Sample Date :11/17/93 15:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1320	11/18/93 SM	3500-D

ETC Lab ID 9311511-03

Sample ID: ESE#*22/MW22 C

Matrix : AQUEOUS

Sample Date :11/17/93 15:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1320	11/18/93 SM	3500-D

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc.

Huntsville COE-DDMT

Date Arrived 11/18/93

ETC Order Number 9311511

ETC Lab ID 9311511-04

Sample ID: ESE#*22/MW22 CF

Matrix : AQUEOUS

Sample Date :11/17/93 15:00:00

TEST	RESULT	BTINU	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1320	11/18/93 SM	3500-D

ETC Lab ID 9311511-05

Sample ID: ESE#*43/MW43 C

Matrix : AQUEOUS

Sample Date :11/17/93 00:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1320	11/18/93 SM	3500-b

ETC Lab ID 9311511-06

Sample ID: ESE#*43/MW43 CF

Matrix : AQUEOUS

Sample Date :11/17/93 00:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1320	11/18/93 SM	3500-D



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Founded 1972

November 19, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order # 9311489

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

j₩

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/17/93

ETC Order Number 9311489

ETC Lab ID 9311489-01

Sample ID: ESE#*8/MW8 C

Matrix : AQUEOUS

Sample Date :11/17/93 12:20:00

Test	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/18/93 SH	3500-D

ETC Lab ID 9311489-02

Sample ID: ESE#*8/MW8 CF

Matrix : AQUEOUS

Sample Date :11/17/93 12:20:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/18/93 SM	3500-p

ETC Lab ID 9311489-03

Sample ID: ESE#*29/MW29 C

Matrix : AOUEOUS

Sample Date :11/17/93 09:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/18/93 SM	3500-D

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/17/93

ETC Order Number 9311489

ETC Lab ID 9311489-04

Sample ID: ESE#*29/MW29 CF

Matrix ; AQUEOUS

Sample Date :11/17/93 09:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/18/93 SM	3500-D



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Founded 1972

November 22, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order #

9311600

Project Description

Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President

General Manager

jw

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/20/93

ETC Order Number 9311600

ETC Lab ID 9311600-01

Sample ID: ESE#*19/MW19 C

Matrix : AQUEOUS

Sample Date :11/19/93 18:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	Date Analyzed by	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/2D/93 RP	3500-D

ETC Lab ID 9311600-02

Sample ID: ESE#*19/MW19 CF

Matrix : AQUEOUS

Sample Date :11/19/93 18:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ETC Lab ID 9311600-03

Sample ID: ESE#*28/MW28 C

Matrix : AQUEOUS

Sample Date :11/19/93 18:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN
INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/20/93

ETC Order Number 9311600

ETC Lab ID 9311600-04

Sample ID: ESE#*28/MW28 CF

Matrix : AQUEOUS

Sample Date :11/19/93 18:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ETC Lab ID 9311600-05

Sample ID: ESE#*30/MW30 C

Matrix : AQUEOUS

Sample Date :11/19/93 15:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ETC Lab ID 9311600-06

Sample ID: ESE#*30/MW30 CF

Matrix : AQUEOUS

Sample Date :11/19/93 15:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

Lawly !- L LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/20/93

ETC Order Number 9311600

ETC Lab ID 9311600-07

Sample ID: ESE#*48/MW48TS C

Matrix : AQUEOUS

Sample Date :11/19/93 17:15:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ETC Lab ID 9311600-08

Sample ID: ESE#*48/MW48TS CF

Matrix : AQUEOUS

Sample Date :11/19/93 17:15:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ETC Lab ID 9311600-09

Sample ID: ESE#*50/MW50TS C

Matrix : AQUEOUS

Sample Date :11/19/93 17:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc.

Huntsville COE-DDMT

Date Arrived 11/20/93

ETC Order Number 9311600

ETC Lab ID 9311600-10

Sample ID: ESE#*50/MW50TS CF

Matrix : AQUEOUS

Sample Date :11/19/93 17:45:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIMB ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ETC Lab ID 9311600-11

Sample ID: ESE#*51/MW51TS C

Matrix : AQUEOUS

Sample Date :11/19/93 18:30:00

TEST	RESULT	UNITS	DETECTION LIMIT		DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D

ETC Lab ID 9311600-12

Sample ID: ESE#*51/MW51TS CF

Matrix : AQUEOUS

Sample Date :11/19/93 18:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Rexavalent	<0.004	mg/L	0.004	0945	11/20/93 RP	3500-D



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Founded 1972

November 22, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order #

9311559

Project Description

Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President

General Manager

j₩

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311559

ETC Lab ID 9311559-01

Sample ID: ESE#*21/MW21 C

Matrix : AQUEOUS

Sample Date :11/18/93 17:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SM	3500-D

ETC Lab ID 9311559-02

Sample ID: ESE#*21/MW21 CF

Matrix : AQUEOUS

Sample Date :11/18/93 17:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SM	3500-D

ETC Lab ID 9311559-03

Sample ID: ESE#*32/MW32 C

Matrix : AQUEOUS

Sample Date :11/18/93 17:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311559

ETC Lab ID 9311559-04

Sample ID: ESE#*32/MW32 CF

Matrix : AQUEOUS

Sample Date :11/18/93 17:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SX	3500-D

ETC Lab ID 9311559-05

Sample ID: ESE#*45/MW45 C

Matrix : AQUEOUS

Sample Date :11/18/93 15:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SM	3500-D

ETC Lab ID 9311559-06

Sample ID: ESE#*45/MW45 CF

Matrix : AQUEOUS

Sample Date :11/18/93 15:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME	DATE ANALYZED BY	METHOD
Chromium - Rexavalent	<0.004	mg/L	0.004	1445	11/19/93 SM	3500-p

LABORATORY MANAGER

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311559

ETC Lab ID 9311559-07

Sample ID: ESE#*46/MW46 C

Matrix : AQUEOUS

Sample Date :11/18/93 16:30:00

DETECTION TIME DATE
TEST RESULT UNITS LIMIT ANALYZED ANALYZED BY METHOD

Chromium - Hexavalent <0.004 mg/L 0.004 1445 11/19/93 SM 3500-D

ETC Lab ID 9311559-08

Sample ID: ESE#*46/MW46 CF

Matrix : AQUEOUS

Sample Date :11/18/93 16:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SX	3500-D

ETC Lab ID 9311559-09

Sample ID: ESE#*47/MW47 C

Matrix : AQUEOUS

Sample Date :11/18/93 18:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SK	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311559

ETC Lab ID 9311559-10

Sample ID: ESE#*47/MW47 CF

Matrix : AQUEOUS

Sample Date :11/18/93 18:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93 SM	3500-0



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Founded 1972

November 22, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, FL 32602-1703

Ref: Analytical Testing

ETC Order #

9311599

Project Description

Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods 17th Edition; The Solid Waste Manual SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas Vice-President General Manager

jw

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Engineering, Inc.

Site ID

Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311599

ETC Lab ID 9311599-01

Sample ID: ESE#*20/MW20 C

Matrix : AQUEOUS

Project # 7934082G 0201

Sample Date :11/19/93 14:30:00

TEST	RESULT	UNITS	DETECTION LIMIT		DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D

ETC Lab ID 9311599-02

Sample ID: ESE#*20/MW20 CF

Matrix : AQUEOUS

Sample Date :11/19/93 14:30:00

TEST	RESULT	UNITE	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D

ETC Lab ID 9311599-03

Sample ID: ESE#*31/MW31 C

Matrix : AQUEOUS

Sample Date :11/19/93 12:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METROD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D

LANGER MANAGER

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Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311599

ETC Lab ID 9311599-04

Sample ID: ESE#*31/MW31 CF

Matrix : AQUEOUS

Sample Date :11/19/93 12:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D

ETC Lab ID 9311599-05

Sample ID: ESE#*33/MW33 C

Matrix : AQUEOUS

Sample Date :11/19/93 09:20:00

TEST	RESULT	UNITS	DETECTION LIMIT		DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D

ETC Lab ID 9311599-06

Sample ID: ESE#*33/MW33 CF

Matrix :AQUEOUS

Sample Date :11/19/93 09:20:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METEOD
Chromium - Bexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D

Justy 11-1/ LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311599

ETC Lab ID 9311599-07

Sample ID: ESE#*34/MW34 C

Matrix : AQUEOUS

Sample Date :11/19/93 10:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED B	Y METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 S.	M 3500-D

ETC Lab ID 9311599-08

Sample ID: ESE#*34/MW34 CF

Matrix : AQUEOUS

Sample Daté :11/19/93 10:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D

ETC Lab ID 9311599-09

Sample ID: ESE#*49/MW49 C

Matrix : AQUEOUS

Sample Date :11/19/93 15:15:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-p

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Environmental Science and

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311599

ETC Lab ID 9311599-10

Sample ID: ESE#*49/MW49 CF

Matrix : AQUEOUS

Sample Date :11/19/93 15:15:00

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TEST	RESULT	UNITS	DÉTECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93 SM	3500-D



2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334

Founded 1972

November 24, 1993

Ms. Claire Bain Environmental Science & Engineering, Inc. P.O. Box 1703 Gainesville, Florida 32602-1703

Ref: Analytical Testing

ETC Order # 9311379

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods, 17th Edition; The Solid Waste Manual, SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR, Part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas

Vice-President General Manager

iw



2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6384

Founded 1972

December 13, 1993

Ms. Claire Bain Environmental Science and Engineering, Inc. P.O. Box 1703 Gainesville, Florida 32602-1703

Ref: Analytical Testing

ETC Order # 9311379

Project Description Huntsville COE-DDMT

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods, 17th Edition; The Solid Waste Manual, SW-846; EPA Methods for the Analysis of Water and Wastes and/or 40 CFR, Part 136. The results are shown on the attached analysis sheet(s).

Please do not hesitate to contact our office if you have any questions.

Sincerely,

Randall H. Thomas

Vice-President General Manager

jw

Client Name

Env. Science & Eng. Inc.

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311379

ETC Lab ID 9311379-01

Sample ID: ESE#*3/MW3 C

Matrix : AQUEOUS

Sample Date :11/12/93 15:00:00

TEST	RESULT	UNITS	DETECTION LIMIT		DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 GD	3500-D

ETC Lab ID 9311379-02 Sample ID: ESE#*3/MW3 CF Matrix : AQUEOUS

Sample Date :11/12/93 15:00:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 GD	3500-D

ETC Lab ID 9311379-03

Sample ID: ESE#*11/MW11 C

Matrix : AQUEOUS

Sample Date :11/13/93 09:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 GD	3500-D

LABORATORY MANAGER

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ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name

Env. Science & Eng. Inc.

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311379

ETC Lab ID 9311379-04

Sample ID: ESE#*11/MW11 CF

Matrix :AQUEOUS

Sample Date : 11/13/93 09:30:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 GD	3500-p

ETC Lab ID 9311379-05

Sample ID: ESE#*25/MW25 C

Matrix : AQUEOUS

Sample Date :11/13/93 08:20:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 GD	3500-D

ETC Lab ID 9311379-06

Sample ID: ESE#*25/MW25 CF

Matrix : AQUEOUS

Sample Date :11/13/93 08:20:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 GD	3500-D

LABORATORY MANAGER

B-65

ENVIRONMENTAL TESTING & CONSULTING, INC. Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Env. Science & Eng. Inc.

Project # 7934082G 0201

Site ID

Engineering, Inc. Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311379

ETC Lab ID 9311379-07

Sample ID: ESE#*36/MW36 C

Matrix :AQUEOUS

Sample Date :11/12/93 17:15:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 -GD	3500-D

ETC Lab ID 9311379-08

Sample ID: ESE#*36/MW36 CF

Matrix : AQUEOUS

Sample Date :11/12/93 17:15:00

TEST	RESULT	UNITS	DETECTION LIMIT	TIME ANALYZED	DATE ANALYZED BY	метнор
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93 GD	3500-D

44 144

REC'D BY (NAME/ORGANIZATION/

Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB COORD. PATRICK WILBER

CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CHARACTERS MAY BE USED (IF REQUIRED), HAZARD CODE AND NOTES IDENTIFY SPECIFICS IF KNOWN Wental Science & Engineering, Inc.
TIME				<u> </u>			ANUMERIC CHAF ELD DATA (IF UNI HEMBE IDENT Environmental
SITE/STA HAZ? LAB FRACTIONS(CIRCLE) GVL: C EC EC EC LC LC GVL: LC LC MS MS N NF 11-17-93 0945 ETC: C ED	MW30 GVL: C C EC EC LC LC C C C EC EC LC LC C C MS MS MS N NF GVL: NP NP ETC: C CF	MW31 GVL: C C EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP NP BTC: C CF	MW32 GVL: C C EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP PP BTC: C CF	MW33 GVL: C C EC EC LC LC CGVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	MW34 GVL: C C EC EC LC LC GVL: LC LC MS MS WS N NF GVL: NP NP BTC: C CF	MW35 GVL: C C EC EC LC LC CGVL: LC LC MS MS MS N NF GVL: NP NP PP MS MS MS NP NP ETC: C CF	CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA HAZARD CODES: I-ICMITABLE C-CORPOSIVE R-FEACIVE T-TOKE MASE H-OHER ACHTE HAZARD. PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO ENVIRONME
ਲ # 35 # 29 * 29	*30	*31	*32	*33.	₽ * B-6	8.8 8.8 8.8 8.8 8.8 8.8 8.8 8.8 8.8 8	NOTE -CH -CTH -HA

CUTILE BAIN/FX /11-17-93/1555 HAND DELVIERED HOUGH LINDA LETC/1142-93/1555

DATE/TIME)

RELINQUISHED BY: (NAME/ORGANIZATION/

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping (#) more samples on 1/1/6/13 0850 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

# 80 # # #	SITE/STA BAZ?	GVL: G GVL: G GVL: N ETC: C	FRACTI C C C NP NP	ONS (C EC EC MS MS	CIRCLE) C EC LC S MS N	E) LC LC N NF	DATE 11-17-93	тіме (227)	PARACTER LIST CDDMTW.1 CDDMTW.1		æ.
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*12	MW12SP	GVL: GVL: GVL: PFC: O	ON SEC	MS MS		EC LC LC MS N NF			CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET	%
E-68	MM 1 3	GVL: GVL: ETC: N	ON CENT	EC WS WS WS		EC LC LC MS N NF			CDDMTW.1 CDDMTW.1		1
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RELINQUISHED	44	(NAME/ORGANIZATION	ZATIO	/2	TAG /	ATE/TIME)		VIA:	REC'D BY	IZATION/	18 F
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SAMPLER: Shipped on Ice? Yes No; I anticipate shipping $\frac{V}{V}$ more samples on $\frac{V}{V}$ /93 O83O SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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LAB COORD. PATRICK WILBER FIELD GROUP: CDDMTW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 79340826 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB

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	 	CARBON		CARBON				₩Q	386
		MRD GETS CA. LOGSHEET		MRD GETS CA. LOGSHEET			BE USED HAZARD CODE AND NOTES ICS IF KNOWN Engineering, Inc.	(NAME/ORGANIZATION/	1=10 11/12/23 08W
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TIME		NF 11-19 1800		11-11-93 1530			ANUMERIC ELD DATA UTT HAZARD; J	VIA:	HOND DOUNTEED
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SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping (#) more samples on 1/12/93 /700 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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SAMPLER: Shipped on Ice? (Yes)No; I anticipate shipping (a (t) more samples on 1/12/43 1700 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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SAMPLER: Shipped on Ice? (es)No; I anticipate shipping of (4) more samples on 11/15/93 (700) SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

MW35

11-1493 1730

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ESE #	SITE/STA BAZ? MW22SP	LAB FRACTIONS(CIRCLE) GVL: C C EC EC EC LC LC GVL: MS MS N NF NP NP//-/ ETC:	RCLE) DATE TIME CODMIN.1 EC LC LC NF NP NP/1-17-93 1500 CDDMIW.1 LOGSHEET CARBON
*23	MW23	GVL: C C EC EC EC LC LC GVL: MS MS N NF NP NP ETC: C CF	CDDMTW.1
*24	MW24	GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CP	CDDMTW.1
+25	MW25	GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	CDDMTW.1
* 26	MW26	GVI: C C EC EC EC LC LC GVI: MS MS MS N NF NP NP ETC: C CF	CDDMTW.1 CDDMTW.1
+27	MW27	GVL: C C EC EC EC LC LC GVL: MS MS N NF NP NP ETC: C CF	CDDMTW.1
87 * B-72	MW28	GVL: C C EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP NP ETC: C CF	CDDMTW.1
NOTE	CHANGE CIRCLE HAZARD PLEASE	OR ENTER SITE ID AS NECESSARY; UP TO 9 FRACTIONS COLLECTED. ENTER CODES: I-10#ITABLE C-028051VE R-REACTIVE T-10*IC MASTE H- RETURN COMPLETED LOGSHEETS WITH SAMPLES	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES TIVE T-TOKIC MASTE H-OTHER ACUT HAZARD. IDENTIFY SPECIFICS IF KNOWN WITH SAMPLES TO Environmental Science & Engineering, Inc.
RELINOU	ISHED BY:	(NAME/ORGANIZATION/ DATE/TIME)	VIA: REC'D BY (NAME/ORGANIZATION/ DA
	1. C.	15-8	0945 Komb DEVLUERES
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Ded C SAMPLER: Shipped on Ice? (Ves/No; I anticipate shipping 2 (4) more samples on 1/1393 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp?

Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

*** FIELD GROUP: CDDMTW	RD. PATRICK WILBER
*** FIE	LAB COO
ng, Inc. 11-04-93 *** FIELD LOGSHEET ***	E - DOMT
*** FIEL	SVILLE CO
11-04-93	NAME: HUNT
ring, Inc.	PROJECT
Environmental Science & Enginees	PROJECT NUMBER 7934082G 0201

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ESE #	SITE/STA HAZ? MW43DUP	LAB FRACTIONS (CIRCLE) GVL: C C EC EC EC LC LC GVI: 10 10 MS MS N NF 6.2	TIME PARAMETER LIST CDDMTW.1
			CDDMTW.1
¥44	MW44EBLK	GVI: C C EC EC LC LC C GVI: LC LC MS MS MS N	CDDMTW.2
		z.o	CDDMTW.2
*45	MW4SEBLK	GVL: C C EC EC EC LC LC GVL: LC LC MS MS N	CDDMTW.2
	٠	žυ	CDDMTW.2
* 46	MW46EBLK	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N	CDDMTW.2
		žo	CDDMTW.2
*47	MW47EBLK	GVL: C C EC EC LC LC COVIE LC MS MS NS N	CDDMTW.2
	-	ະດ	CDDMTW.2
8 7 * B-7.	MW48TS	ည်း	CDDMTW.3
3			V / CDDMTW.3
NOTE	-CHANGE OR ENTER -CIRCLE FRACTION -HAZARD CODES: I -PLEASE RETURN CO	OR ENTER SITE ID AS NECESSARY; UP TO 9 ALF FRACTIONS COLLECTED. ENTER DATE, TIME, F CODES: I-IMMINALE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER RETURN COMPLETED LOGSHEETS WITH SAMPLES TO	NECESSARY: UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES WE RAFACTIVE TATOXIC WASTE H-OTHER ACUTE MAZARD SPECIFICS IF KNOWN SHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.
RELINC	RELINQUISBED BY: (NAME	(NAME/ORGANIZATION/ DATE/TIME)	VIA: REC'D BY (NAME/ORGANIZATION/ DA
- - -	thild Both	7=11	5-93/6945 mm Annexer
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			2 (4) 2 m 1 m 2 m 2 m 2

SAMPLER: Shipped on Ice? Kes/No; I anticipate shipping 5 (#) more samples on // /s/53 //cosample custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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ESE #	SITE/STA HAZ?	LAB	FRACT	TIONS (CIRCLE) EC EC EC LC C MS MS N	E C LC	DATE	TIME	PARACTER LIST CODMTW.1	2
		GVL:	NA P	?	• :			CDDMTW.1	
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*45	MW45EBLK	SAL	0 1 1 1 1 1 1	EC EC	EC IC IC			CDDMTW.2	I
	-	ETC:		. 24(24				CDDMTW.2	
*46	MW46EBLK	865	21; 21;	EC EC MS MS	EC LC LC			CDDMTW.2	ı
		E L L L L		ւինս				CDDMTW.2	
*47	MW47EBLK	SOL	0 0 0 0	EC EC MS MS	EC LC LC MS N			CDDMTW.2	1
		FTC:		ւ լը,				CDDMTW.2	
80 * B-7	MW48TS	GVL:	² 23	EC EC	EC LC LC	Soll of		CDDMTW.3	1
4		ETC			1		•	CDDMTW.3	
NOTE	-CHANGE OR ENTER- CIRCLE FRACTION -HAZARD CODES: I	SITE IS COL	ID AS	OR ENTER SITE ID AS NECESSARY; FRACTIONS COLLECTED. ENTER CODES: I-MINAL C-CORDSIVE R-REACTIVE T-I RETURN COMPLETED LOGSHEETS WITH	DATE, 1	P ALPHA LIME, FIE H-OTHER ACU	NUMERIC LD DATA TE HZMB:	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES WITH SAMPLES TO Environmental Science & Engineering, Inc.	1
RELING	RELINQUISBED BY: (NAME	l ~~∗	ORGANIZATION	1	ATE/TIME)		VIA:	REC'D BY (NAME/ORGANIZATION/ DA	la;
1 (5 BM		7	-17-93	as&0 ₁				, ,
2	-	-	•	~			,	1. Sonomoson 1516 11/17/43 0850	
m					: ! ! !	 	 		1

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping (#) more samples on 1/17/93 / Zecsample CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

ESE # 2	SITE/STA BAZ?	CAB GVL:	L CAR	CTIONS	SC EC	SCINC	EC LC LC	O Eu	DATE	TIME	PARAMETER LIST CDD/MTW. 1	
		ETC:		A Eu							CDDMTW.1	
m *	- MM3	1775	ပည္မ	OUS NE	EC EC	,	EC LC LC MS N NF	Ų.			CDDMTW.1	
		ETC:		ь <u>г</u>							CDDMTW.1	
7+	MW4	SAT:	ပ <u>ျှ</u>	on: eve	SH SH		SC LC LC	OF4			CDDMTW.1	
		10 10 10 10 10 10 10 10 10 10 10 10 10 1		դ <u>ե</u> լ							CDDMTW.1	
	MW5	385	OH;	OT: OT: OE	AEC AEC AEC	SE	C LC LC S N NF	رين			CDDMTW.1	
		12 12 13 13 13 13 13 13 13 13 13 13 13 13 13		ւլն, 2()		٠.					CDDMTW.1	
9	ЭмМ	ij.	U	OX OX	回 2 2 3 3 3 3 3 3 3	M2 U		: : :ون	LC LC	9	CDDMTW.1	
		ETC:	1 4	_		Ξ.		1-K	<u>م</u>	010	OT & CDDMTW.1	
~ ∗ B-7	TWM	GVL:	OH2	OUY OU OE	EC EC	PI 25.	S LC LC	UΨ			CDDMTW.1	
5		E E		4[4 5(1)							CDDMTW.1	
NOTE	O'TA'S	SITE S COLI	LECTED AS LECTED CORROS	AS NECESSAFIED. ENTER ORROSIVE R-REACTIVE LOGSHEETS W	ENT ENT HEE	SSAB ER ACTIVE PS W	KA:	TE, TI	ALPHA ME, FIE FOTHER ACU	UP TO 9 ALPHANUMERIC DATE, TIME, FIELD DATA TONIC WASTE MOTHER ACUTE HAZARD:]	ANUMERIC CHARACTERS MAY BE USED ELD DATA (IF REQUIRED), HAZARD CODE AND NOTES CUT HARRS IDENTIFY SPECIFICS IF KNOWN Environmental Science & Engineering, Inc.	NOTES
RELINOU	ISHED BY:	(NAME/ORGANIZATION	IIZN	TION	 - -	Ϋ́С -	ATE/TIME)	ME ()		VIA:	REC'D BY (NAME/ORGANIZATIO	NC /NC
l 1	1 Bar /	ese	I_{μ}	31-	ú	~	1615] 	\$	NO OF	HAMO DECUGATE	
2		1	.	 	i	- ¦	i ! !	 	 	 	Barckak Barger 11/18/93 Juls	33 1415
3			j] -	 	 	 	 		- - 	

SAMPLER: Shipped on Ice? (yes/No; I anticipate shipping S(*) more samples on 11/19/93 OSOO SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

V.

ESE # '	SITE/STA HAZ?	LAB FRACTIONS (C	IRCLE) EC LC LC	TIME PARMETTR LIST CDDMTW. 1
1		3 8 €) € €	4 2 2	11-18-93 1200 CDDMIW.1
¥16	MW16	GVI. C C EC EC	EC LC LC	CDDMTW.1
		6 dd		CDDMTW.1
*17	MW17	GVL: C C EC EC	EC LC LC	CDDMIW. 1
		C CF	34 35	CDDMTW.1
*18	MW18	ۇن د تى		CDDMTW.1
i			3	CDDMTW.1
#1 구 문	MW19	ر د	ST ST SE	CDDMTW.1
			4	CDDMTW.1
*20	MW20	GVI: C C EC EC	EC LC LC	CDDMTW.1
		C CF H3	7 K 4 K	CDDMTW.1
-8 -2	MW21	GVL: C C EC EC	EC IC IC	CDDMTW.1
76		C CF RS	7 E	CDDMTW.1
NOTE	-CHANGE OR ENTER- CIRCLE FRACTION -HAZARD CODES: 1 -PLEASE RETURN (OR ENTER SITE ID AS NECESSA FRACTIONS COLLECTED, ENTER CODES: I GRITABLE C-CORROSIVE R-REACTI RETURN COMPLETED LOGSHEETS	RY; W.T-	UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN 1 SAMPLES TO Environmental Science & Engineering, Inc.
RELINQUI	PHED B	E/ORGANIZATION/	ATE,	VIA: REC'D BY (NAME/ORGANIZATION/ DA
$\frac{1}{2}$	Lane Barro	(ESE/11-18-93)	5/9	man ariverser
7	,	~		13 Choka K Ranger 11/18/93 16/5
i M		 		

SAMPLER: Shipped on Ice? Yes No; I anticipate shipping 5 (#) more samples on 11/19/93 OSCO SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

LAB COORD. PATRICK WILBER FIELD GROUP: CDDMIW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAB

	The state of the s	CONCOCCUTATION CONTRACTOR TO CONTRACTOR CONT	- DUMI LAB COURD. PAINICH WILBER
# 383 #36	SITE/STA H	HAZ? LAB FRACTIONS(CIRCLE) GVL: C C EC EC LC LC GVL: MS MS NS N NF NP ETC: C CF	CDDMTW.1
*37	MW37SP	GVL: C C EC EC EC LC LC C GVL: UP Nº 11-18-93 1130 GVL: Nº Nº Nº Nº Nº Nº 11-18-93 1130 ETC: C CF	CDDMTW.1 MRD GETS CARBON CDDMTW.1
*38	HW38	GVL: C C BC BC LC LC GVL: LC LC MS MS N NF GVL: NP NP S MS MS N NF BTC: C CF	CDDMTW.1
6E#	MW39	GVL: C C EC EC LC LC GVL: LC LC MS MS NS N NF GVL: NP NP NP STC: C CF	CDDMTW.1
*40	MW40DUP	GVL: C. C. EC BC EC LC LC GVL: LC LC MS MS MS N N W 1/-/5'-93	CDDMTW.1
⊊ *B-77	MW41DUP	GVL: C C EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP ETC: C CF	CDDMTW.1
*42	MW42DUP	GVL: C C EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP ETC: C CF	CDDMTW.1
NOTE	CHANGE CIRCLE HAZARD PLEASE	TER SITE ID AS NECESSIONS COLLECTED. ENTER: I. GOMPLETED LOGSHEETS	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES IN T-TOXIC MAST HOTHER ACUT HAZARD IDENTIFY SPECIFICS IF KNOWN WITH SAMPLES TO Environmental Science & Engineering, Inc.
RELINGU	THED BY: (NAME/ORGANIZATION/ DATE/TIME)	REC'D BY (NAME/ORGANIZATION/ DA
3	and Bas	Home	11/18/03 (1015)
3			

44 SAMPLER: Shipped on Ice? Ves No; I anticipate shipping (1) more samples on 11/19 73 0800 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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TIME CODMIN. 1 CDDMIW. 1	CDDMTW.1	CDDMTW. 1	CDDMTW.1	CDDMTW.1	Сромти. 1 1430 сромти. 1	CDDMTW.1 CDDMTW.1	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES IN TAXAC MASTE HACHER ACUIT HAZARD: IDENTIFY SPECIFICS IF KNOWN WITH SAMPLES TO Environmental Science & Engineering, Inc.	A: REC'D BY (NAME/ORGANIZATION/ DA	A B WAY OF DENTINGES / 1620 / ETC	
					Į.		PHANU FIELD * ACUTE !	VIA	Const.	
# SITE/STA HAZ? LAB FRACTIONS(CIRCLE) GVL: C C EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP ETC: C CF	16 MW16 GVL: C C EC EC LC LC GVL: MS MS MS NP NP	ာ ပ <u>ജ</u> ပ	18 MW18 GVL: C C EC EC LC LC C GVL: MS MS N NP NP NP ETC: C CF	19 MW19 GVL: C C EC EC LC LC GVL: MS MS N NF NP NP ETC: C CF	20 MW20 GVL: C EC EC LC LC C GVL: BS N NF NP	21 MW21 GVL: C C EC EC LC LC C GVL: MS MS MS NF NP NP ETC: C CF	-CHANGE OR ENTER SITE ID AS NECESSCIRCLE FRACTIONS COLLECTED. ENTER -HAZARD CODES: I-IMMINBLE C-CORRUSIN R-REACT	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	Waie Boing ESE / 11-19-93/1620	
(A)	•	*	*	*	*	* B-78	NOTE	REL		

SAMPLER: Shipped on Ice? (yeg/No; I anticipate shipping (o (f) more samples on (1/20/93 o830) SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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# 353 # 449	SITE/STA HAZ? MW49TS	LAB FRACTIONS(CIRCLE) GVL: C C EC EC LC LC GVL: LC LC MS MS N NF GVL: NP NP NP	±-
		(E GE) 11-19-43	ISIS CDDMTW.3
¥20	MWSOTS	GVL: C C EC EC EC LC LC GVL: LC LC LC MS MS N NF	CDDMTW.3
-		NP NP	CDDMTW.3
* 51	MWSITS	GVL: C C EC BC EC LC LC GVL: LC LC MS MS MS N NF	CDDMTW.3
		O CF	CDDMTW.3
*55	MWSZTBLK	GVL: VP VP VP	CDDMTW.4
*53	MWS3TBLK	GVL: VP VP VP	CDDMTW. 4
*54	MWS4TBLK	GVL: VP VP VP	CDDMTW.4
* 55	MW55TBLK	GVL: VP VP VP VP	CDDMTW.4
* 56	MWSGTBLK	GVL: VP VP VP VP	CDDMTW.4
# #23	MW57TBLK	GVL: VP VP VP	CDDMTW. 4
9	MWSSTBLK	GVL: VP VP VP VP	CDDMTW.4
*59	MWS9TBLK	GVL: VP VP VP	CDDMTW.4
09∗	MW60TBLK	GVL: VP VP VP VP	CDDMTW.4
NOTE	-CHANGE OR ENTER -CIRCLE FRACTION -BAZARD CODES: I -PLEASE RETURN C	OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUME FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD D CODES: I-IGNIAGE C-CORROSIVE RARKETLY T-TOXIC MASTE H-OTHER ACUTE HAZA RETURN COMPLETED LOGSHEETS WITH SAMPLES TO ENVIT	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES WET-TOXIC WASTE H-DIMER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN WITH SAMPLES TO Environmental Science & Engineering, Inc.
RELINO	RELINQUISHED BY: (NAME	(NAME/ORGANIZATION/ DATE/TIME) VIA:	REC'D BY (NAME/ORGANIZATION/ DA
7	Serve	ESE 11-19-93/1620	WHEN SOLVERSTY
5	1	•	Annirah Bara, 111/19193, 1420, ETC.

0830 Deg C SAMPLER: Shipped on Ice? (yes)No; I anticipate shipping (o (#) more samples on II/20/ SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** FIELD GROUP: CDDMTW PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE + DDMT LAB COORD, PATRICK WILBER

ESE #	# SITE/STA HAZ?	GVL:	FRACTIONS(CIRCLE) C C EC EC EC LC LC LC LC MS MS MS N NF	TIME	PARAMETER LIST
ļ		GVL: ETC:	CF		CDDMTW.1
*	30 MW30	GVL:	C C BC BC BC LC LC LC LC MS MS N NP		CDDMTW.1
		ETC:			CDDMTW.1
*	II MW31	GVL: GVL:	EC EC EC LC LC		CDDMTW.1
		GVL: ETC:	*	230	CDDMTW.1
¥3	32 MW32	GVL:	C C BC BC BC LC LC	;	CDDMTW.1
ļ		ETC:			CDDMTW.1
*3	13 MW33	GVL: GVL:	C C BC BC LC LC LC LC LC LC LC MS MS N NE		CDDMTW.1
		GVL	是 11-7-93	0260	CDDMTW.1
₩ # B-8	4 MW34	GVL:	C C BC BC BC LC LC	Ī _	CDDMTW.1
0		ETC:	1 11		CDDMTW.1
რ	5 MW35	GVL	C C EC EC EC LC LC LC LC MS MS N NF NB NB MS N NF		CDDMTW.1
		ETC:	į.		CDDMTW. 1
NOTE	원모인원	SITE IS COL	OR ENTER SITE ID AS NECESSARY, UP TO 9 ALPHANUI FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD CODES: I-IGNINGLE C-CORROSIVE R-ALACTIVE T-TOXIC WASTE H-CTHER ACUTE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO EDVI	JMERIC DATA HAZARD: /1ronm	UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES OXIC WASIT HATHER ACUIT HAZARD: IDENTIFY SPECIFICS IF KNOWN I SAMPLES TO Environmental Science & Engineering, Inc.
RELI	RELINQUISHED BY: (NAME	./ORGAL	/ORGANIZATION/ DATE/TIME) VI	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
- !	Bein	ESE!	13/1620	DO 00	UCONTO
2	· · · · · · · · · · · · · · · · · · ·	1	ang	SAL SAL	Pretarkal Bages (11/19/93/1620/ ETC.
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de reserve	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	9		-	4

SAMPLER: Shipped on Ice? Kes/No: I anticipate shipping (p (#) more samples on // zo/93 o835 SAMPLE CUSTODIAN: Custody Seals Used? Yes/No: If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No: If Yes, describe:

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ਜ਼ੂਨ ਜ਼ੂ* ਨੈ।	SITE/STA HAZ?	LAB FRACTIONS(CIRCLE) GVL: C C EC EC EC LC LC GVL: LC LC MS MS N NF	DATE TIME	PARAMETER LIST CDDMTW . 1
		ž U		CDDMTW.1
*16	MW16	GVL: C C BC BC BC LC LC		CDDMTW.1
		C CF in Mr Nr		CDDMTW.1
¥17	MW17	l		CDDMTW. 1
		C CF N NF NF		CDDMTW, 1
. +18	MW18	GVI: C C EC EC EC LC LC		CDDMTW.1
		C CF MS IN INF IN	!	CDDMTW.1
*19	MW19	ပန္		CDDMTW.1
		N NE OF		CDDMTW.1
*20	MWZO	ر ن		CDDMTW.1
		CF NO NE NE		CDDMTW.1
12 # B	MW2 1	28 28 2 2 2 2 2	EG 15 15 15 1-18.93	CDDMTW.1
8 1		Ł	anti ci pi	CDDMTW.1
NOTE	CHANGE	OR ENTER SITE ID AS NECESSARY; UP TO PRACTIONS COLLECTED. ENTER	9 ALPHANUMERI IME, FIELD DAT	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
		-JONITABLE C-CORROSIVE R-REACTIVE T-TOXIC MASTE COMPLETED LOGSHEETS WITH SAMPI	H-OTHER ACUTE HAZARD; ES TO EDVITOR	IDENTIFY SPECIFICS IF KNOWN mental Science & Engineering, Inc.
RELINGUISHED	ויייו	(NAME/ORGANIZATION/ DATE/TIME)	VIA	REC'D BY (NAME/ORGANIZATION/ DA
	4. Bir 165	SE (11-19-93/0950	HAND DRUVERED	पि _र रेक व
2		•	Public	Payadion Baiden/Idla193/. C953/ETC
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SAMPLER: Shipped on Ice? (Yes)No; I anticipate shipping 8 (#) more samples on 11/19/93 1700
SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C
Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

						İ					-			,,	P.P.		!	4	1
PARARZTER LIST CDDMTW . 1	CDDMTW.1	СОВИТИ. 1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	CDDRTW.1	CDDMTW.1	CDDMTW.1	CDDMTW.1	ARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES WITH SAMPLES TO Environmental Science & Engineering, Inc.	REC'D BY (NAME/ORGANIZATION/	Character	Pulzukah Bangan/111(191931, 29.53-15IS.		
TIME	Ū		Ū		J		242		Ü		Ü		Ü	NUMERIC LD DATA IF HAZARD: I	VIA:	HAMO DECLUSIVATO	भूकभुग्दा	; ; ; ;	(
DATE		:				C LC NF S S S S	8-73	:						ME, FIE HOHER ACU		£	.4C)	 	
ONS(CIRCLE) EC EC EC LC LC MS MS MS N NF		MS MS MS N NF		EC EC EC LC LC MS MS NS N NF		EC EC EC LC LC MS MS N NF	I-11	EC EC EC LC LC MS MS MS N NF		C EC EC LC LC S MS MS N NF		S HS MS N NF		ECESSARY; UP TO ENTER DATE, T R-MANE THE SAMPL	/ DATE/TIME)	260		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
LAB FRACTIO GVL: C C E GVL: LC LC M	ပ 	GVL: C C E GVI: UC NO NO		GVL: C C E	ξU	GVL: C. C. E.		GVI: C C E	¥∪	GVI: C C EC	ž U	GVL: C C BC	ETC: C CF	OR ENTER SITE ID AS NECESSARY; FRACTIONS COLLECTED. ENTER CODES: I.ICMITABLE C.CORROSIVE R.FLACTIVE TA RETURN COMPLETED LOGSHEETS WITH	NAME/ORGANIZATION/	E 11-11 3.		1	(
SITE/STA HAZ?		MW30		MW31		MW32		MW33		MW34	·	MW35		ம்ம்	1 200 I	3sin/ES	- ! !		
프용프 *5*		0 #		+31		*32		# #		₽ # B-82	2	¥35		NOTE	RELINQUISHED	<u></u>	2	m	

Deg C SAMPLER: Shipped on Ice? (Yes/No; I anticipate shipping **&** (#) more samples on #/f9 f3 | 700 | SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg (Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

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LAB COORD. PATRICK WILBER FIELD GROUP: CDDMIW Environmental Science & Engineering, Inc. 11-04-93 *** FIELD LOGSHEET *** PROJECT NUMBER 7934082G 0201 PROJECT NAME: HUNTSVILLE COE - DDMT LAF

4						
		-		-		
TIME PARAFTER LIST CDDMTW.1	CDDMTW.2 CDDMTW.2	500 CDDMTW.2	11-18-93 1630 CODMTW.2	CDDMTW.2	CDDMTW.3 CDDMTW.3	
DATE		18-93	71 86-31-	18-93	LC LC NF PS-Se 10	
LAB FRACTIONS (CIRCLE) GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	GVL: C C EC EC EC LC LC GVL: UF NP	GVI: C C EC EC EC LC LC CGVI: NE	GVL: C. C. BC BC BC LC LC C. GVL: NE WE	CALL: C. C. EC. EC. EC. LC. LC. LC. LC. LC. LC. LC. LC. LC. L	GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NF MS MS N NF ETC: C CF	
SITE/STA HAZ? MW43DUP	MW44EBLK	MW45EBLK	MW46BBLK	MW47EBLK	MW48TS	
ESE #	₽ 4	*45	*46	-47	80 ₩ B-83	1

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IONITABLE C-CORROSIVE R-REACTIVE T-TONIC MASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO ENVIRONMENTAL SCIENCE & Engineering, Inc. BY (NAME/ORGANIZATION/ 4550/ 56161/11/2010 Progen/ 11/19/93 /0952 REC'D Carrier ocuvered VIA DATE/TIME) 0360 Mis Bain/65 [11-19-93) RELINQUISHED BY: (NAME/ORGANIZATION/

SAMPLER: Shipped on Ice? (es/No; I anticipate shipping 8 (4) more samples on 11 / 14 / 93 / 70 O SAMPLE CUSTODIAN: Custody Seals Used? Yes/No; If Yes, Seals Intact? Yes/No Interior Temp? Deg C Preservatives Audited? Yes/No Any Problems? Yes/No; If Yes, describe:

FINAL PAGE

ADMINISTRATIVE RECORD

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ADMINISTRATIVE RECORD

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