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THE MEMPHIS DEPOT
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ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 44

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

Environmental
Science &
Engineering, Inc.

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.

Jeffrey P. Bleke, P.E.
Project Director

Paul A. Locascio, P.G.
Project Scientist

Claire Bain
Project Manager

MCB:srs

Enclosures

pc: R. Wilson (DDMT) (4 copies, 3 w/Appendix D)
D. Lillo (DLA) (1 copy w/out Appendix D)
L. Percifield (CEMRD) (1 copy w/Appendix D)
R. Charna (ESE, Inc.) (1 copy w/out Appendix D)
C. Bain (ESE, Inc.) (1 copy w/Appendix D)

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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 NO.	STATE PLANE COORDINATES		GROUND SURFACE LEVEL (ft-msl)	DEPTH TO WATER*	WATER LEVEL ELEVATION (ft-msl)+
	EASTING	NORTHING			
MW-2	802244.75	281693.78	289.70	DRY	- - -
MW-3	802100.69	281596.25	290.40	63.34	228.89
MW-4	802369.19	281278.87	300.00	70.91	230.39
MW-5	802084.68	281254.49	301.30	75.46	229.04
MW-6	802069.13	280604.17	288.10	59.14	229.36
MW-7	802461.70	281839.88	293.10	64.56	228.54
MW-8	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	802089.00	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	68.98	230.97
MW-14	802288.95	280003.37	302.44	73.54	228.90
MW-15	801985.40	280346.90	295.23	65.20	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	800602.40	276473.30	295.11	93.55	201.56
MW-22	800702.10	275812.40	298.06	96.40	201.66
MW-23	801817.10	275791.00	299.04	98.87	200.17
MW-24	803536.80	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	303.68	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	282228.19	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	162.19
MW-35	802070.44	281072.31	301.65	71.03	229.42
MW-36	802887.01	279531.02	311.15	154.31	156.84
MW-37	801616.58	280831.22	285.46	129.61	155.85
MW-38	802450.43	279141.38	308.36	133.36	174.98
MW-39	802598.11	277280.67	296.42	101.99	194.43

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

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

Source: ESE

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:

1. Non-contaminated, new tubing was inserted into the appropriate container (i.e., 1-L polyethylene container or glass jar) holding sample water.
2. 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 μg/L. Parameters in the groundwater samples with concentrations above Federal and

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

Matrix Analyses	Field Samples	Quality Assurance/Quality Control* Split Dups QC(a)	Split Dups QA(b)	Rinsates QC(a)	Rinsates QA(b)	Trip Blanks QC(a)	Trip Blanks QA(b)
TCL Volatiles (SW8240)	34	4	4	4	4	10	3
TCL Semivolatiles (SW8274)	34	4	4	4	4	NR	NR
Polynuclear Aromatic Hydrocarbons (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
Total Dissolved Solids (160.1)	1-L polyethylene	1	Cool 4°C	7 days

*All containers were sealed with Teflon®-lined screw caps.
†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.

Source: ESE.

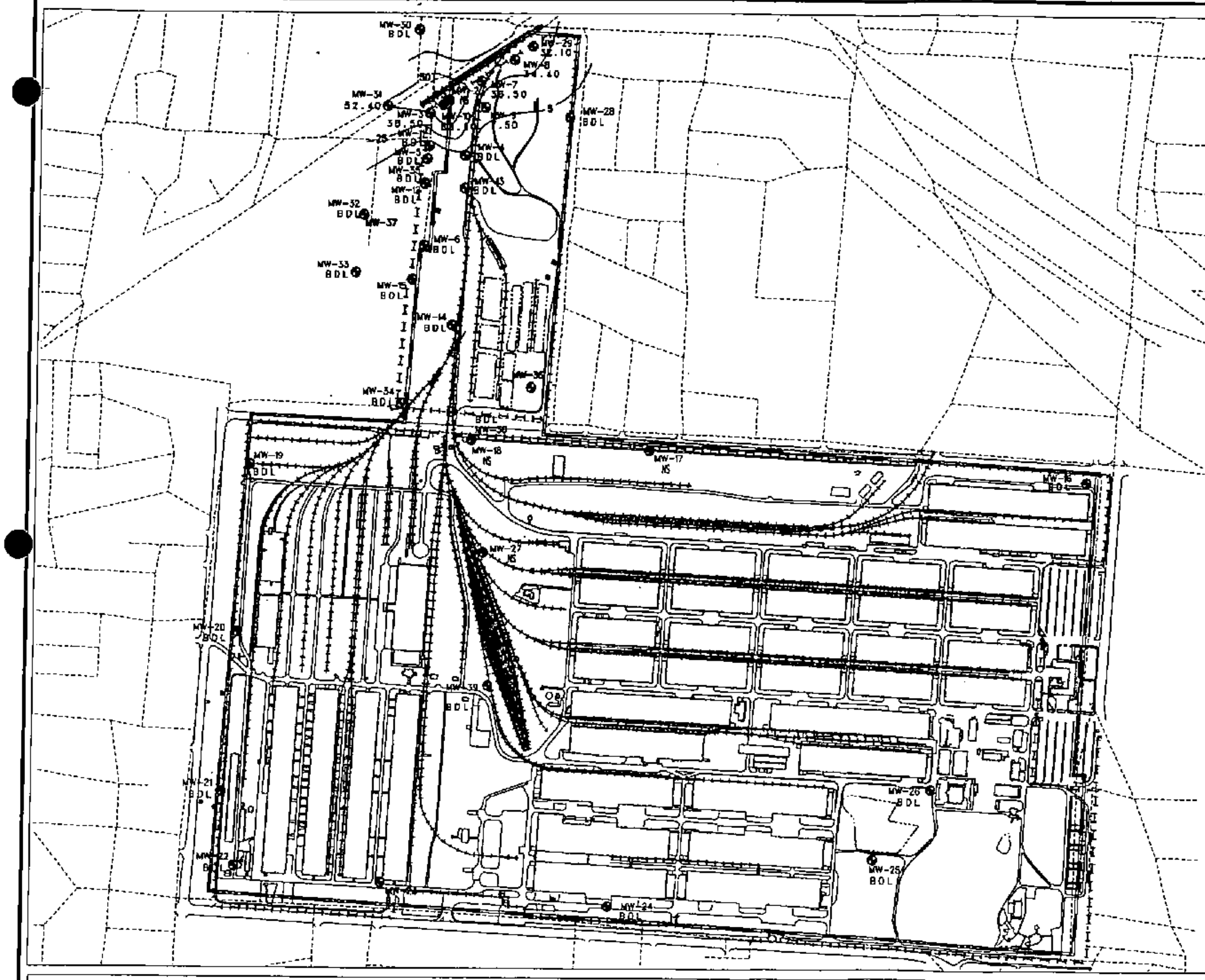
State of Tennessee maximum contaminant levels (MCLs) include tetrachloroethene; 1,1-dichloroethene; trichloroethene; carbon tetrachloride; metals; and trace amounts of various other contaminants. All parameter concentrations above the MCLs were detected within the fluvial (upper) aquifer. The Memphis 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. [illegible] Analytical Results for Parameters Above Detection Limits (MW-3 through MW-15)

SAMPLE ID'S / PARAMETERS / UNITS	STORET / METHOD	MW3 CDDMTW 3	MW4 CDDMTW 4	MW5 CDDMTW 5	MW6 CDDMTW 6	MW7 CDDMTW 7	MW8 CDDMTW 8	MW9 CDDMTW 9	MW10SP CDDMTW 10	MW11 CDDMTW 11	MW12SP CDDMTW 12	MW13 CDDMTW 13	MW14 CDDMTW 14	MW15 CDDMTW 15	State and Federal MCLs*: Tennessee MCL	Federal MCL
DATE		11/12/93	11/15/93	11/16/93	11/18/93	11/15/93	11/17/93	11/15/93	11/11/93	11/13/93	11/11/93	11/15/93	11/17/93	11/18/93		
TIME		15:00	15:00	12:00	09:00	18:50	12:20	17:11	18:00	09:30	15:30	15:30	15:45	12:00		
CARBON TETRACHLORIDE UG/L	33102 8010-G	--	--	--	11.7?	--	--	3.07	1.12	--	--	--	--	38.1?	5	5
CHLOROFORM UG/L	32106 8010-G	3.25	--	1.85	14.1	12.8	--	1.78	4.21	2.22	1.93	--	--	59.2	--	100
1,1-DICHLOROETHANE UG/L	34496 8010-G	1.06	--	--	--	1.49	1.83	--	3.36	--	--	--	--	--	--	--
1,2-DICHLOROETHANE UG/L	34531 8010-G	--	--	--	--	--	--	--	1.56	--	--	--	--	--	5	5
1,1-DICHLOROETHYLENE UG/L	34501 8010-G	[illegible]	--	--	--	[illegible]	[illegible]	[illegible]	[illegible]	--	--	--	--	--	7	7
TRANS-1,2-DICHLOROETHENE UG/L	34546 8010-G	--	--	--	20.8	--	--	--	118?	11.2	19.6	--	--	2.09	100	100
METHYLENE CHLORIDE UG/L	34423 8010-G	--	--	--	--	--	--	--	224?	--	--	--	--	--	--	5
1,1,2,2-TETRACHLOROETHANE UG/L	34516 8010-G	--	--	--	219	--	--	--	12.1	1.58	262	--	--	2.71	--	--
TETRACHLOROETHENE UG/L	34475 8010-G	[illegible]	[illegible]	[illegible]	1.06	[illegible]	[illegible]	[illegible]	243?	[illegible]	[illegible]	2.01	--	4.29	5	5
1,1,1-TRICHL'ETHANE UG/L	34506 8010-G	3.06	--	--	--	1.61	1.96	--	5.86	--	--	--	--	--	200	200
1,1,2-TRICHL'ETHANE UG/L	34511 8010-G	--	--	--	9.10	--	--	--	4.14	--	--	--	--	--	--	5
TRICHLOROETHENE UG/L	39180 8010-G	[illegible]	--	1.33	198?	[illegible]	[illegible]	[illegible]	1020?	[illegible]	1400?	--	--	[illegible]	5	5
TOLUENE UG/L	34010 8020-G	--	--	--	--	--	--	1.89	10.7	--	--	--	--	--	1000	1000
BIS(2-ETHYLHEXYL) PHTHALATE UG/L	39100 8270/3520-G	1.4	--	--	--	--	6.0	1.6	5.1	2.6	--	--	6.9	--	--	6
DI-N-BUTYLPHTHALATE UG/L	39110 8270/3520-G	--	--	--	--	--	1.7	--	--	--	--	--	--	--	--	--
FLUORANTHENE UG/L	34376 8270/3520-G	--	--	--	1.5	--	--	--	--	--	--	--	--	--	--	--
PHENOL UG/L	34694 8270/3520-G	--	--	--	--	--	--	--	4.3	--	--	--	--	--	--	--
ACENAPHTHENE UG/L	34205 8310/3520-G	--	--	--	10.1	--	--	--	--	--	--	19.0	--	--	--	--
ANTHRACENE UG/L	34220 8310/3520-G	--	1.59	1.27	6.04	4.84	1.65	--	--	--	--	18.5	5.77	--	--	--
BENZO(A)ANTHRACENE UG/L	34526 8310/3520-G	0.022	0.052	0.034	[illegible]	[illegible]	0.043	0.004	0.015	0.010	--	[illegible]	[illegible]	0.004	--	0.1+
BENZO(A)PYRENE UG/L	34247 8310/3520-G	0.025	0.048	0.037	[illegible]	0.165	0.057	0.008	0.023	0.017	--	[illegible]	0.336	0.003	--	0.2
BENZO(B)FLUORANTHENE UG/L	34230 8310/3520-G	0.028	0.052	0.041	[illegible]	0.144	0.055	0.010	0.021	--	--	[illegible]	0.339	0.003	--	0.2+
BENZO(GHI)PERYLENE UG/L	34521 8310/3520-G	0.031	0.098	0.068	1.61	0.225	0.089	--	0.026	0.010	--	1.20	0.225	--	--	--
BENZO(K)FLUORANTHENE UG/L	34242 8310/3520-G	0.012	0.025	0.019	[illegible]	0.066	0.027	0.005	0.011	0.006	--	[illegible]	0.068	0.007	--	0.2+
CHRYSENE UG/L	34320 8310/3520-G	--	--	--	[illegible]	0.139	[illegible]	--	--	--	--	[illegible]	[illegible]	--	--	0.2+
DIBENZ(A,H)ANTH'CENE UG/L	34556 8310/3520-G	--	0.008	0.004	[illegible]	0.037	0.008	--	--	0.034	--	0.150	0.006	--	--	0.3+
FLUORANTHENE UG/L	34376 8310/3520-G	0.057	0.105	0.089	2.31	0.334	0.133	0.015	0.050	--	--	2.70	0.133	0.018	--	--
INDENO(1,2,3-CD) PYRENE UG/L	34403 8310/3520-G	0.016	0.015	0.005	[illegible]	0.060	0.014	--	0.030	0.027	0.005	0.360	0.061	0.010	--	0.4+
NAPHTHALENE UG/L	34696 8310/3520-G	--	--	--	1.88	--	--	--	--	--	--	1.90	--	--	--	--
PHENANTHRENE UG/L	34461 8310/3520-G	--	0.150	0.146	1.03	0.939	0.165	--	--	--	--	4.59	0.784	--	--	--
PYRENE UG/L	34469 8310/3520-G	0.130	0.287	0.208	5.91	1.54	0.275	--	--	1.15	--	11.7	1.35	--	--	--
ALDRIN UG/L	39330 8080/3520-G	--	--	--	--	--	--	--	--	--	--	0.027	--	--	--	--
DDD, PP' UG/L	39310 8080/3520-G	--	--	--	--	--	--	--	0.091	--	--	--	--	--	--	--
DDE, PP' UG/L	39320 8080/3520-G	--	--	--	--	--	--	--	0.023	--	--	--	--	--	--	--
DDT, PP' UG/L	39300 8080/3520-G	--	--	--	--	--	--	--	0.041	0.015	--	--	--	--	--	--
DIELDRIN UG/L	39380 8080/3520-G	--	0.007	--	--	--	0.057	0.044	0.011	--	--	--	--	--	--	--

44 18



KEY

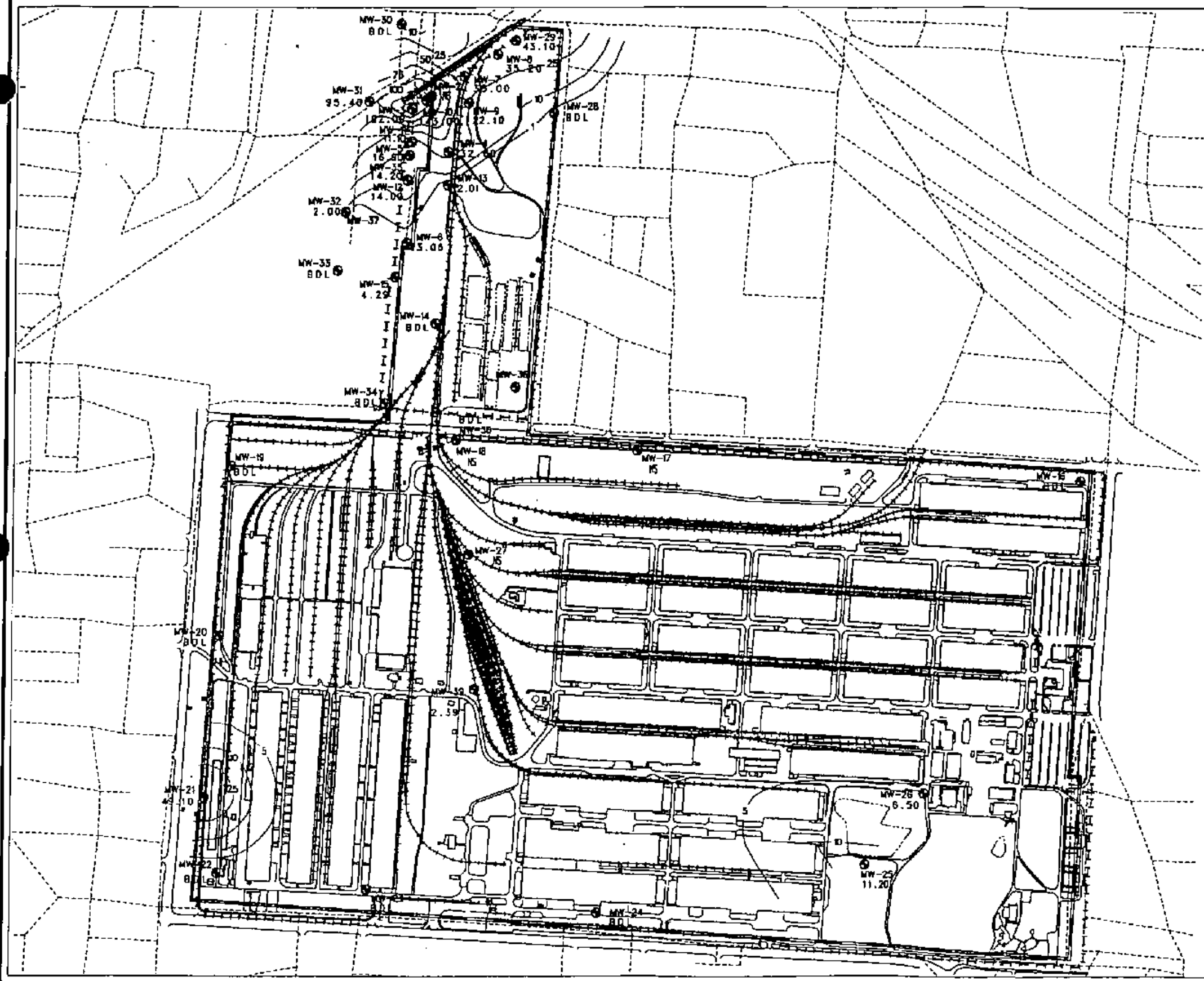
- CONTOUR LINE
- FENCE
- RAILROAD
- PROPERTY BOUNDARY
- ROAD OR PAVED SURFACE
- SURFACE WATER FEATURE
- OFFSITE ROADWAY
- BUILDING
- MW-25 ● FLUVIAL MONITOR WELL LOCATION
- BDL 1,1-DICHLOROETHYLENE CONCENTRATION (PPB)
- MW-36 ● MEMPHIS SAND AQUIFER MONITOR WELL LOCATION
- BDL BELOW DETECTION LIMIT
- NS NOT SAMPLED

0 800 1600
SCALE FEET

Figure 3
1,1-DICHLOROETHYLENE CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER - NOVEMBER 1993
Sources: MEMPHIS STATE UNIVERSITY, ESE, Inc., 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION



KEY

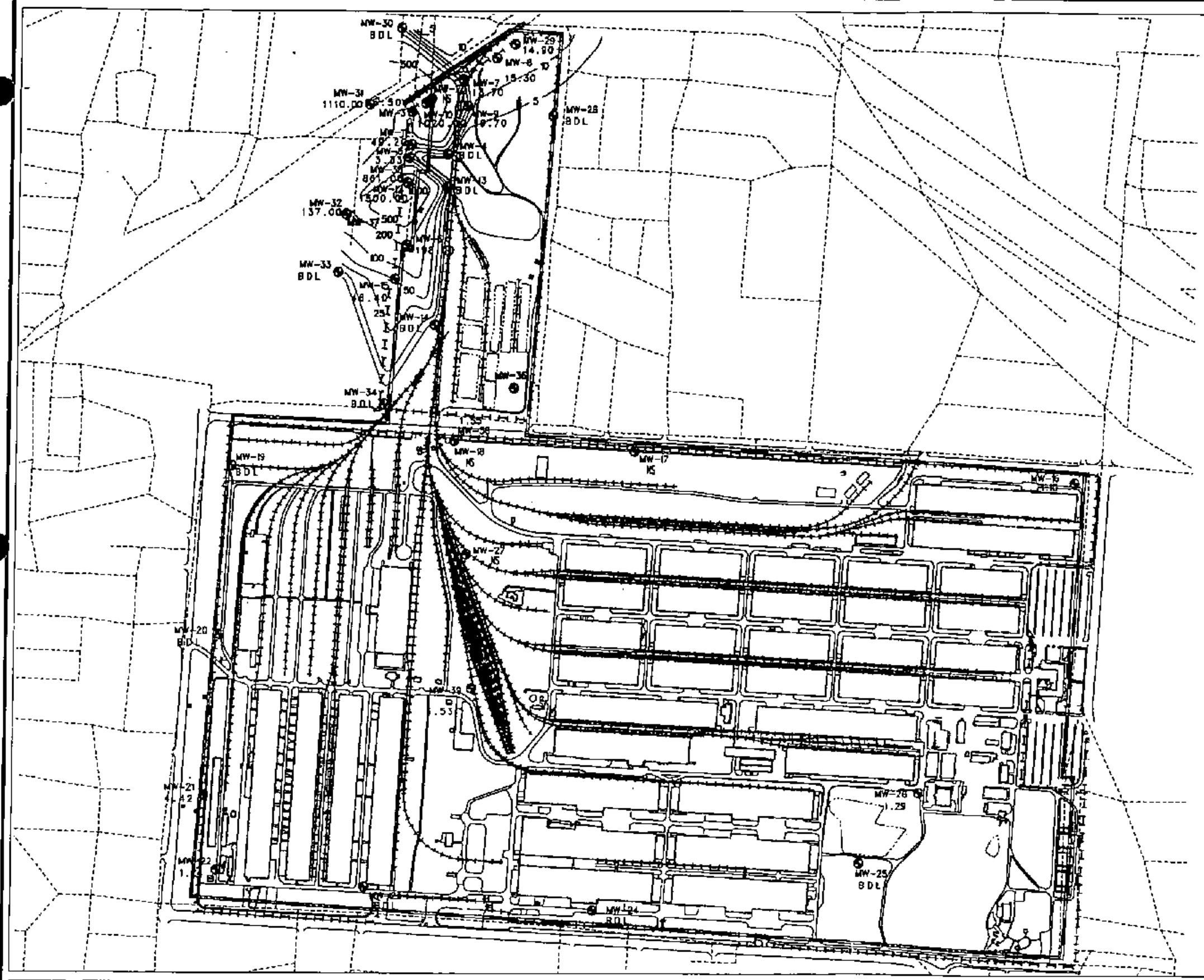
- CONTOUR LINE
- FENCE
- RAILROAD
- PROPERTY BOUNDARY
- ROAD OR PAVED SURFACE
- SURFACE WATER FEATURE
- OFFSITE ROADWAY
- BUILDING
- MW-25 ⊕ FLUVIAL AQUIFER MONITOR WELL LOCATION
  1120 TETRACHLOROETHENE CONCENTRATION (PPB)
- MW-36 ⊕ MEMPHIS SAND AQUIFER MONITOR WELL LOCATION
- BDL BELOW DETECTION LIMIT
- NS NOT SAMPLED

0 800 1600
SCALE FEET

Figure 4
TETRACHLOROETHENE CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER – NOVEMBER 1993
Sources: MEMPHIS STATE UNIVERSITY, ESE, Inc., 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION



KEY

- CONTOUR LINE
- FENCE
- RAILROAD
- PROPERTY BOUNDARY
- ROAD OR PAVED SURFACE
- SURFACE WATER FEATURE
- OFFSITE ROADWAY
- BUILDING
- MW-25 ⊕ FLUVIAL AQUIFER MONITOR WELL LOCATION
- BDL TRICHLOROETHENE CONCENTRATION (PPB)
- MW-36 ⊕ MEMPHIS SAND AQUIFER MONITOR WELL LOCATION
- BDL BELOW DETECTION LIMIT
- NS NOT SAMPLED

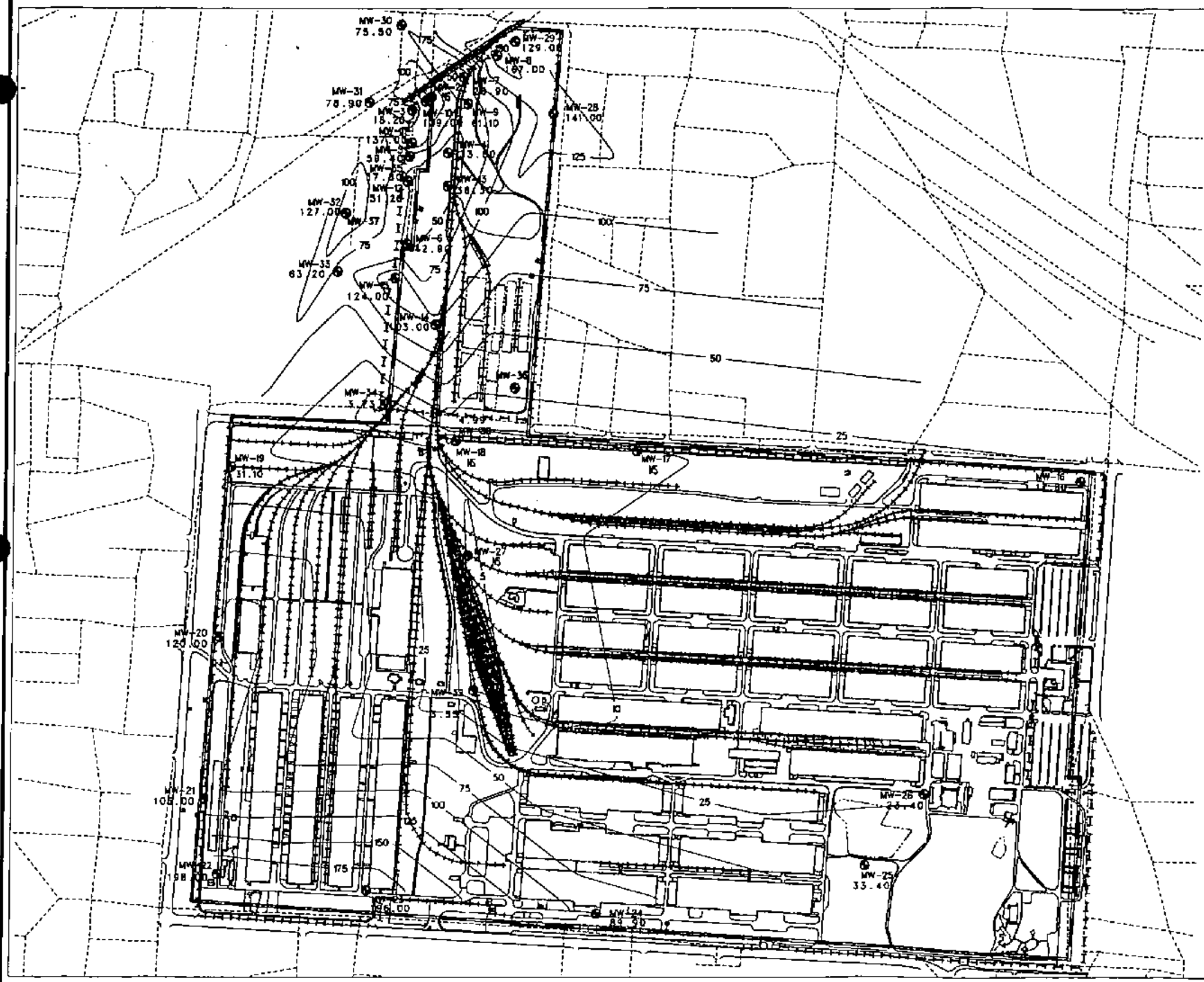
NOTE CONCENTRATION OF TRICHLOROETHENE IN MONITOR WELL MW-31 WAS CALCULATED OUTSIDE THE STANDARD CALIBRATION CURVE AND REPORTED AS 1110 µg/L. THE LABORATORY INADVERTENTLY MISSED THE DILUTION OF THIS SAMPLE. THIS VALUE FOR TRICHLOROETHENE SHOULD BE CONSIDERED AND USED ONLY AS AN ESTIMATE

0 800 1600
SCALE FEET

Figure 5
TRICHLOROETHENE CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER - NOVEMBER 1993
Sources: MEMPHIS STATE UNIVERSITY, ESE, Inc., 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION



N

KEY

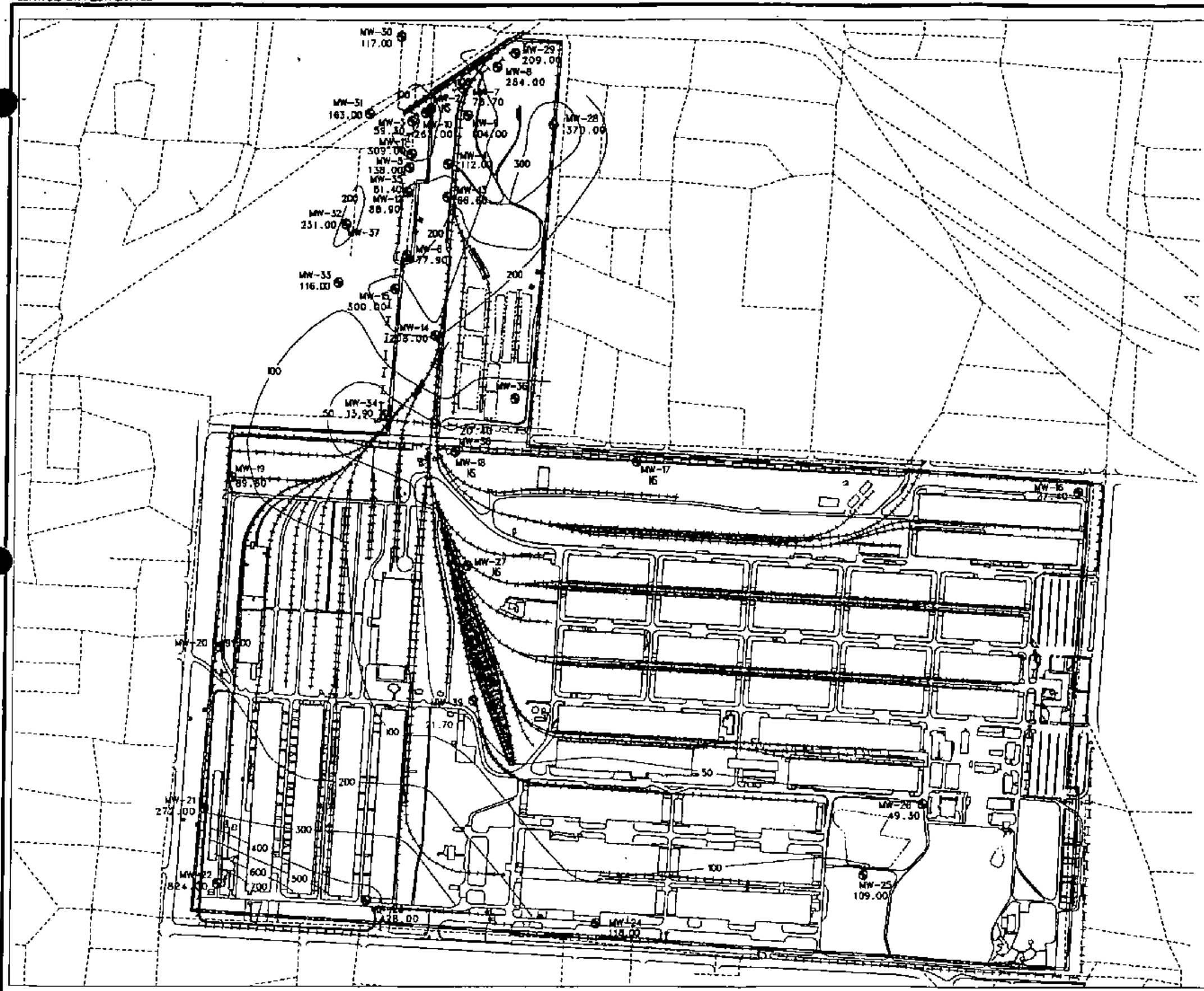
- CONTOUR LINE
- FENCE
- RAILROAD
- PROPERTY BOUNDARY
- ROAD OR PAVED SURFACE
- SURFACE WATER FEATURE
- OFFSITE ROADWAY
- BUILDING
- MW-25 ⊕ FLUVIAL AQUIFER MONITOR WELL LOCATION
- 33.40 TOTAL ALUMINUM CONCENTRATION (PPM)
- MW-36 ⊕ MEMPHIS SAND AQUIFER MONITOR WELL LOCATION
- BDL BELOW DETECTION LIMIT
- NS NOT SAMPLED

0 800 1600
SCALE FEET

Figure 6
TOTAL ALUMINUM CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER - NOVEMBER 1993
Sources: MEMPHIS STATE UNIVERSITY, ESE, Inc., 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION



N

KEY

- CONTOUR LINE
- FENCE
- RAILROAD
- PROPERTY BOUNDARY
- ROAD OR PAVED SURFACE
- SURFACE WATER FEATURE
- OFFSITE ROADWAY
- BUILDING
- MW-25 ⊕ FLUVIAL AQUIFER MONITOR WELL LOCATION
  109.00 TOTAL CHROMIUM CONCENTRATION (PPB)
- MW-36 ⊕ MEMPHIS SAND AQUIFER MONITOR WELL LOCATION
- BDL BELOW DETECTION LIMIT
- NS NOT SAMPLED

0 800 1600
SCALE FEET

Figure 7
TOTAL CHROMIUM CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER - NOVEMBER 1993
Sources: MEMPHIS STATE UNIVERSITY, ESE, Inc., 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION

KEY

- CONTOUR LINE
- FENCE
- RAILROAD
- PROPERTY BOUNDARY
- ROAD OR PAVED SURFACE
- SURFACE WATER FEATURE
- OFFSITE ROADWAY
- BUILDING
- MW-25 ⊕ 21.80 — FLUVIAL AQUIFER MONITOR WELL LOCATION / TOTAL LEAD CONCENTRATION (PPB)
- MW-36 ⊕ — MEMPHIS SAND AQUIFER MONITOR WELL LOCATION
- BDL — BELOW DETECTION LIMIT
- NS — NOT SAMPLED

0 800 1600
SCALE FEET

Figure 8
TOTAL LEAD CONCENTRATIONS IN GROUNDWATER
FOR THE FLUVIAL AQUIFER - NOVEMBER 1993
Sources: MEMPHIS STATE UNIVERSITY, ESE, Inc., 1994

DEFENSE DEPOT
MEMPHIS, TENNESSEE

U.S. ARMY CORPS OF ENGINEERS
HUNTSVILLE DIVISION

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 (μg/L) and chromium--282 μg/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 µg/L in Batches G45213 and G45215, respectively). The detection limit for this analyte is 1.0 µg/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 QC 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:

1. 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

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

TAB

A

APPENDIX A
WELL SAMPLING FORMS

Well Sampling Data Form

Well No. MW-3

Client CEHND | ESB Project DDMT
Site Location Memphis, Tennessee | ESE Project No. 3935021G
ESE Field Team Leader Claire Bain | ESE Project Manager Claire Bain

Well Depth 74.71 | Well Casing Diameter 2" 76 in 11/12/93
Boring Diameter 7¼ calc. using 8" | Annular Space Length ASSUME 74.71 - 63.11 = 12.89'
Date 11/12/93 | Time 1242 | Stickup 1' 10"

WATER LEVEL

Held N/A
Cut N/A
DTW 63.11 Top of Casing

COLUMN OF WATER IN WELL

Casing Length 76
DTW Top of Casing 63.11
Column of Water in Well 12.89

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.60
Column of Water or Length of A.S. (whichever is less)	×	12.89
Volume of Annular Space	=	7.7
Gallons per foot of Casing	=	.0/632
Column of Water	×	12.89
Volume of Casing	=	.2.
Total Volume (Volume of A.S. + Volume of Casing)	=	9.9
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	29.7 to 49.5

Method of Purging (pump, bailer, etc.) ~~96 11/12/93~~ ~~ESE~~ SUBMERSIBLE Pump @ 2.4GPM

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	1330	1339	1342		1345
pH	5.9	6.0	5.6		5.6
Conductivity	317	337	339		339
Temperature (°C)	16.7	17.3	17.3		17.3
Volume Purged (Gal)	1	21.6	28.8		36

Total Volume Purged 36 gallons
Sample Time/Date 1500 / 11/12/93 Sample Number CDDMTW#3

FRACTIONS

(NF) (2VP)

(4VP) VP VP (3EC) MS MS (3MS) (N) (2C) S (CF) (4LC)

COMMENTS

Signatures:
Crew Leader Brad Boyd Date 11/12/93
Reviewer David Murphy Date 12/6/93
Reviewer Title Sr STAFF SCIENTIST

MW-4 11/15/93

Well Sampling Data Form

Well No. MW-9

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 78.95
Boring Diameter 8"
Date 11/15/93

Well Casing Diameter 2"
Annular Space Length Assume 6.94 ± collapse
Time 0812
Stickup 1.3'

WATER LEVEL

Held N/A
Cut N/A
DTW 70.91 Top of Casing

COLUMN OF WATER IN WELL

Casing Length 77.65
DTW Top of Casing 70.91
Column of Water in Well 6.94

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.60 0.73
Column of Water or Length of A.S. (whichever is less)	×	6.94
Volume of Annular Space	=	5.1
Gallons per foot of Casing	=	0.1632
Column of Water	×	6.94
Volume of Casing	=	1.1
Total Volume (Volume of A.S. + Volume of Casing)	=	6.2
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	18.6 to 31

Method of Purging (pump, bailer, etc.) S.S. Monsoon Pump @ 1.0 GPM

FIELD ANALYSES

	Start (above surface)	Mid I	Mid II	Mid III	End
Time	0811 / MP 0812	0817	0821	0825	0832
pH	5.5	5.4	6.6	5.5	6.6	5.5
Conductivity	2 X 2	227	225	226	227	226
Temperature (°C)	17.3	16.7	17.3	17.7	17.2	17.7
Volume Purged (Gal)	1	1	5	9	13	20

Total Volume Purged 20 gallons
Sample Time/Date 1500 11/15/93
Sample Number CDDMTW#4

FRACTIONS

(4 VP) VP VP (3 EC) (3 MS) MS MS (N) (2 LC) S (EF) (4 LC)
(NP) (2 NP)

COMMENTS Used slow pump rate due to low column of water in well.

Signatures:
Crew Leader Mark H Boyd Date 11/15/93
Reviewer Ruth Wyly Date 12/6/93
Reviewer Title Sr. Staff Scientist

Environmental Science & Engineering, Inc.

3935019

Well Sampling Data Form

Well No. MW-5

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 79.20 Well Casing Diameter 2"
Boring Diameter 8" Annular Space Length Bgs
Date 11/16/93 Time 11:10 Stickup 3.2'

WATER LEVEL
Held N/A
Cut N/A
DTW 75.34 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 79.20
DTW Top of Casing 75.34
Column of Water in Well 3.86

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	3.86 0.73
Column of Water or Length of A.S. (whichever is less)	×	3.86
Volume of Annular Space	=	2.81
Gallons per foot of Casing	=	0.1632
Column of Water	×	3.86
Volume of Casing	=	0.6
Total Volume (Volume of A.S. + Volume of Casing)	=	3.4
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	10.2 to 17

Method of Purging (pump, bailer, etc.) Submersible pump @ 0.7 GPM

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	1119	1119	1124	1129	1134
pH	5.1	5.1	5.1	5.1	5.1
Conductivity	233	216	221	221	218
Temperature (°C)	16.6	17.5	17.6	17.5	17.9
Volume Purged (Gal)	1	3.5	7.0	10.5	14.0

Total Volume Purged 14.0 gallons
Sample Time/Date 11/16/93 1200 Sample Number CDMTW#5

FRACTIONS
4 VP VP VP 3 EC 3 MS MS MS 2 NP NF CP N C S 4 LC

COMMENTS Use Bailer # 203

Signatures:
Crew Leader Mark A. Cook Date 11/16/93
Reviewer Gerald Murphy Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-6

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 70.2' | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length ABOVE TO COLUMN OF WATER 11.14'
Date 11/18/93 | Time 0800 | Stickup .4'

WATER LEVEL
Held N/A
Cut N/A
DTW 59.06 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 70.2'
DTW Top of Casing 59.06
Column of Water in Well 11.14

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)	×	11.14
Volume of Annular Space	=	8.1
Gallons per foot of Casing	=	0.1632
Column of Water	×	11.14
Volume of Casing	=	1.8
Total Volume (Volume of A.S. + Volume of Casing)	=	9.9
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	29.7 to 49.5

Method of Purging (pump, bailer, etc.) Submersible Pump @ 1.05 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0814	0823	0830	0837	0843
pH	4.6	4.8	4.8	4.8	4.9
Conductivity	1549	1200	1200	1278	1299
Temperature (°C)	16.1	17.3	17.4	17.2	17.
Volume Purged (Gal)	1	9.5	16.8	24.2	30.5

Total Volume Purged 30.5 gallons
Sample Time/Date 11/18/93 0900 Sample Number CDD MTW#6

FRACTIONS
(4VP) VP VP (3EC) (3MS) MS MS (N) (2C) S (2LC) (2MP) (NF) (TCE)

COMMENTS Filter #132

Signatures:
Crew Leader Mark H Boyd Date 11/18/93
Reviewer Donald Mayes Date 12-6-93
Reviewer Title Sr Staff Scientist

Well Sampling Data Form

Well No. MW-7

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 76.30 Well Casing Diameter 2"
Boring Diameter 8" Annular Space Length Assumed = collapse = 11.84
Date 11/15 Time 1620 Stickup

WATER LEVEL
Held N/A
Cut N/A
DTW 64.46 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 76.30
DTW Top of Casing 64.46
Column of Water in Well 11.84

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)	×	11.84
Volume of Annular Space	=	8.6
Gallons per foot of Casing	=	.01632
Column of Water	×	11.84
Volume of Casing	=	1.9
Total Volume (Volume of A.S. + Volume of Casing)	=	10.5
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	31.5 to 52.5

Method of Purging (pump, bailer, etc.) Submersible Pump @ 2.2 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1636	1641	1645	1649	1659
pH	5.9	5.9	5.9	5.8	5.9
Conductivity	330	347	347	346	345
Temperature (°C)	16.5	17.0	17.1	17.1	17.1
Volume Purged (Gal)	1	11	19.9	28.7	39.7

Total Volume Purged 39.7 gallons
Sample Time/Date 1850 Sample Number CDMTW#7

FRACTIONS (2VP) (VF)
(4VP) VP VP (3EC) (3MS) MS MS (N) (2C) S (CF) (4LC)
COMMENTS Use Bailer @ 38

Signatures:
Crew Leader Mark A Boyd Date 11/15/93
Reviewer Gerald Murphy Date 12-6-93
Reviewer Title Sr. Staff Scientist

44 42

Well Sampling Data Form

Well No. MW-8

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 69.1 | Well Casing Diameter 2"
Boring Diameter 7.25 | Annular Space Length 14.1
Date 11/17/93 | Time 1130 | Stickup 0

WATER LEVEL
Held N/A
Cut N/A
DTW 59.34 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 69.1
DTW Top of Casing 59.34
Column of Water in Well 9.76

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	.73
Column of Water or Length of A.S. (whichever is less)	×	9.76
Volume of Annular Space	=	7.1
Gallons per foot of Casing	=	.1632
Column of Water	×	9.76
Volume of Casing	=	1.6
Total Volume (Volume of A.S. + Volume of Casing)	=	8.7
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	26.1 to 43.5

Method of Purging (pump, bailer, etc.) Submersible Pump @ 1.32 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1136	1142	1147	1154	1200
pH	4.9	5.0	5.1	5.1	5.1
Conductivity	275	271	275	277	292
Temperature (°C)	16.9	17.6	17.0	17.2	17.2
Volume Purged (Gal)	1	8	11.9	23.8	31.7

Total Volume Purged 31.7 gallons
Sample Time/Date 1220 11/17/93 Sample Number CDDMTW#8

FRACTIONS
4 VP VP VP 3 EC 3 MS MS MS 2 NP NF CF N S 4 LC
COMMENTS Duplicate #8

Signatures:
Crew Leader [signature] Date 11/17/93
Reviewer [signature] Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-9

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 80.0 | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length Active 7.4 from clay to water
Date 11/15/93 | Time 09:28 | Stickup 0

WATER LEVEL
Held N/A
Cut N/A
DTW 72.6 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 80.0'
DTW Top of Casing 80.0 72.6
Column of Water in Well 11/15/93 7.4

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)	×	7.4
Volume of Annular Space	=	5.4
Gallons per foot of Casing	=	0.163
Column of Water	×	7.4
Volume of Casing	=	1.2
Total Volume (Volume of A.S. + Volume of Casing)	=	5.6
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	16.8 to 28

Method of Purging (pump, bailer, etc.) Submersible Centrifugal pump @ 1.40 GPM 11/15/93

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0935	0940	0944	0949	0951
pH	5.9	5.6	5.7	5.7	5.7
Conductivity	354	312	309	292	309
Temperature (°C)	18.9	17.9	18.1	18.1	18.1
Volume Purged (Gal)	1	7	12.6	17.6	22.4

Total Volume Purged 22.4 gallons
Sample Time/Date 0930 11/15/93 1711 11/15/93 Sample Number CDOMSU # MW-9

FRACTIONS
(4VP) VP VP (3EC) (3MS) MS MS (N) (2C) S (CF) (4LC) (VF) (2NP)

COMMENTS

Signatures:
Crew Leader Mark H Boyd Date 11/15/93
Reviewer Gerald Mugby Date 12-6-93
Reviewer Title Sr. Staff Scientist

44 44

Well Sampling Data Form

Well No. MW-10

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 71' | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length 15.5
Date 11/12/93 Time 1220 1730 1715 | Stickup 6

WATER LEVEL
Held N/A
Cut N/A
DTW 58.57 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 71.00
DTW Top of Casing 58.57
Column of Water in Well 12.43

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)	×	12.43
Volume of Annular Space	=	9.07
Gallons per foot of Casing	=	0.1632
Column of Water	×	12.43
Volume of Casing	=	2.03
Total Volume (Volume of A.S. + Volume of Casing)	=	11.1
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	33.3 to 55.5

33

Method of Purging (pump, bailer, etc.) Sub mersible Pump @ 1.25 2.5 GPM 11/12/93 ONE

Pump off 17:44

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1720	1734	1742		1792
pH	5.9	6.4	5.9		5.4
Conductivity	329	334	335		335
Temperature (°C)	16.7	16.7	16.9		16.9
Volume Purged (Gal)	0 TURB	20.3 clear	34.8		34.8

Total Volume Purged 34.8 gallons
Sample Time/Date 1800 11/12/93 Sample Number CDDMTW-X ID

FRACTIONS

VP VP VP EC MS MS MS N C S

COMMENTS USED BAILER # 25

Signatures:
Crew Leader [signature] Date 11/11/93
Reviewer [signature] Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-11

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 85.3 | Well Casing Diameter 2" 11/13/93
Boring Diameter 7 1/4" | Annular Space Length 85.3 - 70.2 = 15.1
Date 11/13/93 | Time 0745 | Stickup 0

WATER LEVEL
Held N/A
Cut N/A
DTW 70.22 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 85.3
DTW Top of Casing 70.2
Column of Water in Well 15.1

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.60
Column of Water or Length of A.S. (whichever is less)	×	15.1
Volume of Annular Space	=	9.06
Gallons per foot of Casing	=	0.1632
Column of Water	×	15.1
Volume of Casing	=	2.96
Total Volume (Volume of A.S. + Volume of Casing)	=	17.62
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	62.6 to 87.5

Method of Purging (pump, bailer, etc.) Submersible Pump

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	0811	0819	0823		0830
pH	5.5	5.4	5.5		5.5
Conductivity	252	235	236		237
Temperature (°C)	17.8	15.6	18.7		18.8
Volume Purged (Gal)	1				

Total Volume Purged 57 gallons
Sample Time/Date 11/13/93 / 0930 Sample Number CDDMTW11

FRACTIONS
(4VP) VP VP (3EC) (3MS) MS MS (UF) (2NP) (N) (2C) S (CF) (4LC)

COMMENTS

Signatures:
Crew Leader Claire Bain Date 11/13/93
Reviewer David Wright Date 12/6/93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW 12

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 86.8' — Well Casing Diameter 2"
Boring Diameter 7¼" — Annular Space Length 19.8'
Date 11-11-93 — Time 1240 — Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 71.72' Top of Casing
(SOUNDED WELL - SILT AT ~ 87')

COLUMN OF WATER IN WELL
Casing Length 86.80'
DTW Top of Casing 71.72'
Column of Water in Well 15.08'

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.77
Column of Water or Length of A.S. (whichever is less)	×	15.08
Volume of Annular Space	=	11.0
Gallons per foot of Casing	=	0.16
Column of Water	×	15.08
Volume of Casing	=	2.4
Total Volume (Volume of A.S. + Volume of Casing)	=	13.4
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	40.2 to 67.0

Method of Purging (pump, (bailer), etc.) TEFLON BAILER

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	1223	1254	1358		1444
pH	5.6	5.5	5.8		5.6
Conductivity	291	247	227		225
Temperature (°C)	17.9	18.0	18.0		17.8
Volume Purged (Gal)	3	8	21		~30

(WATER V. TURBID - ORANGE TAN)

Total Volume Purged ~30 gallons
Sample Time/Date 1530 - 11/11/93 Sample Number CDOMTW*12 MW-12
CDOMTW*42 MW-42 DUP

FRACTIONS (LEXY) (N7X2)
(VP) VP VP VP (EO1) (MS1) MS MS (N) (CX2) S (NF) (EF)

COMMENTS TOOK DUP (*42) AND SPLIT (SAME FRACTIONS FOR DUP + SPLIT)
OVM READING = 880 PPM WHEN CAP WAS OPENED

Signatures:
Crew Leader Claire Bain — Date 11-11-93
Reviewer Donald Murphy — Date 12-6-93
Reviewer Title Sr. Staff Scientist

3935019 CDOMTW*53 MW53TBLK SENT WITH VOA'S TO ESE LAB
CDOMTW*54 MW54TBLK SENT WITH VOA'S TO MRD LAB.

Well Sampling Data Form

Well No. MW-13

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 80.25 | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length Assume 11.26 ft per ASTM
Date 11/15/93 | Time 1128 | Stickup 0

WATER LEVEL
Held N/A
Cut N/A
DTW 68.99 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 80.25
DTW Top of Casing 68.99
Column of Water in Well 11.26

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)	×	11.26
Volume of Annular Space	=	8.2
Gallons per foot of Casing	=	0.1632
Column of Water	×	11.26
Volume of Casing	=	1.8
Total Volume (Volume of A.S. + Volume of Casing)	=	10.0
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	30.0 to 50.0

Method of Purging (pump, bailer, etc.) Submersible Pump (grundfos) @ 2.0 gpm

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1128	1135	1138	1143	1148
pH	5.4	5.5	5.4	5.4	5.3
Conductivity	230	198	196	198	198
Temperature (°C)	17.4	17.5	17.6	17.9	17.4
Volume Purged (Gal)	1	14.0	20	30	40

Total Volume Purged 40 gallons
Sample Time/Date 11/15/93 1530 | Sample Number CDDMW#13

FRACTIONS
(4VP) VP VP (3EC) (3MS) MS MS (N) (2C) S (CF) (4LC) (NF) (2NP)
COMMENTS Use Bailer to B3

Signatures:
Crew Leader [signature] Date 11/15/93
Reviewer [signature] Date 12/10/93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-14

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 80.0' | Well Casing Diameter 2"
Boring Diameter 2" | Annular Space Length 17'
Date 11/17/93 | Time 1500 | Stickup Ø

WATER LEVEL
Held N/A
Cut N/A
DTW 72.51 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 80.00
DTW Top of Casing 72.51
Column of Water in Well 7.49

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)	×	7.99
Volume of Annular Space	=	5.5
Gallons per foot of Casing	=	0.1632
Column of Water	×	7.49
Volume of Casing	=	1.2
Total Volume (Volume of A.S. + Volume of Casing)	=	6.7
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	20.1 to 33.5

Method of Purging (pump, bailer, etc.) Submersible Pump @ 1.2 gpm

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	15:04	15:10	1514	1529	1529
pH	5.3	5.1	5.1	4.8	4.9
Conductivity	229	231	234	232	232
Temperature (°C)	17.5	17.4	17.9	17.9	17.9
Volume Purged (Gal)	1	7.2	13.2	25.2	32.5

Total Volume Purged 32.5 gallons
Sample Time/Date 1545 / 11/17/93 Sample Number DDMW14

FRACTIONS
(4VP) VP VP (3EC) (3MS) MS MS (2UP) (NF) (CF) (N) (E) S (4LC)
COMMENTS Used Bailer @ 1B9

Signatures:
Crew Leader Mark K Boyd Date 11/17/93
Reviewer Ronald Murphy Date 12-6-93
Reviewer Title Sr. Staff Scientist

44 49

Well Sampling Data Form

Well No. MW-15

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 80.8 | Well Casing Diameter 2"
Boring Diameter 7 1/4 | Annular Space Length 22.8
Date 11/18/93 | Time 1050 | Stickup 0

WATER LEVEL

Held N/A
Cut N/A
DTW 56.09 Top of Casing

COLUMN OF WATER IN WELL

Casing Length 80.8
DTW Top of Casing 56.09
Column of Water in Well 24.71 ~~24.09~~ per 11/18/93

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.60
Column of Water or Length of A.S. (whichever is less)	×	24.71
Volume of Annular Space	=	~~12~~ 14.8
Gallons per foot of Casing	=	.1632
Column of Water	×	22.8
Volume of Casing	=	3.7
Total Volume (Volume of A.S. + Volume of Casing)	=	18.5
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	55.5 to 278

Method of Purging (pump, bailer, etc.) submersible pump @ 1.99 gpm

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	11:00	11:10	1121	1126	1139
pH	4.8	5.2	5.3	5.4	5.2
Conductivity	220	189	189	189	189
Temperature (°C)	16.8	17.2	17.3	17.4	17.9
Volume Purged (Gal)	1	14.9	31.29	38.7	~~55.5~~ 55.1 per 11/18/93

Total Volume Purged 55.1 gallons
Sample Time/Date 11/18/93 1200 Sample Number CDDMTMW 15

FRACTIONS

(3VP) VP VP (3EC) (3MS) MS MS (N) (C) S

(ALC) (2AD) (VF) (CF)

COMMENTS Used Rinse #49

Signatures:
Crew Leader [signature] Date 11/18/93
Reviewer [signature] Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-16

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 11/9/93 | Time 1012 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 57.61 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 75.00
DTW Top of Casing 57.61
Column of Water in Well 17.39

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.15
Column of Water or Length of A.S. (whichever is less)	×	17.39
Volume of Annular Space	=	2.60
Gallons per foot of Casing	=	0.1632
Column of Water	×	17.39
Volume of Casing	=	2.84
Total Volume (Volume of A.S. + Volume of Casing)	=	5.44
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	16.31 to 27.20

Method of Purging (pump, bailer, etc.) ~~SUBMERSIBLE PUMP~~ WT BAILER #130

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1045	1130	1215	1245	1325
pH	5.7	5.7	5.8	5.9	6.0
Conductivity	845	736	642	648	670
Temperature (°C)	18.4	19.1	19.4	19.6	19.7
Volume Purged (Gal)	1	5	10	15	20
Turbidity	153	607	882	71000	897

Total Volume Purged 22 GAL gallons
Sample Time/Date 1405 | Sample Number CDOMTW16 MW16

FRACTIONS LC LC NF NP NP CF
VP VP VP VP EC MS MS MS N C S EC EC C

COMMENTS

Signatures:
Crew Leader Claire Bain | Date 11/9/93
Reviewer Todd Wertz | Date 12/6/93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-17

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 _____
Boring Diameter _____ | Annular Space Length _____
Date 11-16-93 | Time 1050 | Stickup FLUSH

WATER LEVEL

Held N/A
Cut N/A
DTW DRY - SOUNDED AT 78.95' SOFT BOTTOM Top of Casing

COLUMN OF WATER IN WELL

Casing Length _____
DTW Top of Casing _____
Column of Water in Well _____

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	×	3 to 5
Total Volume to be Evacuated	=	_____ to _____

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 _____ | Sample Number NO SAMPLE

FRACTIONS

VP VP VP EC MS MS MS N C S

COMMENTS OVM READING IS 0 PPM. WELL IS DRY.

Signatures:
Crew Leader Claire Bain | Date 11-16-93
Reviewer Donald Hinely | Date 12-6-93
Reviewer Title Sr. Staff Scientist

14670' - SOUNDED BOTTOM ON 11-19-93 MCB
135.06 - SOUNDED ~~BOTTOM~~ DTW ON 11-19-93 AT 1020

Well Sampling Data Form 44 52

Well No. MW 18

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 _____ | Annular Space Length _____
Date 11-15-93 | Time 1630 | Stickup FLUSH

11-16-93 - VOA'S NOT COLLECTED THIS DATE DUE TO RAIN.

WATER LEVEL

Held N/A
Cut N/A
DTW 137.81 on 11-15-93 Top of Casing

COLUMN OF WATER IN WELL

Casing Length _____
DTW Top of Casing _____
Column of Water in Well _____

BAILED ≈ ½ GAL AND BAILED DRY. MEASURED WATER LEVEL AT 1040 ON 11-16-93. DTW = 136.88'

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	× 3 to 5
Total Volume to be Evacuated	= _____ to _____

Method of Purging (pump, bailer, etc.) bailer

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 # 18 MW-18

NOTE: BAILED DRY AGAIN ON 11-19-93 AT 1100. SAMPLED AT 1915. ONLY ENOUGH WATER FOR 3 VOA'S

FRACTIONS COLLECTED ONLY 3 VP'S.

VP VP VP EC MS MS MS N C S

COMMENTS BAILED WELL DRY AFTER ~ ½ GAL.

SOUNDED BOTTOM AT 137.8'

Signatures:
Crew Leader Claire Bain | Date 11-19-93
Reviewer [signature] | Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW19

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 96.4' | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length ?
Date 11-19-93 | Time 16 ~ | Stickup Flush

WATER LEVEL
Held N/A
Cut N/A
DTW 86.81 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 96.40'
DTW Top of Casing 86.81'
Column of Water in Well 9.59

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.79
Column of Water or Length of A.S. (whichever is less)	×	9.59
Volume of Annular Space	=	7.0
Gallons per foot of Casing	=	0.16
Column of Water	×	9.59
Volume of Casing	=	1.5
Total Volume (Volume of A.S. + Volume of Casing)	=	8.5
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	25.5 to 42.5

Method of Purging (pump) bailer, etc.) Grundfos @ ~1/4 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1695	1655	1705	1715	1725
pH	6.1	5.5	5.6	5.6	5.7
Conductivity	192	188	19.8-188	188	187
Temperature (°C)	~~17.9~~ 17.5	18.0°	19.8°	19.7°	19.5°
Volume Purged (Gal)	~1 GAL	~3	~6	~9	~12

Total Volume Purged ~12 gallons
Sample Time/Date 11-19-93 @ 1800 Sample Number EPDTMW*20

FRACTIONS
(VF) VP VP VP (ECx3) MS MS MS (N) (Cx2) S (NF) (EF)

COMMENTS

Signatures:
Crew Leader _____ Date 11-19-93
Reviewer Donald Murphy Date 12-6-93
Reviewer Title SR. STAFF SCIENTIST

Well Sampling Data Form

Well No. MW 20

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 100.50' | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length ?
Date 11-19-93 | Time 1291 | Stickup FLUSH

WATER LEVEL

Held N/A
Cut N/A
DTW 83.96 Top of Casing

COLUMN OF WATER IN WELL

Casing Length 100.50
DTW Top of Casing 83.96
Column of Water in Well 16.54

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.77
Column of Water or Length of A.S. (whichever is less)	×	MW 1 2 5 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.S. + Volume of Casing)	=	14.7
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	44.1 to 73.5

Method of Purging (pump) bailer, etc.) GROUNDFOS @ ~1 GPM

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	1220	1230	1240	1250	1300
pH	5.2	5.3	5.3	5.3	5.3
Conductivity	259	260	261	261	262
Temperature (°C)	17.9	18.2	18.3	18.4	18.4
Volume Purged (Gal)	~10 gal	~10 gal	~20 gal	~30 gal	~40 gal

Total Volume Purged ~40 gallons
Sample Time/Date 11-19-93 @ 1430 Sample Number CDTMW#20

FRACTIONS

(LCXL) (N7XL)
(VP) VP VP VP (ECXL) MS MS MS (N) (CXL) S (CF) (NF)

COMMENTS USED EQBLK#46 BAILER (#197)

Signatures:
Crew Leader Claire Bain Date 11-19-93
Reviewer Gerald Murphy Date 12-6-93
Reviewer Title Sr Staff Scientist

Well Sampling Data Form

Well No. MW-21

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 7¼" | Annular Space Length 23.5
Date 11-16-93 | Time 1145 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 93.39 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 109.50
DTW Top of Casing 93.39
Column of Water in Well 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)	×	16.11
Volume of Annular Space	=	11.76
Gallons per foot of Casing	=	0.1632
Column of Water	×	16.11
Volume of Casing	=	2.63
Total Volume (Volume of A.S. + Volume of Casing)	=	14.39
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	43.17 to 71.95

Method of Purging (pump, bailer, etc.) SUBMERSIBLE PUMP @ ~0.75 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1200	1210	1222	1238	1248
pH	~~NC~~ 6.0	5.6	5.6	5.5	5.6
Conductivity	208	207	208	208	208
Temperature (°C)	17.6	18.7	18.8	19.4	19.4
Volume Purged (Gal)	1 GAL	8 GAL	~18 GAL	~30 GAL	~38 GAL

Total Volume Purged ~38 gallons
Sample Time/Date 11-18-93 1700 | Sample Number COOMTW#21 MW-21

FRACTIONS
(LCX2) (NPX2)
(VP) VP VP VP (ECX2) (MS) MS MS (N) (CX2) S (NF) (CF)

COMMENTS MW-21 REPURGED ON 11-18-93 DUE TO HEAVY RAIN ON 11-16-93.

Signatures:
Crew Leader Claire Bain Date 11-16-93 | 11-21-93
Reviewer David Murphy Date 12-6-93
Reviewer Title SR. STAFF SCIENTIST

Well Sampling Data Form

Well No. MW21

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 11-18-97 | Time 1410 | Stickup FLUSH

WATER LEVEL

Held N/A
Cut N/A
DTW 97.32' Top of Casing

COLUMN OF WATER IN WELL

Casing Length 109.5'
DTW Top of Casing 97.32'
Column of Water in Well 16.13

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)	×	16.13
Volume of Annular Space	=	11.8
Gallons per foot of Casing	=	0.16
Column of Water	×	16.13
Volume of Casing	=	2.6
Total Volume (Volume of A.S. + Volume of Casing)	=	14.4
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	43.2 to 72.0

Method of Purging (pump, bailer, etc.) GRUNDFOS @ ~1 GPM

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End		
Time	1458	1510	1515	1525	1530	1540	1547
pH	6.7	6.12	6.2	6.2	5.7	5.7	5.7
Conductivity	207	207	207	208	208	207	209
Temperature (°C)	16.9°	16.7	17.9	18.1	18.1°	18.1°	18.1
Volume Purged (Gal)	~1 GAL	~10	~15	25	30	40	45

Total Volume Purged ~45 gallons
Sample Time/Date 11-18-97 1700 Sample Number CDDMTW*21

FRACTIONS

(LEAD) (NITRATE)
(VOA) VP VP VP (ECHO) MS MS MS (N) (CHL) S (CF) (NF)

COMMENTS

USED EQUIP*45 BAILER (#161)

Signatures:
Crew Leader _____ Date 11-18-97
Reviewer _____ Date 12-6-93
Reviewer Title SR. STAFF SCIENTIST

Well Sampling Data Form

Well No. MW-22

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 107.8' | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length ?
Date 11-17-93 | Time 0900 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 96.75' Top of Casing

COLUMN OF WATER IN WELL
Casing Length 107.80'
DTW Top of Casing 96.75'
Column of Water in Well 11.45'

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)	×	11.45'
Volume of Annular Space	=	8.4
Gallons per foot of Casing	=	0.16
Column of Water	×	11.45'
Volume of Casing	=	1.8
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	=	30.6 to 51.0

Method of Purging (pump) bailer, etc.) SUBMERSIBLE @ ~ 1 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1335	1357	1407	1418	1427
pH	6.7	5.8	5.8	5.8	5.7
Conductivity	445	760	431	425	428
Temperature (°C)	17.7°	19.1	19.0°	18.8°	18.8
Volume Purged (Gal)	~1 GA	~18 GA	~25 GA	~35 GA	~45 GA

Total Volume Purged ~45 gallons
Sample Time/Date 11-17-93 @ 1500 | Sample Number CDDMTW#22 (DUP #4)

FRACTIONS (LEX2) (NTX2)
(VP) VP VP VP (ECX3) MS MS MS (N) (CX2) S (@F) (NF)

COMMENTS
TOOK DUP. + SPLIT FOR USACE

Signatures:
Crew Leader _____ Date 11-17-93
Reviewer Donald Murphy Date 12-6-93
Reviewer Title Sr Staff Scientist

Well Sampling Data Form

Well No. MW-23

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 117.60 | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length ?
Date 11-15-93 | Time 0730 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 98.87 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 117.60
DTW Top of Casing 98.87
Column of Water in Well 14.73

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	new 14 0.73
Column of Water or Length of A.S. (whichever is less)	×	14.73
Volume of Annular Space	=	10.8
Gallons per foot of Casing	=	0.16
Column of Water	×	14.73
Volume of Casing	=	2.3
Total Volume (Volume of A.S. + Volume of Casing)	=	13.1
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	39.3 to 65.5

Method of Purging (pump, bailer, etc.) GRUNDFOS @ ~0.75 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0757	0811	0818	0830	0840
pH	6.4	6.6	6.5	6.4	6.3
Conductivity	928	493	477	456	454
Temperature (°C)	18.0	18.8	19.0	19.0	19.0
Volume Purged (Gal)	~1	~10	~15	~24	~32

Total Volume Purged ~33 gallons
Sample Time/Date 11-15-93 @ 0910 Sample Number CDDMTW#23

FRACTIONS
VP VP VP VP (ECX?) MS MS MS (N) (CXL) S (NF) (CF) (LCXL) (NPXL)

COMMENTS
Bacha #150

Signatures:
Crew Leader Claire Bain Date 11-15-93
Reviewer Donald Murphy Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW 24

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 114.7 | Well Casing Diameter 2
Boring Diameter 7 1/4 | Annular Space Length 21.2
Date 9-6 11-10-93 HBJ | Time 0930 | Stickup Flush

WATER LEVEL
Held N/A
Cut N/A
DTW 106.6 Top of Casing

COLUMN OF WATER IN WELL MCB
Casing Length 109.7 114.7
DTW Top of Casing 106.6
Column of Water in Well 3.1 8.1 HBJ

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.73 HBJ
Column of Water or Length of A.S. (whichever is less)	×	3.1 8.1
Volume of Annular Space	=	2.26 5.91 HBJ
Gallons per foot of Casing	=	0.1632
Column of Water	×	3.1 8.1 HBJ
Volume of Casing	=	0.506 1.32 HBJ
Total Volume (Volume of A.S. + Volume of Casing)	=	0.669 7.232 HBJ
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	2.007 to 3.34
		21.69 36.16

Method of Purging (pump, bailer, etc.)

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time					
pH					
Conductivity					
Temperature (°C)					
Volume Purged (Gal)					

SEE MW-24 DATA FORM FOR SAMPLING DATA 11-14-93

Total Volume Purged SEE gallons
Sample Time/Date Sample Number

FRACTIONS
VP VP VP EC MS MS MS N C / S

COMMENTS CLAIRE BAIN RELEASED ETC FIELD CREW AS THEY WERE TRYING TO PURGE WELL. ESE SAMPLING CREW IS FLYING TO MEMPHIS NOW. THIS WELL WILL BE SAMPLED LATER BY ESE CREW.

Signatures:
Crew Leader
Reviewer Date
Reviewer Title Claire Bain 11-10-93

Well Sampling Data Form

Well No. MW-24

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 114.7' | Well Casing Diameter 2"
Boring Diameter 7¼" | Annular Space Length 21.2
Date 11-14-93 | Time 1000 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 106.28 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 114.70
DTW Top of Casing 106.28
Column of Water in Well 8.42

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)	×	8.42
Volume of Annular Space	=	6.15
Gallons per foot of Casing	=	.1632
Column of Water	×	8.42
Volume of Casing	=	1.37
Total Volume (Volume of A.S. + Volume of Casing)	=	7.52
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	22.56 to 37.6

Method of Purging (pump, bailer, etc.) SUBMERSIBLE PUMP

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End 1121
Time	1023	1012	1047	1059	1118 11/14/93
pH	5.7	5.7	5.6	5.8	5.7
Conductivity	207	194	208	209	208
Temperature (°C)	20.8	21.2	21.1	21.0	21.1
Volume Purged (Gal)	1GAL	5GAL	12 GAL	18 GAL	28

Total Volume Purged ≈ 28 gallons
Sample Time/Date 11-14-93 1700 | Sample Number COOMT*24 MW-24

FRACTIONS
VP EC EC NP NP CF NF LC LC
VP VP VP EC MS MS MS N C C 8

COMMENTS

Signatures:
Crew Leader Claire Bain | Date 11-14-93
Reviewer [signature] | Date 12-6-93
Reviewer Title Sr Staff Scientist

Well Sampling Data Form

Well No. MW-25

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 81.4 Inch | Well Casing Diameter 2"
Boring Diameter 7¼" | Annular Space Length 48.4'
Date 11/13/93 | Time 0720 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 71.65 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 81.40
DTW Top of Casing 71.65
Column of Water in Well 9.75

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)	×	9.75
Volume of Annular Space	=	7.12
Gallons per foot of Casing	=	0.1632
Column of Water	×	7.12
Volume of Casing	=	1.16
Total Volume (Volume of A.S. + Volume of Casing)	=	8.28
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	24.84 to 41.4

Method of Purging (pump, bailer, etc.) SUBMERSIBLE GRUNDFOS PUMP

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0739	0745	0754	0803	0809
pH	5.9	5.5	5.5	5.5	5.5
Conductivity	245	255	256	258	258
Temperature (°C)	18.8	19.3	19.3	19.2	19.3
Volume Purged (Gal)	1 GAL	5 GAL	15 GAL	22 GAL	28 GAL

Total Volume Purged 28 gallons
Sample Time/Date 0820 | Sample Number CDDMTW#25 MW-25

FRACTIONS
VP VP VP EC MS MS MS N CC NP NP LC LC
(VP EC EC MS NF CF)

COMMENTS

Signatures:
Crew Leader Claire Bain | Date 11-13-93
Reviewer [signature] | Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-26

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 110' | Well Casing Diameter 2"
Boring Diameter 7 1/4" | Annular Space Length 14.4'
Date 9-11-93 | Time 10:24 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 99.45 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 110
DTW Top of Casing 99.45
Column of Water in Well 10.55

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)	×	10.55
Volume of Annular Space	=	7.702
Gallons per foot of Casing	=	0.1632
Column of Water	×	10.55
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	=	28.27 to 47.12

Method of Purging (pump, bailer, etc.) ~~SUBMERSIBLE~~ Hej 9-11-93 PUMP / BAILER # 211

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	14.14	1609	1740		1915
pH	5.4	5.3	5.7		5.5
Conductivity	412	413	409		405
Temperature (°C)	19.6	18.5	17.9		18.2
Volume Purged (Gal)		7.5	15		30

Total Volume Purged 30 gallons
Sample Time/Date 1930 11-9-93 Sample Number CDDMTW #26 MW 26

FRACTIONS
VP VP VP VP EC MS MS MS N C
EC EC NF C
MS 8
CF NP NP

COMMENTS ~~Submersible pump~~ detroid used
1 foot approx. 5 hours to purge the well.

Signatures:
Crew Leader [signature] Date 11-9-93
Reviewer Budd Murphy Date 12-6-93
Reviewer Title Senior Staff Scientist

3935019

SUBMERSIBLE PUMP WORKED. GROUND FAULT INTERRUPTER ON GENERATER WAS CAUSING LOW VOLTAGE ON PUMP CONTROLLER. Plants

Well Sampling Data Form

Well No. MW-27

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 97.6' | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length ?
Date 11-15-93 | Time 1445 | Stickup FLUSH
AND 11-16-93 LOCK FROZEN. HAD TO HAVE RANDY WILSON CUT LOCK OFF

WATER LEVEL

Held N/A
Cut N/A
DTW DRY SOUNDED Top of Casing AT 94.45' SOFT BOTTOM

COLUMN OF WATER IN WELL

Casing Length 97.6'
DTW Top of Casing
Column of Water in Well

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	× 3 to 5
Total Volume to be Evacuated	= to

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 | Sample Number NO SAMPLE

FRACTIONS

VP VP VP EC MS MS MS N C S

COMMENTS OVM READING 0 PPM. WELL WAS DRY

Signatures:
Crew Leader Claire Bain | Date 11-16-93
Reviewer Randy Wilson | Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-2B

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 69.9'
Boring Diameter 8"
Date 11/17/93 Time 1724
Well Casing Diameter 2"
Annular Space Length 22.4'
Stickup 0

WATER LEVEL
Held N/A
Cut N/A
DTW 57.71' Top of Casing

COLUMN OF WATER IN WELL
Casing Length 69.9
DTW Top of Casing 57.71
Column of Water in Well 11.69

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)	×	11.69
Volume of Annular Space	=	8.5
Gallons per foot of Casing	=	0.1632
Column of Water	×	11.69
Volume of Casing	=	1.9
Total Volume (Volume of A.S. + Volume of Casing)	=	10.4
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	31.2 to 52

Method of Purging (pump, bailer, etc.) Submersible Pump @ 2.7 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1739	1745	1748	1750	1752
pH	4.8	4.9	5.0	5.0	5.1
Conductivity	195	205	207	209	210
Temperature (°C)	17.1	17.5	17.8	17.9	17.
Volume Purged (Gal)	1	16.7	25.1	30.7	36.3

Total Volume Purged 36.3 gallons
Sample Time/Date 1830/11/17/93 Sample Number CDOMW#28

(ALC) (END) (MP) (EP)

FRACTIONS

(VOA) VP VP (TOC) (TOX) MS MS (N) (TPH/BTEX) (TOC)

COMMENTS

Signatures:
Crew Leader Mark H. Boyd Date 11/18/93
Reviewer Donald Wingfield Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-29

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 54.3 — Well Casing Diameter 2"
Boring Diameter 7.25 & 4.25" — Annular Space Length 32-3
Date 11/17/93 — Time 0900 — Stickup 0

WATER LEVEL
Held N/A
Cut N/A
DTW 37.81 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 54.3
DTW Top of Casing 37.81
Column of Water in Well 16.49

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)	×	16.49
Volume of Annular Space	=	12.0
Gallons per foot of Casing	=	0.1632
Column of Water	×	16.47
Volume of Casing	=	2.7
Total Volume (Volume of A.S. + Volume of Casing)	=	14.7
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	44.1 to 73.5

Method of Purging (pump, bailer, etc.) Submersible Pump @ 1.89GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0903	0911	0918		0926
pH	5.3	5.3	5.3		5.4
Conductivity	375	365	357		365
Temperature (°C)	16.3	16.7	16.8		16.8
Volume Purged (Gal)	1	15.2			45

Total Volume Purged 45 gallons
Sample Time/Date 11/17/93 0945 Sample Number CDDMTW#29

FRACTIONS
(4VP) VP VP (3EC) (3MS) MS MS (2NP) (NP) (CF) (N) (2C) S (4CC)

COMMENTS No Key to Well Lock. Used Dexter #75

Signatures:
Crew Leader Mark H. Bazel — Date 11/17/93
Reviewer Herald Murphy — Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-30

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 59.1 | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length 29.4
Date 11/19/93 | Time 1448 | Stickup 1.7'

WATER LEVEL
Held N/A
Cut N/A
DTW 49.10 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 59.1
DTW Top of Casing 44.1
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)	×	15
Volume of Annular Space	=	10.95 ≈ 11.0
Gallons per foot of Casing	=	0.1632
Column of Water	×	15
Volume of Casing	=	2.5
Total Volume (Volume of A.S. + Volume of Casing)	=	13.5
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	40.5 to 67.5

Method of Purging (pump, bailer, etc.) Submersible pump @ 1.52 GPM

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	1500	1510	1520	1530	1533
pH	5.4	5.3	5.2	5.5	5.5
Conductivity	300	291	288	291	291
Temperature (°C)	17.3	17.2	17.7	17.8	17.5
Volume Purged (Gal)	1	15.2	30.4	45.6	50

Total Volume Purged 50 gallons
Sample Time/Date 11/19/93 1545 Sample Number CDDMTW#30

FRACTIONS (4LC) (2NP) (NF) (EF)
(4VP) VP VP (3EC) (3MS) MS MS (N) (2C) S

COMMENTS USED BAILER #1.

Signatures:
Crew Leader [signature] Date 11/19/93
Reviewer [signature] Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-31

Client CEHND — ESB Project DDMT
Site Location Memphis, Tennessee — ESB Project No. 3935021G
ESB Field Team Leader Claire Bain — ESB Project Manager Claire Bain

Well Depth 82 — Well Casing Diameter 2"
Boring Diameter 8" — Annular Space Length 28.3
Date 11/19/93 — Time 1131 — Stickup 2.9

WATER LEVEL
Held N/A
Cut N/A
DTW 64.80 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 82.0
DTW Top of Casing 64.8
Column of Water in Well 17.2

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)	×	17.2
Volume of Annular Space	=	~~12.86~~ 12.56
Gallons per foot of Casing	=	17.2 NB 11/19/93
Column of Water	×	0.1632
Volume of Casing	=	2.8
Total Volume (Volume of A.S. + Volume of Casing)	=	~~15.66~~ 15.36 NB 11/19/93
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated		~~NB 11/19/93 46.~~ to ~~46.3~~ 77 NB 11/19/93

Method of Purging (pump, bailer, etc.) Submersible pump @ 2.2 GPM.

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	1155	1203	1207	1212	1220
pH	5.2	5.3	5.3	5.3	5.3
Conductivity	372	366	362	363	363
Temperature (°C)	16.8	17	17.2	17.2	17.2
Volume Purged (Gal)	1	17.6	26.9	37.4	55

Total Volume Purged 55 gallons
Sample Time/Date 1230 11/19/93 Sample Number CDMTW # 31

FRACTIONS
(4VP) VP VP VP (3EO) (3MS) MS MS MS (N) (NF) (CF) S
(4LC) (2NP)

COMMENTS Sample Using Bailer at 109

Signatures:
Crew Leader [signature] Date 11/19/93
Reviewer [signature] Date 12-16-93
Reviewer Title Sr Staff Scientist

Well Sampling Data Form

Well No. MW-32

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 67.8 — Well Casing Diameter 2"
Boring Diameter 8" — Annular Space Length 23.8'
Date 11/18/93 — Time 1600 — Stickup 0'

WATER LEVEL
Held N/A
Cut N/A
DTW 59.30 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 67.8
DTW Top of Casing 59.30
Column of Water in Well 8.5

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)	×	8.5
Volume of Annular Space	=	6.2
Gallons per foot of Casing	=	0.1632
Column of Water	×	8.5
Volume of Casing	=	1.4
Total Volume (Volume of A.S. + Volume of Casing)	=	7.6
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	22.8 to 38.0

Method of Purging (pump, bailer, etc.) Submersible Pump @ 1.28 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1610	1617	1622	1626	1630
pH	5.0	4.9	4.9	4.9	4.9
Conductivity	1486	1458	1424	1418	1416
Temperature (°C)	16.0	16.5	16.5	16.6	16.6
Volume Purged (Gal)	~~4.0~~ 1	9	15.4	20.5	25.6

NB 11/18/93

Total Volume Purged 25.6 gallons
Sample Time/Date 11/18/93 1700 — Sample Number GDDMTW #32

FRACTIONS
(VP) VP VP (3EC) (3MS) MS MS (N) (SC) S
(ALC) (2NP) 4 NO 11/18/93 (ND) (CF)

COMMENTS Used Bailer #122

Signatures:
Crew Leader Mark H Bain — Date 11/18/93
Reviewer Gerald Ungar — Date 12/6/93
Reviewer Title Sr Staff Scientist

Well Sampling Data Form

Well No. MW-37

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 60.0 | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length 21.0
Date 11/19/93 | Time 1820 | Stickup 0

WATER LEVEL
Held N/A
Cut N/A
DTW 48.08 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 60.0
DTW Top of Casing 48.08
Column of Water in Well 11.92

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)	×	11.92
Volume of Annular Space	=	8.7
Gallons per foot of Casing	=	0.1632
Column of Water	×	11.92
Volume of Casing	=	1.9
Total Volume (Volume of A.S. + Volume of Casing)	=	10.6
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	31.8 to 53

Method of Purging (pump, bailer, etc.) Submersible Pump @ 1.5 BGPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0833	0840	0845	0850	0855
pH	5.0	5.0	4.9	5.0	5.0
Conductivity	212	204	200	203	203
Temperature (°C)	16.0	17.0	17.0	17.0	17.0
Volume Purged (Gal)	1	11	18.9	26.8	35

Total Volume Purged 35 gallons
Sample Time/Date 11/19/93 0920 Sample Number CDDMTW #33

FRACTIONS
(4VP) VP VP (3EC) (3MS) MS MS (N) (2C) S
(4LC) (2NP) (DF) (CF)
COMMENTS Use Bailer @ 15G

Signatures:
Crew Leader Claire Bain Date 11-19-93
Reviewer Gerald Murphy Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW34

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 156.90' | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length ?
Date 11-19-93 | Time 0820 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 138.18 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 156.90'
DTW Top of Casing 138.18
Column of Water in Well 18.72

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.77
Column of Water or Length of A.S. (whichever is less)	×	18.72
Volume of Annular Space	=	13.7
Gallons per foot of Casing	=	0.16
Column of Water	×	18.72
Volume of Casing	=	3.0
Total Volume (Volume of A.S. + Volume of Casing)	=	16.7
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	50.1 to 83.5

Method of Purging (pump, bailer, etc.) GRUNDFOS @ ~1 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0915	0925	0935	0945	0955
pH	5.9	5.7	5.6	5.6	5.6
Conductivity	185	115	169	169	169
Temperature (°C)	16.5	18.5	19.3	19.5	19.8
Volume Purged (Gal)	~16A	~16A	~20	~10	~40

Total Volume Purged ~46 gallons
Sample Time/Date 11-19-93 @ 1020 Sample Number CDDMTW #34

FRACTIONS
VP VP VP VP ECK MS MS MS N CKL S (LCK) (NTK) (CF) (NF)

COMMENTS
USED BAILER #47 BAILER (#004)

Signatures:
Crew Leader Claire Bain Date 11-19-93
Reviewer Donald Murphy Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-35

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 89.7 | Well Casing Diameter 2"
Boring Diameter 8" | Annular Space Length 32.7
Date 11/19/93 | Time 1156 | Stickup 1.2' BGS

WATER LEVEL
Held N/A
Cut N/A
DTW 77.20 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 89.7
DTW Top of Casing 77.20
Column of Water in Well 12.5

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	0.60 ~~12.5~~ 11/19/93
Column of Water or Length of A.S. (whichever is less)	×	12.5
Volume of Annular Space	=	7.5
Gallons per foot of Casing	=	~~12.5~~ 0.1632 11/19/93
Column of Water	×	15.1
Volume of Casing	=	2.5
Total Volume (Volume of A.S. + Volume of Casing)	=	10
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	30 to 50

Method of Purging (pump, bailer, etc.) Submersible Pump @ 2.86GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1156	1203	1207	11/19/93	1211
pH	5.8	5.8	~~6.05~~	5.8	5.8
Conductivity	236	227	227	227	227
Temperature (°C)	19.2	18.9	18.6	18.6	18.6
Volume Purged (Gal)	1	20.0	31.5		42.9

Total Volume Purged 42.9 gallons
Sample Time/Date 1730 11/19/93 Sample Number CDMTMW#35

FRACTIONS
(VP) VP VP (3EQ) (3MS) MS MS (NF) (DUP) (N) (2C) S (CF) (4LC)

COMMENTS 12:50 BAILOR 93

Signatures:
Crew Leader Mark H Bail Date 11/19/93
Reviewer David Wright Date 12/10/93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-36

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 209.4' | Well Casing Diameter 2"
Boring Diameter 5 7/8" | Annular Space Length 115.4
Date 11-12-93 | Time 1400 | Stickup FLUSH

WATER LEVEL

Held N/A
Cut N/A
DTW 154.75 Top of Casing

COLUMN OF WATER IN WELL

Casing Length 209.40
DTW Top of Casing 154.75
Column of Water in Well 54.65

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)	×	54.65
Volume of Annular Space	=	21.31
Gallons per foot of Casing	=	0.1632
Column of Water	×	54.65
Volume of Casing	=	8.92
Total Volume (Volume of A.S. + Volume of Casing)	=	30.23
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	90.69 to 151.15

Method of Purging (pump, bailer, etc.) SUBMERSIBLE WATER PUMP

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1538	1554	1613	1626	1641
pH	6.4	6.2	6.2	6.1	6.1
Conductivity	345	367	342	334	326
Temperature (°C)	17.8	19.7	18.9	19.0	19.0
Volume Purged (Gal)	1GAL	14	35	~45	~55

READINGS HAVE STABILIZED

Total Volume Purged 55 gallons WATER IS CLEAR
Sample Time/Date 1715 11/12/93 Sample Number GDDMTW36 MW36

FRACTIONS

VP VP VP EC EC MS MS MS N LC LC C NF CFC NP NP 8 meg

COMMENTS

Signatures:
Crew Leader Claire Bain Date 11-12-93
Reviewer [signature] Date 12-6-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW37

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 182.8' | Well Casing Diameter 2"
Boring Diameter 10" | Annular Space Length new 40+ ?
Date 11-18-93 | Time 0870 | Stickup Flush

WATER LEVEL

Held N/A
Cut N/A
DTW 129.65 Top of Casing

COLUMN OF WATER IN WELL

Casing Length 182.80
DTW Top of Casing 129.65
Column of Water in Well 53.15

VOLUME TO BE REMOVED

Gallons per foot of A.S. (from chart)	=	new 40? 1.17
Column of Water or Length of A.S. (whichever is less)	×	53.15 ok
Volume of Annular Space	=	new 54-7 62.2
Gallons per foot of Casing	=	.16
Column of Water	×	53.15
Volume of Casing	=	8.5
Total Volume (Volume of A.S. + Volume of Casing)	=	new 62.2 70.7
Number of Volumes to be Evacuated	×	new 3 to 5
Total Volume to be Evacuated	=	new 189.6 to 314 ok 212.1 257.5

Method of Purging (pump) bailer, etc.) GRUNDFOS @ ~160'

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	0906	0927	0944	1007	1015
pH	6.4	6.4	6.4	6.4	6.5
Conductivity	394	420	410	410	406
Temperature (°C)	18.6°	19.1°	19.5°	19.8°	20.0°
Volume Purged (Gal)	~16	~15 Gals	~30 Gals	~45 Gals	~55 Gals

Total Volume Purged ~55 gallons
Sample Time/Date 11-18-93 @ 1130 Sample Number CDMW37 (DUP #40)

FRACTIONS (LEX4) (NPKL)

(VP) VP VP VP ECXL MS MS MS (N) (CXL) S (EF) (NF)

COMMENTS

Took DUP + SPLIT FOR USACE
(SAME FRACTIONS FOR DUP + SPLIT)

Signatures:
Crew Leader _____ Date 11-18-93
Reviewer _____ Date 12-6-93
Reviewer Title SR. STAFF SCIENTIST

Well Sampling Data Form

Well No. MW 38

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 155' | Well Casing Diameter 2"
Boring Diameter 6" | Annular Space Length 65.5'
Date 11-15-93 | Time 1515 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 133.18 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 155.00
DTW Top of Casing 133.18
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	=	8.51
Gallons per foot of Casing	=	0.1632
Column of Water	×	21.87
Volume of Casing	=	3.56
Total Volume (Volume of A.S. + Volume of Casing)	=	12.07
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	36.21 to 60.35

Method of Purging (pump, bailer, etc.) SUBMERSIBLE PUMP @ 0.5 GPM

FIELD ANALYSES

	Start	Mid I	Mid II	Mid III	End
Time	1540	1601	1620	1640	1650
pH	6.0	5.8	5.7	5.7	5.7
Conductivity	240	212	204	205	207
Temperature (°C)	17.7°	20.4	21.2°	20.9°	20.9°
Volume Purged (Gal)	~2	~12	~22	~30	~35

Total Volume Purged ~35 gallons
Sample Time/Date 1815 11-15-93 Sample Number COOMTW*38 MW-38

FRACTIONS LC LC LC LC EC EC NP NP NF CF
VP VP VP VP EC MS MS MS N C C B

COMMENTS

Signatures:
Crew Leader Claire Bain Date 11-15-93
Reviewer Donald Hinds Date 12-16-93
Reviewer Title Sr. Staff Scientist

Well Sampling Data Form

Well No. MW-39

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 115.6 | Well Casing Diameter 2"
Boring Diameter mw 8" | Annular Space Length 40.6'
Date 11-15-93 | Time 1130 | Stickup FLUSH

WATER LEVEL
Held N/A
Cut N/A
DTW 102.11 Top of Casing

COLUMN OF WATER IN WELL
Casing Length 115.60
DTW Top of Casing 102.11
Column of Water in Well 13.49

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)	×	13.49
Volume of Annular Space	=	9.85
Gallons per foot of Casing	=	0.1632
Column of Water	×	13.49
Volume of Casing	=	2.20
Total Volume (Volume of A.S. + Volume of Casing)	=	11.78
Number of Volumes to be Evacuated	×	3 to 5
Total Volume to be Evacuated	=	35.34 to 58.9

Method of Purging (pump, bailer, etc.) SUBMERSIBLE PUMP

FIELD ANALYSES	Start	Mid I	Mid II	Mid III	End
Time	1147	1158	1212	1230	1303
pH	6.6	6.3	6.0	6.0	6.0
Conductivity	269	239	274	284	293
Temperature (°C)	17.4	20.6	21.0	21.0	21.0
Volume Purged (Gal)	1GAL	5GAL	12GAL	22GAL	30GAL

Total Volume Purged ≈ 33 gallons
Sample Time/Date 1340 | Sample Number COMMT # 39 mw-39

FRACTIONS 11-15-93

				EC	EC			LC	LC	LC	LC		NF	NP	NP	CF
VP	VP	VP	VP	EC	MS	MS	MS	N	C	C	S					

COMMENTS

Signatures:
Crew Leader Claire Bain Date 11-15-93
Reviewer [signature] Date 12-6-93
Reviewer Title Sr. Staff Scientist

TAB

B

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

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 11/09/93

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	SU		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	<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	SU		1405	11/09/93	CB	NA

LABORATORY MANAGER

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	pH	COND	
*15	MW15		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			R ANALY
*16	MW16		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	11-9-93	1405	CDDMTW.1 CDDMTW.1	6.0	630	CRX
*17	MW17		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1			
*18	MW18		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1			
*19	MW19		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1			
*20	MW20		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1			
*21	MW21		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BANN /ESE	11-9-93 / 1700 (MCB 11-9-93) 1642	HAND DELIVERED		
2			S. Swanson /ETC	11/9/93 1642
3				

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:

44 80

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6834
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	SU		1930	11/09/93	CB	NA

LABORATORY MANAGER

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	pH	COND	
*22	MW22SP		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1			MRD GETS CARBON LOGSHEET
*23	MW23		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1			
*24	MW24		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 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 CDDMTW.1			
*26	MW26		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	11-9-93	1930	CDDMTW.1 CDDMTW.1	5.5	405	
*27	MW27		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1			
*28	MW28		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			

B-6

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLAIRE BANN/ESE/ 11-10-93/0805	HAND DELIVERY		
2			S Newman/ETC 11/10/93 0805	
3				

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 8 (#) more samples on 11/10/93
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:

ANALYSIS FOR HEXA-VALENT CHROME

44 83

44 84

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 # 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 Engineering, Inc.**
Project # 7934082G 0201
Site ID 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 ANALYZED	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	METHOD
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 Engineering, Inc.** Project # 7934082G 0201
Site ID 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

LABORATORY MANAGER

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

Client Name **Environmental Science and Engineering, Inc.**
Project # 7934082G 0201
Site ID 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

LABORATORY MANAGER

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 # 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 Engineering, Inc.** Project # 7934082G 0201

Site ID Huntsville COE-DDMT

Date Arrived 11/16/93

ETC Order Number 9311416

ETC Lab ID 9311416-01 Matrix :AQUEOUS

Sample ID: ESE#*7/MW7 C 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 Matrix :AQUEOUS

Sample ID: ESE#*7/MW7 CF 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 9311416-03 Matrix :AQUEOUS

Sample ID: ESE#*9/MW9 C 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 Engineering, Inc.
Project # 7934082G 0201
Site ID Huntsville COE-DDMT

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	BY	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

LABORATORY MANAGER

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*22	MW22SP		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET
*23	MW23		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: (C) CF	11-15-93	0930	CDDMTW.1 CDDMTW.1	
*24	MW24		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 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 CDDMTW.1	
*26	MW26		GVL: C C EC EC EC LC LC GVL: 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 MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*28	MW28		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	

B-14

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLAIRE BAIN/ESE	11-15-93/1630 ~~1700~~ MDS	HAND DELIVERED		
2				J. Marrero/ETC	11/15/93 1630
3					

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 8 (#) more samples on 11/16/93
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:

4 4 9 1

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*8	MW8		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	R
*9	MW9		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	
*10	MW10SP		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	MRD GETS CARBON LOGSHEET
*11	MW11		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	
*12	MW12SP		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	MRD GETS CARBON LOGSHEET
*13	MW13		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-15-93	1530	CDDMTW.1 CDDMTW.1	
*14	MW14		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 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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLAIRE BAIN/ESE/	11-15-93/1700 MB	HAND DELIVERED		
2		1630		J Kennon/ETC	11/15/93 1630
3					

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 8 (#) more samples on 11/16/93
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:

B-15

44

92

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*2	MW2		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
*3	MW3		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
*4	MW4		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-15-93	1500	CDDMTW.1 CDDMTW.1
*5	MW5		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
*6	MW6		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*7	MW7		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

B-16

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLARB BAIN/ESE	11-15-93/1630	HAND DELIVERED		
2				S. Hesnard/ETC	11/15/93 1630
3					

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 8 (#) more samples on 11/16/93
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:

44 93

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*36	MW36		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*37	MW37SP		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	MRD GETS CARBON LOGSHEET
*38	MW38		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	
*39	MW39		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-15-93	1340	CDDMTW.1 CDDMTW.1	
*40	MW40DUP		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	
*41	MW41DUP		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	
*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	

B-17

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLAIRE BAIN/ESE	11-15-93 / 1200 MST	HAND DELIVERED		
2		1630		S Freeman/ETC	11/15/93 1630
3					

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 8 (#) more samples on 11/16/93
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:

44

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*8	MW8		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	R
*9	MW9		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-15-93	1711	CDDMTW.1 CDDMTW.1	
*10	MW10SP		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	MRD GETS CARBON LOGSHEET
*11	MW11		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	
*12	MW12SP		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	MRD GETS CARBON LOGSHEET
*13	MW13		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	
*14	MW14		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 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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLAIRE BAIN/ESE	11-16-93/1000	HAND DELIVERED		
2				S. Hansen/ETC	11/16/93 1000
3					

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (#) more samples on 11/16/93 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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*2	MW2		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
*3	MW3		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
*4	MW4		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
*5	MW5		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
*6	MW6		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*7	MW7		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-15-93	1850	CDDMTW.1 CDDMTW.1

B-19

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BANN/ESE	11-16-93/ 1000	HAND DELIVERED		
2			J. Hammond/ESE	11/16/93 1615
3				

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (#) more samples on 11/16/93 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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*36	MW36		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*37	MW37SP		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	MRD GETS CARBON LOGSHEET
*38	MW38		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-15-93	1815	CDDMTW.1 CDDMTW.1	
*39	MW39		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	
*40	MW40DUP		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	
*41	MW41DUP		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	
*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	

B-20

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BAIN/ESE	11-16-93	1000 HAND DELIVERED		
2			S. Hancock/ETC	11/16/93 1000
3				

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (#) more samples on 11/16/93 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:

44

97

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 # 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 Engineering, Inc.
Project # 7934082G 0201
Site ID 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	TIME ANALYZED	DATE ANALYZED	BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1630	11/15/93	SM	3500-D

ETC Lab ID 9311380-03
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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1630	11/15/93	SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc.
Project # 7934082G 0201
Site ID 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

LABORATORY MANAGER

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 Engineering, Inc. Project # 7934082G 0201

Site ID 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	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 9311342-03
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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1610	11/12/93	SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID 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	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 9311342-05
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

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID Huntsville COE-DDMT

Date Arrived 11/12/93

ETC Order Number 9311342

ETC Lab ID 9311342-07 Matrix :AQUEOUS

Sample ID: ESE#*42/MW42DUP-C 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 Matrix :AQUEOUS

Sample ID: ESE#*42/MW42DUP-CF 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

LABORATORY MANAGER

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*8	MW8		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	
*9	MW9		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	
*10	MW10SP		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	MRD GETS CARBON LOGSHEET
*11	MW11		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	
*12	MW12SP		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	MRD GETS CARBON LOGSHEET
*13	MW13		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	
*14	MW14		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: ~~NP NP~~ ETC: (C) CF	11-17-93	1545	CDDMTW.1 CDDMTW.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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BOND/ESE	11-18-93/0945	HAND DELIVERED		
2			A Rousseau/ETC	11/18/93 0945
3				

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 5 (#) more samples on 11/18/93 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:

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?	LAB	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*2	MW2		GVL:	C F EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*3	MW3		GVL:	C F EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*4	MW4		GVL:	C F EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*5	MW5		GVL:	C F EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF	11-16-93	1200	
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*6	MW6		GVL:	C F EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1
*7	MW7		GVL:	C F EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1

B-29

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLARE BAIN / ESE	11-17-93 / 0950	HAND DELIVERED		
2			J. Hennessee / ETG	11/17/93 0850
3				

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (#) more samples on 11/17-93 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:

44 106

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?	LAB	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*2	MW2		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*3	MW3		GVL:	C C EC EC EC LC LC	11-12-93	1500	CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	~~NP NP~~			
			ETC:	(C CF)			CDDMTW.1
*4	MW4		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*5	MW5		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*6	MW6		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1
*7	MW7		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1

B-30

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLAIRE BANN / ESE / 11-13-93 /	HAND DELIVERED		
2				
3				

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 4 (#) more samples on 11/15/93 0900
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:

R

44 107

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*8	MW8		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	R
*9	MW9		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	
*10	MW10SP		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	MRD GETS CARBON LOGSHEET
*11	MW11		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: (C) CF	11-13-93	0930	CDDMTW.1 CDDMTW.1	
*12	MW12SP		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	MRD GETS CARBON LOGSHEET
*13	MW13		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	
*14	MW14		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 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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BAIN/ESE/11-13-93/	HAND DELIVERED		
2			
3			

SAMPLER: Shipped on Ice? (Yes) No; I anticipate shipping 4 (#) more samples on 11/15/93 0900
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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*22	MW22SP		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET
*23	MW23		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*24	MW24		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*25	MW25		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	11-13-93	0820	CDDMTW.1 CDDMTW.1	
*26	MW26		GVL: C C EC EC EC LC LC GVL: 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 MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*28	MW28		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	

B-32

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BAIN / ESE / 11-13-93	HAND DELIVERED		
2			
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (1) more samples on 11/15/93 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:

44 109

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

R

ESE #	SITE/STA	HAZ?	LAB	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*36	MW36		GVL:	C C EC EC EC LC LC			CDDMTW.1	
			GVL:	MS MS MS N NF NP NP	11-12-93	1715		
			ETC:	C CF			CDDMTW.1	
*37	MW37SP		GVL:	C C EC EC EC LC LC			CDDMTW.1	
			GVL:	LC LC MS MS MS N NF				MRD GETS CARBON LOGSHEET
			GVL:	NP NP				
			ETC:	C CF			CDDMTW.1	
*38	MW38		GVL:	C C EC EC EC LC LC			CDDMTW.1	
			GVL:	LC LC MS MS MS N NF				
			GVL:	NP NP				
			ETC:	C CF			CDDMTW.1	
*39	MW39		GVL:	C C EC EC EC LC LC			CDDMTW.1	
			GVL:	LC LC MS MS MS N NF				
			GVL:	NP NP				
			ETC:	C CF			CDDMTW.1	
*40	MW40DUP		GVL:	C C EC EC EC LC LC			CDDMTW.1	
			GVL:	LC LC MS MS MS N NF				
			GVL:	NP NP				
			ETC:	C CF			CDDMTW.1	
*41	MW41DUP		GVL:	C C EC EC EC LC LC			CDDMTW.1	
			GVL:	LC LC MS MS MS N NF				
			GVL:	NP NP				
			ETC:	C CF			CDDMTW.1	
*42	MW42DUP		GVL:	C C EC EC EC LC LC			CDDMTW.1	
			GVL:	LC LC MS MS MS N NF				
			GVL:	NP NP				
			ETC:	C CF			CDDMTW.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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BAIN/ESE/11-13-93/	HAND DELIVERED		
2			
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (#) more samples on 11/15/93 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:

44 110

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334
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

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID 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	METHOD
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

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

LABORATORY MANAGER

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

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201
Site ID 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	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 9311547-05
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-D

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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93	SM	3500-D

LABORATORY MANAGER

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

Client Name Environmental Science and Engineering, Inc.
Project # 7934082G 0201
Site ID 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	TIME ANALYZED	DATE ANALYZED	BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/19/93	SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334
Founded 1972

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
General Manager

jw

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc. Project # 793482G 0201

Site ID 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	TIME ANALYZED	DATE ANALYZED	BY	METHOD
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	SM	3500-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	SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc. Project # 793482G 0201

Site ID Huntsville COE-DDMT

Date Arrived 11/17/93

ETC Order Number 9311448

ETC Lab ID 9311448-04 Matrix :AQUEOUS

Sample ID: ESE#*44/MW44EBLK CF 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	SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.
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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

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc.
Project # 7934082G 0201
Site ID 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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1320	11/18/93	SM	3500-D

LABORATORY MANAGER

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

Client Name Environmental Science and Engineering, Inc. Project # 7934082G 0201
Site ID 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	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 9311511-05
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-D

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

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.
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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

jw

Attachment

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

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201
Site ID 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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0840	11/18/93	SM	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-D

ETC Lab ID 9311489-03
Sample ID: ESE#*29/MW29 C
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

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc.
Project # 7934082G 0201

Site ID 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

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334
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

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc.
Project # 7934082G 0201
Site ID 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	11/20/93	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	METHOD
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 ANALYZED	DATE ANALYZED	BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	0945	11/20/93	RP	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID 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	METHOD
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

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID 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

LABORATORY MANAGER

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

Client Name Environmental Science and Engineering, Inc. Project # 7934082G 0201
Site ID Huntsville COE-DDMT

Date Arrived 11/20/93

ETC Order Number 9311600

ETC Lab ID 9311600-10 Matrix :AQUEOUS
Sample ID: ESE#*50/MW50TS CF 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

ETC Lab ID 9311600-11 Matrix :AQUEOUS
Sample ID: ESE#*51/MW51TS C Sample Date :11/19/93 18:30:00

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 9311600-12 Matrix :AQUEOUS
Sample ID: ESE#*51/MW51TS CF Sample Date :11/19/93 18:30:00

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

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6884
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

jw

Attachment

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

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201
Site ID 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 Engineering, Inc.** Project # 7934082G 0201

Site ID Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311559

ETC Lab ID 9311559-04 Matrix :AQUEOUS

Sample ID: ESE#*32/MW32 CF 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 9311559-05 Matrix :AQUEOUS

Sample ID: ESE#*45/MW45 C 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 Matrix :AQUEOUS

Sample ID: ESE#*45/MW45 CF 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

LABORATORY MANAGER

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

Client Name Environmental Science and Engineering, Inc. Project # 7934082G 0201
Site ID 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

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 9311559-08
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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1445	11/19/93	SM	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	SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc.
Project # 7934082G 0201
Site ID Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311559

ETC Lab ID 9311559-10
Matrix :AQUEOUS
Sample ID: ESE#*47/MW47 CF
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-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6334
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

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311599

ETC Lab ID 9311599-01 Matrix :AQUEOUS

Sample ID: ESE#*20/MW20 C Sample Date :11/19/93 14:30:00

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 9311599-02 Matrix :AQUEOUS

Sample ID: ESE#*20/MW20 CF Sample Date :11/19/93 14:30:00

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 9311599-03 Matrix :AQUEOUS

Sample ID: ESE#*31/MW31 C 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

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID 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	TIME ANALYZED	DATE ANALYZED	BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93	SM	3500-D

ETC Lab ID **9311599-06**
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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93	SM	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Environmental Science and Engineering, Inc.** Project # 7934082G 0201

Site ID 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	BY	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1650	11/19/93	SM	3500-D

ETC Lab ID 9311599-08
Sample ID: ESE#*34/MW34 CF
Matrix :AQUEOUS
Sample Date :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-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Environmental Science and Engineering, Inc. Project # 7934082G 0201

Site ID Huntsville COE-DDMT

Date Arrived 11/19/93

ETC Order Number 9311599

ETC Lab ID 9311599-10 Matrix :AQUEOUS

Sample ID: ESE#*49/MW49 CF 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-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.
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

Randall H. Thomas
Vice-President
General Manager

jw

Attachment

ENVIRONMENTAL TESTING & CONSULTING, INC.
2924 Walnut Grove Road • Memphis, TN 38111 • (901) 327-2750 • FAX (901) 327-6884
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

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
Engineering, Inc.
Site ID Huntsville COE-DDMT

Date Arrived 11/15/93

ETC Order Number 9311379

ETC Lab ID 9311379-01 Matrix :AQUEOUS
Sample ID: ESE#*3/MW3 C 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 9311379-02 Matrix :AQUEOUS
Sample ID: ESE#*3/MW3 CF 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 Matrix :AQUEOUS
Sample ID: ESE#*11/MW11 C 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

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name Env. Science & Eng. Inc. Project # 7934082G 0201
Engineering, Inc.
Site ID 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-D

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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93	GD	3500-D

LABORATORY MANAGER

ENVIRONMENTAL TESTING & CONSULTING, INC.

Memphis, TN

INORGANIC ANALYSIS DATA SHEET

Client Name **Env. Science & Eng. Inc.** Project # 7934082G 0201
Engineering, Inc.
Site ID 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	METHOD
Chromium - Hexavalent	<0.004	mg/L	0.004	1025	11/13/93	GD	3500-D

LABORATORY MANAGER

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*29	MW29		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-17-93	0945	CDDMTW.1 CDDMTW.1
*30	MW30		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
*31	MW31		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
*32	MW32		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
*33	MW33		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
*34	MW34		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
*35	MW35		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 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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1	CLAIRE BAIN/ESE/11-17-93/1555	HAND DELIVERED	George Dunlap/ESE/11-17-93/1555
2			
3			

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 4 (#) more samples on 11/18/93 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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*8	MW8		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-17-93	1220	CDDMTW.1 CDDMTW.1	R
*9	MW9		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	
*10	MW10SP		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	MRD GETS CARBON LOGSHEET
*11	MW11		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	
*12	MW12SP		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	MRD GETS CARBON LOGSHEET
*13	MW13		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	
*14	MW14		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	

B-68

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1	CLAIRE BAIN/ESE/11-17-93/1555/	HAND DELIVERED	Greg Dunlap/ETG/11-04-93/1555
2			
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (#) more samples on 11/18/93 0830
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:

44 145

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*8	MW8		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	R
*9	MW9		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	
*10	MW10SP		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-11-93	1800	CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET
*11	MW11		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	
*12	MW12SP		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-11-93	1530	CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET
*13	MW13		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	
*14	MW14		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	

B-69

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 Claire Bain/ESE	11-11-93/0810	HAND DELIVERED		
2			L Kennamer/ETC	11/12/93 0810
3				

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 6 (#) more samples on 11/12/93 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:

44 145

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*36	MW36		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*37	MW37SP		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	MRD GETS CARBON LOGSHEET
*38	MW38		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	
*39	MW39		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	
*40	MW40DUP		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	
*41	MW41DUP		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: (C CF)	11-11-93		CDDMTW.1 CDDMTW.1	
*42	MW42DUP		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: (C CF)	11-11-93		CDDMTW.1 CDDMTW.1	

8-70

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BAIN/ESE	11-12-93 / 0810	HAND DELIVERED		
2			S. Hannemann/ETC	11/12/93 0810
3				

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 6 (#) more samples on 11/12/93 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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*22	MW22SP		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET
*23	MW23		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*24	MW24		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	11-14-93	1700	CDDMTW.1 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 CDDMTW.1	
*26	MW26		GVL: C C EC EC EC LC LC GVL: 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 MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*28	MW28		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	

B-71

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 CLAIRE BAIN/ESE	11-15-93 / 0800	HAND DELIVERED		
2 /			Rebekah Bauer/ETC	11/15/93 0813
3				

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 8 (#) more samples on 11/15/93 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:

*35 MW35 C CF 11-14-93 1730

44 148

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*22	MW22SP		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	11-17-93	1500	CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET
*23	MW23		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*24	MW24		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 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 CDDMTW.1	
*26	MW26		GVL: C C EC EC EC LC LC GVL: 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 MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*28	MW28		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	

B-72

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1	Claire Bain/ESE/11-18-93/0945	HAND DELIVERED	
2			Thomas/ETC 11/18/93 0945
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 5 (#) more samples on 11/18/93
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:

44 149

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?	LAB	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*43	MW43DUP		GVL:	C C EC EC EC LC LC	11-17-93		CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP ~~NP~~			
			ETC:	C CF			CDDMTW.1
*44	MW44EBLK		GVL:	C C EC EC EC LC LC			CDDMTW.2
			GVL:	LC LC MS MS MS N			
			GVL:	NF NP			
			ETC:	C CF			CDDMTW.2
*45	MW45EBLK		GVL:	C C EC EC EC LC LC			CDDMTW.2
			GVL:	LC LC MS MS MS N			
			GVL:	NF NP			
			ETC:	C CF			CDDMTW.2
*46	MW46EBLK		GVL:	C C EC EC EC LC LC			CDDMTW.2
			GVL:	LC LC MS MS MS N			
			GVL:	NF NP			
			ETC:	C CF			CDDMTW.2
*47	MW47EBLK		GVL:	C C EC EC EC LC LC			CDDMTW.2
			GVL:	LC LC MS MS MS N			
			GVL:	NF NP			
			ETC:	C CF			CDDMTW.2
*48	MW48TS		GVL:	C C EC EC EC LC LC			CDDMTW.3
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP [redacted] VP VP VP VP			
			ETC:	C CF			CDDMTW.3

B-73

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD;. IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	CLAIRE BAIN/ESE	11-18-93/0945	HAND DELIVERED		
2				S. Kennamer/ESE	11/18/93 0945
3					

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 5 (#) more samples on 11/18/93 1100
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:

44 150

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*43	MW43DUP		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
*44	MW44EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: ~~NF NP~~ ETC: (C CF)	11-16-93	1630	CDDMTW.2 CDDMTW.2
*45	MW45EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: NF NP ETC: C CF			CDDMTW.2 CDDMTW.2
*46	MW46EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: NF NP ETC: C CF			CDDMTW.2 CDDMTW.2
*47	MW47EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: NF NP ETC: C CF			CDDMTW.2 CDDMTW.2
*48	MW48TS		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ~~[illegible] NP VP VP VP~~ MCB ETC: C CF			CDDMTW.3 CDDMTW.3

B-74

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD;. IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1	CLARE BANN/ESE/11-17-93/0850		
2			A Heesemann/ESE 11/17/93 0850
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 4 (#) more samples on 11/17/93 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:

44 151

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?	LAB	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*2	MW2		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*3	MW3		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*4	MW4		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*5	MW5		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1
*6	MW6		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	~~MS MS~~ MS N NF NP NP	11-18-93	0900	
			ETC:	(C CF)			CDDMTW.1
*7	MW7		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP			
			ETC:	C CF			CDDMTW.1

B-75

R

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	Claire Bain / ESE	11-18-93 / 1615	HAND DELIVERED		
2				Rebekah Barger 11/18/93 1615	
3					

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 5 (#) more samples on 11/19/93 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:

44 152

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?	LAB	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*15	MW15		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP	11-18-93	1200	
			ETC:	C CF			CDDMTW.1
*16	MW16		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1
*17	MW17		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1
*18	MW18		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1
*19	MW19		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1
*20	MW20		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1
*21	MW21		GVL:	C C EC EC EC LC LC			CDDMTW.1
			GVL:	MS MS MS N NF NP NP			
			ETC:	C CF			CDDMTW.1

B-76

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1	Claire Bass/ESE/11-18-93/1615	HAND DELIVERED	
2			Rebekah Barger 11/18/93 1615
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 5 (#) more samples on 11/19/93 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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*36	MW36		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1	
*37	MW37SP		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-18-93	1130	CDDMTW.1 CDDMTW.1	MRD GETS CARBON LOGSHEET
*38	MW38		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	
*39	MW39		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	
*40	MW40DUP		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: C CF	11-18-93		CDDMTW.1 CDDMTW.1	
*41	MW41DUP		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	
*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 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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/	DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 Clara Bass/ESE	11-18-93/1615	HAND DELIVERED		
2			Rhonda Barger 11/18/93 1615	
3				

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 5 (#) more samples on 11/19/93 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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*15	MW15		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
*16	MW16		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*17	MW17		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*18	MW18		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*19	MW19		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*20	MW20		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	11-19-93	1430	CDDMTW.1 CDDMTW.1
*21	MW21		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1

B-78

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1	Marie Baima/ESE/11-19-93/1620	HAND DELIVERED	
2			Rebekah Barger/11/19/93/1620/ESE
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 6 (#) more samples on 11/20/93 0830
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:

44 155

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?	LAB	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*49	MW49TS		GVL:	C C EC EC EC LC LC			CDDMTW.3
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP [redacted]			
			ETC:	C CF	11-19-93	1515	CDDMTW.3
*50	MW50TS		GVL:	C C EC EC EC LC LC			CDDMTW.3
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP [redacted]			
			ETC:	C CF			CDDMTW.3
*51	MW51TS		GVL:	C C EC EC EC LC LC			CDDMTW.3
			GVL:	LC LC MS MS MS N NF			
			GVL:	NP NP [redacted]			
			ETC:	C CF			CDDMTW.3
*52	MW52TBLK		GVL:	VP VP VP VP			CDDMTW.4
*53	MW53TBLK		GVL:	VP VP VP VP			CDDMTW.4
*54	MW54TBLK		GVL:	VP VP VP VP			CDDMTW.4
*55	MW55TBLK		GVL:	VP VP VP VP			CDDMTW.4
*56	MW56TBLK		GVL:	VP VP VP VP			CDDMTW.4
*57	MW57TBLK		GVL:	VP VP VP VP			CDDMTW.4
*58	MW58TBLK		GVL:	VP VP VP VP			CDDMTW.4
*59	MW59TBLK		GVL:	VP VP VP VP			CDDMTW.4
*60	MW60TBLK		GVL:	VP VP VP VP			CDDMTW.4

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1 Elaine Baum / ESE / 11-19-93 / 1620	HAND DELIVERED		
2		Rebekah Barger / 11/19/93 / 1620 / ESE	
3			

SAMPLER: Shipped on Ice? Yes/No; I anticipate shipping 6 (#) more samples on 11/20/93 0830
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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*29	MW29		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
*30	MW30		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
*31	MW31		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: (C CF)	11-19-93	1230	CDDMTW.1 CDDMTW.1
*32	MW32		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
*33	MW33		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: (C CF)	11-19-93	0920	CDDMTW.1 CDDMTW.1
*34	MW34		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: (C CF)	11-19-93	1030	CDDMTW.1 CDDMTW.1
*35	MW35		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 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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1 Claire Bass / ESE / 11-19-93 / 1620	HAND DELIVERED	
2		Rebekah Barger / 11/19/93 / 1620 / ETC
3		

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 6 (#) more samples on 11/20/93 0830
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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*15	MW15		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
*16	MW16		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*17	MW17		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*18	MW18		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*19	MW19		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*20	MW20		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF			CDDMTW.1 CDDMTW.1
*21	MW21		GVL: C C EC EC EC LC LC GVL: MS MS MS N NF NP NP ETC: C CF	11-18-93	1700	CDDMTW.1 CDDMTW.1

B-81

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1	Claire Bain/ESE/11-19-93/0950	HAND DELIVERED	
2			Rebekah Bauer/11/19/93/0955/ETC
3			

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:

44 158

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*29	MW29		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
*30	MW30		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
*31	MW31		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
*32	MW32		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF GVL: NP NP ETC: (C CF)	11-18-93	1700	CDDMTW.1 CDDMTW.1
*33	MW33		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
*34	MW34		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
*35	MW35		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

B-82

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/	DA
1	Claire Bain/ESE/11-19-93/0950	HAND DELIVERED		
2			Patrick Barger/11/19/93/0952/ETC	
3				

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 8 (1) 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:

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?	LAB FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*43	MW43DUP		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
*44	MW44EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: NF NP ETC: C CF			CDDMTW.2 CDDMTW.2
*45	MW45EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: NF NP ETC: (C CF)	11-18-93	1500	CDDMTW.2 CDDMTW.2
*46	MW46EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: NF NP ETC: (C CF)	11-18-93	1630	CDDMTW.2 CDDMTW.2
*47	MW47EBLK		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N GVL: NF NP ETC: (C CF)	11-18-93	1830	CDDMTW.2 CDDMTW.2
*48	MW48TS		GVL: C C EC EC EC LC LC GVL: LC LC MS MS MS N NF MS GVL: NP NP ~~MS NP NP~~ ETC: C CF			CDDMTW.3 CDDMTW.3

B-83

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-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Environmental Science & Engineering, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/ DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/ DA
1 Claire Bain/ESE/11-19-93/0950	HAND DELIVERED	
2		Adrian Briggs/11/19/93/0952/ETC
3		

SAMPLER: Shipped on Ice? (Yes)/No; I anticipate shipping 8 (1) 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:

44 160

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE

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