ROY F. WESTON, INC.

UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 108 NJDEPE FACILITY UST NO. 0090010 TMS NO. 60, 61, 62, 63 AND 64 TMS NO. C-91-2844 SPILL CASE NO. 93-1-12-1939-29

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UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 108 NJDEPE FACILITY UST NO. 0090010 TMS NO. 60, 61, 62, 63 AND 64 TMS NO. C-91-2844 SPILL CASE NO. 93-1-12-1939-29

31 May 1994

W.O No.: 03886-088-001

Prepared For:

UNITED STATES ARMY
DIRECTORATE OF PUBLIC WORKS
BUILDING 167
FORT MONMOUTH, NEW JERSEY 07703

Prepared by:

ROY F. WESTON, INC.
Raritan Plaza I - 4th Floor
Edison, New Jersey 08837

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EXECUTIVE SUMMARY

On 29 September 1992, 8 soil samples were collected from the areas surrounding Underground Storage Tanks (USTs) identified by Nos 60 to 64. Soil samples were analyzed by U.S. Army Fort Monmouth Environmental Laboratory (FMEL) for total petroleum hydrocarbons (TPHC). These samples were collected as a preliminary screening for soil contamination prior to the removal of the USTs.

On 12 April 1993, the five USTs were closed at U.S. Army Fort Monmouth, in Fort Monmouth, New Jersey. UST Nos. 60 through 64 were located adjacent to Building 108 in the Main Post area of Fort Monmouth. UST Nos. 60 to 62 were single walled steel, 5,000-gallon capacity, unleaded gasoline tanks. UST No. 63 was a single walled steel, 5,000-gallon capacity, diesel fuel tank. UST No. 64 was a single walled steel, 5,000-gallon capacity, kerosene tank. UST Nos. 60 to 63 were located adjacent to each other. UST No. 64 was located southwest of UST No. 63. All Service Environmental, Inc. (ASE) performed the tank closure.

Soils surrounding the tanks were screened visually and with air monitoring instruments for evidence of contamination. The tanks were inspected following removal for cracks, corrosion and puncture holes for indications of historical leakage from the tank. UST Nos. 60 to 63 were found to be in good condition with no corrosion holes. However, several corrosion holes of approximately 1/16 of an inch diameter were noted in UST No. 64. Additionally, a sheen was noted on the groundwater within the excavation surrounding UST No. 64, indicating that a discharge may have occurred from the UST. A discharge was reported to the NJDEPE by the Directorate of Public Works (DPW) on 12 April 1993 (Case # 93-04-12-1939). Groundwater was encountered in the excavation at approximately three feet below surface (BGS).

Excavation of potentially contaminated material from the area surrounding the USTs was performed between 12 April and 3 May 1993. Soil screening samples were submitted to FMEL for TPHC Analysis. Approximately 221 cubic yards of material was excavated.

On 3 May 1993, 18 post-excavation soil samples were collected from the sidewalls directly above the groundwater and analyzed by 21st Century Laboratories for volatile organic compounds plus 15 tentatively identified compounds (VO+15), base neutral compounds plus 15 tentatively identified compounds (BN+15) and lead. Soil samples were analyzed by FMEL for TPHC. Benzene was detected in samples S-7 (4.0 mg/kg) and S-17 (2.5 mg/kg) in concentrations which exceeded the NJDEPE Impact to Ground Water Soil Cleanup Criteria (N.J.A.C. 7:26D, and revisions dated 3 February 1994). Methylene chloride was detected in samples S-5 (1.1B mg/kg), S-14 (2.3JB mg/kg) and S-17 (2.5 mg/kg) in concentrations which exceeded the NJDEPE Impact to Groundwater Soil Cleanup Criteria.

Methylene chloride was detected in the laboratory's quality assurance method blank. The presence of methylene chloride in the method blank indicates laboratory induced contamination of sample may have occurred and is not related to the operation of the UST system. All other samples contained either non-detectable concentrations of contaminants or concentrations of contaminants below the NJDEPE Impact to Ground Water Soil Cleanup Criteria.

On 13 June 1993, three monitoring wells were placed in the area surrounding UST Nos. 60 to 64. One monitoring well (MW-1) was placed upgradient from the USTs and the other two (MW-2 and MW-3) were placed downgradient from the USTs.

On 6 July 1993, one groundwater sample was collected from each monitoring well and analyzed by 21st Century Laboratories for VO+15, BN+15 and lead. Benzene and methylene chloride were detected in MW-3 (10 ug/L and 3J ug/L, respectively), Bis(2-ethylhexyl)phthalate in MW-1 (740B ug/L) and lead in MW-2 (1,030 ug/L) in concentrations which exceeded NJDEPE Class II-A Ground Water Quality Criteria. Bis(2-ethylhexyl)phthalate was detected in the laboratory's quality control method blank sample. The presence of this compound in the method blank sample indicates that the presence of this compound in groundwater sample is attributable to laboratory induced contamination and not to the operation of UST system.

The surrogate recoveries for Monitoring well MW-3 and MW-3 Duplicate were outside of the acceptable range The results for these wells were considered unreliable and a second set was collected.

On 30 August 1993, one groundwater sample was collected from each monitoring well and analyzed by 21st Century Laboratories for VO+15, BN+15 and lead. Methylene chloride was detected in all samples in concentrations which exceeded NJDEPE Class II-A Ground Water Quality Criteria. All other samples contained either non-detectable concentrations of contaminants or concentrations of contaminants below NJDEPE Class II-A Ground Water Quality Criteria.

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SECTION 1.0

UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

On 12 April 1993, five underground storage tanks (USTs), UST Nos. 60 to 64, were closed by removal at Building 108 at U.S. Army Fort Monmouth, New Jersey. UST Nos. 60 to 62 were single walled steel, 5,000-gallon capacity, leaded gasoline tanks. UST. No. 63 was a single walled steel, 5,000-gallon capacity, diesel fuel tank. UST No. 64 was a single walled steel, 5,000-gallon capacity, kerosene tank. UST Nos. 60 to 63 were located adjacent to each other. UST No. 64 was located directly southwest of and within the same excavation as UST No. 63. This report presents the results of the DPW's implementation of the UST Decommissioning /Closure Plan submitted to the New Jersey Department of Environmental Protection and Energy - Division of Hazardous Waste Management (NJDEPE-DHWM) on 12 July 1991 and approved 20 February 1992 (Closure approval No. C-91-2844)

All activities associated with the decommissioning of UST Nos. 60 to 64 complied with all applicable Federal, State and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to: N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., N.J.A.C. 7:26E-1 et seq. and Occupational Safety and Health Administration (OSHA) 29 CFR 1910.146 & 29 CFR 1910.120. All permits including but not limited to the NJDEPE-approved Decommissioning/Closure Plan were posted onsite for inspection. All Service Environmental, Inc., the contractors that conducted the decommissioning activities, are currently registered and certified by the NJDEPE for performing UST closure activities.

The NJDEPE Closure Approval and correspondence with the NJDEPE have been included in Appendix A. The UST Site Assessment Summary Form for UST Nos 60 to 64 have been included in Appendix B. The UST Site Assessment Summary Form has been signed ~~and sealed~~ by Mr. James Ott, Acting Director of DPW, U.S. Army Fort Monmouth

This UST Closure and Site Investigation Report was prepared by Roy F. Weston Inc. (WESTON®), to assist the United State Army Directorate of Public Works (DPW) in complying with the NJDEPE-Bureau of Underground Storage Tanks (NJDEPE-BUST) regulations The applicable NJDEPE-BUST regulations at the date of closure were the "Technical Requirements for Site Remediation-Proposed New Rules" (N.J.A C 7:26E-1 et seq., dated May 1992)

Section 1 of this UST Closure and Site Investigation Report provides a summary of the tank decommissioning activities. Section 2 of this report describes the site investigation activities.

Conclusions and recommendations, including the results of the soil sampling investigation, are presented in Section 3 of this report.

1.2 SITE DESCRIPTION AND UST HISTORY

Building 108 is located off Riverside Avenue in the Main Post area of U.S. Army, Fort Monmouth. A facility location map is provided in Figure 1-1. Building 108 was used as the installation gas station and motor pool and is situated on level ground and adjacent to an asphalt parking area. The gasoline dispenser area was located approximately 70 feet south of the UST field. A pipe chase approximately 60 feet in length connected the dispenser area to the UST field. Figure 1-2 provides a site map of the former UST location and dispenser area.

In February and November of 1990, Tank No. 63 was tightness tested. Testing results indicated that the 5,000-gallon diesel tank was tight. Tightness testing results are attached in Appendix A.

On 12 July 1991, a UST Closure Plan Approval Application and Closure Plan were submitted to NJDEPE. Closure Approval No. TMS C-91-2844 was issued with an effective date of 20 February 1992. The UST Closure Plan Approval Application and Closure Approval are provided in Appendix A.

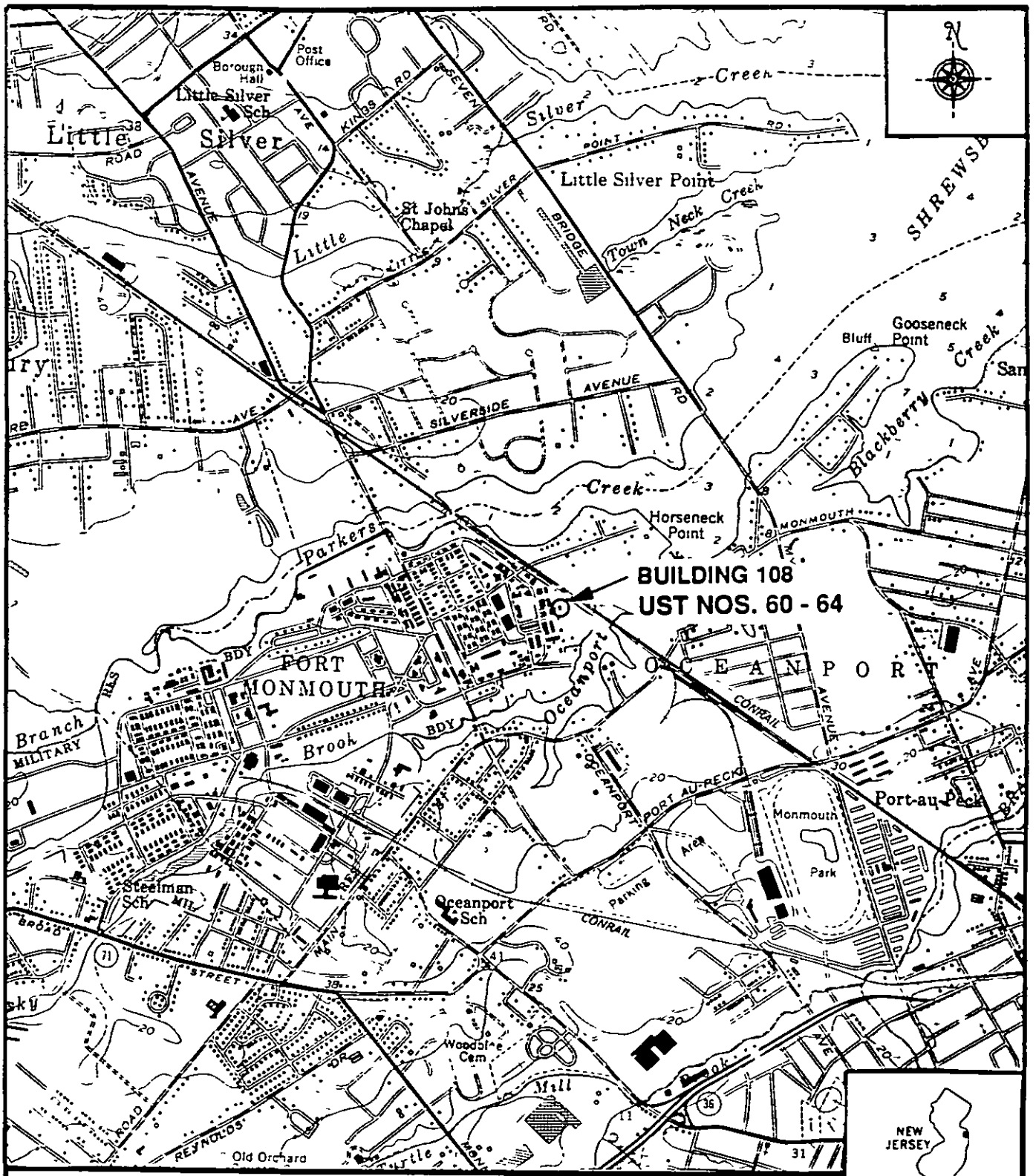
On 29 September 1992, 8 soil samples were collected from the areas surrounding UST Nos. 60 to 64. Soil samples were analyzed by FMEL for total petroleum hydrocarbons (TPHC). These samples were collected as a preliminary screening for soil contamination prior to the removal of the USTs.

Between 26 March and 7 April 1993, Tank fluids were pumped from the USTs for disposal. Tank closures followed with the USTs being removed on 12 April 1993. Tanks were disposed on the 19-20 April 1993. Excavation of potentially contaminated material from the area surrounding the USTs was performed between 12 April and 3 May 1993. Soil screening samples were submitted to FMEL for TPHC analysis. Approximately 221 cubic yards of potentially contaminated soil was excavated.

On 3 May 1993, 18 soil samples were taken from sidewalls and bottom of the UST excavation. Samples were submitted to 21st Century Laboratory for VO+15, BN+15 and lead analysis. TPHC analysis of soil sample was performed by FMEL.

1.3 GEOLOGICAL/HYDROGEOLOGICAL SETTING

The following is a description of the geological/hydrogeological setting of the area surrounding Building 108. Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Main Post area.

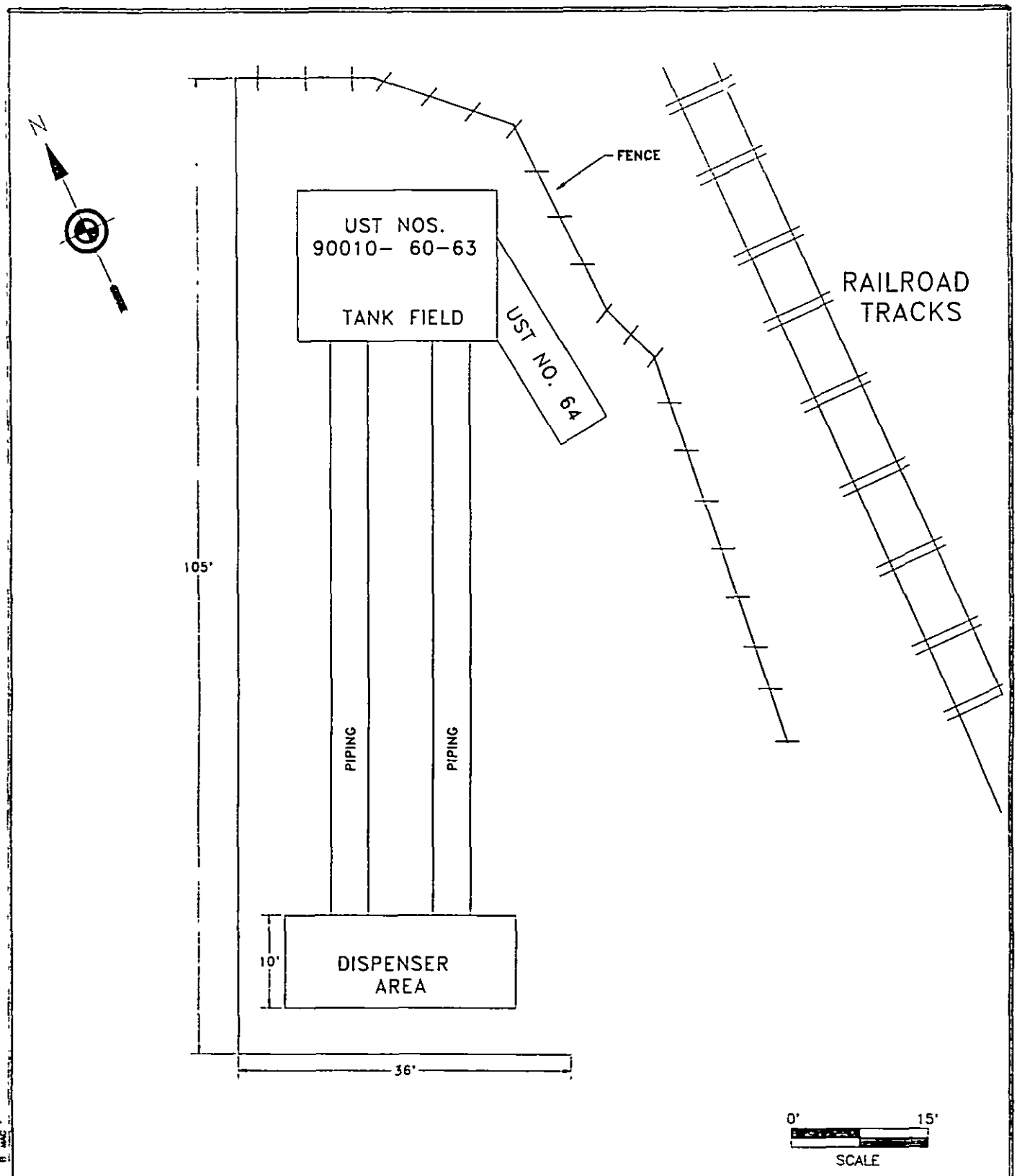


REFERENCE. U S G.S. QUADRANGLE LONG BRANCH, NJ PHOTOREVISED 1981
CONTOUR INTERVAL 20 FEET SCALE 1 INCH = 2000 FEET

UST LATITUDE N 40 Deg 19 Min. 10 Sec.
UST LONGITUDE. W 74 Deg. 01 Min. 41 Sec.

WESTON MANAGERS DESIGNERS/CONSULTANTS

FIGURE 1-1
FACILITY LOCATION MAP
U.S. ARMY - DIRECTORATE OF PUBLIC WORKS
FORT MONMOUTH, NEW JERSEY



REVISION #: 1 DATE: 5/16/94 PLOT NAME: BLD-180
FILE NAME: BLD-108.DWG DRAWN BY:

WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME: UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 108- UST NOS. 60-64
FORT MONMOUTH NEW JERSEY
CLIENT NAME: U.S. ARMY - FORT MONMOUTH DIRECTORATE OF PUBLIC WORKS

SITE MAP

DATE: 5/17/94

FIGURE # 1-2

1.3.1 Geological Setting

Regional Geology

Monmouth County lies within the New Jersey Section of the Atlantic Coastal Plain physiographic province. The Main Post, Charles Wood, and the Evans areas are located in what may be referred to as the Outer Coastal Plain subprovince, or the Outer Lowlands.

In general, New Jersey, Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, sand, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapecza, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

The formations record several major transgressive/regressive cycles and contain units which are generally thicker to the southeast and reflect a deeper water environment. Over 20 regional geologic units are present within the sediments of the Coastal Plain. Regressive, upward-coarsening deposits are usually aquifers (e.g., Englishtown and Kirkwood Formations, and the Cohansey Sand) while the transgressive deposits act as confining units (e g., the Merchantville, Marshalltown, and Navesink Formations). The individual thicknesses for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and Zapecza, 1990).

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish-brown clayey, medium-to-course-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark grey to black, medium-to-fine grained sand with abundant clay,mica, and glauconite.

The Tinton sand conformably overlies the Red Bank Sand and ranges from a clayey, medium-to-very coarse grained feldspathic quartz and glauconite sand to a glauconitic coarse sand. The color varies from dark yellowish-orange or light brown to moderate brown and from light olive to grayish olive. Glauconite may constitute 60 to 80 percent of the sand fraction in the upper part of the unit (Minard, 1969). The upper part of the Tinton is often highly oxidized and iron-oxide encrusted (Minard)

Over the last 80 years, the natural topography of Fort Monmouth has been altered by excavation and filling activities by the military. Topographic elevations for the Main Post area range from five feet above mean sea level (MSL) to 31 feet above MSL.

A subsurface Profile of the USTs located at Building 108 is provided in Figure 1-3.

1.3.2 Hydrogeological Setting

Hydrogeology

The water table aquifer at the Main Post area is identified as part of the "composite confining units", or minor aquifers. The minor aquifers include the Navesink formation, Red Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation.

Based on records from wells drilled at the Main Post area, around water is typically encountered at depths of two to nine feet below ground surface (BGS). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce from 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

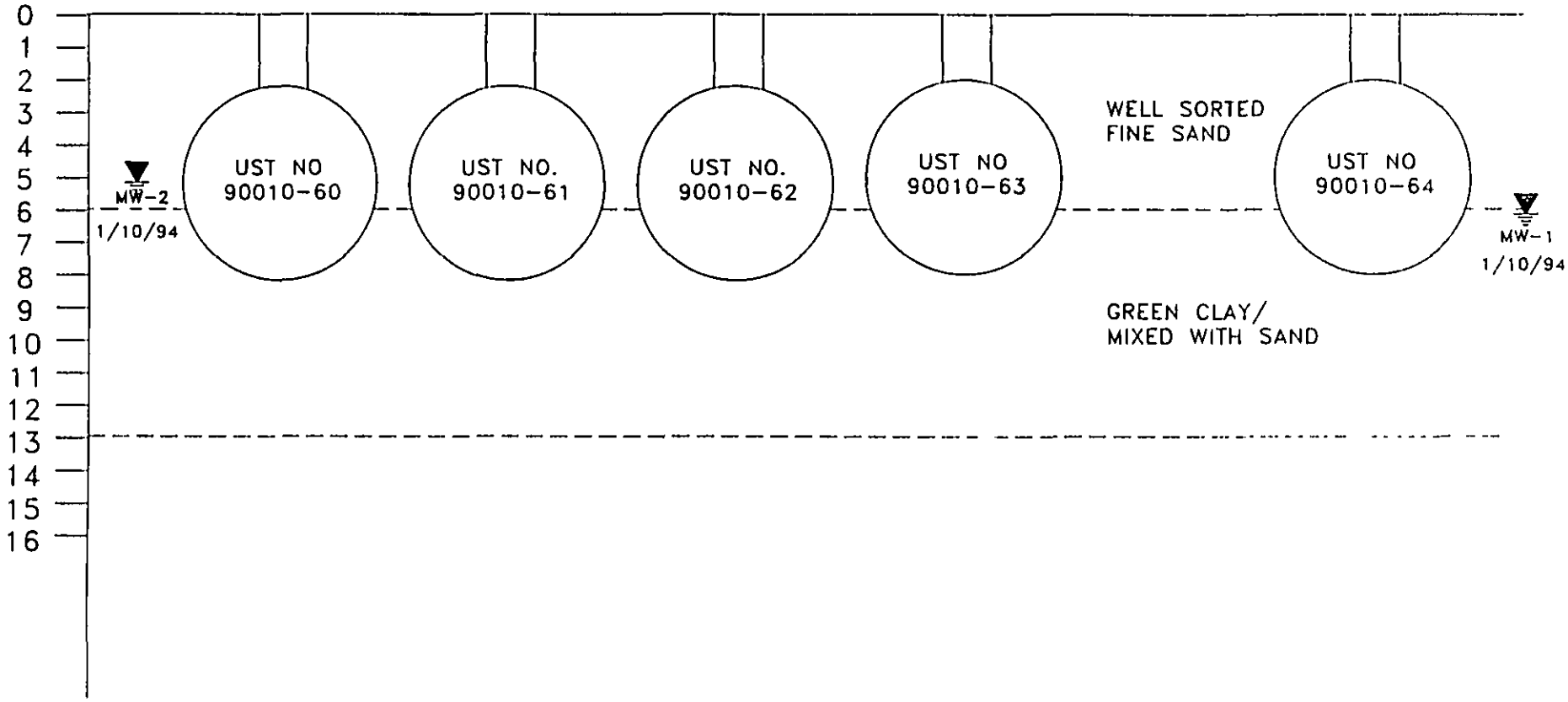
Shallow groundwater is locally influenced within the Main Post area by the following factors.

- tidal influence (based on proximity to the Atlantic Ocean, rivers and tributaries),
- topography,
- nature of the fill material within the Main Post area,
- presence of clay and silt lenses in the natural overburden deposits, and
- local groundwater recharge areas (i.e. stream, lakes).

Due to the fluvial nature of the overburden deposits (i.e. sand and clay lenses), shallow groundwater flow direction is best determined on a case-by-case basis This is consistent with lithologies observed in borings installed within the Main Post area, which primarily consisted of fine-to-medium grained sands, with occasional lenses or laminations of silt and/or clay.

On June 13, 1993, three monitoring wells were placed in the area surrounding UST Nos. 60 to 64. One monitoring well (MW-1) was placed upgradient from the USTs and the other two (MW-2 and MW-3) were placed downgradient from the USTs The monitoring well permit, monitoring well records, and Form B for each well are provided in Appendix C.

Building 108 is less than 1/2 mile southwest of Parkers Creek, the nearest water body, the groundwater flow in the area of Building 108 has been determined to be in a westerly direction A table of water level elevations collected from the three monitoring wells located in the area of Building 108 is provided in Table 1-1. The Atlantic Ocean is located approximately 3.5 miles east of the site.



REVISION # 0000 DATE 5/18/94
FILE NAME 8108-100.DWG DRAWN BY B. MAC

WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME
UNDERGROUND STORAGE TANK CLOSURE
AND SITE INVESTIGATION REPORT
BUILDING 108 – UST NOS 60–64
FORT MONMOUTH, NEW JERSEY
CLIENT NAME U S ARMY – FORT MONMOUTH
DIRECTORATE OF PUBLIC WORKS

SUBSURFACE PROFILE

DATE 5/16/94

FIGURE # 1–3

TABLE 1-1

WATER LEVEL ELEVATIONS FOR
MONITORING WELLS MW-1, MW-2 AND MW-3
COLLECTED ON 10 JANUARY 1994

Monitoring Well Permit Number	Time of Collection	Ground Surface Elevation (feet)	Depth to Water (feet)	Groundwater Surface Elevation (feet)
29-29739 (MW-1)	10 15 am	11 85	5 63	6 22
29-29740 (MW-2)	10 20 am	10 89	5 85	5 04
29-29741 (MW-3)	10 23 am	8 16	2 54	5 62

1.3.3 Offsite Groundwater Usage

In compliance with the NJDEP regulations, WESTON conducted a well search to identify all irrigation, monitoring, domestic, industrial and public supply wells within one half mile of U.S. Army Fort Monmouth. The file search produced records for 104 wells. The well search summary table includes the following information on surrounding wells: well identification number; well owner; well address; total depth (feet BGS); casing length (feet); static water level elevation (feet BGS); use code; and NJDEPE permit number. In addition, a summary table of all U.S. Army wells located at Fort Monmouth, which includes the following information: well number, NJDEPE permit number; New Jersey State Plane Coordinates; casing elevation and, elevation of ground well records for the nearest identified offsite well have also been included, if available. This information is included in Appendix D.

A review of the well records indicated that the majority of the wells within the area of concern are used for monitoring purposes. There are 90 monitoring wells. A domestic well (Permit Number 29-23608), owned by Walter and Patricia Zinn is the closest to the site in the downgradient flow direction. The well is located at 92 Sunnybank Drive, approximately 3,200 feet northwest of the site.

1.4 HEALTH AND SAFETY

Before, during, and after all activities, hazards at the work site which may have posed a threat to the health and safety of all personnel who were involved with, or were affected by, the decommissioning of the UST system were minimized. All areas which posed, or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing approved equipment. The trained individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

1.5 REMOVAL OF UNDERGROUND STORAGE TANK

1.5.1 General Procedures

During 12 April 1993, UST Nos. 60 to 64 were closed by removal at Building 108 on the Main Post of Fort Monmouth. Tank closure activities were conducted as follows:

- All underground obstructions (utilities,.. etc.) were marked out by the contractor performing the closure prior to excavation activities.
- Surface materials (i.e., asphalt, concrete, etc.) were excavated and staged for recycling/disposal in accordance with applicable laws and regulations.
- Each tank's atmosphere was inerted.

- Access ways on top of the tank were opened.
- Licensed tank closure contractor personnel entered the tanks to visually inspect and manually clean the insides of the tanks.
- All wastes (tank bottom sludge and tank rinsate) generated during cleaning were collected and disposed.
- Post closure soil samples were collected for laboratory analysis.
- The tanks were removed from the excavation and staged on plastic sheeting.
- Soil excavated during the tank closure was transported to Soil Remediation of Philadelphia for characterization and disposal/reuse.
- The excavation was backfilled with clean fill material to the original surface grade.
- A Sub-Surface Evaluator from the DPW was present during all closure activities.

1.5.2 Underground Storage Tank Excavation

Soil was excavated to expose the USTs and the associated piping. The piping was not removed/disturbed until all free product was drained into the USTs. The USTs were rendered vapor free by purging prior to any cutting or access. After removal of the associated piping, the manway from each UST was opened to allow for proper cleaning. Due to the existence of manways in each UST, cutting was not necessary. The USTs were completely emptied of all liquids prior to removal. The majority of the liquids were transported by Casie Protank Environmental Services, Inc. and disposed of at Casie Ecology Oil Salvage in Vineland, New Jersey Casie is a licensed hazardous waste transporter (USEPA ID No. NJD045995693). Approximately 512 gallons of the 5,300 gallons disposed was transported by Casie/Protank to S & W Wastes Inc. in South Kearny, New Jersey. The land disposal notification and certification form for the liquid indicates that the material was incinerated. Hazardous waste manifests were completed and can be found in Appendix E. All of the openings in the tanks were plugged except for one hole (manway).

After the USTs were removed from the excavation, they were staged on polyethylene sheeting and examined for cracks, corrosion or puncture holes. The presence or absence of holes was documented by the Sub-Surface Evaluator. UST Nos. 60 to 63 were found to be in good condition with no corrosion holes However, several corrosion holes of approximately 1/16 of an inch diameter were noted in UST No. 64. In additional, a sheen and small amounts of product were noted on the groundwater surface in the excavation surrounding UST No. 64, indicating that a historical discharge may have occurred from the UST. A discharge was reported

to the NJDEPE by the DPW on 12 April 1993 (Case No. 93-04-12-1939). Groundwater was present in the excavation at approximately three feet BGS

Soils surrounding the UST were screened visually and with a Photoionization Detector (PID) for evidence of contamination Approximately 221 cubic yards of contaminated soil were removed from the area surrounding UST Nos. 60 to 64. The potentially contaminated soil was manifested and transported by Allied Environmental, Inc. to Soil Remediation of Philadelphia for recycling.

1.6 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL:

The tanks were transported by All Service Environmental, Inc. to Mazza and Sons, Inc., for recycling in compliance with all applicable regulations and laws. The Tank Reclamation Certificates are provided in Appendix F.

The contractor labelled the UST prior to transport with the following information:

- Site of origin;
- Contact person;
- NJDEPE UST Facility ID number;
- Name of transporter/contact person; and,
- Destination site/contact person.

1.7 MANAGEMENT OF EXCAVATED SOILS:

Approximately 221 cubic yards of contaminated soil were removed from the area surrounding UST Nos. 60 to 64 and placed on and covered with polyethylene sheets. Potentially contaminated soils were transported to the T-80 yard and stockpiled separately from other excavated material. Potentially contaminated soils will be transported to Soil Remediation of Philadelphia. All soils free of evidence of contamination were backfilled into the excavation following removal of the USTs.

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SECTION 2.0

SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW:

The Site Investigation was managed and carried out by U.S ARMY DPW personnel. All analyses were performed and reported by U.S. Army Fort Monmouth Environmental Laboratory and 21st Century Environmental, which are NJDEPE-certified testing laboratories. All sampling was performed under the direct supervision of a NJDEPE Certified Sub-Surface Evaluator according to the methods described in the NJDEPE Field Sampling Procedures Manual (May 1992). Sampling frequency and parameters analyzed complied with the NJDEPE-BUST document "Technical Requirements for Site Remediation-Proposed New Rules" (May 1992) which was the applicable regulation at the date of closure. All records of the site investigation activities are maintained by Fort Monmouth DPW: Environmental Office.

The following Parties participated in closure and site investigation activities.

- Closure Contractor No. 1: All Service Environmental, Inc.
  Contact Person: Mark Turoff
  Phone Number: (914) 365-0800
  NJDEPE Company Certification No.: 3100194

- Subsurface Evaluator: Charles Appleby
  Employer: U.S. Army, Fort Monmouth
  Phone Number: (908) 532-6224
  NJDEPE Certification No.: 2056

- Subsurface Evaluator: Dinker Desai
  Employer: U.S. Army, Fort Monmouth
  Phone Number: (908) 532-1475
  NJDEPE Certification No.: 2266

- Transporter: Casie Protank Environmental Services, Inc.
  Contact Person: Greg Call
  Phone Number: (609) 696-4401
  USEPA I.D. Transporter No. NJD045995693

- Analytical Laboratory: 21st Century Environmental, Inc.
  Contact Person: Richard W. Lynch
  Phone Number: (609) 467-9521
  NJDEPE Laboratory Certification No.: 08031

- Analytical Laboratory. U.S. Army Fort Monmouth Environmental Testing Laboratory
  Contact Person: Brian McKee
  Phone Number: (609) 532-4359
  NJDEPE Laboratory Certification No.: 13461

2.2 FIELD SCREENING/MONITORING

All soils that were excavated as part of the removal of the UST were screened using a PID, for evidence of contamination. Soils were also inspected visually for evidence of contamination (staining, free product, etc..). Soils on the sidewalls and base of the excavation were screened with a PID by an individual under the direct supervision of the NJDEPE Certified Sub-Surface Evaluator. Evidence of contamination was noted during excavation of soils surrounding the UST and soils were subsequently removed.

2.3 SOIL AND GROUNDWATER SAMPLING

Between 29 September 1992 and 29 April 1993, 29 soil samples were collected for screening of soils surrounding UST Nos. 60 to 64. The samples were analyzed by FMEL for TPHC. Sketches of the sample locations cannot be accurately related to former UST or piping locations. Sampling locations for preclosure samples are therefore not provided on sample location drawings. Based on the results of the sampling events, all soils were collected from areas excavated during the tank closures.

On 3 May 1993, following the removal of UST Nos. 60 to 64, 18 post-excavation soil samples were collected from the sidewalls directly above the groundwater and analyzed by FMEL for TPHC, and by 21st Century Environmental Laboratories for VO+15, BN+15 and lead.

On 6 July 1993 and 30 August 1993, one groundwater sample was collected from each monitoring well (total of six groundwater samples) and analyzed by 21st Century Environmental Laboratories for VO+15, BN+15 and lead. A summary of sampling activities including parameters analyzed is provided in Table 2-1. Figure 2-1 depicts the location of the post-excavation soil samples. Figure 2-2 depicts the locations of the monitoring wells. The post-excavation soil samples were collected using decontaminated stainless steel scoops and groundwater samples were collected using decontaminated teflon bailers. Following soil and groundwater sampling activities, the samples were chilled and delivered to the applicable testing laboratory.

The frequency of sampling and parameters analyzed were consistent with the applicable NJDEPE regulations at the date of closure, which were the "Technical Requirements for Site Remediation-Proposed New Rules" (NJAC 7:26E-1 et seq , dated May 1992).

TABLE 2-1

SUMMARY OF POST-EXCAVATION SOIL SAMPLING
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No	Lab ID No.	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
Site 1	1176 1	4/12/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
Site A	1185 1	4/23/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
Site B	1185 2	4/23/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
Site C	1185 3	4/23/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop

Abbreviations,

TPHC - Total Petroleum Hydrocarbons

TABLE 2-1 (CONTINUED)

SUMMARY OF POST-EXCAVATION SOIL SAMPLING
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No.	Lab ID No.	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
S-1	1188 1	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-2	1188 2	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-3	1188 3	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-4	1188 4	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-5	1188 5	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-6	1188 6	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-7	1188 7	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-8	1188 8	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-9	1188 9	4/27/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop

Abbreviations:

TPHC - Total Petroleum Hydrocarbons

TABLE 2-1 (CONTINUED)

SUMMARY OF POST-EXCAVATION SOIL SAMPLING
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No.	Lab ID No.	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
S-A	1189 1	4/29/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-B	1189 2	4/29/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-C	1189 3	4/29/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-D	1189 4	4/29/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-E	1189 5	4/29/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-F	1189 6	4/29/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-G	1189 7	4/29/93	Soil	Preliminary Assessment	TPHC	Stainless Steel Scoop
S-H	1189 8	4/29/93	Soil	Preliminary assessment	TPHC	Stainless Steel Scoop

Abbreviation

TPHC - Total Petroleum Hydrocarbons

TABLE 2-1 (CONTINUED)

SUMMARY OF POST-EXCAVATION SOIL SAMPLING
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No	Lab ID No	Date of Collection	Sample Location	Sample Depth (Feet Bgs)	Matrix	Sample Type	Analytical Parameters	Sampling Method
S-1	1191 1	5/3/93	Side Wall	3-4	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-2	1191 2	5/3/93	Side Wall	3-4	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-3	1191 3	5/3/93	Side Wall	3-4	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-4	1191 4	5/3/93	Side Wall	1	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-5	1191 5	5/3/93	Side Wall	6	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-6	1191 6	5/3/93	Side Wall	5	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-7	1191 7	5/3/93	Side Wall	7	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-8	1191 8	5/3/93	Side Wall	6	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-9	1191 9	5/3/93	Side Wall	5	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-10	1191 10	5/3/93	Side Wall	5	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop

Abbreviations

TPHC - Total Petroleum Hydrocarbons
BN+15 - Base Neutral Acid Analysis Plus 15 tentatively identified compounds
VO+15 - Volatile Organic Analysis Plus 15 tentatively identified compounds

TABLE 2-1 (CONTINUED)

SUMMARY OF POST-EXCAVATION SOIL SAMPLING
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No	Lab ID No.	Date of Collection	Sample Location	Sample Depth (Feet Bgs)	Matrix	Sample Type	Analytical Parameters	Sampling Method
S-11	1191 11	5/3/93	Side Wall	5	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-13	1191 13	5/3/93	Side Wall	1 5	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-14	1191 14	5/3/93	Side Wall	3	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-15	1191 15	5/3/93	Side Wall	3-4	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-16	1191 16	5/3/93	Side Wall	6	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-17	1191 17	5/3/93	Side Wall	6	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-18	1191 18	5/3/93	Side Wall	3-4	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop
S-19	1191 19	5/3/93	Side Wall	3	Soil	Post-Excavation	TPHC, BN+15, VO+15, LEAD	Stainless Steel Scoop

Abbreviations

TPHC - Total Petroleum Hydrocarbons
BN+15 - Base Neutral Acid Analysis Plus 15 tentatively identified compounds
VO+15 - Volatile Organic Analysis Plus 15 tentatively identified compounds
BGS - Below Ground Surface

TABLE 2-1 (CONTINUED)

SUMMARY OF POST-EXCAVATION SOIL SAMPLING
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
C92-994	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-995	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-996	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-997	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-998	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-999	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-1000	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
C92-1001	9/29/92	Soil	Post-Excavation	TPHC	Stainless Steel Scoop

Abbreviation:

TPHC - Total Petroleum Hydrocarbons

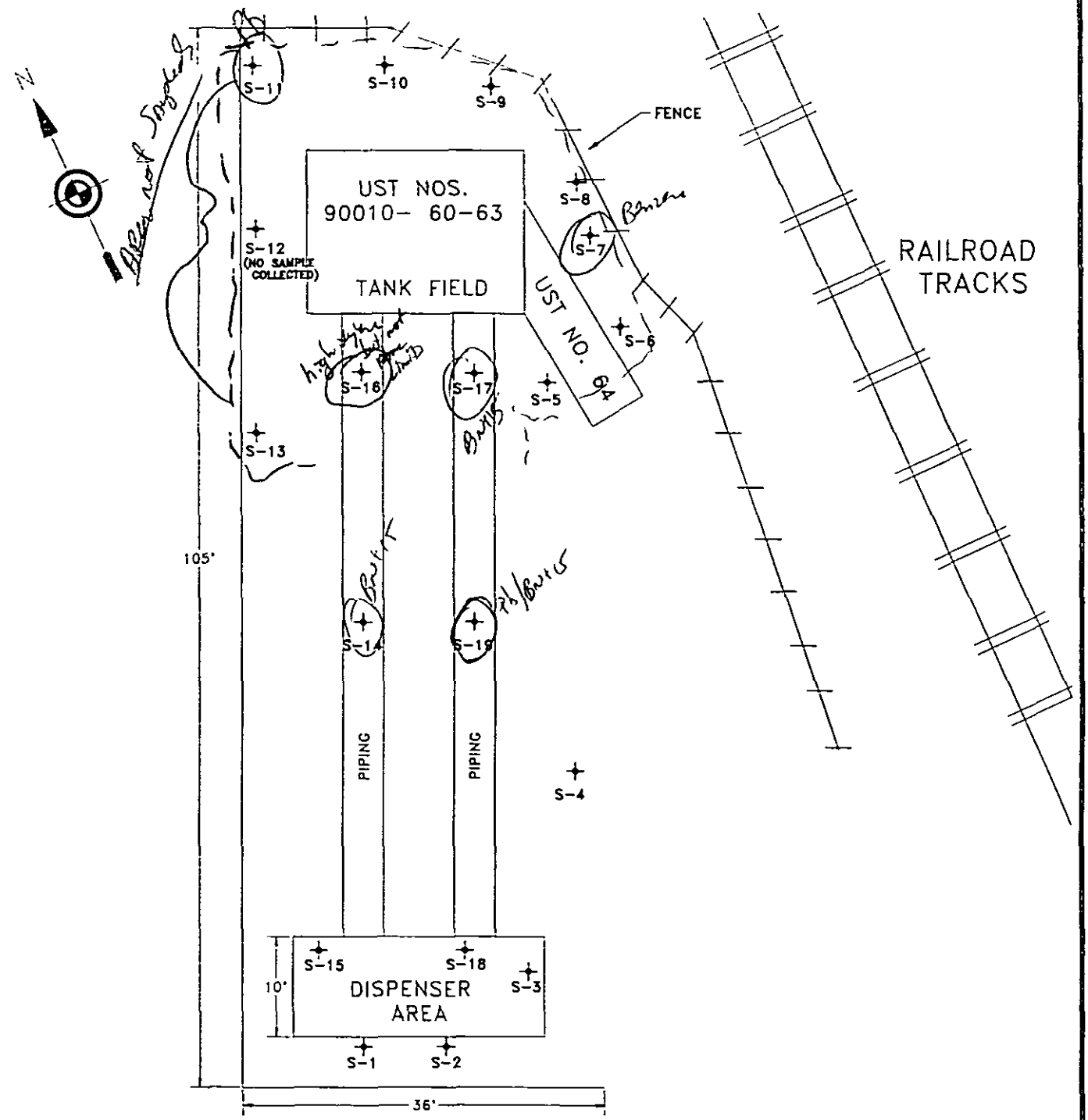
TABLE 2-2

SUMMARY OF GROUNDWATER SAMPLING
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
MW-1	7/6/93	Aqueous	Monitoring Well	Lead, BN+15, VO+15	Decontaminated Teflon Bailer
MW-2	7/6/93	Aqueous	Monitoring Well	Lead, BN+15, VO+15	Decontaminated Teflon Bailer
MW-3	7/6/93	Aqueous	Monitoring Well	Lead, BN+15, VO+15	Decontaminated Teflon Bailer
MW-1	8/30/93	Aqueous	Monitoring Well	Lead, BN+15, VO+15	Decontaminated Teflon Bailer
MW-2	8/30/93	Aqueous	Monitoring Well	Lead, BN+15, VO+15	Decontaminated Teflon Bailer
MW-3	8/30/93	Aqueous	Monitoring Well	Lead, BN+15, VO+15	Decontaminated Teflon Bailer
MW-3 (Dup)	8/30/93	Aqueous	Monitoring Well	Lead, BN+15, VO+15	Decontaminated Teflon Bailer

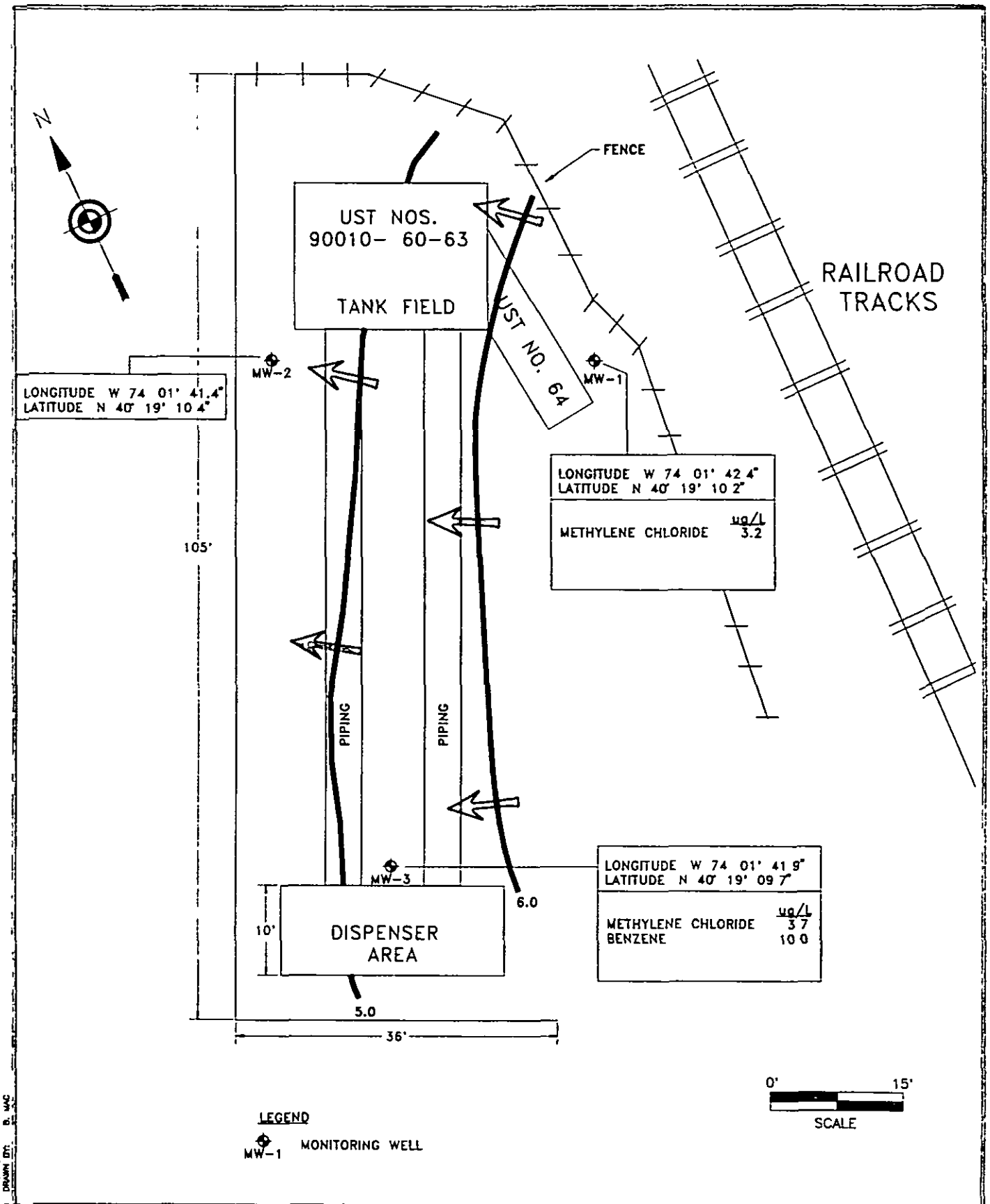
Abbreviations,

BN+15 - Base neutral acid analysis plus 15 tentatively identified compounds
VO+15 - Volatile organic analysis plus 15 tentatively identified compounds



WESTON MANAGERS DESIGNERS/CONSULTANTS	PROJECT NAME: UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 108- UST NOS 60-64 FORT MONMOUTH NEW JERSEY CLIENT NAME: U S ARMY - FORT MONMOUTH DIRECTORATE OF PUBLIC WORKS	POST-EXCAVATION SOIL SAMPLING LOCATIONS DATE: 5/17/94 FIGURE # 2-1

REVISION #: 1 DATE: 5/16/94 PLOT NAME: 810-180
FILE NAME: 810-108.DWG DRAWN BY: B. MAC



WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME: UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT BUILDING 108- UST NOS. 60-64
FORT MONMOUTH NEW JERSEY
CLIENT NAME: U S ARMY - FORT MONMOUTH DIRECTORATE OF PUBLIC WORKS

WELL LOCATION AND GROUNDWATER CONTOUR MAP

DATE: 5/17/94

FIGURE # 2-2

REVISION #: 1 DATES: 5/16/94 PLOT NAME: BLD-100
FILE NAME: BLD-108.DWG DRAWN BY: B. MAC

WESTON

SECTION 3.0

CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL AND GROUNDWATER SAMPLING RESULTS

To evaluate soil conditions following removal of the USTs and associated soils, the post-excavation sample results were compared to NJDEPE Impact to Ground Water Soil Cleanup Criteria (N J.A.C. 7:26D and revisions dated 3 February 1994). Summaries of analytical results for soils are presented in Table Nos. 3-1 to 3-5. Table 3-6 provides abbreviations, data qualifiers and notes used in Table Nos. 3-1 to 3-5.

To evaluate groundwater conditions following removal of the USTs and associated soils, analytical results from the groundwater samples were compared to NJDEPE Class II-A Ground Water Quality Criteria (N.J.A.C. 7 9-6.4, 6.8 and Table 1). A summary of the analytical results and comparison to NJDEPE Class II-A Ground Water Quality Criteria is provided in Table Nos. 3-7 and 3-8.

A summary of the analytical methods used and quality assurance information is provided in Table 3-9. The analytical data package summary is provided in Appendix G. The full data package, including associated quality control and chromatograph data is on file at U.S. Army Fort Monmouth, DPW.

Soil

Analytical results of soil samples collected between 29 September 1992 and 29 April 1993, for screening of soil around the USTs, indicated concentrations of TPHC in all samples. The results of these analyses helped to guide the excavation of potentially contaminated soils.

Analytical results of post-excavation soil samples collected 3 May 1993 indicated concentrations of benzene in samples Nos. S-5 (1 1 mg/kg) and S-7 (4.0 mg/kg) and methylene chloride in several samples [S-5 (1.1B mg/kg), S-14 (2.3JB mg/kg) and S-17 (2.5 mg/kg)] which exceeded the proposed NJDEPE Impact to Ground Water Soil Quality Criteria. Methylene chloride was detected in the laboratory's quality assurance method blank The presence of methylene chloride in the method blank indicates laboratory induced contamination of soil sample which is not related to the operation of the UST system. All other samples contained either non-detectable concentrations of contaminants or concentrations of contaminants below the proposed NJDEPE Impact to Ground Water Soil Cleanup Criteria.

Groundwater

Analytical results of groundwater samples collected 6 July 1993 indicated concentrations of benzene and methylene chloride in MW-3 (10 ug/L and 3 ug/L, respectively), bis(2-ethylhexyl)phthalate in MW-1 (740 ug/L) and lead in MW-2 (1030 ug/L) in concentrations which exceeded NJDEPE Class II-A Ground Water Quality Criteria. Bis(2-ethylhexyl)phthalate was detected in the laboratory's quality control method blank samples. The presence of this compounds in the method blank sample indicates that the presence of this compound in groundwater sample is attributable to laboratory induced contamination and not to the operation of UST system.

The surrogate recoveries for monitoring well MW-3 and MW-3 Duplicate were outside of the acceptable range. The results for these wells were considered unreliable and a second set was taken on 30 August 1993.

Analytical results of groundwater samples collected 30 August 1993 indicated concentrations of methylene chloride which exceeded NJDEPE Class II-A Ground Water Quality Criteria. All other samples contained either non-detectable concentrations of contaminants or concentrations of contaminants below NJDEPE Class II-A Ground Water Quality Criteria.

3.2 CONCLUSIONS AND RECOMMENDATIONS:

Due to the presence of Benzene in soil samples No. 5, No. 7 and No. 17, it is recommended that additional material be excavated and soil samples taken to confirm that the area is below cleanup criteria. The area, however, is adjacent to a railroad track. An evaluation of how the excavation will affect the railroad track's stability should be performed prior to the excavation. If the excavation will put the railroad track at risk, no further action will be performed.

Groundwater will be monitored for one year on a quarterly basis, due to the first round results and the potential for benzene to be present in the soil. During the first quarter, two samples will be taken within 30 days and the results averaged with the 30 August 1993 results. The results of the analysis and recommendations for further action will be provided to NJDEPE in an addendum to this report.

TABLE 3-1

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		C92-994	C92-995	C92-996	C92-997	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		S-1	S-2	S-3	S-4	
Matrix		Soil	Soil	Soil	Soil	
Sample Type		PA	PA	PA	PA	
Date of Collection		9/29/92	9/29/92	9/29/92	9/29/92	
Analytical Parameter	Units					
TPHC	mg/kg	66 1	344.8	453 1	455 1	NC*

Sample ID No.		C92-998	C92-999	C92-1000	C92-1001	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		S-5	S-A	S-B	S-C	
Matrix		Soil	Soil	Soil	Soil	
Sample Type		PA	PA	PA	PA	
Date of Collection		9/29/92	9/29/92	9/29/92	9/29/92	
Analytical Parameter	Units					
TPHC	mg/kg	231 7	24	41	44 6	NC*

Abbreviations.

NC* - No cleanup criterion has been proposed by NJDEPE, however, the proposed NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg
PA. - Preliminary Assessment
TPHC - Total petroleum hydrocarbons
mg/kg: - Milligrams per kilogram

TABLE 3-2

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		SITE 1	SITE A	SITE B	SITE C	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		1176.1	1185 1	1185.2	1185.3	
Matrix		Soil	Soil	Soil	Soil	
Sample Type		PA	PA	PA	PA	
Date of Collection		4/12/93	4/23/93	4/23/93	4/23/93	
Analytical Parameters	Units					
TPHC	mg/kg	198	17 9	15 3	17 4	NC*

Abbreviations

TPHC - Total Petroleum hydrocarbons
mg/kg - Milligrams per Kilograms
PA - Preliminary Assessment
NC* - No cleanup criterion has been proposed for TPHC by NJDEPE, however, the proposed NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg

TABLE 3-3

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-1	S-2	S-3	S-4	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		1188 1	1188.2	1188.3	1188 4	
Matrix		Soil	Soil	Soil	Soil	
Sample Type		PA	PA	PA	PA	
Date of Collection		4/27/93	4/27/93	4/27/93	4/27/93	
Analytical Parameters	Units					
TPHC	mg/kg	264	261	218	103	NC*

Sample ID No.		S-5	S-6	S-7	S-8	S-9	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1188.5	1188.6	1188 7	1188.8	1188.9	
Matrix		Soil	Soil	Soil	Soil	Soil	
Sample Type		PA	PA	PA	PA	PA	
Date of Collection		4/27/93	4/27/93	4/27/93	4/27/93	4/27/93	
Analytical Parameters	Units						
TPHC	mg/kg	176	326	1,560	84 7	142	NC*

Abbreviations:

TPHC - Total Petroleum hydrocarbons
mg/kg - Milligrams per Kilograms
PA - Preliminary Assessment
NC* - No cleanup criterion has been proposed for TPHC by NJDEPE, however, the proposed NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg

TABLE 3-4

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-A	S-B	S-C	S-D	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1189.1	1189.2	1189.3	1189 4	
Matrix		Soil	Soil	Soil	Soil	
Sample Type		PA	PA	PA	PA	
Date of Collection		4/29/93	4/29/93	4/29/93	4/29/93	
Analytical Parameters	Units					
TPHC	mg/kg	2020	1690	21	679	NC*

Sample ID No.		S-E	S-F	S-G	S-H	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1189 5	1189.6	1189.7	1189 8	
Matrix		Soil	Soil	Soil	Soil	
Sample Type		PA	PA	PA	PA	
Date of Collection		4/29/93	4/29/93	4/29/93	4/29/93	
Analytical Parameters	Units					
TPHC	mg/kg	357	57 1	175	287	NC*

Abbreviations.

TPHC - Total Petroleum hydrocarbons
mg/kg - Milligrams per Kilograms
PA - Preliminary Assessment
NC* - No cleanup criterion has been proposed for TPHC by NJDEPE, however, the proposed NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg

TABLE 3-5

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-1	S-2	S-3	S-4	S-5	S-6	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1191 1	1191.2	1191 3	1191.4	1191 5	1191 6	
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units							
TPHC	mg/kg	3 82	1 93	10 8	27 5	2970	333	NC*
Base Neutral Compounds								
Acenaphthene	mg/kg	062J	ND	1 1	095J	59	089J	100
Pyrene	mg/kg	22J	ND	2 4	45	1 1	1 1	100
Bis(2-ethylhexyl)phthalate	mg/kg	1 1J	37J	28J	16J	4 3	11J	100
Dibenzofuran	mg/kg	043J	ND	81	044J	40	082J	NC
Anthracene	mg/kg	083J	ND	1 7	22J	88	34J	100
Fluoranthene	mg/kg	0 36J	ND	4 9	66	2 6	2 7	100
Fluorene	mg/kg	069J	ND	1 1	09J	65	12J	100
Phenanthrene	mg/kg	3J	ND	4 4	66J	3 2	87	NC
Naphthalene	mg/kg	24J	ND	41	041J	6 0	082J	100
2-Methylnaphthalene	mg/kg	13J	ND	21J	054J	4 7	074J	NC
Chrysene	mg/kg	16J	ND	2 2	36	77	1 2	500
Benzo(a)anthracene	mg/kg	14J	ND	2 3	35	78	1 2	500

Direct Contact

ppm

3400
1700
49
NC
10000
2300
2300
NC
230
NC
9
0.9

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No.		S-1	S-2	S-3	S-4	S-5	S-6	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1191 1	1191 2	1191 3	1191 4	1191 5	1191 6	
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units							
Base Neutral Compounds								
Benzo(b)fluoranthene	mg/kg	2J	ND	1 8	22J	10J	95	50
Dibenzo(a,h)anthracene	mg/kg	ND	ND	35J	074J	10J	3	100
Benzo(a)pyrene	mg/kg	13J	25J	1 8	34J	57	1 1	100
Indeno(1,2,3-cd)pyrene	mg/kg	09J	ND	1 1	19J	28J	68	500
Benzo(g,h,i)perylene	mg/kg	082J	ND	1 0	21J	30J	67	NC

Direct Contact ~~PPB~~ PPM

0.9
0.66
0.66
0.90
- - -

Abbreviations

NC* - No cleanup criterion has been proposed by NJDEPE, however, the proposed NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg
NC - No groundwater cleanup criterion has been proposed for this analyte by NJDEPE
ND - Not detected
TPHC - Total Petroleum Hydrocarbons
PE - Post Excavation
mg/kg - Milligrams per Kilograms

Data Qualifier.

J - Indicates an estimated value

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-7	S-8	S-9	S-10	S-11	S-13	S-14	NJDEPE Impact to Groundwater Soil Cleanup Criteria	
Lab ID No		1191 7	1191 8	1191 9	1191 10	1191.11	1191.13	1191 14		
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Type		PE	PE	PE	PE	PE	PE	PE		
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	5/3/93		
Analytical Parameter	Units									
TPHC	mg/kg	230	26	128	35 9	50 8	158	380	NC*	NC
Base Neutral Compounds										
Acenaphthene	mg/kg	ND	ND	ND	ND	ND	ND	4	100	3400
Pyrene	mg/kg	ND	074J	22J	13J	46	14J	1 5	100	1700
Bis(2-ethylhexyl)phthalate	mg/kg	15J	4 6	23J	58	67	069J	071J	100	49
Dibenzofuran	mg/kg	ND	ND	ND	ND	ND	ND	32J	NC	NC
Anthracene	mg/kg	ND	ND	074J	041J	096J	ND	78	100	10000
Fluoranthene	mg/kg	ND	14J	44	23J	86	023J	4 3	100	2300
Fluorene	mg/kg	ND	ND	ND	ND	ND	ND	49	100	2300
Phenanthrene	mg/kg	ND	085J	39J	11J	38J	1J	2 6	NC	NC
Naphthalene	mg/kg	ND	ND	042J	ND	ND	ND	24J	100	230
2-Methylnaphthalene	mg/kg	044J	ND	ND	ND	ND	ND	37J	NC	NC
Benzo(a)anthracene	mg/kg	ND	05J	17J	12J	44	12J	1 0	500	0.9

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No.		S-7	S-8	S-9	S-10	S-11	S-13	S-14	NJDEPE Impact to Groundwater Soil Cleanup Criteria	
Lab ID No		1191 7	1191.8	1191.9	1191:10	1191:11	1191 13	1191.14		
Matrix		Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Sample Type		PE	PE	PE	PE	PE	PE	PE		
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	5/3/93		
Analytical Parameter	Units									
Base Neutral Compounds										
Chrysene	mg/kg	ND	055J	19J	14J	46	14J	1 0	500	9
Benzo(b)fluoranthene	mg/kg	ND	063J	ND	11J	65	12J	ND	50	0.9
Dibenzo(a,h)anthracene	mg/kg	ND	ND	ND	ND	13J	ND	25J	100	0.66
Benzo(a)pyrene	mg/kg	ND	ND	12J	11J	4	12J	87	100	0.66
Indeno(1,2,3-cd)pyrene	mg/kg	ND	ND	092J	089J	26J	079J	49	500	0.9
Benzo(g,h,i)perylene	mg/kg	ND	ND	11J	093J	28J	087J	53J	NC	NC

Abbreviations

NC* - No cleanup criterion has been proposed by NJDEPE, however, the proposed NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg
NC - No groundwater cleanup criterion has been proposed for this analyte by NJDEPE
ND - Not detected
TPHC - Total Petroleum Hydrocarbons
PE - Post Excavation
mg/kg - Milligrams per Kilograms

Data Qualifier

J - Indicates an estimated value

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-15	S-16	S-17	S-18	S-19	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1191 15	1191 16	1191 17	1191 18	1191.19	
Matrix		Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units						
TPHC	mg/kg	5 22	1100	340	ND	46 1	NC
Base Neutral Compounds							
Acenaphthene	mg/kg	ND	5J	16J	ND	79	100
Pyrene	mg/kg	ND	9J	36J	043J	3 4	100
Bis(2-ethylhexyl)phthalate	mg/kg	ND	24	1 3	ND	079J	100
Dibenzofuran	mg/kg	ND	26J	078J	ND	54	NC
Anthracene	mg/kg	ND	69J	23J	ND	1 7	100
Fluoranthene	mg/kg	ND	2 2	97	092J	12 0	100
Fluorene	mg/kg	ND	58J	16J	ND	1 0	100
Phenanthrene	mg/kg	ND	2 8	89	ND	2 9	NC
Naphthalene	mg/kg	ND	4 8	9	ND	23J	100
2-Methylnaphthalene	mg/kg	ND	8 4	1 3	ND	18J	NC
Benzo(a)anthracene	mg/kg	ND	42J	19J	ND	2 3	500

3400
~~49~~ 1700
49
NC
10000
2300
2300
NC
230
NC
0.9

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-15	S-16	S-17	S-18	S-19	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1191 15	1191 16	1191 17	1191 18	1191 19	
Matrix		Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units						
Base Neutral Compounds							
Chrysene	mg/kg	ND	43J	21	ND	2 4	500
Benzo(b)fluoranthene	mg/kg	ND	ND	19J	ND	2 3	50
Dibenzo(a,h)anthracene	mg/kg	ND	ND	ND	ND	ND	100
Benzo(a)pyrene	mg/kg	ND	27J	1 3	ND	2 1	100
Indeno(1,2,3-cd)pyrene	mg/kg	ND	ND	21J	ND	ND	500
Benzo(g,h,i)perylene	mg/kg	ND	14J	079J	ND	ND	NC

Direct Contact

9
0.9
0.66
0.66
0.9
NC

Abbreviations:

NA - Not analyzed
NC - No cleanup criterion has been proposed by NJDEPE, however, the proposed NJDEPE subsurface cleanup criterion for total organic compounds is 10,000 mg/kg
NC - No groundwater cleanup criterion has been proposed for this analyte by NJDEPE
ND - Not detected
TPHC - Total Petroleum Hydrocarbons
PE - Post Excavation
mg/kg - Milligrams per Kilograms

Data Qualifier:
J - Indicates an estimated value

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-1	S-2	S-3	S-4	S-5	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1191 1	1191 2	1191 3	1191 4	1191 5	
Matrix		Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units						
Volatile Organic Compounds							
Acetone	mg/kg	0 004JB	0 005JB	0 005JB	ND	0 6	100
Methylene Chloride	mg/kg	0 071J	0 0061JB	0 0069B	0 0035JB	1 1B	1
Chloroform	mg/kg	ND	ND	ND	ND	ND	1
Benzene	mg/kg	ND	ND	ND	ND	1 0	1
O-Xylene	mg/kg	ND	ND	ND	ND	0 87	NC
Toluene	mg/kg	ND	ND	ND	ND	0 76	500
Ethylbenzene	mg/kg	ND	ND	ND	ND	7 6	100
M & P Xylenes	mg/kg	ND	ND	ND	ND	30 0	NC
Inorganics							
Lead	mg/kg	30 7	ND	9 05	ND	16 3	NC

Direct Contact ppm

1000
49
19
3
~~NC~~
1000
1000
100
410

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-6	S-7	S-8	S-9	S-10	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1191 6	1191.7	1191 8	1191 9	1191 10	
Matrix		Soil	Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units						
Volatile Organic Compounds							
Acetone	mg/kg	0 004JB	0 3JB	0 029JB	ND	ND	100
Chloroform	mg/kg	ND	ND	ND	0 013	ND	1
Methylene Chloride	mg/kg	0 0044J	0 98B	0 02JB	0 0042JB	0 0042JB	1
Benzene	mg/kg	ND	4 0	ND	ND	ND	1
O-Xylene	mg/kg	ND	0 45J	ND	ND	ND	NC
Toluene	mg/kg	ND	ND	ND	ND	ND	500
Ethylbenzene	mg/kg	ND	0 89J	ND	ND	ND	100
M & P Xylenes	mg/kg	ND	2 0	ND	ND	ND	NC
Inorganic Compound							
Lead	mg/kg	52 1	12 4	ND	58 2	55 8	NC

Direct Contact

1000
19
49
3
1000
1000
100

total 410

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-11	S-13	S-14	S-15	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No.		1191.11	1191.13	1191 14	1191.15	
Matrix		Soil	Soil	Soil	Soil	
Sample Type		PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units					
Volatile Organic Compounds						
Acetone	mg/kg	0 0046JB	ND	ND	0 039B	100
Methylene Chloride	mg/kg	0 0042JB	0 005JB	2 3JB	0 0056JB	1
Chloroform	mg/kg	ND	ND	ND	ND	1
Benzene	mg/kg	ND	ND	ND	0 0035J	1
O-Xylene	mg/kg	ND	ND	1 4J	ND	NC
Toluene	mg/kg	ND	ND	ND	0 0017J	500
Ethylbenzene	mg/kg	ND	ND	1 1J	0 0077J	100
M & P Xylenes	mg/kg	ND	ND	6 2		NC
Inorganic Compound						
Lead	mg/kg	155	14 8	28 8	11 0	NC

Direct Contact

1000
49
19
3
1000
1000
factor 410
100

TABLE 3-5 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR SOILS
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		S-16	S-17	S-18	S-19	Trip Blank	Field Blank	NJDEPE Impact to Groundwater Soil Cleanup Criteria
Lab ID No		1191 16	1191 17	1191 18	1191 19	TB	FB	
Matrix		Soil	Soil	Soil	Soil	Aqueous	Aqueous	
Sample Type		PE	PE	PE	PE	PE	PE	
Date of Collection		5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	5/3/93	
Analytical Parameter	Units							
Volatile Organic Compounds								
Acetone	mg/kg	ND	ND	ND	ND	ND	0 25B	100
Methylene Chloride	mg/kg	0 87	1 0	0 87	0 49	2 4J	0 0041J	1
Chloroform	mg/kg	ND	ND	ND	ND	ND	ND	1
Benzene	mg/kg	0 76J	2 5	ND	ND	ND	ND	1
O-Xylene	mg/kg	69	ND	1 2	ND	ND	ND	NC
Toluene	mg/kg	9 5	ND	0 92	ND	ND	ND	500
Ethylbenzene	mg/kg	21	0 34J	0 85	ND	ND	ND	100
M & P Xylenes	mg/kg	170	1 9	3 4	0 025J	ND	ND	NC
Inorganic Compound						ND	ND	
Lead	mg/kg	12 3	21 8	10 4	174	ND	ND	NC

Direct Contact

1000
49
14
3
1000 (total 410)
1000
100

TABLE 3-5 (CONTINUED)

ABBREVIATIONS, DATA QUALIFIERS AND NOTES
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Abbreviations:

PE: - Post Excavation.
NC: - No groundwater cleanup criterion has been proposed for this analyte by NJDEPE.
ND: - Not detected.
mg/kg: - Milligrams per Kilogram.
ug/kg: - Micrograms per Kilogram.

Data Qualifiers:

J. - Indicates an estimated value.
B: - Indicates also present in blank.

TABLE 3-6

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		MW-1	MW-2	MW-3	NJDEPE Class II-A Groundwater Cleanup Criteria
Lab ID No		A2530	A2531	A2533	
Matrix		Aqueous	Aqueous	Aqueous	
Sample Type		MW	MW	MW	
Date of Collection		7/6/93	7/6/93	7/6/93	
Analytical Parameter	Units				
Lead	ug/L	ND	1030	ND	5
Base Neutral Compounds					
Butylbenzylphthalate	ug/L	3 5J	ND	4 5J	100
Pyrene	ug/L	120J	2 3J	ND	200
Bis(2-ethylhexyl)phthalate	ug/L	740B	2 2J	ND	3
Di-n-butylphthalate	ug/L	ND	2 3J	ND	900
Fluoranthene	ug/L	ND	2 1J	ND	300
Chrysene	ug/L	ND	1 1J	ND	NC
Diethylphthalate	ug/L	ND	1 9J	ND	5,000
Phenanthrene	ug/L	ND	1 1J	ND	NC
Acetone	ug/L	6 3JB	3 6JB	4 1JB	700

TABLE 3-6 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No.		MW-1	MW-2	MW-3	NJDEPE Class II-A Groundwater Cleanup Criteria
Lab ID No.		A2530	A2531	A2533	
Matrix		Aqueous	Aqueous	Aqueous	
Sample Type		MW	MW	MW	
Date of Collection		7/6/93	7/6/93	7/6/93	
Analytical Parameter	Units				
Volatile Organic Compounds					
m & p Xylenes	ug/L	3 8J	ND	3 4J	NC
Methylene Chloride	ug/L	ND	ND	3J	2
Methyl Tertiary Butyl Ether	ug/L	ND	0013	1 2	NC
Benzene	ug/L	ND	ND	10	0 2
O-Xylene	ug/L	ND	ND	2 4J	NC

Abbreviations:

MW - Monitoring Well
NC - No NJDEPE Class II-A groundwater cleanup criterion has been proposed for this analyte by NJDEPE
ND - Not detected
ug/L - Micrograms per liter

Data Qualifiers:

J - Indicates an estimated value
B - Indicates also present in blank

TABLE 3-7

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		MW-1	MW-2	MW-3	MW-3 (Dup)	NJDEPE Class II-A Groundwater Cleanup Criteria
Lab ID No		A3809	A3810	A3811	A3812	
Matrix		Aqueous	Aqueous	Aqueous	Aqueous	
Sample Type		MW	MW	MW	MW	
Date of Collection		8/30/93	8/30/93	8/30/93	8/30/93	
Analytical Parameter	Units					
Volatile Organic Compounds						
Acetone	ug/L	10 B	8 3 JB	2 2 JB	2 4 JB	700
m & p Xylenes	ug/L	4 6 J	ND	ND	ND	NC
Methylene Chloride	ug/L	3 2 J	1 6 J	3 2 J	3 7 J	2
Methyl Tertiary Butyl Ether	ug/L	ND	14	11	11	NC
Toluene	ug/L	1 4 J	ND	ND	ND	1,000
Benzene	ug/L	ND	ND	ND	ND	0 2

Abbreviations.
MW - Monitoring Well
NC - No NJDEPE Class II-A groundwater cleanup criterion has been proposed for this analyte by NJDEPE
ug/L - Micrograms per liter

Data Qualifiers.
ND - Not detected
J - Indicates an estimated value
B - Indicates also present in blank

TABLE 3-7 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Sample ID No		MW-1	MW-2	MW-3	MW-3 (Dup)	NJDEPE Class II-A Groundwater Cleanup Criteria
Lab ID No		A3809	A3810	A3811	A3812	
Matrix		Aqueous	Aqueous	Aqueous	Aqueous	
Sample Type		MW	MW	MW	MW	
Date of Collection		8/30/93	8/30/93	8/30/93	8/30/93	
Analytical Parameter	Units					
Inorganic						
Lead	ug/L	ND	ND	ND	ND	10
Base Neutral Compounds						
Butylbenzylphthalate	ug/L	ND	32	62	49	100
1,4-Dichlorobenzene	ug/L	17	ND	ND	ND	75
Bis(2-ethylhexyl)phthalate	ug/L	4 0 J	2 1 J	ND	ND	30
Di-n-butylphthalate	ug/L	1 9 J	1 5 J	2 0 J	1 6 J	900
Benzyl alcohol	ug/L	1 3 J	2 2 J	6 7 J	6 3 J	NC

Abbreviations:
MW - Monitoring Well
NC - No NJDEPE Class II-A groundwater cleanup criterion has been proposed for this analyte by NJDEPE
ND - Not detected
J - Indicates an estimated value
B - Indicates also present in blank
ug/L - Micrograms per liter

TABLE 3-8

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Analytical Parameter	No of Samples Collected	Matrix	Date Collected	Date Analysis Completed	Preservation Method	USEPA SW-486 Analytical Method
TPHC	8	S	9/29/92	9/30/92	Cool to 4°C	418 1
TPHC	1	S	4/12/93	4/12/93	Cool to 4°C	418 1
TPHC	3	S	4/23/93	4/23/93	Cool to 4°C	418 1
TPHC	9	S	4/27/93	4/27/93	Cool to 4°C	418 1
TPHC	8	S	4/29/93	4/29/93	Cool to 4°C	418 1

Analytical Parameter	No of Samples Collected	Matrix	Date Collected	Date Analysis Completed	Preservation Method	USEPA SW-846 Analytical Method
TPHC	18	S	5/3/93	5/4/93	Cool to 4°C	418 1
VOCs	18	S	5/3/93	5/4/93	Cool to 4°C	USEPA-CLP-IFB
BNAs	18	S	5/3/93	5/4/93	Cool to 4°C	8270
LEAD	18	S	5/3/93	5/4/93	Cool to 4°C	6010

Abbreviations.

USEPA-CLP-IFB - Volatile samples were analyzed using the method cited in the USEPA-CLP-IFB version 2/88 The CLP volatile method is based on USEPA Method 624 and SW-846
TPHC - Total Petroleum Hydrocarbons
VOCs - Volatile Organic Compounds
BNAs - Base Neutral Acid Extractable Compounds
C - Celsius

TABLE 3-8 (CONTINUED)

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE (MONITORING WELLS)
BUILDING NO. 108
UST NOS. 60 TO 64
FORT MONMOUTH, NEW JERSEY

Analytical Parameter	No of Samples Collected	Matrix	Date Collected	Date Analysis Completed	Preservation Method	USEPA SW-846 Analytical Method
Lead	3	Aqueous	7/6/93	7/13/93	Cool to 4°C	418 1
VOCs	3	Aqueous	7/6/93	7/13/93	Cool to 4°C	USEPA-CLP-IFB
BNAs	3	Aqueous	7/6/93	7/13/93	Cool to 4°C	8270

Analytical Parameter	No of Samples Collected	Matrix	Date Collected	Date Analysis Completed	Preservation Method	USEPA SW-846 Analytical Method
Lead	3	Aqueous	8/30/93	9/3/93	Cool to 4°C	418 1
VOCs	3	Aqueous	8/30/93	9/3/93	Cool to 4°C	USEPA-CLP-IFB
BNAs	3	Aqueous	8/30/93	9/24/93	Cool to 4°C	8270

Abbreviations,

USEPA-CLP-IFB - Volatile samples were analyzed using the method cited in the USEPA-CLP-IFB version 2/88 The CLP volatile method is based on USEPA Method 624 and SW-846
TPHC - Total Petroleum Hydrocarbons
VOCs - Volatile Organic Compounds
BNAs - Base Neutral Acid Extractable Compounds
C - Celsius

Appendix A

APPENDIX A

NJDEPE-BUST CLOSURE APPROVAL, CORRESPONDENCE, AND TIGHTNESS TESTING RESULTS

UNDERGROUND STORAGE TANK SYSTEM
CLOSURE APPROVAL

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION
BUREAU OF UNDERGROUND STORAGE TANKS
CN-029, TRENTON, NJ 08625-0029

TMS #: C-91-2844- UST #: 0090010

U.S. Army Fort Monmouth
Fort Monmouth Building 108
Fort Monmouth

(Monmouth County)

THE ABOVE LISTED FACILITY IS HEREBY GRANTED APPROVAL TO PERFORM THE FOLLOWING ACTIVITY IN ACCORDANCE WITH N.J.A.C. 7:14B-1 et seq.:

Removal of: 3- 5000 gallon gasoline storage tank,
1- 5000 gallon diesel storage tank and
1- 5000 gallon kerosene storage tank

Site assessment: Twenty (20) soil samples will be taken for the tanks, and one (1) for every 15 feet of piping; three (3) monitoring wells will be installed, samples will be collected and analyzed as per the Technical Guidance Document (EPA methods 624+15 and TPHCX).

ON-SITE MANAGER: Dinkerrai Desai TELEPHONE: 908-532-[illegible]

OWNER: U. S. Army TELEPHONE:

EFFECTIVE DATE: February 20, 1992

THIS FORM MUST BE DISPLAYED AT THE SITE DURING THE APPROVED ACTIVITY AND MUST BE MADE AVAILABLE FOR INSPECTION AT ALL TIMES.

Michael S Kelly (for KG)

KENNETH GOLDSTEIN, P.E., CHIEF
BUREAU OF UNDERGROUND STORAGE TANKS

51 1 GREEN- APPLICANT COPY- APPLICANT COPY- LCO COPY- TMS COPY- R&B

NJ File Copy mailed 4/30/03

State of New Jersey
Department of Environmental Protection and Energy
Division of Responsible Party Site Remediation
CN 028
Trenton, NJ 08625-0029

ATTN UST Program
(609) 984-3156

For State Use Only	
Date Rec'd.	
Auth.	
Routing	
UST NO.	

STANDARD REPORTING FORM
for reporting activities at an UST facility:

___ General Facility Information Changes	___ Sale or Transfer
_X_ Closure (Abandonment or Removal)	___ Substantial Modification
___ Temporary Closure	___ Financial Responsibility
___ Change in Service	___ Address Change Only

Check ONLY One Type of Activity – Complete Form For That Activity

(More than one tank can be listed per activity)

*** NOTE *** ALL NEW tank installations at existing registered facilities must submit a Registration Questionnaire for the new tanks.

Answer questions 1 through 5 and others as applicable.

1. Company name and address (as it appears on registration questionnaire): U.S. ARMY Fort Monmouth
DEH Bldg 167
Fort Monmouth NJ 07703
ATTN: Charles Appleby

2. Facility name and location (if different from above):

3. Contact person for this activity: Charles Appleby
Telephone Number: (908) 532-6224

4. The identification number of the affected tank as it appears in Question Number 12 on the Registration Questionnaire: 60, 61, 62, 63, 64
Bldg 108
TMS- C-91-2844

5. Registration Number (if known): UST- 0090010

6. For GENERAL FACILITY INFORMATION changes (address, telephone, contact person, etc. – supply NEW information only):

a. Facility name:
b. Facility location:
c. Owner's mailing address:
NJ
d. Block: Lot:
e. Contact person (facility operator):
f Contact telephone number: ( ) –
g Other (Specify):

(OVER)

DEPARTMENT OF THE ARMY
Headquarters U S Army Garrison Fort Monmouth
Fort Monmouth, New Jersey 07703-5000

REPLY TO ATTENTION OF

December 08, 1992

Directorate of Engineering and Housing

New Jersey Department of
Environmental Protection and Energy
Division of Responsible Party Site Remediation
Bureau of Underground Storage Tanks
CN 029
Trenton, NJ 08625 - 0029
ATTN: Mr. Kevin F. Kratina, Acting Bureau Chief

Re: Request for the extension of UST Closure Approvals pertaining to the closure activities as approved by the NJDEPE at Buildings 108, 161, 1076, 2500, 2624, 8003, 8005, 8006, 9099 and 9332, Fort Monmouth, Monmouth County

UST #0090010	Main Post East	
TMS # C-91-2844	CLOSURE	(Bldg. 108)
TMS # C-91-2838	CLOSURE	(Bldg. 161)
UST #0090010	Main Post	
TMS # C-91-2845	CLOSURE	(Bldg. 1076)
UST #0081515	Charles Wood West Area	
TMS # C-92-2950	CLOSURE	(Bldg. 2567)
TMS # C-91-2842	CLOSURE	(Bldg. 2500)
TMS # C-91-2843	CLOSURE	(Bldg. 2624)
UST #00192477	Wayside Area	
TMS # C-92-2953	CLOSURE	(Bldg. 8003)
TMS # C-91-2952	CLOSURE	(Bldg. 8005)
TMS # C-91-2951	CLOSURE	(Bldg. 8006)
UST #0090029	Evans Area	
TMS # C-91-2840	CLOSURE	(Bldg. 9099)
TMS # C-91-2841	CLOSURE	(Bldg. 9332)

Dear Mr. Kratina:

Scheduled closure activities for which Fort Monmouth has received approval from the NJDEPE have been temporarily delayed due to the unforseen changes which have occurred within your organization (e.g. the NJDEPE guidelines regarding the UST removal activities) as well as difficulties within the DOD funding and procurement system in coordinating and obtaining the services required by the NJDEPE in fulfilling our goal of full compliance. I anticipate the UST removal activities to commence at full speed in the early Spring of '93.

At this time, I would appreciate your departments concurrence in this request for an extension of one year for the existing Closure Permits thus far received by the NJDEPE. To date, funding has been provided and a contract has been awarded for the removal of over 350 USTs within the next three years at Fort Monmouth. Monies have been obligated to the sum of over 6 millon dollars for UST Closure and Gasification activities at Fort Monmouth. My Department will make every effort possible to remove all USTs IAW the NJDEPE Guidelines and perform the activities in as timely a manner as possible. We currently have three individuals within my department certified for Closure and SubSurface Evaluation. These Certified individuals will oversee all aspects of the UST Program activities.

The removal of USTs at Fort Monmouth has resulted in a number of complex challenges for my Environmental Staff. Our goal of full compliance with all applicable regulations is on-going. I will continue to place the environmental concerns, which we all support, as a high priority with regard to funding and program management at Fort Monmouth.

If the information provided in this enclosure is inadequate or you require further information with regard to any UST activities please contact Mr. Charles Appleby, Environmental Protection Specialist, at (908) 532-6224.

Sincerely,

for Mr. James Ott
Acting Director
Directorate of Engineering and Housing

U.S. ARMY
FORT MONMOUTH
DIRECTORATE OF ENGINEERING
AND HOUSING
ENVIRONMENTAL DEPARTMENT

December 16, 1991

DEH BUILDING 167
FORT MONMOUTH, NJ 07703
ATTN.. CHARLES APPLEBY

NJDEPE
DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION
CN 029
TRENTON N J. 08625-0029
ATTN. Stephen Tatar, Tank Management Section

Subject Response to Closure Plan Approval application deficiencies at buildings 9332, 9099, 161, 108, 2500 and 2024.

Dear Mr. Tatar

I have reviewed all the stated deficiencies as described in your correspondance dated September 30, 1991 Enclosed, please find copies of your correspondance with responses as well as revised Site Assessment Plans and/or Site Plans. Revised Site Assessment Plans are included for sites requiring additional sampling/analysing and/or monitoring wells. Revised Site Plans are included for sites requiring monitoring well placement as well as for sites requiring modifications to the origional Site Plan (scale) All Site Plans have pipe and UST lengths noted either adjacent to the diagram or within the results section

If you have any questions or if you require further information please, do not hessitate to call me at (908) 532-4359 I would sincerely appreciate your comments regarding any additions to the Closure Plan which would facilitate the application process.

Sincerely,

Charles Appleby
DEH Environmental Department
U.S. Army, Fort Monmouth

State of New Jersey
Department of Environmental Protection and Energy
Division of Responsible Party Site Remediation
CN 029
Trenton, NJ 08625-0029
Tel # 609-984-3156
Fax # 609-292-5604

Scott A. Weiner
Commissioner

Karl J. Delaney
Director

U.S. Army Fort Monmouth
DEH Building 167
Fort Monmouth, NJ 07703
Attn.: Dinkerrai Desai

Subject: Deficiency in Closure Plan Approval Application
Fort Monmouth, BUILDING 108

UST # 0090010

TMS # C-91-2844

Dear Mr. Desai:

On AUGUST 14, 1991 the New Jersey Department of Environmental Protection and Energy (the Department) received an "Underground Storage Tank Closure Approval Application" for the above referenced facility. This application details the procedures to be implemented as required by the Underground Storage Tank Systems Technical Requirements and Procedures of N.J.A.C. 7:14B-9 et seq.

A review of the information submitted indicates the following deficiencies:

1. Standard Reporting Form (SRF)

A.___ SRF not supplied - (blank SRF attached)
B.___ Form not signed / dated by Owner/Operator
C.___ Other

2. Closure Plan Approval Application (CPAA)

A.___ CPAA not supplied - (blank CPAA form attached)
B.___ Size of UST's / contents not indicated
C.___ CPAA not signed / dated
D.___ Activity not indicated
E.___ Fee incorrect - Please submit a check for $ _____, Payable to "Treasurer, State of NJ".

F.___ Tank Decommissioning Plan not complete / not submitted
G.___ Implementation Schedule not complete / not submitted
H.___ Other

3. Abandonment

A.___ Abandonment justification not complete / not submitted.
B.___ Form not properly signed / certified by Professional Engineer
C.___ Other

4. Site Assessment

A.___ Site Assessment not submitted
B.✓ Site Assessment incomplete
i. ___ Site plan not submitted
ii. ___ Piping assessment not indicated
iii. ___ Tank locations not indicated on Site Plan
iv. ___ Scale not indicated on Site Plan
v. ✓ Location of wells is inappropriate / not indicated
vi. ✓ Number of wells is insufficient / not indicated
vii. ___ Screening of excavation not indicated
viii. ___ Number of soil samples is insufficient
ix. ___ Improper chemical analysis of water / soil
x. ___ Other

Comments

The above noted deficiencies should be corrected and submitted to the undersigned at the above address, within 30 days of the date of this letter. Please include a copy of this letter to expedite processing. Failure to comply with this letter will result in disapproval of your CPAA, in accordance with N.J.A.C. 7:14B - 9.2(b). Disapproved CPAA's will be returned and fees forfeited. Any closure activities begun without a valid Closure Approval may be subject to fines and penalties in accordance with N.J.S.A. 58:10A-10.

If you have any question, please contact me at (609) 984-3156.

Sincerely,

Stephen Tatar
Tank Management Section
Bureau of Underground Storage Tanks

Attachments:

Underground Storage Tank
Removal / Abandonment
Implementation Schedule

Date 7/12/91

Facility Name U S Army, Fort Monmouth
Facility Location Bldg. 108
Fort Monmouth, Monmouth County NJ 07703

Owners Mailing Address DEH Bldg. #167
Fort Monmouth, NJ 07703

Owners Name U S Army

Contact Person Dinkerrai Desai
Phone Number (908) 532-1475

UST Number 0090010

Tank ID Number(s)	Product Stored (Oil, Gas, etc.)	Tank Capacity (Gallons)	Site Assessment Required	Monitoring Well Required
60,61,62	Gas	5000/ea	yes	yes
63	Diesel	5000	yes	no
64	Kerosene	5000	yes	no

Schedule

Activity	Start Date	Completion
Removal	9/3/91	9/6/91
Site Assessment	9/6/91	9/6/91
Monitoring Well Installation	9/16/91	9/16/91
Site Assessment Analytical Results	10/11/91	10/11/91
Monitoring Well Analytical Results	11/4/91	11/4/91
UST Site Assessment Summary	12/5/91	12/5/91

UST-013
9/90

FOR STATE USE ONLY	
UST #	
Date Rec'd	
CA #	
Staff	

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WATER RESOURCES
BUREAU OF UNDERGROUND STORAGE TANKS
TANK MANAGEMENT SECTION

CN 029, 401 EAST STATE STREET
TRENTON, N.J 08625-0029

UNDERGROUND STORAGE TANK CLOSURE PLAN APPROVAL APPLICATION

Under the provisions of the Underground Storage of Hazardous Substances Act in accordance with N.J.A.C 7 14B-9 et seq.

This application form shall be used by all applicants who plan to close Underground Storage Tank Systems pursuant to N J A.C 7 14B-9 et seq

INSTRUCTIONS.

- *Before completing application form please refer to the attached Application Instruction Sheet.*
- *Please print legibly or type*
- *Fill in all appropriate blanks. This application form requires that additional sheets be attached for some of the information requested You may call the Bureau of Underground Storage Tanks/Tank Management Section (609/984-3156) for assistance*
- *Return one original of this form (including all attachments required) and a copy of the complete Standard Reporting Form (SRF) to the address above You must sign all forms as required and attach a check for the proper fee (see the fee schedule on Page 3). Make check payable to the Treasurer, State of New Jersey.*
- *If the subject facility is not registered the Closure Plan will not be approved*
- *Please Note. Make sure that all required informaiton on the Standard Reporting Form (SRF) is submitted. The SRF and this Closure Plan Application must be submitted together.*

Date of Application 7/12/91

FACILITY REGISTRATION #

0090010 - 60, 61, 62, 63, 64

I. FACILITY NAME AND ADDRESS

U.S. Army Fort Monmouth

DEH Bldg. 167

Fort Monmouth NJ 07703

Telephone No (908) 532-1475 Dinkerrai Desai

II *THIS* CLOSURE PLAN IS FOR:

A. Substance stored in subject tank(s):

1 Petroleum Products

Indicate Type of Product Gasoline, Diesel, Kerosene
(Write out product name,. e.g)

a. Gasoline, Jet Fuel, or ~~Kerosene~~
b. Heating Oil (#2, 4, 6), or Diesel
c Waste Oil (Please indicate **total storage capacity** of waste oil at the *facility* [including the *tank*(s) being closed]) N/A gals

2 Hazardous Substances other than Petroleum Products *(Describe)*

Indicate Type of Product N/A
(Write out product name, add sheet if necessary.)

B. Type of Activity: *(Circle one)*

1. Abandonment of Tank(s)

Attach the closure plan for abandonment, as required by N.J.A.C 7 14B-9.2(b) or 9 3(b), which must contain the following items

a Implementation schedule (3 copies per N.J.A.C. 7:14B-9.2(a)3)
b Site assessment plan
c. Tank decommissioning plan
d. A site map
e Attach all justification for abandonment-in-place as required by N J A C 7 14-9 1(d) Attach the certification statement (on the back page) for abandonment-in-place, if applicable

2 Removal of Tank(s)

Attach the closure plan for removal as required by N J.A.C 7 14B-9.2(b) or 9 3(b) The following items must be included

✓ a Implementation schedule (3 copies)
✓ b Site assessment plan
✓ c Tank decommissioning plan
✓ d. A site map

3 Temporary Closure

Indicate which situation applies and attach appropriate documentation

a ____ Temporary closure for 12 months or less is subject to requirements of N J.A.C 7.14B-9 1(a)

b. ____ Requesting an extension of temporary closure for more than 12 months per N J A C 7.14B-9 1(b) must perform **site assessment** and submit results.

4. Change in Service

Attach documentation that the tank system being changed from the storage of a **regulated** to a **non-regulated substance** has been emptied and cleaned and that a *site assessment has been performed, as required by N.J.A.C 7 14B-9.1(e)*

III. FEE SCHEDULE

Check the activities below that apply, calculate the Total Fee and submit that amount with this application Make checks payable to **Treasurer, State of New Jersey.** Public schools and religious and charitable institutions are exempt form the fees The owner or operator shall submit a separate fee for each excavation where an activity occurs

A. Activities Which Require a Site Assessment 1. Removal or Abandonment without exemption to site assessment requirement	120.00	$ 120 00
2 Change in service from a regulated substance to a non-regulated substance		
3. Extension of period of Temporary Closure		
B. Activities Not Requiring a Site Assessment 1. Removal or abandonment with valid exemption	_____	$ 80 00
C. Additional Activities 1 Change in service from one regulated substance to another regulated substance		NO FEE
APPLICATION REVIEW FEE (activities in A, B, C) +		$ 50.00
TOTAL FEE DUE		$ 170.00

IV THE BUREAU OF UNDERGROUND STORAGE TANKS WILL REVIEW THE CLOSURE PLAN FOR COMPLETENESS AND APPROPRIATENESS AS SPECIFIED IN SUBCHAPTER 9 OF THE UST REGULATIONS PLAN APPROVAL WILL INDICATE THAT THE OWNER OR OPERATOR MAY PROCEED WITH THE CLOSURE. **FINAL APPROVAL OF THE CLOSURE IS NOT IMPLIED. ALL APPROPRIATE AND APPLICABLE PERMITS, LICENSES AND CERTIFICATES REQUIRED FOR ANY OF THE ABOVE ACTIVITIES FROM ANY LOCAL, STATE AND/OR FEDERAL AGENCIES MUST BE OBTAINED SEPARATELY FROM THIS APPLICATION.**

THE SITE ASSESSMENT SAMPLING AND ANALYTICAL REQUIREMENTS WILL BE SENT WITH THE APPROVAL TO PROCEED.

NOTE: Notice of Approval to Proceed or Disapproval will be mailed to the facility address unless some other address is specified here.

_____

_____

_____

SIGNATURE OF CONTACT PERSON

This application form must be signed by a contact person of the owner or operator of the subject facility The contact person should have overall knowledge of tank decommissioning procedures and the site assessment requirements applicable to the tank closure which is the subject of this application

NAME (Print or Type) Dinkerrai Desai *SIGNATURE* _____

TITLE DEH Environmental Coordinator *DATE* 7/12/91

U S Army
DEH Bldg 167
SELFM-EH
Fort Monmouth, NJ 07703

Date 7/12/91

NJDEP UST REG # 0090010- 60,61,62 63,64

Underground Storage Tank (UST) Decommissioning / Closure Plan

A. General Requirments:

All activities associated with the decommissioning of any underground storage tank (UST) shall comply with all applicable Federal, State and Local laws and ordinances. These laws include but are not limited to, NJAC 7 14B et seq , 5 23 et seq and OSHA 1910 146, 1910 120 All permits including but not limited to this document, the NJDEP Closure Plan Approval Package, etc , shall be posted on site for inspection The contractor conducting the decommissioning activities shall be registered by the NJDEP for performing said activities

B. Safety and Health

Before, during, and after all activities, the work site shall be made free of all hazards which may pose a threat to the health and safety of all personnel who are involved with, or are affected by, the decommissioning of the UST All areas which pose, or may be suspected of posing, a vapor hazard shall be monitored by a qualified individual utilizing approved equipment This individual will ascertain if the area is properly vented to render the area safe, as defined by OSHA.

C. UST Excavation

1 All underground obstructions (utilities, etc) shall be marked out by the contractor performing the excavation
2 All activities shall be carried out with the greatest regard to safety and health and the safeguarding of the environment
3 All excavated soils will be evaluated as to the possibility of contamination Soils suspected to be contaminated with product shall be staged on poly-sheeting separate from soils not suspected to be contaminated (see section E Excavated Soils Management)
4 Surface materials (ie asphalt, concrete, ect) shall be excavated and staged separate from all soils
5 Soil will be excavated to expose the UST and associated piping The piping shall not be removed / disturbed until all free product is drained into the UST The UST will be rendered vapor free prior to any cutting or access After the removal of the associated piping, a manway will be made in the UST to allow for the proper cleaning of the UST

U.S Army
DFH Bldg. 167
SELFM-EH
Fort Monmouth, NJ 07703

Date 7/12/91

NJDEP UST REG # 0090010 - 60, 61, 62, 63, 64

6 After the UST is removed from the ground, it will be staged on poly-sheeting and examined for corrosion holes The presence or absence of corrosion holes will be documented by the contractor If corrosion holes are observed, or if upon inspection of the excavation site evidence of a discharge to the environment, the NJDEP hotline shall be notified

7 In the event of a discharge to the environment, additional soils will be excavated Site assessment activities will determine to what depth the contractor will excavate

8. After completion of the Site Assessment activities, the excavation will be lined with poly-sheeting and backfilled to grade with noncontaminated soils from the site and additional certified clean fill provided by the contractor

D UST Transport / Disposal

1. The tank will be transported and disposed / recycled in compliance with all applicable regulations and laws

2 The contractor shall label the tank with the following information.

- a. site of origin
- b generator / contact person
- c NJDEP UST ID number
- d. product previously stored
- e name of transporter / contact person
- f destination site / contact person
- g other info as required

3 The contractor shall provide Fort Monmouth with sufficient documentation certifying that transport / disposal (recycling) of the tank was completed according to all applicable Federal and State regulations

E Excavated Soils Management

1 All excavated soils suspected to be contaminated will be transported, by the contractor, to a designated staging area The designated area will contain the soils as well as manage all stormwater runoff

2 All soils stored in the designated staging area will be maintained in piles no larger than 100 cubic yards each. Each pile will be lined and covered with poly-sheeting and weighted to ensure containment

3. Each soil pile will be sampled and analyzed for waste classification as outlined in the NJDEP document titled "Management of Excavated Soils" dated August 17, 1990

4 All soils catagorized as Hazardous waste or non-hazardous waste will be managed as such, in accordance with N.J A C 7 26-1 et seq..

5. All soils that contain levels of contaminants below the Catagory 3 soil limits will be used in accordance with Federal and State requirments

F Changes / Authorizations

1. All deviations in activities related to the closure of a UST as outlined in this document shall require prior authorization from the NJDEP-DWR-BUST

U S Army
DEH Bldg 167
SELFM-EH
Fort Monmouth, NJ 07703

Date 7/12/91
NJDEP UST REG #. 0090010 - 60, 61, 62 63, 64

UNDERGROUND STORAGE TANK (UST) SITE ASSESSMENT PLAN

A General

This site specific assessment plan will be managed and carried out by U S Army DEH and Serv-Air Inc personnel All analyses will be performed and reported by NJDEP certified testing laboratries All monitoring wells will be installed by NJDEP licensed well drillers All sampling will be performed according to methods described in the NJDEP Field Sampling Procedures Manual All records of the Site Assessment will be maintained by DEH and submitted to the NJDEP-DWR-BUST in accordance with N J A C 7 14B-9 2 and 9 3

PHASE I
UST Decommissioning

A Initial Soil Excavation

1. Soil will be excavated from the UST site and screened utilizing a Photo Ionization Detector (PID) and/or a Flame Ionization Detector (FID)
2. All soils suspected to be contaminated will be treated in accordance with the UST Decommissioning Plan

B. Continued Excavation

1 Excavation of suspect contaminated soil will continue until one of the following situations is encountered
   a groundwater
   b excavated soils no longer exhibit characteristics of contamination
   c excavation equipment can no longer remove soils due to depth or other restrictive cause

U.S Army
DEH Bldg 167
SELFM-EH
Fort Monmouth, NJ 07703

Date 7/12/91

NJDEP UST REG # 0090010 - 60, 61, 62

PHASE II
Site Survey

A. Vapor Screening
   1. An individual trained in the operation of a FID and/or PID shall evaluate the sides and pit bottom of the excavation
   2. All observed instrument readings will be documented and included in the Site Assessment Survey report This documentation will include all factory and daily calibrations of the instrument.

PHASE III
Site Sampling

A Soil samples will be collected from the UST excavation and analyzed according to the following schedule

TANK	CAPACITY	PRODUCT	TPHC SAMPLES	B/N +15 (IF TPHC >100)	VOA +15 LEAD, XYLENE (IF TPHC >100)	PP+15 (IF TPHC >100)
60	5000	GAS	4	4	4	N/A
61	5000	GAS	4	4	4	N/A
62	5000	GAS	4	4	4	N/A
63	5000	Diesel	4	4	4	N/A
64	5000	Kerosene	4	4	4	N/A

U S Army
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Date 7/12/91
NJDEP UST REG #. 0090010 - 60-61-62-63-64

B Soil samples will be collected from the Pipe excavation and analyzed according to the following schedule

TANK	LENGTH OF PIPE	PRODUCT	BN +15 (If TPHC >100)	VOA +15 Lead, Xylene (If TPHC >100)	PP+15	TPHC	NAPHTHALENE
60,61,62,63	70'	Gas/Diesel	5	5	N/A	5	N/A
64	<15	Kerosene	2	2	N/A	2	2

C All samples will be taken in the native soil below the bedding material The sample locations should be along the mid lines of the tank outline except for at least two of the samples which should be taken within one foot of each of the two highest field survey readings All of the soil samples should be discrete samples taken within a 6" vertical interval All samples will be collected by utilizing laboratory decontaminated stainless steel trowels dedicated to each sample location

D The excavation will remain open until laboratory results determine all TPHC samples are less than 100 ppm If levels greater than 100 ppm are reported, further excavation and resampling may be requested for those specific areas If further excavation is not possible, additional required analyses will be performed and the excavation lined with poly-sheeting and filled to grade with certified clean fill

U S Army
DEH Bldg 167
SELFM-EH
Fort Monmouth, NJ 07703

Date: 7/12/91
NJDEP UST REG # 0090010 - 60,61,62 63,64

PHASE IV
Groundwater Monitoring

A Monitoring wells will be installed within the UST field at all UST locations where the tank(s) being closed stored gasoline, kerosene, jet fuel and/or site specific factors indicate a known or potential impact of soil contamination exists.

B Groundwater monitoring wells will be installed by a New Jersey licensed Well Driller in accordance with N J.S.A 58.4A-4.1 et seq..

C All monitoring wells will be sampled as described in the NJDEP Field Sampling Procedures Manual, 1988.

D All monitoring wells will be analyzed in accordance with the following table

TANK	PRODUCT	MONITORING WELL(S)	(A) EPA Method 624	(B) EPA Method 625
60,61,62,63,64	Gasoline Diesel Kerosene	3	3	3

Note (A): Sample must be analyzed by EPA Method 624 + 15 (GC/MS plus identification of non-targeted compounds) modified to include calibration for xylenes, methyl tertiary butyl ether (MTBE), and tertiary butyl alcohol (TBA)

Note (B) Sample must be analyzed by EPA Method 624 + 15 (GC/MS plus identification of non-targeted compounds) modified to include calibration for xylenes, AND EPA Method 625 + 15 (base/neutral extractable extractable organics).

C. All monitoring well sampling will be conducted according to methods described in the NJDEP Field Sampling Procedures Manual February 1988

D All laboratory analyses will be performed by NJDEP certified Laboratories using approved methods and following all Quality Control/Assurance procedures

Bldg 108

TankTest Inc. TTI

February 21, 1990

E-Systems, Inc
P.O Box 369 Bldg 1209
Fort Monmouth, New Jersey 07703-5000

Attention Ms Gail Sutton

Reference: TTI Project Report No 2037

Dear Ms. Sutton:

This report covers the testing of three (3) underground storage tanks by TankTest Inc (TTI) The testing was conducted on February 5th, and 6th, at the Fort Monmouth facility. For your ease of review, this report is organized as follows.

Summary of Test Results

Methodology

. Field Data Sheets

If you have any questions or comments concerning this report, please do not hesitate to contact me at anytime

Respectfully submitted,

TankTest, Inc

Robert Giunta
Tank Testing Supervisor

RG/nj

Test\2037

II METHODOLOGY

TTI tests underground storage tanks through the use of the Petro Tite system. This system, also known as the Kent-Moore system was developed in cooperation with the American Petroleum Institute (API). TTI uses this system for the leak testing of a wide variety of tanks, systems, and tank contents.

The Petro Tite testing process is by definition a "temperature compensated standpipe test with product circulation". The tank testing equipment is connected to the tank system (and associated piping) subsequently filled with the existing product in the tank. Any observable decrease in liquid volume in the standpipe gives a direct measurable reading of loss if the system is leaking. However a drop in the standpipe liquid level can also be the result of other factors such as temperature change or a change in the tank volume due to a phenomenon known as "tank end deflection". The temperature variable is compensated for using the Petro Tite system by accurate temperature measurement while vigorously circulating the tank contents Tank end deflection is also compensated for by stabilizing the tank geometry using procedures developed for the testing system When these factors are controlled, loss in the standpipe means loss in the system, with compensation for all of the important factors that can give false results. The Petro Tite process is the only approved system that compensates for all these important variables, thus providing the user with the most reliable results available.

The Petro Tite system as applied by TTI using certified testers, adheres to the National Fire Protection Association (NFPA) guidelines as described in NFPA Bulletin No 329, Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids

III FIELD DATA AND CALCULATIONS

I SUMMARY OF PROJECT RESULTS

PROJECT NUMBER 2037-2

Date Tested	02/05/90
System Location	Main Fuel Station
Tank Size	5,000 gallons
Product	Diesel
Ground water depth	36" below tank botom
Standpipe elevation *	102.5"
Results **	-0 041 GPH
Conclusion	System passed inspection

* From tank bottom to the twelve (12) inch mark on the standpipe, meets 4 pound rule requirement.

** The NFPA (National Fire Protection Association) criteria of plus or minus 0 050 gph used to certify tank system tightness is a mathematical calculation based on actual liquid volume change and temperature change and is not intended as permission of a leak.

Data Chart for Tank System Tightness Test

PLEASE PRINT 2037-2

1 OWNER Property ☐ Tank(s) ☐

Fort Monmouth Army BASE
Name / Address / Representative / Telephone

Name / Address / Representative / Telephone

2 OPERATOR

Name / Address / Telephone

3 REASON FOR TEST (Explain Fully)

integrity testing

4 WHO REQUESTED TEST AND WHEN

GAIL SUTTON / Joe Fallow — E-systems, Inc
Name / Title / Company or Affiliation / Date

PoBox 369 Bldg 1209 Fort Monmouth NJ — 201-532-4359
Address / Telephone

5 TANK INVOLVED

Use additional lines for manifolded tanks

Identify by Direction	Capacity	Brand/Supplier	Grade	Approx. Age	Steel/Fiberglass
#1 Dielster	5,000		Diesel		Steel

6 INSTALLATION DATA

Location	Cover	Fills	Vents	Siphones	Pumps
Fuel Ster [illegible]	Concrete	1-2" 1-3" 6	1- 3"	N/A	Suction 2 air eliminator
North inside driveway Rear of station etc	Concrete Black Top Earth etc.	Size Titefill make Drop tubes Remote Fills	Size Manifolded	Which tanks?	Suction Remote Make if known

7 UNDERGROUND WATER

Depth to the Water table 310 ↓

Is the water over the tank? ☐ Yes ☒ No

8 FILL-UP ARRANGEMENTS

Tanks to be filled ______ hr ______ Date Arranged by ______
Name / Telephone

Extra product to "top off" and run tank tester How and who to provide? Consider NO Lead

Terminal or other contact for notice or inquiry ______
Company / Name / Telephone

9 CONTRACTOR, MECHANICS, any other contractor involved

10 OTHER INFORMATION OR REMARKS

Additional information on any items above Officials or others to be advised when testing is in progress or completed Visitors or observers present during test etc

11 TEST RESULTS

Tests were made on the above tank systems in accordance with test procedures prescribed for as detailed on attached test charts with results as follows

Tank Identification	Tight	Leakage Indicated	Date Tested
#1	yes	-0.041	5 Feb 90

12 SENSOR CERTIFICATION

5 Feb 90
Date

1962
Serial No. of Thermal Sensor

13 This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by th National Fire Protection Association Pamphlet 329.

Technicians

1 C Bright

Certification # 120815397

2 ______

[illegible signature]
Testing Contractor or Company By Signature

4 E Stow Rd [illegible] NJ [illegible]
Address

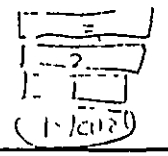
Name of Supplier Owner or Dealer | Address No and Street(s) | City | State | Date of Test

15 TANK TO TEST

Identity by position: Fuel Station Tank #4

Brand and Grade: Diesel

15a BRIEF DIAGRAM OF TANK FIELD



16 CAPACITY

Nominal Capacity: 5000 Gallons

By most accurate capacity chart available: 5038 Gallons

From
- ☐ Station Chart
- ☐ Tank Manufacturer's Chart
- ☐ Company Engineering Data
- ☑ Charts supplied with
- ☐ Other

17 FILL-UP FOR TEST

Stick Water Bottom before Fill up: 1 in to ¼" | 11 Gallons | 84 in Tank Diameter

	Gallons	Total Gallons as Reading
Inventory	84	5038
water		-11
topoff		410
total		5037

Transfer total to line 25a

18 SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK

☐ Water in tank ☐ Line(s) being tested with LVLLT ☒ High water table in tank excavation

See manual sections applicable Check below and record procedure in log (27)

Use maximum allowable test pressure for all tests
Four pound rule does not apply to doublewalled tanks

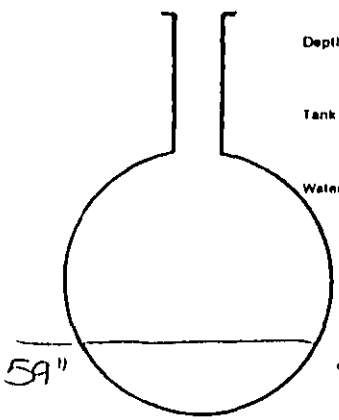
Complete section below

1 Is four pound rule required? Yes ☒ No ☐

2 Height to 12" mark from bottom of tank: 102.5 in

3 Pressure at bottom of tank: 4 PSI

4 Pressure at top of tank: ____ PSI



Depth of burial: 11 in

Tank dia: 84 in

Water table: 59" in

NOTES

M 59 × .036 = 2.124
A 2.124 + 4 = 6.124
D 6.124 ÷ .031 = 197.5
S 197.5 − 95 = 102.5

The above calculations are to be used for dry soil conditions to establish a positive pressure advantage, or when using the four pound rule to compensate for the presence of subsurface water in the tank area.

Refer to NFPA 30, Sections 2-3.2.4 and 2-7.2 and the tank manufacturer regarding allowable system test pressures

19 TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade: 95 in

Add 30" for "T" probe assy: 30 in

Total tubing to assemble — approximate: 144 in

20 EXTENSION HOSE SETTING

Tank top to grade: ____ in

Extend hose on suction tube 6" or more below tank top: ____ in

If Fill pipe extends above grade use top of fill

22 Thermal Sensor reading after circulation

01013 digits

49-50 °F Between

23 Digits per °F in range of expected change

299 digits

COEFFICIENT OF EXPANSION (Complete after circulation)

24a Corrected A P I Gravity

Observed A P I Gravity: ____

Hydrometer employed: ____ H

Observed Sample Temperature: ____ °F

Corrected A P I Gravity @ 60°F From Table A: ____

Coefficient of Expansion for Involved Product From Table B: ____

Transfer COE to Line 25b

21 VAPOR RECOVERY SYSTEM ☐ Stage I ☐ Stage II

24b COEFFICIENT OF EXPANSION RECIPROCAL METHOD

Type of Product: Diesel

Hydrometer Employed: 4 H

Temperature in Tank After Circulation: ____ °F

Temperature of Sample: ____ °F

Difference (+/-): ____ °F

Observed A P I Gravity: 33.3

Reciprocal: 2193 Page # 37

5037 (Total quantity in full tank (16 or 17)) · 2193 (Reciprocal) · 2.296085360 (Volume change in this tank per °F)

Transfer to Line 26a

24c FOR TESTING WITH WATER see Table C & D

Water Temperature after Circulation Table C: ____ °F

Coefficient of Water Table D: ____

Added Surfactant? ☐ Yes ☐ No Transfer COE to Line 25b

25 (a) ____ Total quantity in full tank (16 or 17) × (b) ____ Coefficient of expansion for involved product = (c) ____ Volume change in this tank per °F gallons

26 (a) 2.296085360 Volume change per °F (25 or 24b) ÷ 299 Digits per °F in test = 0.007681 7 Volume change per digit This is test (.0077)

27 Sensor Calibration ____ / ____	30 HYDROSTATIC PRESSURE CONTROL		31 VOLUME MEASUREMENTS (V) RECORD TO .001 GAL			34 TEMPERATURE COMPENSATION USE FACTOR (a)			38 NET VOLUME CHANGING EACH READING	39 ACCUMULATED CHANGE
LOG OF TEST PROCEDURES										
28 DATE 2/2/90 TIME (24 hr) — Record details of setting up and running test (Use full length of line if needed) 333 09013	29 Reading No	Standpipe Level in Inches: Beginning of Reading	Standpipe Level in Inches: Level to which Restored	32 Product in Graduate: Before Reading	32 Product in Graduate: After Reading	33 Product Replaced (-): Product Recovered (-)	35 Thermal Sensor Reading	36 Change Higher + Lower - (c)	37 Computation (c) × (a) = Expansion Contraction	Temperature Adjustment — Volume Minus Expansion (+) or Contraction (-) #33(V) − #37(I)	At Low Level compute Change per Hour (NFPA criteria)
1115 Start Circulation							Thermal Sensor			Ser	1962
1155 Circulation Complete										Ref	16656
										IN1	16656
1200 Start High Level	1		-12				09132	FA=	0077	Fin	16656
1215 1st Reading	2	13.0	-12	0.680	0.710	+0.030	137	+5	+0.039	+0.011	
1230 2nd	3	10.8	-12	0.710	0.6805	-0.015	144	+7	+0.054	-0.099	
1245 3rd	4	10.8	-12	0.6805	0.6020	-0.015	148	+4	+0.031	-0.076	
1300 4th	5	10.8	-12	0.6020	0.575	-0.015	154	+6	+0.046	-0.091	
1315 5th	6	10.9	-12	0.575	0.540	-0.035	159	+5	+0.039	-0.074	
1330 6th	7	10.7	-12	0.540	0.500	-0.040	162	+3	+0.023	-0.063	
1345 7th	8	10.8	-12	0.500	0.455	-0.045	168	+6	+0.046	-0.091	
1400 8th	9	11.0	-12	0.455	0.415	-0.040	172	+4	+0.031	-0.071	
1405 Drop to Low Level	10		12				09173				
1420 1st Reading	11	12.5	12	0.470	0.485	+0.015	175	+2	+0.015	±0.000	
1435 2nd Reading	12	12.3	12	0.485	0.495	+0.010	178	+3	+0.023	-0.013	
1440 Start Low Level	13		12				09179				
1445 1st Reading	14	12.1	12	0.495	0.500	+0.005	179	±0	±0.000	+0.005	+0.005
1500 2nd	15	12.0	12	0.500	0.500	+0.000	179	±0	±0.000	±0.000	+0.005
1515 3rd	16	12.0	12	0.500	0.505	+0.005	180	+1	+0.008	-0.008	-0.003
1530 4th	17	12.1	12	0.500	0.505	+0.005	181	+1	+0.008	-0.003	-0.006
1545 5th	18	12.1	12	0.505	0.510	+0.005	183	+2	+0.015	-0.010	-0.016
1600 6th	19	12.1	12	0.510	0.515	+0.005	183	+0	±0.000	+0.005	-0.011
1615 7th	20	12.0	12	0.515	0.515	+0.000	184	+1	+0.008	-0.008	-0.019
1630 8th	21	12.0	12	0.515	0.515	+0.000	184	±0	±0.000	±0.000	-0.019
1645 9th	22	12.0	12	0.515	0.515	+0.000	185	+1	+0.008	-0.008	-0.027
1700 10th	23	12.0	12	0.515	0.515	+0.000	185	±0	±0.000	±0.000	-0.027

1535	11-1h	24	12 0	12	0.515			186	+1	to.008	-0.008	-0.035
1540	12th	25	12 0	12	0.515	0.515	±0.000	186	±0	to.000	-0.000	-0.035
1545	13th	26	12 0	12	0.515	0.515	+0.000	188	+2	to.015	-0.015	-0.050
1550	14th	27	12.0	12	0515	0.515	0.000	188	+0	±0.000	±0.000	-0.050
1555	15th	28	12.1	12	0.515	0.520	+0.005	189	+1	to.008	-0.003	-0.053
11000	16th	29	12.0	12	0.520	0.520	±0.000	191	+2	to.015	-0.015	-0.068
11:05	17th	30	12.0	12	0.520	0.520	+0.000	191	±0	±0.000	±0.000	-0.068
11:10	18th	31	12 0	12	0.520	0.520	±0.000	192	+1	to.008	-0.008	-0.076
11015	19th	32	12 0	12	0.520	0.520	±0.000	192	±0	±0.000	±0.000	-0.076
11020	20th	33	12 0	12	0.520	0.520	±0.000	193	+1	to.008	-0.008	-0.084
11025	21st	34	12 0	12	0.520	0.520	±0.000	193	±0	±0.000	±0.000	-0.084
11030	22nd	35	11.9	12	0.510	0.515	-0.005	194	+1	to.008	-0.003	-0.087
11035	23rd	36	11.9	12	0.515	0.515	±0.000	194	±0	±0.000	±0.005	-0.082
11040	24th	37	12 0	12	0.510	0.510	-0.005	194	±0	±0.000	±0.000	-0.082

Test Complete

-0.082 ÷ 2 = -0.041

-0.041 GPH

System Passed Insp

P-T Tank Test Data Chart
Additional Info

1 Net Volume Change at Conclusion of Precision Test -0.041 gph

Signature of Tester Carrie L Bright

Date 5 Feb 90

2 Statement

X Tank and product handling system has been tested tight according to the Precision Test Criteria as established by N F P A publication 329 This is not intended to indicate permission of a leak

OR

☐ Tank and product handling system has failed the tank tightness test according to the Precision Test Criteria as established by N F P A publication 329

It is the responsibility of the owner and/or operator of this system to immediately advise state and local authorities of any implied hazard and the possibility of any reportable pollution to the environment as a result of the indicated failure of this system Heath Consultants Incorporated does not assume any responsibility or liability for any loss of product to the environment

Tank Owner/Operator _____

Date _____

Bldg. 108

TTI TANK MANAGEMENT SERVICES

A Division of TankTest Incorporated

November 30, 1990

E-Systems, Inc.
P.O. Box 360
Fort Monmouth, New Jersey 07703

Attention: Ms. Gail Sutton

Reference: TTI Project Report No. 2288

Dear Ms. Sutton

This report covers the testing of three (3) underground storage tanks by TankTest Inc. (TTI). The testing was conducted on November 13, at Building 9061, on November 14, at the Charles Woods Building, and on November 15, at the Motor Pool facility. For your ease of review, this report is organized as follows:

- Summary of Test Results
- Methodology
- Field Data Sheets

If you have any questions or comments concerning this report, please do not hesitate to contact me at anytime.

Respectfully submitted,

TankTest, Inc.

Robert Giunta
Tank Testing Supervisor

RG/nj

Test\2288

II. METHODOLOGY

TTI tests underground storage tanks through the use of the Petro Tite system This system, also known as the Kent-Moore system was developed in cooperation with the American Petroleum Institute (API). TTI uses this system for the leak testing of a wide variety of tanks, systems, and tank contents.

The Petro Tite testing process is by definition a "temperature compensated standpipe test with product circulation". The tank testing equipment is connected to the tank system (and associated piping) subsequently filled with the existing product in the tank. Any observable decrease in liquid volume in the standpipe gives a direct measurable reading of loss if the system is leaking. However a drop in the standpipe liquid level can also be the result of other factors such as temperature change or a change in the tank volume due to a phenomenon known as "tank end deflection". The temperature variable is compensated for using the Petro Tite system by accurate temperature measurement while vigorously circulating the tank contents. Tank end deflection is also compensated for by stabilizing the tank geometry using procedures developed for the testing system. When these factors are controlled, loss in the standpipe means loss in the system, with compensation for all of the important factors that can give false results. The Petro Tite process is the only approved system that compensates for all these important variables, thus providing the user with the most reliable results available.

The Petro Tite system as applied by TTI using certified testers, adheres to the National Fire Protection Association (NFPA) guidelines as described in NFPA Bulletin No. 329, Recommended Practice for Handling Underground Leakage of Flammable and Combustible Liquids.

III. FIELD DATA AND CALCULATIONS

SUMMARY OF PROJECT RESULTS

PROJECT NUMBER: 2288-3

Date Tested	November 15, 1990
System Location	E-Systems, Inc. - Motor Pool Building 108
Tank Size	5,000 gallons
Product	Diesel
Ground water depth	68 inches below
Standpipe elevation *	168 inches
Results **	-0.050 gallons per hour
Conclusion	System passed inspection

From tank bottom to the twelve (12) inch mark on the standpipe, meets 4 pound rule requirement.

The NFPA (National Fire Protection Association) criteria of plus or minus 0.050 gallons per hour used to certify tank system tightness is a mathematical calculation based on actual liquid volume change and temperature change and is not intended as permission of a leak.

Data Chart for Tank System Tightness Test

SE PRINT

VNER Property ☐ Tank(s) ☐

Name: Fort Monmouth | Address | Representative | Telephone

Name | Address | Representative | Telephone

ERATOR

Name | Address | Telephone

REASON FOR ST (plain Fully): Integrity

WHO REQUESTED ST AND WHEN

Name: Joe Fallon | Title: E-Systems | Company or Affiliation | Date

Address: PO Box 360 Fort Monmouth NJ | Telephone

NK INVOLVED — additional lines for manifolded tanks

Identity by Direction	Capacity	Brand/Supplier	Grade	Approx Age	Steel/Fiberglass
motor pool	5000		Diesel	—	Steel

INSTALLATION DATA

Location	Cover	Fills	Vents	Siphones	Pumps
	Concrete	1-2" Stick 1-3"	1-2"	—	Suction
North inside driveway Rear of station etc.	Concrete Black Top Earth, etc.	Size Tiefill make Drop tubes Remote Fills	Size, Manifolded	Which tanks?	Suction, Remote, Make if known

DERGROUND TER

Depth to the Water table: ⩔ 68" | Is the water over the tank? ☐ Yes ☒ No

FILL-UP RANGEMENTS

Tanks to be filled _____ hr _____ Date _____ Arranged by _____ Name _____ Telephone

Extra product to "top off" and run tank tester How and who to provide? Consider NO Lead.

Terminal or other contact for notice or inquiry _____ Company _____ Name _____ Telephone

CONTRACTOR, MECHANICS, other contractor ved

OTHER ORMATION REMARKS

Additional information on any items above Officials or others to be advised when testing is in progress or completed Visitors or observers present during test, etc.

ST RESULTS

Tests were made on the above tank systems in accordance with test procedures prescribed for as detailed on attached test charts with results as follows

Tank Identification	Tight	Leakage Indicated	Date Tested
motor pool	yes	-0.0506PH	11-15-90

245-3

NSOR CERTIFICATION

Date 11-00

Serial No of Thermal Sensor

13 This is to certify that these tank systems were tested on the date(s) shown. Those indicated as "Tight" meet the criteria established by the National Fire Protection Association Pamphlet 329.

1. Technicians R Giunta — Certification # _____

2. _____ — Certification # _____

Tank Test Inc — Testing Contractor or Company By Signature

4 Stow Rd Marlton NJ — Address

Name of Supplier Owner or Dealer | Address No and Street | State | Da

15 TANK TO TEST

TANK #1 MOTOR POOL
Identity by position

Diesel
Brand and Grade

15a BRIEF DIAGRAM OF TANK FIELD

16 CAPACITY

Nominal Capacity 5000 Gallons

By most accurate capacity chart available 5038 Gallons

From
- ☐ Station Chart
- ☐ Tank Manufacturer's Chart
- ☐ Company Engineering Data
- ☐ Charts supplied with
- ☐ Other

17 FILL-UP FOR TEST

Stick Water Bottom before Fill-up 0 to H" in | 0 Gallons | 84 Tank Diameter in

	Gallons	Total Gallons as Reading
Inventory	84	5038
WATER		±0
Topoff		+10
		5048

Transfer total to line 25a

18 SPECIAL CONDITIONS AND PROCEDURES TO TEST THIS TANK ☐ Water in tank ☐ Line(s) being tested with LVLLT ☑ High water table in tank excavation

See manual sections applicable Check below and record procedure in log (27)

Use maximum allowable test pressure for all tests
Four pound rule does not apply to doublewalled tanks

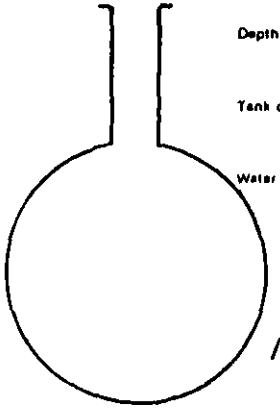
Complete section below

1 Is four pound rule required? Yes ☒ No ☐

2 Height to 12" mark from bottom of tank 168 in

3 Pressure at bottom of tank 4 PSI

4 Pressure at top of tank ____ PSI



Depth of burial 16 in

Tank dia 84 in

Water table ↓68" in

NOTES

32" x 0.036 = 1.2
+4
5.2 - 0.031 =
167.7

188 - 100 = 68

12" = 68" ↑ Fr/Grade

The above calculations are to be used for dry soil conditions to establish a positive pressure advantage or when using the four pound rule to compensate for the presence of subsurface water in the tank area

Refer to NFPA 30, Sections 2-3.2.4 and 2-7.2 and the tank manufacturer regarding allowable system test pressures

19 TANK MEASUREMENTS FOR TSTT ASSEMBLY

Bottom of tank to grade 100 in

Add 30" for "T" probe easy 30 in

Total tubing to assemble — approximate 130 in

20 EXTENSION HOSE SETTING

Tank top to grade* 16 in

Extend hose on suction tube 6" or more below tank top 6+ 22 in

If Fill pipe extends above grade use top of fill

22 Thermal Sensor reading after circulation 56,779 digits

____ °F

23 Digits per °F in range of expected change 1000 Between digits

COEFFICIENT OF EXPANSION (Complete after circulation)

24a Corrected A P I Gravity

Observed A P I Gravity ____

Hydrometer employed ____ H

Observed Sample Temperature ____ °F

Corrected A P I Gravity @ 60°F, From Table A ____

Coefficient of Expansion for Involved Product From Table B ____

Transfer COE to Line 25b

21 VAPOR RECOVERY SYSTEM ☐ Stage I ☐ Stage II

24b COEFFICIENT OF EXPANSION RECIPROCAL METHOD

Type of Product Diesel

Hydrometer Employed 4 H

Temperature in Tank After Circulation ____ °F

Temperature of Sample ____ °F

Difference (+/-) ±0 °F

Observed A P I Gravity 34.5

Reciprocal 2172 Page # 38

5048 (Total quantity in full tank (18 or 17)) × 2172 (Reciprocal) = 2.324125 (Volume change in this tank per °F)

Transfer to Line 26a

24c FOR TESTING WITH WATER see Table C & D

Water Temperature after Circulation Table C ____ °F

Coefficient of Water Table D ____

Added Surfactant? ☐ Yes ☐ No Transfer COE to Line 25b

25 (a) ____ Total quantity in full tank (18 or 17) × (b) ____ Coefficient of expansion for involved product = (c) ____ Volume change in this tank per °F gallons

26 (a) 2.324125 Volume change per °F (25 or 24b) × 1000 Digits per °F in test Range (23) = 0.002324125 Volume change per digit (0.0023) This is test Com

28 DATE / TIME (24 hr)	...fails ... up and running test (Use full length of line if needed)	Reading No	Standpipe in Inches: Beginning of Reading	Standpipe in Inches: Level to which Restored	3 Product Graduate: Before Reading	Product Graduate: After Reading	Product Replaced (-) / Product Recovered (+)	35 Thermal Sensor Reading	36 Change Higher + Lower - (c)	Computation (c) = (a) x Expansion + Contraction -	Tot Adjustment: Volume Minus Expansion ( ) or Contraction ( ) #33(V) − #37(T)	At Low Level compute Change per Hour (NFPA criteria)
1000	STARTED Circulation							Thermal Sensor			Ser	200
1040	Completed										Ref	81.694
											Init	81.694
1045	START High Level Test			42				56.781	FA=	0.0023	F.N	81.694
1100	1 Reading			42	0.600	0.580	-0.020	.796	+15	+0.035	-0.055	
15	2 "			42	0.580	0.540	-0.040	.806	+10	+0.023	-0.063	
30	3 "			42	0.540	0.500	-0.040	.826	+20	+0.046	-0.086	
45	4 "			42	0.500	0.460	-0.040	.846	+20	+0.046	-0.086	
1200	5 "			42	0.460	0.440	-0.020	.864	+18	+0.041	-0.061	
15	6 "			42	0.440	0.410	-0.030	.876	+12	+0.028	-0.058	
1220	Dropped To Low Level			12				56.887				
35	Reading			12	0.410	0.520	+0.110	.896	+9	+0.021	+0.089	
50	"			12	0.520	0.560	+0.040	.911	+15	+0.035	+0.005	
1255	START Low Level Test			12				56.933				
1300	1 Reading			12	0.570	0.575	+0.005	.938	+5	+0.012	-0.007	-0.007
05	2 "			12	0.575	0.585	+0.010	.944	+6	+0.014	-0.004	-0.011
10	3 "			12	0.585	0.595	+0.010	.950	+6	+0.014	-0.004	-0.015
15	4 "			12	0.595	0.605	+0.010	.957	+7	+0.016	+0.006	-0.021
20	5 "			12	0.605	0.620	+0.015	.965	+8	+0.018	-0.003	-0.024
25	6 "			12	0.620	0.630	+0.010	.972	+7	+0.016	-0.006	-0.030
30	7 "			12	0.630	0.645	+0.015	.980	+8	+0.018	-0.003	-0.033
35	8 "			12	0.645	0.660	+0.015	.987	+7	+0.016	-0.001	-0.034
40	9 "			12	0.660	0.670	+0.010	.994	+7	+0.016	-0.006	-0.040
45	10 "			12	0.670	0.680	+0.010	1.001	+7	+0.016	-0.006	-0.046
50	11 "			12	0.680	0.695	+0.015	1.008	+7	+0.016	-0.001	-0.047
55	12 "			12	0.695	0.705	+0.010	1.014	+6	+0.014	-0.001	-0.051

15	16	"			12	0.735	0.750	±0.015	.040	+8	±0.018	-0.003	-0.066	
20	17	"			12	0.750	0.760	±0.010	.047	+7	±0.016	-0.006	-0.072	
25	18	"			12	0.760	0.770	±0.010	.053	+6	±0.014	-0.004	-0.076	
30	19	"			12	0.770	0.780	±0.010	.059	+6	±0.014	-0.004	-0.080	
35	20	"			12	0.780	0.790	±0.010	.065	+6	±0.014	-0.004	-0.084	
40	21	"			12	0.790	0.800	±0.010	.071	+6	±0.014	-0.004	-0.088	
45	22	"			12	0.800	0.815	±0.015	.077	+6	±0.014	-0.001	-0.087	
50	23	"			12	0.815	0.825	±0.010	.084	+7	±0.016	-0.006	-0.093	
55	24	"			12	0.825	0.835	±0.010	.091	+7	±0.016	-0.006	-0.093	
	Test Complete								-0.099 ÷ 2 = 0.050					
									-0.050 GPH					
									System PASSED TANK.					

P-T Tank Test Data Chart
Additional Info

1 Net Volume Change at Conclusion of Precision Test ____ gph

Signature of Tester _____

Date 11-15-90

2 Statement

☑ Tank and product handling system has been tested tight according to the Precision Test Criteria as established by N F P A publication 329 This is not intended to indicate permission of a leak

OR

☐ Tank and product handling system has failed the tank tightness test according to the Precision Test Criteria as established by N F P A publication 329

It is the responsibility of the owner and/or operator of this system to immediately advise state and local authorities of any implied hazard and the possibility of any reportable pollution to the environment as a result of the indicated failure of this system Heath Consultants Incorporated does not assume any responsibility or liability for any loss of product to the environment

Tank Owner/Operator _____

Date

Appendix B

APPENDIX B

NJDEPE UST SITE ASSESSMENT SUMMARY FORM

UST-014
2/91

FOR STATE USE ONLY

UST # _____
Date Rec'd _____
TMS # _____
Staff _____

State of New Jersey
Department of Environmental Protection and Energy
Division of Responsible Party Site Remediation
CN 029
Trenton, NJ 08625-0029
Tel # 609-984-3156
Fax. # 609-292-5604

Scott A Weiner
Commissioner

Karl J Delaney
Director

UNDERGROUND STORAGE TANK SITE ASSESSMENT SUMMARY

Under the provisions of the Underground Storage of Hazardous Substances Act in accordance with N.J.A.C 7.14B

This Summary form shall be used by all owners and operators of Underground Storage Tank Systems (USTS) who have either reported a release and are subject to the site assessment requirements of N J A.C 7 14B-8 2 or who have closed USTS pursuant to N J A C 7 14B-9 1 et seq and are subject to the site assessment requirements of N J A C 7 14B-9.2 and 9 3

INSTRUCTIONS

- *Please print legibly or type*
- *Fill in all applicable blanks This form will require various attachments in order to complete the Summary The technical guidance document, Interim Closure Requirements for UST's, explains the regulatory (and technical) requirements for closure and the Scope of Work, Investigation and Corrective Action Requirements for Discharges from Underground Storage Tanks and Piping Systems explains the regulatory (and technical) requirements for corrective action.*
- *Return one original of the form and all required attachments to the above address.*
- *Attach a scaled site diagram of the subject facility which shows the information specified in Item IV B of this form*
- *Explain any "No" or "N/A" response on a separate sheet.*

Date of Submission _____

Bldg. 108

0090010 – _____
FACILITY REGISTRATION #

I FACILITY NAME AND ADDRESS

U.S. Army Fort Monmouth
Directorate of Public Works, Building 167
Fort Monmouth, NJ 07703 County Monmouth
Telephone No. (908) 532-1475

OWNER'S NAME AND ADDRESS, if different from above

_____
_____
_____

Telephone No _____

II DISCHARGE REPORTING REQUIREMENTS

A Was contamination found? X Yes ___ No If Yes, Case No 93-04-12-1939
(Note. All discharges must be reported to the Environmental Action Hotline (609) 292-7172)

B The substance(s) discharged was(were) Kerosene

C. Have any vapor hazards been mitigated? X Yes ___ No ___ N/A

III DECOMMISSIONING OF TANK SYSTEMS Closure Approval No C-91-2844

The site assessment requirements associated with tank decommissioning are explained in the Technical Guidance Document, **Interim Closure Requirements for UST's**, Section V A-D Attach complete documentation of the methods used and the results obtained for each of the steps of tank decommissioning used. Please include a site map which shows the locations of all samples and borings, the location of all tanks and piping runs at the facility at the beginning of the tank closure operation and annotated to differentiate the status of all tanks and piping (e g , removed, abandoned, temporarily closed, etc) The same site map can be used to document other parts of the site assessment requirements, if it is properly and legibly annotated.

IV SITE ASSESSMENT REQUIREMENTS

A Excavated Soil

Any evidence of contamination in excavated soil will require that the soil be classified as either Hazardous Waste or Non-Hazardous Waste Please include all required documentation of compliance with the requirements for handling contaminated excavated soil (if any was present) as explained in the technical guidance documents for closure and corrective action Describe amount of soil removed, its classification and disposal location.

B Scaled Site Diagrams

1 Scaled site diagrams must be attached which include the following information.

a North arrow and scale
b The locations of the ground water monitoring wells
c Location and depth of each soil sample and boring
d. All major surface and sub-surface structures and utilities
e Approximate property boundaries
f All existing or closed underground storage tank systems, including appurtenant piping
g A cross-sectional view indicating depth of tank, stratigraphy and location of water table
h Locations of surface water bodies

C Soil samples and borings (check appropriate answer)

1 Were soil samples taken from the excavation as prescribed? X Yes ___ No ___ N/A

2. Were soil borings taken at the tank system closure site as prescribed? X Yes ___ No ___ N A

3 Attach the analytical results in tabular form and include the following information about each sample
a Customer sample number (keyed to the site map)
b. The depth of the soil sample
c. Soil boring logs
d. Method detection limit of the method used
e QA/QC information as required

D. Ground Water Monitoring

1 Number of ground water monitoring wells installed 3

2. Attach the analytical results of the ground water samples in tabular form Include the following information for each sample from each well.

a Site diagram number for each well installed
b Depth of ground water surface
c Depth of screened interval
d. *Method detection limit of the method used*
e Well logs
f Well permit numbers
g QA/QC information as required

V SOIL CONTAMINATION

A Was soil contamination found? X Yes ___ No
If "Yes", please answer Question B-E
If "No", please answer Question 8

B The highest soil contamination still remaining in the ground has been determined to be
1 36,140 ppb total BTEX, 736,400 ppb total non-targeted VOC
2 46,390 ppb total B/N, 57,170 ppb total non-targeted B/N
3. 2,970 ppm TPHC
4 174 ppb Lead (for non-petroleum substance)

C Remediation of free product contaminated soils

1 All free product contaminated soil on the property boundaries and above the water table are believed to have been removed from the subsurface X Yes ___ No
2 Free product contaminated soils are suspected to exist below the water table ___ Yes X No
3 Free product contaminated soils are suspected to exist off the property boundaries. ___ Yes X No

D Was the vertical and horizontal extent of contamination determined? ___ Yes X No ___ N/A

E. *Does soil contamination intersect ground water?* X Yes ___ No ___ N/A

VI GROUND WATER CONTAMINATION

A Was ground water contamination found? X Yes ___ No
If "Yes", please answer Questions B-G.
If "No", please answer only Question B.

B. The highest ground water contamination at any 1 sampling location and at any 1 sampling event to date has been determined to be

1 15.8 ppb total BTEX, 198 ppb total non-targeted VOC
2 13.0 ppb total B/N, 265 ppb total non-targeted B/N
3 1.3 ppb total MTBE, 0 ppb total TBA
4 1030 ppb lead ___ (for non-petroleum substance)
5 greatest thickness of separate phase product found ___ 0.0
6 *separate phase product has been delineated* ___ Yes ___ No X N/A

C Result(s) of well search

1 A well search (including a review of manual well records) indicates that private, municipal or commercial wells do exist within the distances specified in the Scope of Work X Yes ___ No ___ N/A

2. *The number of these wells identified is* 13

D. Proximity of wells and contaminant plume -

1. The shallowest depth of any well noted in the well search which may be in the horizontal or vertical potential path(s) of the contaminant plume(s) is 250 feet below grade (consideration has been given for the effects of pumping, subsurface structures, etc. on the direction(s) of contaminant migration). This well is 4,800 feet from the source and its screening begins at a depth of 244 feet.

2. The shallowest depth to the top of the well screen for any well in the potential path of the plume(s) (as described in D1 above) is 244 feet below grade. This well is located 4,800 feet from the source.

3. The closest horizontal distance of a private, commercial or municipal well in the potential path of the plume (as determined in D1) is 3200 feet from the source. This well is 197 feet deep and screening begins at a depth of 191 feet.

E. A plan for separate phase product recovery has been included. ___Yes ___No X N/A

F. A ground water contour map has been submitted which includes the ground water elevations for each well.
X Yes ___No ___N/A

G. Delineation of contamination

1. The ground water contaminants have been delineated to MCLs or lower values at the property boundaries. ___Yes X No

2. The plume is suspected to continue off the property at concentrations greater than MCLs.
___Yes X No

3. Off property access (circle one): is being sought has been approved has been denied

N/A

VII. SITE ASSESSMENT CERTIFICATION (preparer of site assessment plan - N.J.A.C. 7.14B-8.3(b) &9.5(a)3)

The person signing this certification as the "Qualified Ground Water Consultant" (as defined in N.J.A.C.7.14B-1.6) responsible for the design and implementation of the site assessment plan as specified in N.J.A.C. 7.14B-8.3(a) & 9.2(b)2. must supply the name of the certifying organization and certification number.

"I certify under penalty of law that the information provided in this document is true, accurate, and complete and was obtained by procedures in compliance with N.J.A.C. 7.14B-8 and 9. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) Charles M Appleby ~~DINKER DESAI~~ SIGNATURE [signature]

COMPANY NAME U.S. Army Fort Monmouth DATE 6-3-94
(Preparer of Site Assessment Plan)

CERTIFYING ORGANIZATION NJDEPE CERTIFICATION NUMBER 2056

VIII TANK DECOMMISSIONING CERTIFICATION [person performing tank decommissioning portion of closure plan - N J.A.C. 7 14B-9 5(a)4]

"I certify under penalty of law that tank decommissioning activities were performed in compliance with N.J.A.C. 7:14B-9.2(b)3. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) ALL SERVICE ENVIRONMENTAL INC SIGNATURE [signature]

COMPANY NAME 523 Route 303 Orangeburg, NY 10962 DATE 9-30-93

(Performer of Tank Decommissioning)

IX CERTIFICATIONS BY THE RESPONSIBLE PARTY(IES) OF THE FACILITY

A. The following certification shall be signed by the highest ranking individual with overall responsibility for that facility [N.J.A.C. 7:14B-2.3(c)1i].

"I certify under penalty of law that the information provided in this document is true, accurate, and complete . I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) Mr. James OTT SIGNATURE [signature]

COMPANY NAME Act. Dir. Directorate of Public Works DATE 6/9/94

B The following certification shall be signed as follows [according to the requirements of N.J.A.C. 7.14B-2.3(C)2i]:

1 For a corporation, by a principal executive officer of at least the level of vice president.
2 For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3 For a municipality, State, Federal or other public agency by either the principal executive officer or ranking elected official.
4 In cases where the highest ranking corporate partnership, governmental officer or official at the facility as required in A above is the same person as the official required to certify in B, only the certification in A need to be made In all other cases, the certifications of A and B shall be made:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) _____ SIGNATURE _____

COMPANY NAME _____ DATE _____

ATTACHMENT I

NO/NA RESPONSE EXPLANATION

SAS QUESTION #	RESPONSE	EXPLANATION
V.C 2	No	All free product contaminated soil on the property boundary and above the water table are believed to have been removed from the subsurface. Approximately 221 cubic yards of potentially contaminated soil was removed from the area surrounding UST Nos. 60 to 64.
V.C.3	No	Same as above.
V.D	No	Same as above.
VI.B.6	N/A	No free product exists in the groundwater in the area of UST Nos. 60 to 64.
VI.G.1-3	No	Additional groundwater samples shall be collected in order to confirm the existence of groundwater contamination in the area surrounding UST Nos. 60 to 64.

Appendix C

APPENDIX C

MONITORING WELL INFORMATION

[illegible]R-133M (4/90) SERIAL # 20415

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER RESOURCES
TRENTON, N J

Mail to

Water Allocation
CN 029
Trenton, N J 08625

Permit No 39 [illegible]

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P

COORD #: [illegible]

Owner [illegible] - Fort Monmouth
Address [illegible]
Fort Monmouth, NJ 07703

Name of Facility [illegible] 109
Address [illegible]

Driller [illegible] Environmental
Address 210 [illegible]
[illegible] NJ 07013

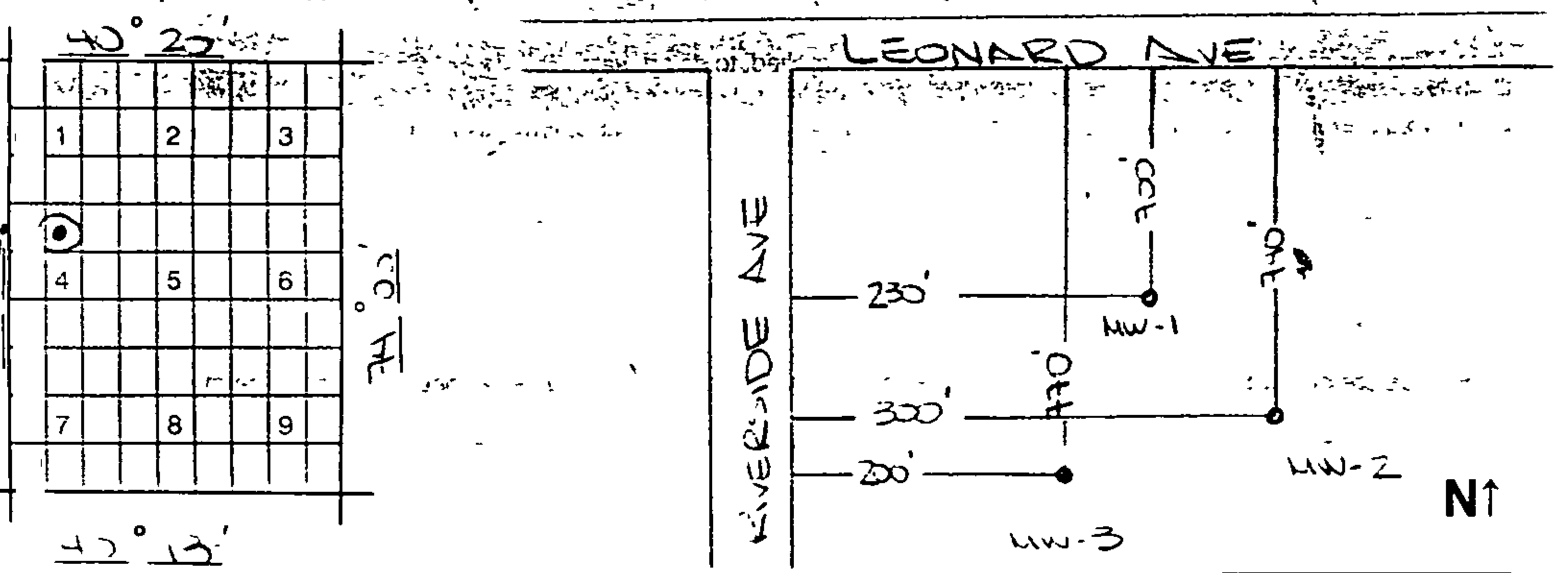
Diameter of Well(s) 4 Inches	Proposed Depth of Well(s) 20 Feet
# of Wells Applied for (max. 10) 3	Will pumping equipment be installed? YES ☐ NO ☐
Type of Well (see reverse) monitoring	If Yes, give pump capacity GPM

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
1A	N/A	Fort Monmouth	Monmouth

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 27



FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED

- ☐ Spill Fund Case
- ☐ ECRA Case
- ☐ CERCLA (Superfund) Site
- ☐ RCRA Site
- ☑ Underground Storage Tank
- ☐ NJPDES Municipal Discharge Permit
- ☐ NJPDES Industrial Discharge Permit
- ☐ Hazardous Waste Mgmt. Enforcement Case
- ☐ Water Resources Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well
- ☐ Other (explain)

Case I D Number
C-91-2344
13-4-12-1151-21

This Space for Approval Stamp

WELL PERMIT APPROVED
Dept. of Environmental Protection
Water Resources/Water Allocation
JUN 8 1993

FOR D.E.P. USE
- ☐ Issuance of this permit is subject to the conditions attached (see next page)
- ☐ For monitoring purposes only
- ☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole
- ☐

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT
In compliance with N.J.S.A. 58 4A-14, application is made for a permit to drill a well as described above

Date 6-1-93 Signature of Driller [signature] License # 10[illegible]

Signature of Owner [signature]

COPIES Water Allocation — White and Pink Health Dept — Yellow Owner — Blue Driller — White

R-138 M

New Jersey Department of Environmental Protection and Energy
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No 29 - 29730
Atlas Sheet Coordinates 29 14 442

OWNER IDENTIFICATION - Owner US ARMY FT MONMOUTH
Address BLDG 167 - DPW ENVIR
City FORT MONMOUTH State NJ Zip Code

WELL LOCATION - If not the same as owner please give address Owner's Well No MW-1
County MONMOUTH Municipality [illegible] Lot No N/A Block No N/A
Address Bldg 108

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 6/13/93
Regulatory Program Requiring Well UST Case I D # [illegible]
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Tele #

WELL CONSTRUCTION
Total depth drilled 13 ft
Well finished to 13 ft
Borehole diameter:
Top ____ in
Bottom ____ in
Well was finished ☐ above grade ☑ flush mounted
If finished above grade, casing height (stick up) above land surface — ft.
Was steel protective casing installed? ☐ Yes ☐ No
Static water level after drilling 4 ft
Water level was measured using W.Tape
Well was developed for .5 hours at 3 gpm
Method of development Submersible
Was permanent pumping equipment installed? ☐ Yes ☑ No
Pump capacity — gpm
Pump type —
Drilling Method HSA
Drilling Fluid — Type of Rig Mobile B57
Name of Driller [illegible]
Health and Safety Plan submitted? ☐ Yes ☐ No
Level of Protection used on site (circle one) None D C B A
N J License No 1051 M
Name of Drilling Company [illegible]

	Depth to Top (ft) [From land surface]	Depth to Bottom (ft)	Diameter (inches)	Type and Material
Inner Casing	0'	3'	4"	Sch 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size) .010	3	13	4"	" "
Tail Piece	[illegible]	[illegible]	[illegible]	PVC
Gravel Pack	1	13	[illegible]	[illegible]
Annular Seal/Grout	0	1	[illegible]	[illegible]
Method of Grouting	[illegible]			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached)

0-6 - fine sand, well sorted (backfill material in excavation)
6-13' - [illegible] mixed with sand

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations

Driller's Signature ____________ Date ____________

COPIES White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept

GP-138 M

New Jersey Department of Environmental Protection and Energy
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No 29 - [illegible]
Atlas Sheet Coordinates 29 14 442

OWNER IDENTIFICATION - Owner [illegible]
Address [illegible]
[illegible] State NJ Zip Code [illegible]

WELL LOCATION - If not the same as owner please give address Owner's Well No MW-2
County [illegible] Municipality [illegible] Lot No [illegible] Block No [illegible]
Address Blk. 108 14

TYPE OF WELL (as per Well Permit Categories) [illegible] Date well completed 6/3/93
Regulatory Program Requiring Well [illegible] Case I D # [illegible]
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) [illegible] Tele # [illegible]

WELL CONSTRUCTION

Total depth drilled 13 ft
Well finished to 13 ft
Borehole diameter:
Top 12 in
Bottom 12 in
Well was finished ☑ above grade ☐ flush mounted
If finished above grade, casing height (stick up) above land surface 3 ft
Was steel protective casing installed? ☐ Yes ☑ No
Static water level after drilling 4 ft
Water level was measured using [illegible]
Well was developed for .5 hours at 3 gpm
Method of development [illegible]
Was permanent pumping equipment installed? ☐ Yes ☑ No
Pump capacity — gpm
Pump type —
Drilling Method HSA
Drilling Fluid — Type of Rig [illegible]
Name of Driller [illegible]
Health and Safety Plan submitted? ☑ Yes ☐ No
Level of Protection used on site (circle one) (None) D C B A
NJ License No 12[illegible]
Name of Drilling Company [illegible]

	Depth to Top (ft) [From land surface]	Depth to Bottom (ft)	Diameter (inches)	Type and Material
Inner Casing	0'	3'	4"	PVC Sch. 40
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	3	13	4	" " "
Tail Piece	[illegible]	[illegible]	[illegible]	[illegible]
Gravel Pack	[illegible]	[illegible]	[illegible]	[illegible]
Annular Seal/Grout	[illegible]	[illegible]	[illegible]	[illegible]
Method of Grouting	[illegible]			

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached)

0-5 - brn, well mixed sand (backfill in excavation)
5-13' gry-brn, well mixed [illegible]

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations

Driller's Signature [illegible] Date [illegible]

COPIES White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept

(1-138 M

New Jersey Department of Environmental Protection and E
Bureau of Water Allocation

MONITORING WELL RECORD

Well Permit No 29 - 29741
Atlas Sheet Coordinates __ 14 442

OWNER IDENTIFICATION - Owner [illegible]
Address [illegible]
[illegible] State NJ Zip Code ______

WELL LOCATION - If not the same as owner please give address Owner's Well No MW-3
County [illegible] Municipality [illegible] Lot No N/A Block No N/A
Address Bldg. 108

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 8/13/93
Regulatory Program Requiring Well [illegible] Case I D # [illegible]
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) ______ Tele # ______

WELL CONSTRUCTION

Total depth drilled 13 ft
Well finished to 13 ft.
Borehole diameter
Top 12 in
Bottom 12 in
Well was finished [x] above grade [ ] flush mounted
If finished above grade, casing height (stick up) above land surface 3 ft
Was steel protective casing installed? [ ] Yes [x] No

	Depth to Top (ft) [From land surface]	Depth to Bottom (ft)	Diameter (inches)	Type and Material
Inner Casing	0'	3'	4"	Schedule 40 PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size) .010	3	13	4"	" " "
Tail Piece	[illegible]	[illegible]	4"	[illegible]
Gravel Pack	[illegible]	[illegible]	[illegible]	[illegible]
Annular Seal/Grout	0'	1'	12"	[illegible]
Method of Grouting	[illegible]			

Static water level after drilling 4 ft
Water level was measured using [illegible]
Well was developed for .5 hours at 3 gpm
Method of development Submersible
Was permanent pumping equipment installed? [ ] Yes [x] No
Pump capacity — gpm
Pump type —
Drilling Method HSA
Drilling Fluid — Type of Rig [illegible] B-57
Name of Driller [illegible]
Health and Safety Plan submitted? [x] Yes [ ] No
Level of Protection used on site (circle one) (None) D C B A
N J License No [illegible]
Name of Drilling Company [illegible]

GEOLOGIC LOG (Copies of other geologic logs and/or geophysical logs should be attached)

0-5' - all sorted sand w/ fine = (backfill material)
5-13' - gravelly mixed w/sand

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable State rules and regulations

Driller's Signature ______ Date ______

COPIES White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS OR HER AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION

Name of Permittee: United States Army
Name of Facility: Fort Monmouth - Building No 108
Location: Fort Monmouth
New Jersey
NJPDES Permit No: NJ 29-29739

LAND SURVEYOR'S CERTIFICATION

Well Permit Number; As assigned by NJDEPE's Water Allocation Section (609-984-6831) This number must be permanently affixed to the well casing.		29-29739
Longitude (one tenth of a second).	West	74° 01' 42.4"
Latitude (one tenth of a second)	North	40° 19' 10 2"
Elevation of Top of Casing (cap off)		11 85
Distance from Top of Casing (cap off) to ground		3 37
Owner's Well Number (As shown in the application or Plans)		MW-1
Benchmark		

AUTHENTICATION

I declare under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

William C. Telling
Professional Land Surveyor's Signature

William E Telling, P L S
Professional Land Surveyor's Name SEAL

N.J P L S. License No 37211
Professional Land Surveyor's License #

(lak41\wp51\ftmonfmb wet)

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS OR HER AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION

Name of Permittee: United States Army
Name of Facility Location: Fort Monmouth - Building No 108
Fort Monmouth
New Jersey
NJPDES Permit No: NJ 29-29740

LAND SURVEYOR'S CERTIFICATION

Well Permit Number, As assigned by NJDEPE's Water Allocation Section (609-984-6831). This number must be permanently affixed to the well casing.		29-29740
Longitude (one tenth of a second)	West	74° 01' 41.4"
Latitude (one tenth of a second)	North	40° 19' 10 4"
Elevation of Top of Casing (cap off)		10 89
Distance from Top of Casing (cap off) to ground		3 24
Owner's Well Number (As shown in the application or Plans)		MW-2
Benchmark		

AUTHENTICATION

I declare under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment

William C. Telling
Professional Land Surveyor's Signature

William E. Telling, P L S
Professional Land Surveyor's Name SEAL

N.J.P L S License No 37211
Professional Land Surveyor's License #

(lak41\wp51\ftmonfmb wet)

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS OR HER AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION

Name of Permittee	United States Army
Name of Facility:	Fort Monmouth - Building No 108
Location:	Fort Monmouth
	New Jersey
NJPDES Permit No	NJ 29-29741

LAND SURVEYOR'S CERTIFICATION

Well Permit Number, As assigned by NJDEPE's Water Allocation Section (609-984-6831): This number must be permanently affixed to the well casing.		29-29741
Longitude (one tenth of a second)	West	74° 01' 41.9"
Latitude (one tenth of a second)	North	40° 19' 09.7"
Elevation of Top of Casing (cap off)		8 16
Distance from Top of Casing (cap off) to ground		0 10
Owner's Well Number (As shown in the application or Plans)		MW-3
Benchmark		

AUTHENTICATION:

I declare under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

William C. Telling

Professional Land Surveyor's Signature

William E Telling, P L.S.

Professional Land Surveyor's Name SEAL

N J.P L.S. License No 37211

Professional Land Surveyor's License #

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Appendix D

Appendix E

APPENDIX E

HAZARDOUS WASTE MANIFESTS

HW-001 (REV 9.86)

State of New Jersey
Department of Environmental Protection
Division of Hazardous Waste Management
Manifest Section
CN 028, Trenton, NJ 08625.

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-9-

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NJ3 [illegible] — Manifest Document No. [illegible]
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number: NJA [illegible]

3. Generator's Name and Mailing Address
U. S. Army - Communications Electronics Command
c/o James Shirghio, Bldg 2504,([illegible] Area)
Attn: SELFM-DL-EM-MS, Fort Monmouth, NJ 07703

B. State Generator's ID [illegible]

4. Generator's Phone (908) 532-9911

5. Transporter 1 Company Name: Casie/Procank
6. US EPA ID Number: NJD045995693

C. State Transp. ID [illegible]
D. Transporter's Phone [illegible]

7. Transporter 2 Company Name
8. US EPA ID Number

E. State Trans. ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
S & W Waste, Inc.
105 Jacobus Avenue
S. Kearny, NJ 07032

10. US EPA ID Number: NJD991291105

G. State Facility's ID [illegible]
H. Facility's Phone (201) [illegible]

11. US DOT Description (Including Proper Shipping Name, Hazard Class and ID Number) HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. X Waste Flammable Liquid, N.O.S. (Benzene/Gasoline) Flammable Liquid, UN1993 (D.O. D001, D018)	001	TT	[illegible]	G	[illegible]
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
Gasoline 20-40%/Benzene less than 1/2%/ Water [illegible]
[illegible]

K. Handling Codes for Wastes Listed Above [illegible]

15. Special Handling Instructions and Additional Information
Approval Code #382
D.O.T. Exempt #8608 E.R.G.#27
24 hr emergency response phone #908-532-9911 Shirghio, James.
Bldg 108: UST Closure #: 91-[illegible]
UST# 090010-60, 61 [illegible]

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: Charles Appleby DPW U.S. Army — Signature: [signature] — Month Day Year: 03 [illegible]

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: [illegible] — Signature: [signature] — Month Day Year: 03 [illegible]

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

S&W WASTE INC. 115 JACOBUS AVENUE SOUTH KEARNY, NEW JERSEY 07032 (201) 344-4004

LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM

Generator Name: US Army-Communications Manifest Doc. No 25517

EPA ID #: NJ3210020597 State Manifest No. NJA 1567180

1 Is this waste a non-wastewater or wastewater? (See 40 CFR 268 2) Check ONE:
X Non-Wastewater _____ Wastewater

2. If this waste is subject to any California List Restrictions enter the letter from Page 3 (either A, B1, B2, C D) next to each restriction that is applicable: _____HOCs, _____PCBs, _____ Acid, _____ Metals, _____ Cyanides See reverse for California List Restrictions

3 Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 2 For each waste code, identify the corresponding subcategory, or check NONE if the waste code has no category Also check which treatment standards apply If spent solvent waste codes are listed on this (F001, F002, F003, F004, F005) please refer to the instructions on the reverse (top) of this page. If F multi-source leachate applies, those standards must be attached by the generator

4 MANIFEST LINE #	5 APPROVAL NUMBER	6 USEPA HAZARDOUS WASTE #	7 SUBCATEGORY ENTER THE SUBCATEGORY DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE		8 APPLICABLE TREATMENT STANDARDS			9 HOW THE W/ BE MAN
					8a PERFORMANCE BASED Check as Applicable		8b SPECIFIED TECHNOLOGY If Applicable enter Treatment Code(s)	
			DESCRIPTION	NONE	268 41(a)	268 43(a)	40 CFR 268.42 TABLE 1	Enter th from Pa
11a	382	D001	Ignitable Liquid High TOC				INCIN-FSUB	A

To list additional USEPA waste code(s) and subcategory(s), use a supplemental sheet and check here_

I hereby certify that all information submitted in this and all associated documents is complete and accu to the best of my knowledge and information.

X Charles Apple X DEH U.S. Army X
SIGNATURE TITLE DATE

Report of Analysis

U.S. Army Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1170.1
Sample Rec'd: 03/26/93
Analysis Start: 03/29/93
Analysis Comp: 03/29/93

Analysis: Flash Point
Matrix: Aqueous
Analyst: B. McKee

NJDEPE UST Reg.#: XXXXXXX-XX,XX,XX,XX
Closure Approval #: X-XX-XXXX/XX
NJDEPE Case #: XX-XX-XX-XXXX
Manifest #: NJA1567180

Lab ID.	Description	Result in °F.
1170.1	D001 gasoline waste sample: Bldg. 108 ust	> 140

Notes: ASTM closed cup method.
Sample did not flash below 60°C.

Brian K. McKee
Laboratory Director

An E SYSTEMS Company

CHAIN OF CUSTODY RECORD

CLIENT: DEll Environmental

PROJECT ID

ADDRESS: Bldg. 167

SAMPLER: C. Appleby

CITY/STATE: Fort Monmouth

PHONE #. 908 532-6224

LAB ID #	SAMPLE ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE GRAB	SOIL	COMP	NO. OF BOTTLES	ANALYSIS REQUESTED
1170.1	manifest. NJA1567180 D001 - Gas Waste from Bldg 108	3/26/93	1320	X			1	Flash Point

SAMPLE COLLECTED BY: C. Appleby	DATE	TIME	PRESERVED WITH: NaOH H2SO4 HNO3 (NONE circled) OTHER
RELINQUISHED BY:			RECEIVED BY:

VHW-003 (REV. 8/90)

State of New Jersey
Department of Environmental Protection
Division of Hazardous Waste Management
Manifest Section
CN 028, Trenton, NJ 08625

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. NJ5210020597 / Manifest Document No. 2 5 5 1 3	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
U.S Army Communications Electronics Command
c/o Ja. Shirghalds #2504, Attn: AMSEL-[illegible]
Fort Monmouth, NJ 07703 (MAIN POST Area)

4. Generator's Phone (908) 532-9911

A. State Manifest Document Number [illegible]

B. State Generator's ID [illegible]

5. Transporter 1 Company Name: Casie/Protank	6. US EPA ID Number: NJD045995693	C. State Transporter's ID [illegible] D. Transporter's Phone [illegible]
7. Transporter 2 Company Name	8. US EPA ID Number	E. State Trans. ID [illegible] F. Transporter's Phone [illegible]
9. Designated Facility Name and Site Address: Casie Ecology Oil Salvage, 3209 N. Mill Rd, Vineland, N.J. 08360	10. US EPA ID Number: NJD045995693	G. State Facility's ID [illegible] H. Facility's Phone 609 [illegible]

HM	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. X	Combustible Liquid, N.O.S. Combustible Liquid, NA1993	001	TT	X2455	G	[illegible]
b. X	COMBUSTIBLE LIQUID, N.O.S. COMBUSTIBLE LIQUID, NA1993	001	TT	XX500	G	X722
c.						
d.						

J. Additional Descriptions for Materials Listed Above [illegible]

K. Handling Codes for Wastes Listed Above [illegible]

15. Special Handling Instructions and Additional Information
24 hour emergency response phone # (905)532-9911 James Shirghalds
CTI# 0093F2 K.L.G.#27
CTI# 0092E2
Bldg 103 Charm [illegible]
OST 90010 - 60,61,62,63,64

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
X Charles Appleby DEH US Army	X [signature]	032693

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
JIM VEASEY	[signature]	032693

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19

Printed/Typed Name	Signature	Month Day Year

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

State of New Jersey
Department of Environmental Protection
Division of Hazardous Waste Management
Manifest Section
CN 028, Trenton, NJ 08625

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: NJ3210020577 Manifest Document No.: 26598
2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

A. State Manifest Document Number: NJA [illegible]

B. State Generator's ID: [illegible]

3. Generator's Name and Mailing Address:
U.S. Army Communications Electronics Command
(MAIN POST Area) c/o James Zshirghio, Bldg #2504
Attn: SELSM-OL-EP-MS, Fort Monmouth, NJ 07703

4. Generator's Phone (908) XX-(532-9911/24 hr) 908-532-6223 alt.#

5. Transporter 1 Company Name: Casie/Protank
6. US EPA ID Number: NJD045995693

C. State Trans. ID: [illegible]

D. Transporter's Phone: [illegible]

7. Transporter 2 Company Name:
8. US EPA ID Number:

E. State Trans. ID: [illegible]

F. Transporter's Phone: [illegible]

9. Designated Facility Name and Site Address:
Casie Ecology Oil Salvage
3209 N. Mill Rd
Vineland, N.J. 08360

10. US EPA ID Number: NJD045993693

G. State Facility's ID: 0614D1EP07

H. Facility's Phone: (609) [illegible]-4401

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Combustible Liquid, N.O.S. Combustible Liquid, NA1993	X	001	TT	XX6574	G	X727
b.						
c.						
d.						

J. Additional Descriptions for Materials Listed Above: a. Water Waste Oil/Sed.

K. Handling Codes for Wastes Listed Above: [illegible]

15. Special Handling Instructions and Additional Information:
24 hour emergency response phone # (908)532-9911
CTI# 0092F2 E.R.G.#27
Bldg. 2?8 · CODE# 2-91-3944

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Charles M. Appleby, DEH [illegible]	[signature]	04 07 93

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Jim McLaren	[signature]	04 07 93

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year

EPA Form 8700-22 (Rev. 9/88) Previous editions are obsolete

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

State of New Jersey
Department of Environmental Protection
Division of Hazardous Waste Management
Manifest Section
CN 028, Trenton, NJ 08625

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. NJ3210020597	Manifest Document No. 2 5 5 2 4	2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
U.S. Army - Communications Electronics Command
c/o James Shirghio, Bldg 2504, ([illegible] Area)
Attn: SELFM-DL-EM-MS, Fort Monmouth, NJ 07703

4. Generator's Phone (908) 532-9911 [illegible]

A. State Manifest Document Number [illegible]

B. State Generator's ID [illegible]

5. Transporter 1 Company Name: Casie/Protank
6. US EPA ID Number: NJD 0 4 5 9 9 5 6 [illegible]

C. State Trans. ID [illegible]

D. Transporter's Phone [illegible]

7. Transporter 2 Company Name
8. US EPA ID Number

E. State Trans. ID [illegible]

F. Transporter's Phone

9. Designated Facility Name and Site Address
Casie Ecology Oil Salvage
3.09 [illegible] Rd
[illegible], N.J. 08350
10. US EPA ID Number [illegible]

G. State Facility's ID 0514D1HP02

H. Facility's Phone (609) 696-4401

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. [illegible] Combustible Liquid, [illegible] Combustible Liquid, [illegible]	[illegible]	[illegible]	XX225	[illegible]	X 7 2 3
b. [illegible] Combustible Liquid, [illegible] Combustible Liquid, [illegible]3	[illegible]	[illegible]	XX939	G	X 7 2 2
c.					
d.					

J. Additional Descriptions for Materials Listed Above
[illegible] Water [illegible] (Oil/Sed. [illegible]

K. Handling Codes for Wastes Listed Above
[illegible]

15. Special Handling Instructions and Additional Information
24 hour emergency response phone # (908)532-9911 — Bldg. 108 - UST [illegible]
CYI60093F2 — E.R.G. #27 — UST# 7010 - 60,66[illegible]
CYI70092F2 — UST cleaning

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month Day Year
Charles M. Appleby [illegible]	[signature]	04 12 93

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Jim McLaren	Jim McLaren	04 12 93

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year

Appendix F

APPENDIX F

TANK RECLAMATION CERTIFICATE

MAZZA & SONS, INC.

Metal Recyclers
Auto and Truck
3230 Shafto Rd.
Tinton Falls, NJ
(908) 922-9292

NO

DATE

Customer's Name All Service Environmental

Address

Make of Autos

24080 LB

18060 LB

6020

	Weight	Price
Cast Iron		
Steel tank		
Lt Iron		
Copper #1		
Copper #2		
Lt Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT		

Tires
Tank 5000 gal
Price

#60.
Bldg. 108

Weigher

Customer

MAZZA & SONS, INC.
Metal Recyclers
Auto and Truck
3230 Shafto Rd.
Tinton Falls, NJ
(908) 922-9292

No

DATE 19 FEB 1[illegible]

Customer's Name [illegible]

Address

Make of Autos

Tires

Tank 5000

Price

Bldg. 108
5000 gal #61

23640 LB
18100 LB
5540

PR 19 [illegible]

	Weight	Price
Cast Iron		
Steel	4 8 5 10	
Lt Iron		
Copper #1		
Copper #2		
Lt Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT		

Weigher [illegible] Customer J [illegible]

MAZZA & SONS, INC.
Metal Recyclers
Auto and Truck
3230 Shafto Rd.
Tinton Falls, NJ
(908) 922-9292

NO

DATE 12/12/... [illegible]

Customer's Name All Stl En [illegible]

Address

Make of Autos

Tires

Tank 5000 gal.

Price

Bldg. 108.
5000 Gal #62

23440 LB
18140 LB
5300

	Weight	Price
Cast Iron		
Steel Tank		79.50
Lt Iron		
Copper #1		
Copper #2		
Lt Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT		

PAID
APR 19 [illegible]

Weigher

Customer J. Caum [illegible]

MAZZA & SONS, INC.
Metal Recyclers
Auto and Truck
3230 Shafto Rd.
Tinton Falls, NJ
(908) 922-9292

NO

DATE [illegible]

Customer's Name 911 [illegible] ENV

Address

Make of Autos

Tires

Tank 5000 gal

Price

Bldg. 108
5000 Diesel
63

22780 LB G
18080 LB N

4,700 [illegible]

APR 20 [illegible]

	Weight	Price
Cast Iron		
Steel	4,700	52
Lt Iron		
Copper #1		
Copper #2		
Lt Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT		

Weigher

Customer [illegible signature]

MAZZA & SONS, INC.
Metal Recyclers
Auto and Truck
3230 Shafto Rd.
Tinton Falls, NJ
(908) 922-9292

NO. _____

DATE 2-11-22

Customer's Name Hill Structural

Address _____

Make of Autos

Tires

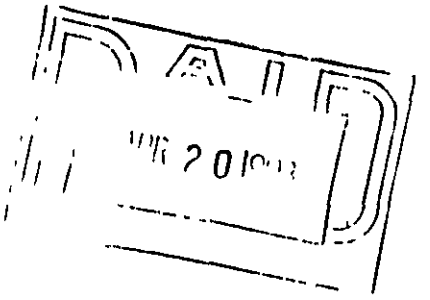
Tank 1500 gal

Price

Bldg. 108
Kerosene Tank #64

20160 LB
17880 LB
2280

	Weight	Price
Cast Iron		
Steel	4.9 ¢	
Lt Iron		
Copper #1		
Copper #2		
Lt Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT		



Weigher _____ Customer _____

APPENDIX G

ANALYTICAL DATA PACKAGE

LABORATORY DELIVERABLES

THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following laboratory deliverables shall be included in the data submission. All deviations from the accepted methodology and procedures, or performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The proposed "Technical Requirements for Site Remediation" rules, which appeared in the May 4, 1992 New Jersey Register, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits be included in one section of the data package and in the main body of the report.

		Check if Complete
1.	Cover Page, Title Page listing Lab Certification #, facility name & address, & date of report	✓
2.	Table of Contents	✓
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds	✓
4.	Summary Table cross-referencing field ID #'s vs. Lab ID #'s	✓
5.	Document bound, paginated and legible	✓
6.	Chain of Custody	✓
7.	Methodology Summary	✓
8.	Laboratory Chronicle and Holding Time Check	✓
9.	Results submitted on a dry weight basis (if applicable)	N/A
10.	Method Detection Limits	✓
11.	Lab certified by NJDEPE for parameters or appropriate category of parameters or a member of the USEPA CLP	✓
12.	Non-Conformance Summary	✓

Laboratory Manager or Environmental Consultant's Signature

Date

Cont'l - 10/7/92 Ct. DEH

Serv-Air, Inc.
A Subsidiary of E Systems Inc
Environmental and Energy Laboratory
P O. Box 369
Fort Monmouth, NJ 07703
908-532-6147

NJDEPE Certified Laboratory # 13461

Report of Analysis

Analysis by: Sarah J Hubbard

Project: 108 Motor Pool TPIIC

Date Started. 09-29-92
Date Complete. 10-07-92

Reviewed 10-07-92
Revised: NA
Released: 10-07-92

By _____
Brian K McKee
Environmental and Energy Chief

Serv-Air, Inc.
A Subsidiary of E-Systems, Inc.
Environmental and Energy Laboratory
P O. Box 369
Fort Monmouth, NJ 07703
908-532-6147

NJDEPE Certified Laboratory # 13461

Project. Site Assement Location: Bldg. # 108 Date: 09-29-92
Sample Matrix: Soil
Parameter: Total Petroleum Hydrocarbon
Method· 418 1

Sample ID	Rec'd	Extract	Anaylsis	Results (mg/Kg)	Detection Limit (mg/Kg)
C92-994	9/29	9/30	9/30	66.1	3.3
C92-995	9/29	9/30	9/30	344.8	3.3
C92-996	9/29	9/30	9/30	453.1	3.3
C92-997	9/29	9/30	9/30	455	3.3
C92-998	9/29	9/30	9/30	231.7	3.3
C92-999	9/29	9/30	9/30	24.0	3.3
C92-1000	9/29	9/30	9/30	41.0	3.3
C92-1001	9/29	9/30	9/30	44.6	3.3
blank	0/00	9/30	9/30	nd	1.0 mg/L

Notes.

- All results reported on a dry weight basis
- ND = none detected

Brian K. McKee
Laboratory Director

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1176.1
Sample Rec'd: 04/12/93
Analysis Start: 04/12/93
Analysis Comp: 04/12/93

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: B. McKee

NJDEPE UST Reg.#: 90010-60
TMS #: X-XX-XXXX
NJDEPE Case #: XXXX
Location #: Bldg. # 108

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1176.1	Site 1, Biased for High Conc.	80	198.	3.3
M. Bl.	METHOD BLANK	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added

I certify that all sampling and/or analysis conformed to the appropriate regulations.

Brian K. McKee
Laboratory Director

An E SYSTEMS Company

CHAIN OF CUSTODY RECORD

CLIENT: DEH Environmental

PROJECT ID: 108 UST Removal

ADDRESS: Fort Monmouth

SAMPLER: C Appleby DEH

CITY/STATE:

Description - Biased Sample to Highest Contamination Area UST # 90010-60 Excavation

PHONE #:

LAB ID #	SAMPLE ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE GRAB	SOIL	COMP	NO. OF BOTTLES	ANALYSIS REQUESTED
1176.1	Site 1 UST 090010-60	4/10/93	1430	Biased X	X		1	TPHC BOP

SAMPLE COLLECTED BY: [signature]

DATE: 4/10/93

TIME: 1430

PRESERVED WITH: NaOH H2SO4 HNO3 NONE OTHER

RELINQUISHED BY:

RECEIVED BY:

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH. SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1185.1-.3
Sample Rec'd: 04/23/93
Analysis Start: 04/23/93
Analysis Comp: 04/23/93

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: B. McKee

NJDEPE UST Reg.#: 90010-60
TMS #: X-XX-XXXX
NJDEPE Case #: XXXX
Location #: Bldg. # 108

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1185.1	Site A, NE Wall	85	17.9	3.3
1185.2	Site B, N Wall	87	15.3	3.3
1185.3	Site C, NW Wall	86	17.4	3.3
M. Bl.	METHOD BLANK	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added

I certify that all sampling and/or analysis conformed to the appropriate regulations.

Brian K. McKee
Laboratory Director

SERV-AIR, INC.
An E SYSTEMS Company

P.O. #:

Chain of Custody

Project #:

Customer: DEH

Phone: 532-6284

Sampler: C Appleby

Site Name: Bldg 108 UST Excavation

Date / Time: 4/23/93 | 1420

Analysis Parameters: TPHC

Start:

Finish:

Preservation Method

Lab Sample ID Number	Date/Time		Customer Sample Location/ID Number	Sample Matrix	# of Bottles		TPHC							Remarks
1185.1	4/23/93	1420	Site A N-East Wall	Soil	1		X							Preliminary Excavation Assessment of the Northern UST Field. - Samples taken at a depth of ~5'
1185.2	"	1422	B North Wall	Soil	1		X							
1185 3	"	1424	C N-West Wall	Soil	1		X							

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
C. Appleby	4/23/93 | 1445	Sarah J. Hubbard	C. Appleby
Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. BACK

SAI-ENV COC Form 01 Page 1 of 1 Pages Rev. A Date: 02 Apr 93

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1188.1-.9
Sample Rec'd: 04/27/93
Analysis Start: 04/27/93
Analysis Comp: 04/27/93

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: B. McKee

NJDEPE UST Reg.#: 90010-60
TMS #: X-XX-XXXX
NJDEPE Case #: XXXX
Location #: Bldg. # 108

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1188.1	S #1, E. side of hole *	82	264.	3.3
1188.2	S #2, W. side of hole *	83	261.	3.3
1188.3	S #3, center of hole *	85	218.	3.3
1188.4	S #4, S.W. side	85	103.	3.3
1188.5	S #5, far West	85	176.	3.3
1188.6	S #6, E. side kerosene	86	326.	3.3
1188.7	S #7, Soil pile kerosene *	86	1560.	10.
1188.8	S #8, Kerosene pit, W. side *	86	84.7	3.3
1188.9	S #9, Pump Island Area	88	142.	3.3
M. Bl.	METHOD BLANK	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added

I certify that all sampling and/or analysis conformed to the appropriate regulations.

Brian K. McKee
Laboratory Director

SERV-AIR, INC.
An E SYSTEMS Company

P.O. #:

Chain of Custody

Project #:	Sampler:	Date / Time	Analysis Parameters	Start: 4-27
Customer: U.S. ARMY	Site Name: B108 UST pull	4/27 | 1445		Finish: 4-27
Phone:				Preservation Method

Lab Sample ID Number	Date	Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles		TPHC						Remarks
1188.1	4/27	1452	S#1 - E.Side of Hole	Dirt	1		X						
.2	↓	1454	S#2 - W Side of Hole	Dirt	1		X						
.3		1455	S#3 Center of hole	↓	1		X						
.4		1456	S#4 S.W Side		1		X						
.5		1500	S#5 far west		1		X						
.6		1502	S#6 E side Kerosene		1		X						
.7		1507	S#7 Soil Pile Kerosene		1		X						
.8		1508	#8 Kerosene Pit W Side		1		X						
.9		1515	#9 Pump Island Area	↓	1		X						

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
[signature]	4/27 | 1536	Sarah J. Hubbard	
Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

SAI-ENV COC form 01 Page 1 of 1 Pages Rev. A Date: 02 Apr 93

FT MONMOUTH OFFICE

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1189.1-.8
Sample Rec'd: 04/29/93
Analysis Start: 04/29/93
Analysis Comp: 04/29/93

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: B. McKee

NJDEPE UST Reg.#: 90010-60
TMS #: X-XX-XXXX
NJDEPE Case #: XXXX
Location #: Bldg. # 108

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1189.1	S #A *	89	2020.	20.
1189.2	S #B *	88	1690.	20.
1189.3	S #C	92	21.0	3.3
1189.4	S #D *	91	679.	6.6
1189.5	S #E *	86	357.	6.6
1189.6	S #F	87	57.1	6.6
1189.7	S #G	77	175.	3.3
1189.8	S #H	87	287.	3.3
M. Bl.	METHOD BLANK	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added 1189.8 DUP = 85%
1189.8 SPIKE =118%

I certify that all sampling and/or analysis conformed to the appropriate regulations.

Brian K. McKee
Laboratory Director

SERV-AIR, INC.
An E SYSTEMS Company

P.O. #:

Chain of Custody

Project #: B108
Customer: US ARMY
Phone: 908-532-6224

Sampler: Applaby Rochkovsky
Date / Time: 4/29
Site Name: B108 UST GASOLINE TANK PULL

Analysis Parameters: TPHC

Start:
Finish:

Preservation Method

Lab Sample ID Number	Date	Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	Remarks
1189.1	4/29	1417	S#A	Soil	1	x	20 HNU Readings
1189.2	↓	1422	S#B	↓	1	x	30
1189.3		1427	S#C		1	x	< 3
1189.4		1430	S#D		1	x	20
1189.5		1445	S#E		1	x	10
1189.6		1450	S#F		1	x	50
1189.7		1450	S#G		1	x	N/D
1189.8		1455	S#H		1	x	N/D.

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
Rochkovsky	4/29 1518	Sarah J. Hubbard	

Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

SAI-ENV COC form 01 — Page 1 of 1 Pages — Rev. A Date: 02 Apr 93

FT. MONMOUTH OFFICE
E-SYSTEMS INC • P O BOX 369 BUILDING 1209 • FT MONMOUTH NEW JERSEY 07703-5000 • (201) 544-0995

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1191.1-.19
Sample Rec'd: 05/03/93
Analysis Start: 05/04/93
Analysis Comp: 05/04/93

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: S. Hubbard

NJDEPE UST Reg.#: 90010-60
TMS #: X-XX-XXXX
NJDEPE Case #: XXXX
Location #: Bldg. # 108

Lab ID.	Description			%Solid	Result (mg/Kg)	MDL
1191.1	S #1	hNu = 5		85	3.82	3.3
1191.2	S #2	hNu = 3		84	1.93	3.3
1191.3	S #3	hNu = 5		80	10.8	3.3
1191.4	S #4	hNu = ND		93	27.5	3.3
1191.5	S #5	hNu = 5	*	85	2970.	26.
1191.6	S #6	hNu = ND	*	87	333.	3.3
1191.7	S #7	hNu = ND		83	230.	3.3
1191.8	S #8	hNu = 5		82	26.0	3.3
1191.9	S #9	hNu = ND		87	128.	3.3
1191.10	S #10	hNu = ND		83	35.9	3.3
1191.11	S #11	hNu = ND		78	50.8	3.3
M. Bl.	METHOD BLANK			100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added 1191.8 DUP = 86%
1191.8 SPIKE =104%

I certify that all sampling and/or analysis conformed to the appropriate regulations.

Brian K. McKee
Laboratory Director

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1191.1-.19
Sample Rec'd: 05/03/93
Analysis Start: 05/04/93
Analysis Comp: 05/04/93

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: S. Hubbard

NJDEPE UST Reg.#: 90010-60
TMS #: X-XX-XXXX
NJDEPE Case #: XXXX
Location #: Bldg. # 108

Lab ID.	Description			%Solid	Result (mg/Kg)	MDL
1191.13	S #13	hNu = ND	*	89	158.	3.3
1191.14	S #14	hNu = 3	*	87	380.	3.3
1191.15	S #15	hNu = 3		85	5.22	3.3
1191.16	S #16	hNu = 100		82	1100.	33.
1191.17	S #17	hNu = 150		84	340.	3.3
1191.18	S #18	hNu = 3		84	ND	3.3
1191.19	S #19	hNu = 5		79	46.1	3.3
M. Bl.	METHOD BLANK			100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added 1191.8 DUP = 86%
1191.8 SPIKE =104%

I certify that all sampling and/or analysis conformed to the appropriate regulations.

Brian K. McKee
Laboratory Director

Report of Analysis

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1192.1
Sample Rec'd: 05/03/93
Analysis Start: 05/04/93
Analysis Comp: 05/04/93

Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: S. Hubbard

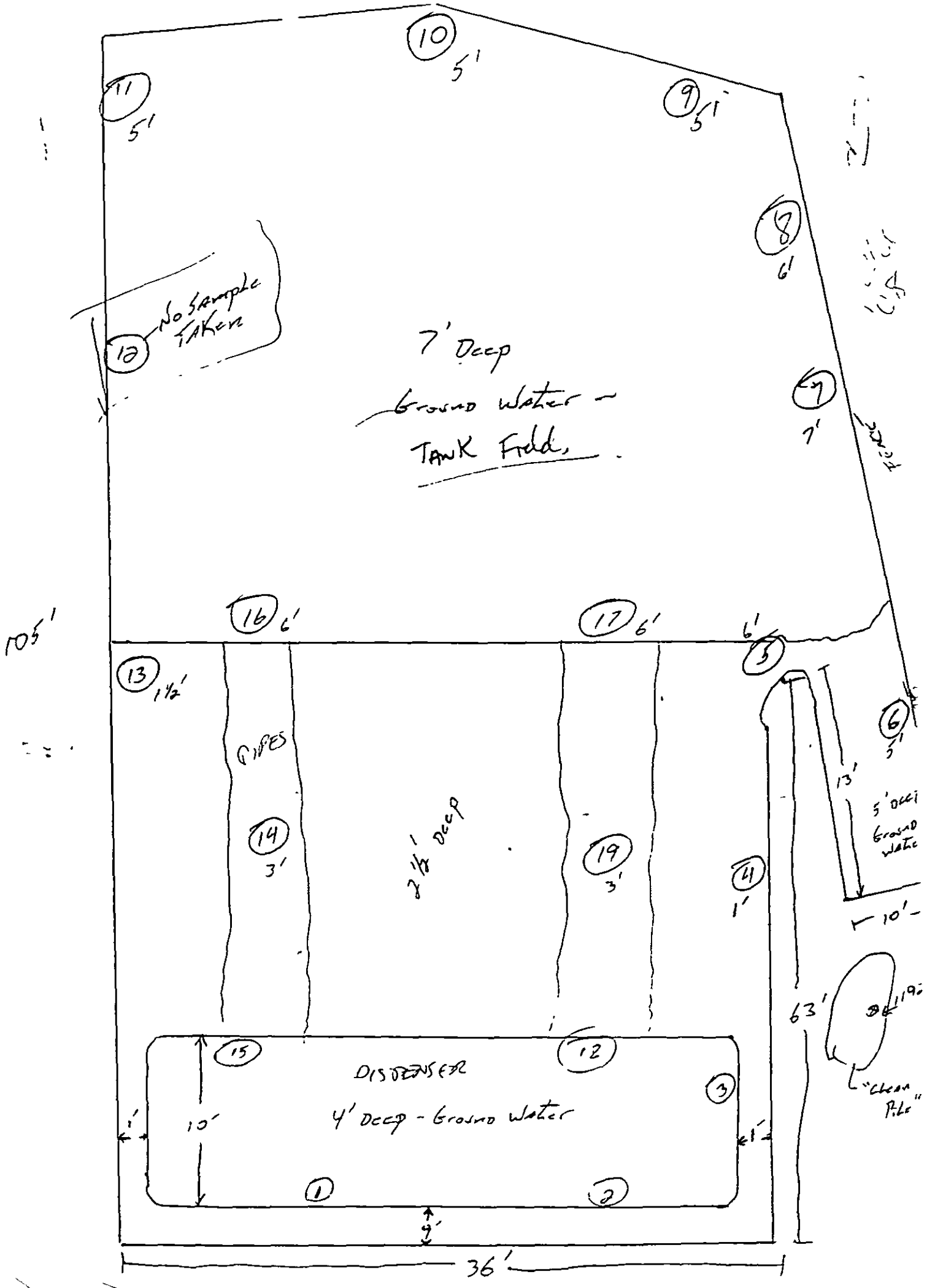
NJDEPE UST Reg.#: 90010-60
TMS #: X-XX-XXXX
NJDEPE Case #. XXXX
Location #: Bldg. # 108

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1192.1	"Clean Pile"	94	49.1	3.3
M. Bl.	METHOD BLANK	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added

I certify that all sampling and/or analysis conformed to the appropriate regulations.

Brian K. McKee
Laboratory Director


10
5'
11
5'
9
5'
8
6'
No Sample Taken
7' Deep
Ground Water -
Tank Field
7
7'
Fence
105'
16
6'
17
6'
6'
5
13
1½'
Pipes
14
3'
2½' Deep
19
3'
4
1'
6
5'
13'
5' Deep
Ground Water
10'
63'
119'
"Clean Pile"
15
12
Dispenser
4' Deep - Ground Water
3
10'
1'
1'
1
2
4'
36'

SERV-AIR, INC.
An E SYSTEMS Company

P.O. #:

Chain of Custody

Project #:

Customer: Serv-Air, Inc

Phone: 532-6147

Sampler: B. McKee

Site Name: Bldg 108

Date / Time: 5/3/93

Analysis Parameters: TPH

Start:

Finish:

Preservation Method

Sample Id Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	Remarks	h-N3
1191.1	5/3/93 1434	Bldg 108 1191.1	Soil	1		5
.2	1438	.2				3
.3	1442	.3				5
.4	1500	.4				ND
.5	1505	.5				5
.6	1523	.6				ND
.7	1527	.7				ND
.8	1530	.8				5
.9	1534	.9				ND
.10	1537	.10				ND
.11	1540	.11				ND

Relinquished By (signature): B. McKee — Date / Time: 5/3/93 1600 — Received By (signature): Sarah J. Hubbard — Shipped By:

Relinquished By (signature) — Date / Time — Received for Lab by (signature): — Date — Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

FT. MONMOUTH OFFICE
E-SYSTEMS INC • P O BOX 369 BUILDING 1209 • FT MONMOUTH NEW JERSEY 07703-5000 • (908) 544-0995

SERV-AIR, INC.
An E SYSTEMS Company

P.O. #:

Chain of Custody

Project #:

Customer: Serv-Air, Inc

Phone:

Sampler: B. McKee

Site Name: Bldg 108

Date / Time: 5/3/93 1600

Analysis Parameters: TPH

Start:

Finish:

Lab Sample ID Number	Date	Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	Preservation Method	Remarks	H-NV
1191.13	5/3/93	1547	Bldg 108 1191.13					ND
.14		1555	.14					3
.15		1448	.15					3
.16		1515	.16					100
.17		1511	.17					150
.18		1447	.18					3
.19		1557	.19					5

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
B. McKee	5/3/93 1680		
Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

SAI-ENV COC Form 01 Page 2 of 2 Pages Rev. A Date: 02 Apr 93

FT MONMOUTH OFFICE
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SERV-AIR, INC.
An E SYSTEMS Company

R

P.O. #:

Chain of Custody

Project #:	Sampler: B. McKee	Date / Time	Analysis Parameters	Start:
Customer: Serv-Air, Inc	Site Name: Bldg 108			Finish:
Phone:				Preservation Method

Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPH	Remarks
1192.0	5/3/93 1503	Bldg 108 hNU	soil	1		

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
B. McKee	5/3/93 1600		
Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

SAI-ENV COC Form 01 Page 1 of 1 Pages Rev. 11 Date: 02 Apr 93

FT MONMOUTH OFFICE
E-SYSTEMS INC • P O BOX 369 BUILDING 1209 • FT MONMOUTH NEW JERSEY 07703-5000 • (908) 544-0000

CHAIN OF CUSTODY

21ST CENTURY ENVIRONMENTAL
618 HERON DRIVE P O BOX 489 • BRIDGEPORT NJ 08014 0489
609 467 9521 • 609 467 4523 FAX

CUSTOMER E-Systems
ADDRESS Fort Monmouth
TELEPHONE
PROJECT
PROJECT MANAGER
PROJECT LOCATION STATE
PO NUMBER

TURNAROUND (INDICATE CALENDAR DAYS CONFIRM WITH LAB) (2) 5 7 14 21 OTHER
DELIVERABLES (PLEASE CIRCLE) TIER 1 (TIER II) ECRA
CLP RESULTS ONLY OTHER BIAS CORRECTION
FAX RESULTS TO

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS

RLog 108
R30151-02

SAMPLE NUMBER	SAMPLE DESCRIPTION	MATRIX	DATE	TIME	COMP	GRAB	NUMBER OF CONTAINERS	ANALYSIS METHOD: VOLATILE ORGANICS	SEMI VOA S (BNA'S)	PESTICIDES / PCB'S	PCB'S	BTEX	TPH-PETROLEUM HYDROCARBONS	CORROSIVITY	IGNITABILITY	FLASHPOINT	REACTIVITY	TOC	TCLP METALS	TCLP VOLATILE ORGANICS	TCLP SEMI VOA S (BNA S)	TCLP PEST / HERB	PRIORITY POLLUTANT METALS (13)	HSL METALS (23)	LEAD	ADDITIONAL ANALYSIS	
1191.1	1191 .1	Soil	5/3	1434		X	3	X	X																	5
.2	1191 .2			1438																						3
.3	1191 .3			1442																						5
.4	1191 .4			1500																						ND
.5	1191 5			1505																						5
.6	1191 .6			1523																						ND
.7	1191 .7			1527																						ND
.8	1191 .8			1530																						5
.9	1191 .9			1534																						NR
.10	1191 10			1537																						N
.11	1191 .11			1540																						Nu
VOID	VOID 12	V	5/3	1545																						
1191.13	1191 .13			1549																						ND
.14	1191 .14			1555																						3
.15	1191 .15			1611																						3
.16	1191 .16			1515																						100
.17	1191 .17	↓	↓	1511		↓																				150

Relinquished By	Date	Time	Received By	Date	Time
	5-3			5-3-93	1645

WHITE
LAB COPY

YELLOW
CUSTOMER COPY

H N [redacted] F JS DI

618 HERON DRIVE P O BOX 489 • BRIDGEPORT NJ 08014 0489
609 467 9521 • 609 467 4523 FAX

(MEF F. E.
ADDRESS 7 Fort Monmouth
TELEPHONE
PROJECT
PROJECT MANAGER
PROJECT LOCATION STATE
PO NUMBER

ARC (INI E C DAH S, C IM
LAB) 2 5 7 14 21 OTHER
DELIVERABLES (PLEASE CIRCLE) TIER I TIER II ECRA
CLP RESULTS ONLY OTHER BIAS CORRECTION
FAX RESULTS TO

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS

Bldg 108

R30151-02

ANALYSIS / METHOD: VOLATILE ORGANICS, SEMI VOA'S (BNA'S), PESTICIDES / PCB'S, PCB'S, BTEX, TPH-PETROLEUM HYDROCARBONS, CORROSIVITY, IGNITABILITY, FLASHPOINT, REACTIVITY, TOC, TCLP METALS, TCLP VOLATILE ORGANICS, TCLP SEMI VOA'S (BNA'S), TCLP PEST / HERB, PRIORITY POLLUTANT METALS (13), HSL METALS (23) Lead

ADDITIONAL ANALYSIS

SAMPLE NUMBER	SAMPLE DESCRIPTION	MATRIX	DATE	TIME	COMP	GRAB	NUMBER OF CONTAINERS	VOLATILE ORGANICS	SEMI VOA'S (BNA'S)	HSL METALS (23) Lead	NJ
1191.18	1191.18	Soil	5/3	1447		X		X	X	X	3
1191.19	1191.19	↓	↓	1337		↓		X	X	X	3
	TB	Aq	↓					X		X	
	FB	↓	↓	1615				X	X	X	

Relinquished By	Date	Time	Received By	Date	Time
B. [signature]	5-3		[signature]	5-3-93	1645

WHITE LAB COPY
YELLOW CUSTOMER COPY

618 HERON DRIVE P O BOX 489 • BRIDGEPORT NJ 08014-0489 • 609-467-9521

E-SYSTEMS

PROJECT: U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

DATE RECEIVED: MAY 3, 1993

REPORT NO: A1794 - A1813

TWENTY FIRST CENTURY
ENVIRONMENTAL, INC.

Richard W Lynch

RICHARD W. LYNCH
LABORATORY MANAGER

TABLE OF CONTENTS

NARRATIVE

There were no problems encountered during the analysis of this batch of samples (A1794 to A1813). All extractions and analysis were completed within proper hold times.

SAMPLE IDENTIFICATION AND LOCATION

ANALYSIS NO:	CLIENT ID:
A 1794	1191.1
A 1795	1191.2
A 1796	1191.3
A 1797	1191.4
A 1798	1191.5
A 1799	1191.6
A 1800	1191.7
A 1801	1191.8
A 1802	1191.9
A 1803	1191.10
A 1804	1191.11
A 1805	1191.13
A 1806	1191.14
A 1807	1191.15
A 1808	1191.16
A 1809	1191.17
A 1810	1191.18
A 1811	1191.19
A 1812	Trip Blank
A 1813	Field Blank

CHAIN OF CUSTODY

21ST CENTURY ENVIRONMENTAL
618 HERON DRIVE, P O BOX 489 • BRIDGEPORT NJ 08014 0489
609 467 9521 • 609 467 4523 FAX

CUSTOMER E-Systems
ADDRESS Fort Monmouth
TELEPHONE
PROJECT
PROJECT MANAGER
PROJECT LOCATION STATE
PO NUMBER

TURNAROUND (INDICATE CALENDAR DAYS, CONFIRM WITH LAB) (2) 5 7 14 21 OTHER
DELIVERABLES (PLEASE CIRCLE) TIER I (TIER II) ECRA
CLP RESULTS ONLY OTHER BIAS CORRECTION
FAX RESULTS TO

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS

Bldg 108

R30151-02

SAMPLE NUMBER	SAMPLE DESCRIPTION	MATRIX	DATE	TIME	COMP	GRAB	NUMBER OF CONTAINERS	ANALYSIS / METHOD: VOLATILE ORGANICS	SEMI VOA'S (BNA'S)	PESTICIDES / PCB'S	PCB S	BTEX	TPH-PETROLEUM HYDROCARBONS	CORROSIVITY	IGNITABILITY	FLASHPOINT	REACTIVITY	TOC	TCLP METALS	TCLP VOLATILE ORGANICS	TCLP SEMI VOA S (BNA S)	TCLP PEST / HERB	PRIORITY POLLUTANT METALS (13)	HSL METALS (23)	LEAD	ADDITIONAL ANALYSIS	00000 #
	1191 .1	Soil	5/3	1434		X	3	X	X																		5
	1191 .2			1438																							3
	1191 .3			1442																							5
	1191 .4			1500																							ND
	1191 .5			1505																							5
	1191 .6			1523																							ND
	1191 .7			1527																							ND
	1191 .8			1530																							5
	1191 .9			1534																							ND
	1191 .10			1537																							ND
	1191 .11			1540																							ND
VOID	VOID 12	VOID		1545																							
	1191 .13			1547																							ND
	1191 .14			1555																							3
	1191 .15			1446																							3
	1191 .16			1515																							100
	1191 .17	↓	↓	1511		↓																					150

Relinquished By	Date	Time	Received By	Date	Time
[signature]	5-3		[signature]	5-3-93	16:45
[signature]	5-3-93	1500	Richard W Lynch	5/3/93	19:00

WHITE LAB COPY
YELLOW [illegible] PY

CHAIN OF CUSTODY

21ST CENTURY ENVIRONMENTAL
618 HERON DRIVE P.O. BOX 489 • BRIDGEPORT NJ 08014 0489
609 467 9521 • 609 467 4523 FAX

CUSTOMER K-Systems
ADDRESS Fort Monmouth
TELEPHONE
PROJECT
PROJECT MANAGER
PROJECT LOCATION STATE
PO NUMBER

TURNAROUND (INDICATE CALENDAR DAYS, CONFIRM WITH LAB) 2 5 7 14 21 OTHER
DELIVERABLES (PLEASE CIRCLE) TIER I TIER II ECRA
CLP RESULTS ONLY OTHER BIAS CORRECTION
FAX RESULTS TO

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS

Bldg 108

R3015T-02

SAMPLE NUMBER	SAMPLE DESCRIPTION	MATRIX	DATE	TIME	COMP	GRAB	NUMBER OF CONTAINERS
	1191.18	Soil	5/3	1447		X	
	1191.19	↓		1357		↓	
	TB						
	FB	↓	↓	1645			

ANALYSIS METHOD

VOLATILE ORGANICS	SEMI VOA'S (BNA'S)	PESTICIDES / PCB'S	PCB'S	BTEX	TPH PETROLEUM HYDROCARBONS	CORROSIVITY	IGNITABILITY	FLASHPOINT	REACTIVITY	TOC	TCLP METALS	TCLP VOLATILE ORGANICS	TCLP SEMI VOA'S (BNA'S)	TCLP PEST / HERB	PRIORITY POLLUTANT METALS (13)	HSL METALS (23)	Lead	ADDITIONAL ANALYSIS	00001
X	X																	hNJ	
X	X																	3	
X	X															X	X	5	
X	X															X			

Relinquished By	Date	Time	Received By	Date	Time
[signature]	5-3		[signature]	5-3-93	1645
[signature]	5-3-93	1500	Richard W Rynd	5/3/93	19:00

WHITE LAB COPY
YELLOW STORAGE COPY

Purgeables	U.S.E.P.A. Method 624 - This is a purge and trap Gas Chromatograph/ Mass Spectrometer (GC/MS) method applicable to the determination of the compounds listed in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants". An HP5996 GC/MS was used with a capillary column. Method detection limits are as stated. Soil samples are prepared for analysis as prescribed in Method 8240 from SW846.
Acid Extractables Base Neutrals	U.S.E.P.A. Method 625 - This method covers the determination of a number of organic compounds that are partitioned in an organic solvent and amenable to gas chromatography. This is a gas chromatography/mass spectrometer (GC/MS) method applicable to the determination of the compounds listed in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants". A HP5970 was used with a DB-5 FSCC. Method detection limits are as stated. Soil samples were prepared for analysis as prescribed in Method 3550 and analyzed as prescribed in Method 8270 from SW846.
Metals	Soil samples for metal analysis were run in accordance with the methods prescribed in SW846. This includes a nitric acid digestion followed by either Furnace, Flame Atomic Absorption, Flameless Atomic Absorption. or Inductively Coupled Plasma analysis. Aqueous samples for metals analysis were run in accordance with the methods prescribed in Methods for Chemical Analysis of Water and Wastes, EPA-600-4-79-020 March 1983.

LABORATORY CHRONICLE

RECEIPT/REFRIGERATION 5/3/93

ORGANICS
EXTRACTION

1. Acids NA
2. Base/Neutrals 5/4/93-5/5/93
3. Pesticides/PCB's/Herbicides NA
4. Petroleum Hydrocarbons/Oil & Grease NA

ANALYSIS

1. Volatiles 5/4/93-5/18/93
2. Acids NA
3. Base/Neutrals 5/5/93-5/18/93
4. Pesticides/PCB's/Herbicides NA
5. Petroleum Hydrocarbons/Oil & Grease NA
6. Total Organic Carbon NA

Section Supervisor
Review & Approval Jeffrey L Martin

INORGANICS

1. Metals 5/5/93
2. Cyanides NA
3. Phenols NA

OTHER ANALYTES

Section Supervisor
Review & Approval Mary Wadsworth

Quality Control Supervisor
Review & Approval

Laboratory Director
Review & Approval Richard W Lynch

fractions are re-extracted and re-analyzed because initial endeavors did not meet ality control acceptance criteria, include dates for both.

RESULT SUMMARY

CERTIFICATE OF ANALYSIS

LEAD

U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

ANALYSIS NO:	CLIENT ID:	MDL (mg/kg)	RESULT (mg/kg)
A 1794	1191.1	5.00	30.7
A 1795	1191.2	5.00	N.D.
A 1796	1191.3	5.00	9.05
A 1797	1191.4	5.00	N.D.
A 1798	1191.5	5.00	16.3
A 1799	1191.6	5.00	52.1
A 1800	1191.7	5.00	12.4
A 1801	1191.8	5.00	N.D.
A 1802	1191.9	5.00	58.2
A 1803	1191.10	5.00	55.8
A 1804	1191.11	5.00	155
A 1805	1191.13	5.00	14.8
A 1806	1191.14	5.00	28.8
A 1807	1191.15	5.00	11.0
A 1808	1191.16	5.00	12.3
A 1809	1191.17	5.00	21.8
A 1810	1191.18	5.00	10.4
A 1811	1191.19	5.00	174

00008

CERTIFICATE OF ANALYSIS

U.S. ARMY FORT MONMOUTH, NJ

ANALYSIS NO: A 1813

CLIENT ID: BLDG 108 Field Blank

METAL	MDL (mg/L)	RESULT (mg/L)
LEAD	0.05	N.D.

00009

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1794	DILUTION FACTOR	1.00
CLIENT ID	1191.1 BLDG 108	COMMENTS	HNU 5
DATA FILE	>A1590	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	62	Bromodichloromethane	ND	6
Acrylonitrile	ND	62	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	4.4 JB	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	7.1 B	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloroethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m&p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	99.7	70 - 121	OK
Toluene-d8	96.3	81 - 117	OK
Bromofluorobenzene	97.6	74 - 121	OK

Percent Solid of 81.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH, NJ	MATRIX	Soil
SAMPLE NUMBER	A1794	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.1	QA BATCH	
DATA FILE	>C1145	DATE ANALYZED	05/05/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	410	2,6-Dinitrotoluene	ND	410
bis(-2-Chloroethyl)Ether	ND	410	Diethylphthalate	ND	410
1,3-Dichlorobenzene	ND	410	4-Chlorophenyl-phenylether	ND	410
1,4-Dichlorobenzene	ND	410	Fluorene	69 J	410
Benzyl Alcohol	ND	410	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	410	N-Nitrosodiphenylamine	ND	410
bis(2-chloroisopropyl)Ether	ND	410	4-Bromophenyl-phenylether	ND	410
N-Nitroso-Di-n-Propylamine	ND	410	Hexachlorobenzene	ND	410
Hexachloroethane	ND	410	Phenanthrene	300 J	410
Nitrobenzene	ND	410	Anthracene	83 J	410
Isophorone	ND	410	Di-n-Butylphthalate	ND	410
Benzoic Acid	ND	2000	Fluoranthene	360 J	410
bis(-2-Chloroethoxy)Methane	ND	410	Pyrene	200 J	410
1,2,4-Trichlorobenzene	ND	410	Butylbenzylphthalate	ND	410
Naphthalene	240 J	410	3,3'-Dichlorobenzidine	ND	810
4-Chloroaniline	ND	410	Benzo(a)Anthracene	140 J	410
Hexachlorobutadiene	ND	410	Bis(2-Ethylhexyl)Phthalate	1100	410
2-Methylnaphthalene	130 J	410	Chrysene	160 J	410
Hexachlorocyclopentadiene	ND	410	Di-n-Octyl Phthalate	ND	410
2-Chloronaphthalene	ND	410	Benzo(b)fluoranthene	200 J	410
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	410
Dimethyl Phthalate	ND	410	Benzo(a)Pyrene	130 J	410
Acenaphthylene	ND	410	Indeno(1,2,3-cd)Pyrene	90 J	410
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	ND	410
Acenaphthene	62 J	410	Benzo(g,h,i)Perylene	82 J	410
Dibenzofuran	43 J	410	Benzidine	ND	810
2,4-Dinitrotoluene	ND	410			

Percent Solid of 81.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

1191.1

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1794

Sample wt/vol: 5 (g/mL) g

Lab File ID: >A1590

Level: LOW

Date Received: 05/03/93

% Moisture: 19

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 1

Number TICs Found 19

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST CONC
591764	Hexane, 2-methyl- (8CI9CI)	9.70	7
589344	Hexane, 3-methyl- (8CI9CI)	9.98	10
142825	Heptane (DOT)(8CI9CI)	10.63	5
5775962	1H-Pyrazole, 4,5-dihydro-1,5-dimethyl- (9CI)	11.53	5
592132	Hexane, 2,5-dimethyl- (8CI9CI)	12.47	12
589435	Hexane, 2,4-dimethyl- (8CI9CI)	12.71	14
111659	Octane (DOT)(8CI9CI)	13.39	10
624293	Cyclohexane, 1,4-dimethyl-, cis- (8CI9CI)	13.84	4
17302237	Nonane, 4,5-dimethyl- (8CI9CI)	15.09	11
2216333	Octane, 3-methyl- (8CI9CI)	15.29	7
135013	Benzene, 1,2-diethyl- (9CI)	20.17	4
1758889	Benzene, 2-ethyl-1,4-dimethyl- (9CI)	21.03	6
767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	21.26	5
1640897	Cyclopentane, ethyl- (8CI9CI)	21.59	6
95932	Benzene, 1,2,4,5-tetramethyl- (8CI9CI)	21.78	6
2049958	Benzene, (1,1-dimethylpropyl)- (9CI)	22.01	4
2039896	Benzene, 2-ethenyl-1,4-dimethyl- (9CI)	22.67	15
17851273	Benzene, 1-ethyl-2,4,5-trimethyl- (8CI)	23.36	5
112549	Dodecanal (9CI)	23.61	15

E1

EPA SAMPLE NUMBER

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S ARMY, FORT MONMOUTH, NJ
BLDG 108

1191.1

Matrix: (soil/water) SOIL

Lab Sample ID: A1794

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1145

Level: LOW

Date Extracted 05/04/93

% Moisture: 19

Date Analyzed 05/05/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	111659	Octane (DOT)(8CI9CI)	4.88	170
2	3221612	Octane, 2-methyl- (8CI9CI)	6.57	170
3	108383	Benzene, 1,3-dimethyl- (9CI)	6.64	300
4	103651	Benzene, propyl- (8CI9CI)	8.65	300
5	611143	Benzene, 1-ethyl-2-methyl- (9CI)	8.83	300
6	108678	Benzene, 1,3,5-trimethyl- (9CI)	8.97	200
7	17301289	Undecane, 3,6-dimethyl- (8CI)	9.67	200
8	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	10.10	200
9	496117	1H-Indene, 2,3-dihydro- (9CI)	10.36	370
10	135013	Benzene, 1,2-diethyl- (9CI)	10.64	200
11		UNKNOWN	10.76	300
12	934747	Benzene, 1-ethyl-3,5-dimethyl- (9CI)	10.81	170
13	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	11.88	230
14	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	11.95	130
15	874351	1H-Indene, 2,3-dihydro-5-methyl- (9CI)	12.28	170
16	767997	Benzene, (1-methyl-1-propenyl)-, (Z)- (9CI)	12.48	230
17		UNKNOWN	13.27	200
18	90120	Naphthalene, 1-methyl- (8CI9CI)	15.10	130
19	55045108	Tridecane, 6-propyl- (9CI)	17.10	130
20		UNKNOWN	24.16	670

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1795	DILUTION FACTOR	1.00
CLIENT ID	1191.2 BLDG 108	COMMENTS	HNU 3
DATA FILE	>A1591	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	62	Bromodichloromethane	ND	6
Acrylonitrile	ND	62	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	5.0 JB	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	6.1 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m&p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	97.9	70 - 121	OK
Toluene-d8	99.9	81 - 117	OK
Bromofluorobenzene	94.7	74 - 121	OK

Percent Solid of 81.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH, NJ	MATRIX	Soil
SAMPLE NUMBER	A1795	DILUTION FACTOR	1.00
CLIENT ID	BLDG 109 1191.2	QA BATCH	
DATA FILE	>C1146	DATE ANALYZED	05/05/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	410	2,6-Dinitrotoluene	ND	410
bis(-2-Chloroethyl)Ether	ND	410	Diethylphthalate	ND	410
1,3-Dichlorobenzene	ND	410	4-Chlorophenyl-phenylether	ND	410
1,4-Dichlorobenzene	ND	410	Fluorene	ND	410
Benzyl Alcohol	ND	410	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	410	N-Nitrosodiphenylamine	ND	410
bis(2-chloroisopropyl)Ether	ND	410	4-Bromophenyl-phenylether	ND	410
N-Nitroso-Di-n-Propylamine	ND	410	Hexachlorobenzene	ND	410
Hexachloroethane	ND	410	Phenanthrene	ND	410
Nitrobenzene	ND	410	Anthracene	ND	410
Isophorone	ND	410	Di-n-Butylphthalate	ND	410
Benzoic Acid	ND	2000	Fluoranthene	ND	410
bis(-2-Chloroethoxy)Methane	ND	410	Pyrene	ND	410
1,2,4-Trichlorobenzene	ND	410	Butylbenzylphthalate	ND	410
Naphthalene	ND	410	3,3'-Dichlorobenzidine	ND	810
4-Chloroaniline	ND	410	Benzo(a)Anthracene	ND	410
Hexachlorobutadiene	ND	410	Bis(2-Ethylhexyl)Phthalate	370 J	410
2-Methylnaphthalene	ND	410	Chrysene	ND	410
Hexachlorocyclopentadiene	ND	410	Di-n-Octyl Phthalate	ND	410
2-Chloronaphthalene	ND	410	Benzo(b)fluoranthene	ND	410
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	410
Dimethyl Phthalate	ND	410	Benzo(a)Pyrene	250 J	410
Acenaphthylene	ND	410	Indeno(1,2,3-cd)Pyrene	ND	410
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	ND	410
Acenaphthene	ND	410	Benzo(g,h,i)Perylene	ND	410
Dibenzofuran	ND	410	Benzidine	ND	810
2,4-Dinitrotoluene	ND	410			

Percent Solid of 81.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.2

) Name:21st Centuru Environmental

'lent Name: US ARMY FT. MONMOUTH, NJ — Client ID: BLDG 108

latrix: (soil/water) SOIL — Lab Sample ID: A1795

ple wt/vol: 5 (g/mL) g — Lab File ID: >A1591

evel: (low/med) LOW — Date Received: 05/03/93

Moisture: 19 — Date Analyzed: 05/17/93

olumn: DB-624 — Dilution Factor: 1

mber TICs found: 0 — CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

E1

EPA SAMPLE NUMBER

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S ARMY, FORT. MONMOUTH, NJ
BLDG 108

1191.2

Matrix: (soil/water) SOIL

Lab Sample ID: A1795

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1146

Level: LOW

Date Extracted: 05/04/93

% Moisture: 19

Date Analyzed 05/05/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 8

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	496117	1H-Indene, 2,3-dihydro- (9CI)	10.36	30
2	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	12.48	30
3		UNKNOWN	15.82	30
4		UNKNOWN	15.96	130
5	128370	Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	17.87	30
6	10544500	Sulfur, mol. (S8) (8CI9CI)	24.15	130
7		UNKNOWN	24.60	300
8		UNKNOWN	27.10	700

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1796	DILUTION FACTOR	1.00
CLIENT ID	1191.3 BLDG 108	COMMENTS	MNU 5
DATA FILE	>A1592	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	63	Bromodichloromethane	ND	6
Acrylonitrile	ND	63	2-Chloroethylvinylether	ND	13
Chloromethane	ND	13	2-Hexanone	ND	13
Bromomethane	ND	13	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	13	Toluene	ND	6
Chloroethane	ND	13	cis-1,3-Dichloropropene	ND	6
Acetone	5.0 JB	13	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	13	4-Methyl-2-pentanone	ND	13
Methylene Chloride	6.9 B	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	13	m&p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	99.1	70 - 121	OK
Toluene-d8	91.2	81 - 117	OK
Bromofluorobenzene	95.1	74 - 121	OK

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1796	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.3	QA BATCH	
DATA FILE	>C1156	DATE ANALYZED	05/05/93

COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		410
bis(-2-Chloroethyl)Ether	ND		410
1,3-Dichlorobenzene	ND		410
1,4-Dichlorobenzene	ND		410
Benzyl Alcohol	ND		410
1,2-Dichlorobenzene	ND		410
bis(2-chloroisopropyl)Ether	ND		410
N-Nitroso-Di-n-Propylamine	ND		410
Hexachloroethane	ND		410
Nitrobenzene	ND		410
Isophorone	ND		410
Benzoic Acid	ND		2100
bis(-2-Chloroethoxy)Methane	ND		410
1,2,4-Trichlorobenzene	ND		410
Naphthalene	410	J	410
4-Chloroaniline	ND		410
Hexachlorobutadiene	ND		410
2-Methylnaphthalene	210	J	410
Hexachlorocyclopentadiene	ND		410
2-Chloronaphthalene	ND		410
2-Nitroaniline	ND		2100
Dimethyl Phthalate	ND		410
Acenaphthylene	ND		410
3-Nitroaniline	ND		2100
Acenaphthene	1100		410
Dibenzofuran	810		410
2,4-Dinitrotoluene	ND		410

COMPOUND	UG/KG		MDL
2,6-Dinitrotoluene	ND		410
Diethylphthalate	ND		410
4-Chlorophenyl-phenlyether	ND		410
Fluorene	ND		1100
4-Nitroaniline	ND		2100
N-Nitrosodiphenylamine	ND		410
4-Bromophenyl-phenylether	ND		410
Hexachlorobenzene	ND		410
Phenanthrene	4400		410
Anthracene	1700		410
Di-n-Butylphthalate	ND		410
Fluoranthene	4900		410
Pyrene	2400		410
Butylbenzylphthalate	ND		410
3,3'-Dichlorobenzidine	ND		820
Benzo(a)Anthracene	2300		410
Bis(2-Ethylhexyl)Phthalate	280	J	410
Chrysene	2200		410
Di-n-Octyl Phthalate	ND		410
Benzo(b)fluoranthene	1800		410
Benzo(k)Fluoranthene	ND		410
Benzo(a)Pyrene	1800		410
Indeno(1,2,3-cd)Pyrene	1100		410
Dibenzo(a,h)Anthracene	350	J	410
Benzo(g,h,i)Perylene	1000		410
Benzidine	ND		820

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.3

ab Name: 21st Century Environmental

lient Name: US ARMY FT. MONMOUTH, NJ — Client ID: BLDG 108

natrix: (soil/water) SOIL — Lab Sample ID: A1796

mple wt/vol: 5 (g/mL) g — Lab File ID: >A1592

vel: (low/med) LOW — Date Received: 05/03/93

Moisture: 20 — Date Analyzed: 05/17/93

lumn: DB-624 — Dilution Factor: 1

umber TICs found: 0 — CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

E1

EPA SAMPLE NUMBER

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
US ARMY FT. MONMOUTH, NJ
BLDG 108

1191.3

Matrix: (soil/water) SOIL

Lab Sample ID: A1796

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1156

Level: LOW

Date Extracted 05/04/93

% Moisture: 20

Date Analyzed 05/05/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	108383	Benzene, 1,3-dimethyl- (9CI)	6.65	340
2	103651	Benzene, propyl- (8CI9CI)	8.66	360
3		UNKNOWN	8.83	250
4	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	10.11	260
5		UNKNOWN	10.36	430
6	527537	Benzene, 1,2,3,5-tetramethyl- (8CI9CI)	11.88	190
7	90120	Naphthalene, 1-methyl- (8CI9CI)	15.11	340
8	571619	Naphthalene, 1,5-dimethyl- (8CI9CI)	16.47	210
9	581408	Naphthalene, 2,3-dimethyl- (8CI9CI)	16.68	230
10	573988	Naphthalene, 1,2-dimethyl- (8CI9CI)	16.96	160
11		UNKNOWN	19.12	240
12		UNKNOWN	19.35	210
13	132650	Dibenzothiophene (8CI9CI)	20.96	600
14	613127	Anthracene, 2-methyl- (8CI9CI)	22.55	350
15	832713	Phenanthrene, 3-methyl- (8CI9CI)	22.61	390
16		UNKNOWN	22.82	860
17	10544500	Sulfur, mol. (S8) (8CI9CI)	24.20	2000
18	243174	11H-Benzo[b]fluorene (8CI9CI)	25.78	590
19		UNKNOWN	25.94	400
20	205823	Benzo[j]fluoranthene (8CI9CI)	30.57	1100

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1797	DILUTION FACTOR	1.00
CLIENT ID	1191.4 BLDG 108	COMMENTS	HNU ND
DATA FILE	>A1598	DATE ANALYZED	05/17/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG	MDL
Acrolein	ND		53	Bromodichloromethane	ND	5
Acrylonitrile	ND		53	2-Chloroethylvinylether	ND	11
Chloromethane	ND		11	2-Hexanone	ND	11
Bromomethane	ND		11	trans-1,3-Dichloropropene	ND	5
Vinyl Chloride	ND		11	Toluene	ND	5
Chloroethane	ND		11	cis-1,3-Dichloropropene	ND	5
Acetone	ND	B	11	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND		5	1,1,2-Trichloroethane	ND	5
Carbon Disulfide	ND		11	4-Methyl-2-pentanone	ND	11
Methylene Chloride	3.5	JB	5	Tetrachloroethene	ND	5
1,2-Dichloroethene(trans)	ND		5	Dibromochloromethane	ND	5
1,1-Dichloroethane	ND		5	Chlorobenzene	ND	5
Vinyl Acetate	ND		5	Ethylbenzene	ND	5
2-Butanone	ND		11	m&p-Xylenes	ND	5
Chloroform	ND		5	o-Xylene	ND	5
1,1,1-Trichloroethane	ND		5	Styrene	ND	5
Carbon Tetrachloride	ND		5	Bromoform	ND	5
1,2-Dichloroethane	ND		5	m-Dichlorobenzene	ND	5
Benzene	ND		5	p-Dichlorobenzene	ND	5
Trichloroethene	ND		5	o-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND		5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	96.2	70 - 121	OK
Toluene-d8	100	81 - 117	OK
Bromofluorobenzene	97.4	74 - 121	OK

Percent Solid of 95.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH, NJ	MATRIX	Soil
SAMPLE NUMBER	A1797	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.4	QA BATCH	
DATA FILE	>C1147	DATE ANALYZED	05/05/93

COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		350
bis(-2-Chloroethyl)Ether	ND		350
1,3-Dichlorobenzene	ND		350
1,4-Dichlorobenzene	ND		350
Benzyl Alcohol	ND		350
1,2-Dichlorobenzene	ND		350
bis(2-chloroisopropyl)Ether	ND		350
N-Nitroso-Di-n-Propylamine	ND		350
Hexachloroethane	ND		350
Nitrobenzene	ND		350
Isophorone	ND		350
Benzoic Acid	ND		1700
bis(-2-Chloroethoxy)Methane	ND		350
1,2,4-Trichlorobenzene	ND		350
Naphthalene	41	J	350
4-Chloroaniline	ND		350
Hexachlorobutadiene	ND		350
2-Methylnaphthalene	54	J	350
Hexachlorocyclopentadiene	ND		350
2-Chloronaphthalene	ND		350
2-Nitroaniline	ND		1700
Dimethyl Phthalate	ND		350
Acenapnthylene	ND		350
3-Nitroaniline	ND		1700
Acenaphthene	95	J	350
Dibenzofuran	44	J	350
2,4-Dinitrotoluene	ND		350

COMPOUND	UG/KG		MDL
2,6-Dinitrotoluene	ND		350
Diethylphthalate	ND		350
4-Chlorophenyl-phenylether	ND		350
Fluorene	90	J	350
4-Nitroaniline	ND		1700
N-Nitrosodiphenylamine	ND		350
4-Bromophenyl-phenylether	ND		350
Hexachlorobenzene	ND		350
Phenanthrene	660		350
Anthracene	220	J	350
Di-n-Butylphthalate	ND		350
Fluoranthene	660		350
Pyrene	450		350
Butylbenzylphthalate	ND		350
3,3'-Dichlorobenzidine	ND		690
Benzo(a)Anthracene	350		350
Bis(2-Ethylhexyl)Phthalate	160	J	350
Chrysene	360		350
Di-n-Octyl Phthalate	ND		350
Benzo(b)fluoranthene	220	J	350
Benzo(k)Fluoranthene	ND		350
Benzo(a)Pyrene	340	J	350
Indeno(1,2,3-cd)Pyrene	190	J	350
Dibenzo(a,h)Anthracene	74	J	350
Benzo(g,h,i)Perylene	210	J	350
Benzidine	ND		690

Percent Solid of 95.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.4

Lab Name:21st Century Environmental

Client Name: US ARMY FT. MUNMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1797

Sample wt/vol: 5 (g/mL) g

Lab File ID: >A1598

Level: (low/med) LOW

Date Received: 05/03/93

% Moisture: 5

Date Analyzed: 05/17/93

Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

00021

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
US ARMY FT. MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER
1191.4

Matrix: (soil/water) SOIL

Lab Sample ID: A1797

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1147

Level: LOW

Date Extracted 05/04/93

% Moisture: 5

Date Analyzed 05/05/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	4.85	130
2		UNKNOWN	7.71	130
3	6044719	Dodecane, 6-methyl- (8CI9CI)	13.49	170
4		UNKNOWN	13.69	100
5		UNKNOWN	14.27	100
6	62016346	Octane, 2,3,7-trimethyl- (9CI)	14.41	270
7		UNKNOWN	15.09	130
8		UNKNOWN	15.23	100
9		UNKNOWN	15.50	130
10		UNKNOWN	15.68	100
11		UNKNOWN	15.76	130
12	74645980	Dodecane, 2,7,10-trimethyl- (9CI)	15.94	230
13	112403	Dodecane (8CI9CI)	16.26	100
14		UNKNOWN	16.77	170
15		UNKNOWN	16.97	200
16	544763	Hexadecane (8CI9CI)	17.12	370
17		UNKNOWN	17.37	100
18	629787	Heptadecane (8CI9CI)	20.09	170
19	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	20.16	830
20	629787	Heptadecane (8CI9CI)	22.32	130

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	91798	DILUTION FACTOR	125.00
CLIENT ID	1191.5 BLDG 108	COMMENTS	HNU 5
DATA FILE	>A1594	DATE ANALYZED	05/12/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	7500	Bromodichloromethane	ND	750
Acrylonitrile	ND	7500	2-Chloroethylvinylether	ND	1500
Chloromethane	ND	1500	2-Hexanone	ND	1500
Bromomethane	ND	1500	trans-1,3-Dichloropropene	ND	750
Vinyl Chloride	ND	1500	Toluene	760	750
Chloroethane	ND	1500	cis-1,3-Dichloropropene	ND	750
Acetone	600 JB	1500	1,1,2,2-Tetrachloroethane	ND	750
1,1-Dichloroethene	ND	750	1,1,2-Trichloroethane	ND	750
Carbon Disulfide	ND	1500	4-Methyl-2-pentanone	ND	1500
Methylene Chloride	1100 B	750	Tetrachloroethene	ND	750
1,2-Dichloroethene(trans)	ND	750	Dibromochloromethane	ND	750
1,1-Dichloroethane	ND	750	Chlorobenzene	ND	750
Vinyl Acetate	ND	750	Ethylbenzene	7600	750
2-Butanone	ND	1500	m&p-Xylenes	30000	750
Chloroform	ND	750	o-Xylene	870	750
1,1,1-Trichloroethane	ND	750	Styrene	ND	750
Carbon Tetrachloride	ND	750	Bromoform	ND	750
1,2-Dichloroethane	ND	750	m-Dichlorobenzene	ND	750
Benzene	1000	750	p-Dichlorobenzene	ND	750
Trichloroethene	ND	750	o-Dichlorobenzene	ND	750
1,2-Dichloropropane	ND	750			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	87.1	70 - 121	OK
Toluene-d8	101	81 - 117	OK
Bromofluorobenzene	97.3	74 - 121	OK

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1798	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.5	QA BATCH	
DATA FILE	>C1252	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	400	2,6-Dinitrotoluene	ND	400
bis(-2-Chloroethyl)Ether	ND	400	Diethylphthalate	ND	400
1,3-Dichlorobenzene	ND	400	4-Chlorophenyl-phenylether	ND	400
1,4-Dichlorobenzene	ND	400	Fluorene	800	400
Benzyl Alcohol	ND	400	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	400	N-Nitrosodiphenylamine	ND	400
bis(2-chloroisopropyl)Ether	ND	400	4-Bromophenyl-phenylether	ND	400
N-Nitroso-Di-n-Propylamine	ND	400	Hexachlorobenzene	ND	400
Hexachloroethane	ND	400	Phenanthrene	3200	400
Nitrobenzene	ND	400	Anthracene	1600	400
Isophorone	ND	400	Di-n-Butylphthalate	ND	400
Benzoic Acid	ND	2000	Fluoranthene	2100	400
bis(-2-Chloroethoxy)Methane	ND	400	Pyrene	1600	400
1,2,4-Trichlorobenzene	ND	400	Butylbenzylphthalate	ND	400
Naphthalene	5300	400	3,3'-Dichlorobenzidine	ND	800
4-Chloroaniline	ND	400	Benzo(a)Anthracene	870	400
Hexachlorobutadiene	ND	400	Bis(2-Ethylhexyl)Phthalate	4700	400
2-Methylnaphthalene	4300	400	Chrysene	870	400
Hexachlorocyclopentadiene	ND	400	Di-n-Octyl Phthalate	ND	400
2-Chloronaphthalene	ND	400	Benzo(b)Fluoranthene	ND	400
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	400
Dimethyl Phthalate	ND	400	Benzo(a)Pyrene	630	400
Acenaphthylene	ND	400	Indeno(1,2,3-cd)Pyrene	330 J	400
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	190 J	400
Acenaphthene	670	400	Benzo(g,h,i)Perylene	300 J	400
Dibenzofuran	540	400	Benzidine	ND	800
2,4-Dinitrotoluene	ND	400			

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

1191.5

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1798

Sample wt/vol: .04 (g/mL) g

Lab File ID: >A1594

Level: MED

Date Received: 05/03/93

% Moisture: 17

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 125

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	108872	Cyclohexane, methyl- (8CI9CI)	11.59	13000
2	592278	Heptane, 2-methyl- (8CI9CI)	12.54	9200
3	589811	Heptane, 3-methyl- (8CI9CI)	12.78	8300
4	921471	Hexane, 2,3,4-trimethyl- (8CI9CI)	15.17	12000
5	611143	Benzene, 1-ethyl-2-methyl- (9CI)	18.26	45000
6	108678	Benzene, 1,3,5-trimethyl- (9CI)	18.43	39000
7	622968	Benzene, 1-ethyl-4-methyl- (9CI)	18.78	14000
8	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	19.10	36000
9	620144	Benzene, 1-ethyl-3-methyl- (9CI)	19.88	19000
10	1074437	Benzene, 1-methyl-3-propyl- (9CI)	20.28	27000
11	1758889	Benzene, 2-ethyl-1,4-dimethyl- (9CI)	20.40	30000
12	1120214	Undecane (8CI9CI)	20.65	18000
13	2870044	Benzene, 2-ethyl-1,3-dimethyl- (9CI)	21.10	12000
14	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	21.33	17000
15	527537	Benzene, 1,2,3,5-tetramethyl- (8CI9CI)	21.94	12000
16	112403	Dodecane (8CI9CI)	22.66	16000
17	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	22.74	22000
18	17301234	Undecane, 2,6-dimethyl- (8CI9CI)	22 94	11000
19	119642	Naphthalene, 1.2,3,4-tetrahydro- (8CI9CI)	23.05	16000
20	26730143	Tridecane, 7-methyl- (8CI9CI)	24.06	12000

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.5

Matrix: (soil/water) SOIL

Lab Sample ID: A1798

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1252

Level: LOW

Date Extracted; 05/04/93

% Moisture: 17

Date Analyzed 05/13/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	108383	Benzene, 1,3-dimethyl- (9CI)	6.41	2000
2	103651	Benzene, propyl- (8CI9CI)	8.43	2400
3	611143	Benzene, 1-ethyl-2-methyl- (9CI)	8.65	6000
4	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	8.80	900
5	622968	Benzene, 1-ethyl-4-methyl- (9CI)	9.35	5300
6	62016379	Octane, 2,4,6-trimethyl- (9CI)	9.50	5300
7	611143	Benzene, 1-ethyl-2-methyl- (9CI)	9.92	5700
8	1074175	Benzene, 1-methyl-2-propyl- (9CI)	10.51	4300
9	1074551	Benzene, 1-methyl-4-propyl- (9CI)	10.77	2700
10	1120214	Undecane (8CI9CI)	11.47	2600
11		UNKNOWN	11.92	770
12	4292926	Cyclohexane, pentyl- (8CI9CI)	12.05	730
13	17301289	Undecane, 3,6-dimethyl- (8CI)	13.38	600
14		UNKNOWN	13.56	600
15		UNKNOWN	13.97	770
16		UNKNOWN	15.33	3100
17	74645980	Dodecane, 2,7,10-trimethyl- (9CI)	15.79	3000
	1560970	Dodecane, 2-methyl- (8CI9CI)	16.13	4300
		UNKNOWN	16.77	4700
20	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	19.93	1400

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1799	DILUTION FACTOR	1.00
CLIENT ID	1191.6 BLDG 108	COMMENTS	HNU ND
DATA FILE	>B0182	DATE ANALYZED	05/04/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	59	Bromodichloromethane	ND	6
Acrylonitrile	ND	59	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	4.0 JB	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4 4 J	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m&p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	97.2	70 - 121	OK
Toluene-d8	96.9	81 - 117	OK
Bromofluorobenzene	96.2	74 - 121	OK

Percent Solid of 85.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY Environmental
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT MONMOUTH, NJ	MATRIX	Soil
SAMPLE NUMBER	41799	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108, 1191 6	QA BATCH	
DATA FILE	>C1149	DATE ANALYZED	05/05/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		390	2,6-Dinitrotoluene	ND		390
bis(-2-Chloroethyl)Ether	ND		390	Diethylphthalate	ND		390
1,3-Dichlorobenzene	ND		390	4-Chlorophenyl-phenylether	ND		390
1,4-Dichlorobenzene	ND		390	Fluorene	120	J	390
Benzyl Alcohol	ND		390	4-Nitroaniline	ND		1900
1,2-Dichlorobenzene	ND		390	N-Nitrosodiphenylamine	ND		390
bis(2-chloroisopropyl)Ether	ND		390	4-Bromophenyl-phenylether	ND		390
N-Nitroso-Di-n-Propylamine	ND		390	Hexachlorobenzene	ND		390
Hexachloroethane	ND		390	Phenanthrene	870		390
Nitrobenzene	ND		390	Anthracene	340	J	390
Isophorone	ND		390	Di-n-Butylphthalate	ND		390
Benzoic Acid	ND		1900	Fluoranthene	2700		390
bis(-2-Chloroethoxy)Methane	ND		390	Pyrene	1100		390
1,2,4-Trichlorobenzene	ND		390	Butylbenzylphthalate	ND		390
Naphthalene	82	J	390	3,3'-Dichlorobenzidine	ND		780
4-Chloroaniline	ND		390	Benzo(a)Anthracene	1200		390
Hexachlorobutadiene	ND		390	Bis(2-Ethylhexyl)Phthalate	110	J	390
2-Methylnaphthalene	74	J	390	Chrysene	1200		390
Hexachlorocyclopentadiene	ND		390	Di-n-Octyl Phthalate	ND		390
2-Chloronaphthalene	ND		390	Benzo(b)fluoranthene	950		390
2-Nitroaniline	ND		1900	Benzo(k)Fluoranthene	ND		390
Dimethyl Phthalate	ND		390	Benzo(a)Pyrene	1100		390
Acenaphthylene	ND		390	Indeno(1,2,3-cd)Pyrene	680		390
3-Nitroaniline	ND		1900	Dibenzo(a,h)Anthracene	300	J	390
Acenaphthene	89	J	390	Benzo(g,h,i)Perylene	670		390
Dibenzofuran	82	J	390	Benzidine	ND		780
2,4-Dinitrotoluene	ND		390				

Percent Solid of 85.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.6

ab Name:21st Century Environmental

lient Name: US ARMY FT. MONMOUTH, NJ — Client ID: BLDG 108

atrix: (soil/water) SOIL — Lab Sample ID: A1799

mple wt/vol: 5 (g/mL) g — Lab File ID: >B0182

evel: (low/med) LOW — Date Received: 05/03/93

Moisture: 15 — Date Analyzed: 05/04/93

olumn: DB-624 — Dilution Factor: 1

umber TICs found: 0 — CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

E1

EPA SAMPLE NUMBER

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

1191.6

Matrix: (soil/water) SOIL

Lab Sample ID: A1799

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1149

Level: LOW

Date Extracted: 05/04/93

% Moisture: 15

Date Analyzed 05/05/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	13.28	1800
2	17301289	Undecane, 3,6-dimethyl- (8CI)	13.50	2200
3		UNKNOWN	13.70	1300
4		UNKNOWN	14.10	900
5	62016346	Octane, 2,3,7-trimethyl- (9CI)	14.43	3100
6	13287213	Tridecane, 6-methyl- (8CI9CI)	15.10	2000
7		UNKNOWN	15.33	1100
8	4292755	Cyclohexane, hexyl- (9CI)	15.51	1800
9		UNKNOWN	15.76	2200
10	74645980	Dodecane, 2,7,10-trimethyl- (9CI)	15.95	2400
11		UNKNOWN	16.18	1100
12		UNKNOWN	16.27	1600
13	55030621	Tridecane, 4,8-dimethyl- (9CI)	16.32	1600
14		UNKNOWN	16.78	3700
15	544763	Hexadecane (8CI9CI)	17.12	5700
16		UNKNOWN	17.28	1600
17		UNKNOWN	17.37	1300
18	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	20.17	3700
19	10544500	Sulfur, mol. (S8) (8CI9CI)	24.17	2300
20	192972	Benzo[e]pyrene (8CI9CI)	30.57	4000

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1800	DILUTION FACTOR	125.00
CLIENT ID	1191,7 BLDG 108	COMMENTS	HNU ND
DATA FILE	>A1596	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	7500	Bromodichloromethane	ND	750
Acrylonitrile	ND	7500	2-Chloroethylvinylether	ND	1500
Chloromethane	ND	1500	2-Hexanone	ND	1500
Bromomethane	ND	1500	trans-1,3-Dichloropropene	ND	750
Vinyl Chloride	ND	1500	Toluene	ND	750
Chloroethane	ND	1500	cis-1,3-Dichloropropene	ND	750
Acetone	300 JB	1500	1,1,2,2-Tetrachloroethane	ND	750
1,1-Dichloroethene	ND	750	1,1,2-Trichloroethane	ND	750
Carbon Disulfide	ND	1500	4-Methyl-2-pentanone	ND	1500
Methylene Chloride	980 B	750	Tetrachloroethene	ND	750
1,2-Dichloroethene(trans)	ND	750	Dibromochloromethane	ND	750
1,1-Dichloroethane	ND	750	Chlorobenzene	ND	750
Vinyl Acetate	ND	750	Ethylbenzene	890	750
2-Butanone	ND	1500	m&p-Xylenes	2000	750
Chloroform	ND	750	o-Xylene	450 J	750
1,1,1-Trichloroethane	ND	750	Styrene	ND	750
Carbon Tetrachloride	ND	750	Bromoform	ND	750
1,2-Dichloroethane	ND	750	m-Dichlorobenzene	ND	750
Benzene	4000	750	p-Dichlorobenzene	ND	750
Trichloroethene	ND	750	o-Dichlorobenzene	ND	750
1,2-Dichloropropane	ND	750			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	83.5	70 - 121	OK
Toluene-d8	98.6	81 - 117	OK
Bromofluorobenzene	109	74 - 121	OK

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY Environmental
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1800	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108, 1191 7	QA BATCH	
DATA FILE	>C1150	DATE ANALYZED	05/05/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		400	2,6-Dinitrotoluene	ND		400
bis(-2-Chloroethyl)Ether	ND		400	Diethylphthalate	ND		400
1,3-Dichlorobenzene	ND		400	4-Chlorophenyl-phenylether	ND		400
1,4-Dichlorobenzene	ND		400	Fluorene	ND		400
Benzyl Alcohol	ND		400	4-Nitroaniline	ND		2000
1,2-Dichlorobenzene	ND		400	N-Nitrosodiphenylamine	ND		400
bis(2-chloroisopropyl)Ether	ND		400	4-Bromophenyl-phenylether	ND		400
N-Nitroso-Di-n-Propylamine	ND		400	Hexachlorobenzene	ND		400
Hexachloroethane	ND		400	Phenanthrene	ND		400
Nitrobenzene	ND		400	Anthracene	ND		400
Isophorone	ND		400	Di-n-Butylphthalate	ND		400
Benzoic Acid	ND		2000	Fluoranthene	ND		400
bis(-2-Chloroethoxy)Methane	ND		400	Pyrene	ND		400
1,2,4-Trichlorobenzene	ND		400	Butylbenzylphthalate	ND		400
Naphthalene	ND		400	3,3'-Dichlorobenzidine	ND		800
4-Chloroaniline	ND		400	Benzo(a)Anthracene	ND		400
Hexachlorobutadiene	ND		400	Bis(2-Ethylhexyl)Phthalate	150	J	400
2-Methylnapnthalene	44	J	400	Chrysene	ND		400
Hexachlorocyclopentadiene	ND		400	Di-n-Octyl Phthalate	ND		400
2-Chloronaphthalene	ND		400	Benzo(b)fluoranthene	ND		400
2-Nitroaniline	ND		2000	Benzo(k)Fluoranthene	ND		400
Dimethyl Phthalate	ND		400	Benzo(a)Pyrene	ND		400
Acenaonthylene	ND		400	Indeno(1,2,3-cd)Pyrene	ND		400
3-Nitroaniline	ND		2000	Dibenzo(a,h)Anthracene	ND		400
Acenaphthene	ND		400	Benzo(g,h,i)Perylene	ND		400
Dibenzofuran	ND		400	Benzidine	ND		800
2,4-Dinitrotoluene	ND		400				

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.7

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1800

Sample wt/vol: .04 (g/mL) g

Lab File ID: >A1596

Level: MED

Date Received: 05/03/93

% Moisture: 17

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 125

Number TICs Found 19

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	110827	Cyclohexane(DOT (8CI9CI)	9.80	2900
2	108872	Cyclohexane, methyl- (8CI9CI)	11.56	4500
3		UNKNOWN	13.88	1000
4	17302237	Nonane, 4,5-dimethyl- (8CI9CI)	15.13	1200
5	103651	Benzene, propyl- (8CI9CI)	18.05	1100
6	622968	Benzene, 1-ethyl-4-methyl- (9CI)	18.21	2700
7	108678	Benzene, 1,3,5-trimethyl- (9CI)	18.37	2300
8	611143	Benzene, 1-ethyl-2-methyl- (9CI)	18.74	1300
9	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	19.05	2200
10	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	19.82	1300
11	611154	Benzene, 1-ethenyl-2-methyl- (9CI)	20.19	4000
12	1758889	Benzene, 2-ethyl-1,4-dimethyl- (9CI)	20.34	2000
13	933982	Benzene, 1-ethyl-2,3-dimethyl- (9CI)	21.04	2400
4	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	21.26	3000
5	99876	Benzene, 1-methyl-4-(1-methylethyl)- (9CI)	21.59	1200
16	527537	Benzene, 1,2,3,5-tetramethyl- (8CI9CI)	21.77	2300
7	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	22.37	2400
8	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	22.66	6700
19	575439	Naphthalene, 1,6-dimethyl- (8CI9CI)	23.60	1900

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
US ARMY FT. MONMOUTH,NJ BLDG 108

1191.7

Name:Bridgeport Environmental, Contract:N/A

b Code: NJ 08555 Case No.: N/A SAS No.: N/A SDG No.: N/A

rix: (soil/water) SOIL Lab Sample ID: A1800

ple wt/vol: 30 (g/mL) GM Lab File ID: >C1150

evel: (low/med) LOW Date Received: NA

isture: 17 Date Extracted:05/04/93

traction: (Sepf/Cont/Sonc) SONC Date Analyzed: 5/05/93

F Cleanup: (Y/N) N Dilution Factor: 1

Number TICs found: 7 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	AS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
.	354212	Ethane, 1,2,2-trichloro-1,1-	7.72	70.	
.	767588	1H-Indene, 2,3-dihydro-1-met	12.49	41.	
3.	90120	Naphthalene, 1-methyl- (8CI9	15.11	31.	
.		Unknown	17.86	43.	
.	10544500	Sulfur, mol. (S8) (8CI9CI)	24.17	390.	
6.		Unknown	24.61	1100.	
7.	483658	Phenanthrene, 1-methyl-7-(1-	25.78	1300.	
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21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1801	DILUTION FACTOR	5.00
CLIENT ID	1191.8 BLDG 108	COMMENTS	HNU 5
DATA FILE	>A1597	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	310	Bromodichloromethane	ND	31
Acrylonitrile	ND	310	2-Chloroethylvinylether	ND	63
Chloromethane	ND	63	2-Hexanone	ND	63
Bromomethane	ND	63	trans-1,3-Dichloropropene	ND	31
Vinyl Chloride	ND	63	Toluene	ND	31
Chloroethane	ND	63	cis-1,3-Dichloropropene	ND	31
Acetone	29 JB	63	1,1,2,2-Tetrachloroethane	ND	31
1,1-Dichloroethene	ND	31	1,1,2-Trichloroethane	ND	31
Carbon Disulfide	ND	63	4-Methyl-2-pentanone	ND	63
Methylene Chloride	20 JB	31	Tetrachloroethene	ND	31
1,2-Dichloroethene(trans)	ND	31	Dibromochloromethane	ND	31
1,1-Dichloroethane	ND	31	Chlorobenzene	ND	31
Vinyl Acetate	ND	31	Ethylbenzene	ND	31
2-Butanone	ND	63	m&p-Xylenes	ND	31
Chloroform	ND	31	o-Xylene	ND	31
1,1,1-Trichloroethane	ND	31	Styrene	ND	31
Carbon Tetrachloride	ND	31	Bromoform	ND	31
1,2-Dichloroethane	ND	31	m-Dichlorobenzene	ND	31
Benzene	ND	31	p-Dichlorobenzene	ND	31
Trichloroethene	ND	31	o-Dichlorobenzene	ND	31
1,2-Dichloropropane	ND	31			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	85.1	70 - 121	OK
Toluene-d8	106	81 - 117	OK
Bromofluorobenzene	96.5	74 - 121	OK

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1801	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.8	QA BATCH	
DATA FILE	>C1255	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	410	2,6-Dinitrotoluene	ND	410
bis(-2-Chloroethyl)Ether	ND	410	Diethylphthalate	ND	410
1,3-Dichlorobenzene	ND	410	4-Chlorophenyl-phenylether	ND	410
1,4-Dichlorobenzene	ND	410	Fluorene	ND	410
Benzyl Alcohol	ND	410	4-Nitroaniline	ND	2100
1,2-Dichlorobenzene	ND	410	N-Nitrosodiphenylamine	ND	410
bis(2-chloroisopropyl)Ether	ND	410	4-Bromophenyl-phenylether	ND	410
N-Nitroso-Di-n-Propylamine	ND	410	Hexachlorobenzene	ND	410
Hexachloroethane	ND	410	Phenanthrene	87 J	410
Nitrobenzene	ND	410	Anthracene	ND	410
Isophorone	ND	410	Di-n-Butylphthalate	ND	410
Benzoic Acid	ND	2100	Fluoranthene	110 J	410
bis(-2-Chloroethoxy)Methane	ND	410	Pyrene	110 J	410
1,2,4-Trichlorobenzene	ND	410	Butylbenzylphthalate	ND	410
Naphthalene	ND	410	3,3'-Dichlorobenzidine	ND	820
4-Chloroaniline	ND	410	Benzo(a)Anthracene	50 J	410
Hexachlorobutadiene	ND	410	Bis(2-Ethylhexyl)Phthalate	4700	410
2-Methylnaphthalene	ND	410	Chrysene	60 J	410
Hexachlorocyclopentadiene	ND	410	Di-n-Octyl Phthalate	ND	410
2-Chloronaphthalene	ND	410	Benzo(b)fluoranthene	ND	410
2-Nitroaniline	ND	2100	Benzo(k)Fluoranthene	40 J	410
Dimethyl Phthalate	ND	410	Benzo(a)Pyrene	ND	410
Acenaphthylene	ND	410	Indeno(1,2,3-cd)Pyrene	ND	410
3-Nitroaniline	ND	2100	Dibenzo(a,h)Anthracene	ND	410
Acenaphthene	ND	410	Benzo(g,h,i)Perylene	ND	410
Dibenzofuran	ND	410	Benzidine	ND	820
2,4-Dinitrotoluene	ND	410			

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

1191.8

Client ID: US ARMY FT. MONMOUTH, NJ

Client ID BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1801

Sample wt/vol: 1 (g/mL) g

Lab File ID: >A1597

Level: LOW

Date Received: 05/03/93

% Moisture: 20

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 5

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	921471	Hexane, 2,3,4-trimethyl- (8CI9CI)	15.10	98
2	111842	Nonane (8CI9CI)	15.99	100
3	6044719	Dodecane, 6-methyl- (8CI9CI)	17.41	71
4	15869940	Octane, 3,6-dimethyl- (8CI9CI)	17.75	78
5	124185	Decane (8CI9CI)	18.39	200
6	17302271	Nonane, 2,5-dimethyl- (8CI9CI)	19.69	95
7	13151343	Decane, 3-methyl- (8CI9CI)	20.00	140
8	1120214	Undecane (8CI9CI)	20.59	350
9	62108230	Decane, 2,5,6-trimethyl- (9CI)	20.96	130
10	17301256	Undecane, 2,8-dimethyl- (8CI)	21.21	88
1	17302339	Undecane, 6-methyl- (8CI9CI)	21.72	190
2	565753	Pentane, 2,3,4-trimethyl- (8CI9CI)	21.83	73
13	62016186	Octane, 5-ethyl-2-methyl- (9CI)	21.90	180
4	17302328	Nonane, 3,7-dimethyl- (8CI9CI)	22.07	120
5	62108218	Decane, 6-ethyl-2-methyl- (9CI)	22.60	490
16	6044719	Dodecane, 6-methyl- (8CI9CI)	22.89	330
17	17312786	Undecane, 3,4-dimethyl- (8CI)	23.65	140
8	61142685	Cyclopentane, 1-hexyl-3-methyl- (9CI)	23.74	110
9	62016335	Octane, 2,3,6-trimethyl- (9CI)	24.00	330
20	629505	Tridecane (8CI9CI)	24.50	340

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY, FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.8

Matrix: (soil/water) SOIL

Lab Sample ID: A1801

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1255

Level: LOW

Date Extracted: 05/04/93

% Moisture: 20

Date Analyzed 05/14/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	17312628	Decane, 5-propyl- (8CI)	14.55	130
2	112403	Dodecane (8CI9CI)	15.98	170
3		UNKNOWN	16.68	170
4	17312822	Undecane, 4,6-dimethyl- (8CI)	16.84	300
5		UNKNOWN	16.95	100
6	630024	Octacosane (8CI9CI)	17.33	270
7	128370	Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	17.59	100
8		UNKNOWN	18.04	100
9	1560936	Pentadecane, 2-methyl- (8CI9CI)	18.14	100
10	62016379	Octane, 2,4,6-trimethyl- (9CI)	18.60	270
1		UNKNOWN	18.65	170
2		UNKNOWN	19.25	1100
13	26730201	Hexadecane, 7-methyl- (8CI9CI)	19.80	300
14	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	19.88	530
5		UNKNOWN	20.32	170
16	1560890	Heptadecane, 2-methyl- (8CI9CI)	20.53	100
17	54833486	Heptadecane, 2,6,10,15-tetramethyl- (9CI)	21.06	270
18	629629	Pentadecane (8CI9CI)	22.03	170
19	54833486	Heptadecane, 2,6,10,15-tetramethyl- (9CI)	23.07	130
20		UNKNOWN	24.29	430

00041

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1802	DILUTION FACTOR	1.00
CLIENT ID	1191.9 BLDG 108	COMMENTS	MAU ND
DATA FILE	>A1599	DATE ANALYZED	05/17/93

COMPOUND	UG/KG		MDL
Acrolein	ND		60
Acrylonitrile	ND		60
Chloromethane	ND		12
Bromomethane	ND		12
Vinyl Chloride	ND		12
Chloroethane	ND		12
Acetone	ND	B	12
1,1-Dichloroethene	ND		6
Carbon Disulfide	ND		12
Methylene Chloride	4 2	JB	6
1,2-Dichloroethene(trans)	ND		6
1,1-Dichloroethane	ND		6
Vinyl Acetate	ND		6
2-Butanone	ND		12
Chloroform	13		6
1,1,1-Trichloroethane	ND		6
Carbon Tetrachloride	ND		6
1,2-Dichloroethane	ND		6
Benzene	ND		6
Trichloroethene	ND		6
1,2-Dichloropropane	ND		6

COMPOUND	UG/KG	MDL
Bromodichloromethane	ND	6
2-Chloroethylvinylether	ND	12
2-Hexanone	ND	12
trans-1,3-Dichloropropene	ND	6
Toluene	ND	6
cis-1,3-Dichloropropene	ND	6
1,1,2,2-Tetrachloroethane	ND	6
1,1,2-Trichloroethane	ND	6
4-Methyl-2-pentanone	ND	12
Tetrachloroethene	ND	6
Dibromochloromethane	ND	6
Chlorobenzene	ND	6
Ethylbenzene	ND	6
m&p-Xylenes	ND	6
o-Xylene	ND	6
Styrene	ND	6
Bromoform	ND	6
m-Dichlorobenzene	ND	6
p-Dichlorobenzene	ND	6
o-Dichlorobenzene	ND	6

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	92.1	70 - 121	OK
Toluene-d8	94.5	81 - 117	OK
Bromofluorobenzene	99.3	74 - 121	OK

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1802	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.9	QA BATCH	
DATA FILE	>C1256	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	400	2,6-Dinitrotoluene	ND	400
bis(-2-Chloroethyl)Ether	ND	400	Diethylphthalate	ND	400
1,3-Dichlorobenzene	ND	400	4-Chlorophenyl-phenylether	ND	400
1,4-Dichlorobenzene	ND	400	Fluorene	47 J	400
Benzyl Alcohol	ND	400	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	400	N-Nitrosodiphenylamine	ND	400
bis(2-chloroisopropyl)Ether	ND	400	4-Bromophenyl-phenylether	ND	400
N-Nitroso-Di-n-Propylamine	ND	400	Hexachlorobenzene	ND	400
Hexachloroethane	ND	400	Phenanthrene	400	400
Nitrobenzene	ND	400	Anthracene	70 J	400
Isophorone	ND	400	Di-n-Butylphthalate	ND	400
Benzoic Acid	ND	2000	Fluoranthene	330 J	400
bis(-2-Chloroethoxy)Methane	ND	400	Pyrene	320 J	400
1,2,4-Trichlorobenzene	ND	400	Butylbenzylphthalate	ND	400
Naphthalene	40 J	400	3,3'-Dichlorobenzidine	ND	800
4-Chloroaniline	ND	400	Benzo(a)Anthracene	190 J	400
Hexachlorobutadiene	ND	400	Bis(2-Ethylhexyl)Phthalate	230 J	400
2-Methylnaphthalene	40 J	400	Chrysene	230 J	400
Hexachlorocyclopentadiene	ND	400	Di-n-Octyl Phthalate	ND	400
2-Chloronaphthalene	ND	400	Benzo(b)fluoranthene	170 J	400
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	400
Dimethyl Phthalate	ND	400	Benzo(a)Pyrene	170 J	400
Acenaphthylene	ND	400	Indeno(1,2,3-cd)Pyrene	130 J	400
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	70 J	400
Acenaphthene	ND	400	Benzo(g,h,i)Perylene	130 J	400
Dibenzofuran	ND	400	Benzidine	ND	800
2,4-Dinitrotoluene	ND	400			

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.9

ıb Name:21st Century Environmental

ıent Name: US ARMY FT. MONMOUTH, NJ Client ID: BLDG 108

Matrix: (soil/water) SOIL Lab Sample ID: A1802

ımple wt/vol: 5 (g/mL) g Lab File ID: >A1599

evel: (low/med) LOW Date Received: 05/03/93

Moisture: 17 Date Analyzed: 05/17/93

lumn: 08-624 Dilution Factor: 1

umber TICs found: 0 CONCENTRATION UNITS (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

00041

E1

EPA SAMPLE NUMBER

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

1191.9

Matrix: (soil/water) SOIL

Lab Sample ID: A1802

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1256

Level: LOW

Date Extracted: 05/04/93

% Moisture: 17

Date Analyzed 05/14/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	3.76	70
2		UNKNOWN	6.38	70
3		UNKNOWN	8.56	130
4		UNKNOWN	10.09	70
5	17301289	Undecane, 3,6-dimethyl- (8CI)	10.65	70
6	6004382	4,7-Methano-1H-indene, octahydro- (9CI)	11.20	70
7	1120214	Undecane (8CI9CI)	11.31	70
8	95932	Benzene, 1,2,4,5-tetramethyl- (8CI9CI)	11.60	70
9		UNKNOWN	12.25	30
10		UNKNOWN	12.52	30
11		UNKNOWN	12.63	30
12	17301289	Undecane, 3,6-dimethyl- (8CI)	13.23	70
13	6682719	1H-Indene, 2,3-dihydro-4,7-dimethyl- (9CI)	13.85	30
14		UNKNOWN	15.99	70
15		UNKNOWN	19.22	200
16	55045084	Dodecane, 2-methyl-6-propyl- (9CI)	19.81	130
17	74645980	Dodecane, 2,7,10-trimethyl- (9CI)	19.88	170
18	629925	Nonadecane (8CI9CI)	22.03	70
19		UNKNOWN	22.49	70
20		UNKNOWN	23.83	400

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1803	DILUTION FACTOR	1.00
CLIENT ID	1191.10 BLDG 108	COMMENTS	HNU ND
DATA FILE	>A1600	DATE ANALYZED	05/17/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG	MDL
Acrolein	ND		58	Bromodichloromethane	ND	6
Acrylonitrile	ND		58	2-Chloroethylvinylether	ND	12
Chloromethane	ND		12	2-Hexanone	ND	12
Bromomethane	ND		12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND		12	Toluene	ND	6
Chloroethane	ND		12	cis-1,3-Dichloropropene	ND	6
Acetone	ND	B	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND		6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND		12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4.2	JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND		6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND		6	Chlorobenzene	ND	6
Vinyl Acetate	ND		6	Ethylbenzene	ND	6
2-Butanone	ND		12	m&p-Xylenes	ND	6
Chloroform	ND		6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND		6	Styrene	ND	6
Carbon Tetrachloride	ND		6	Bromoform	ND	6
1,2-Dichloroethane	ND		6	m-Dichlorobenzene	ND	6
Benzene	ND		6	p-Dichlorobenzene	ND	6
Trichloroethene	ND		6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND		6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	93.2	70 - 121	OK
Toluene-d8	91.6	81 - 117	OK
Bromofluorobenzene	99.9	74 - 121	OK

Percent Solid of 86.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1803	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.10	QA BATCH	
DATA FILE	>C1257	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	380	2,6-Dinitrotoluene	ND	380
bis(-2-Chloroethyl)Ether	ND	380	Diethylphthalate	ND	380
1,3-Dichlorobenzene	ND	380	4-Chlorophenyl-phenylether	ND	380
1,4-Dichlorobenzene	ND	380	Fluorene	ND	380
Benzyl Alcohol	ND	380	4-Nitroaniline	ND	1900
1,2-Dichlorobenzene	ND	380	N-Nitrosodiphenylamine	ND	380
bis(2-chloroisopropyl)Ether	ND	380	4-Bromophenyl-phenylether	ND	380
N-Nitroso-Di-n-Propylamine	ND	380	Hexachlorobenzene	ND	380
Hexachloroethane	ND	380	Phenanthrene	160 J	380
Nitrobenzene	ND	380	Anthracene	10 J	380
Isophorone	ND	380	Di-n-Butylphthalate	ND	380
Benzoic Acid	ND	1900	Fluoranthene	180 J	380
bis(-2-Chloroethoxy)Methane	ND	380	Pyrene	210 J	380
1,2,4-Trichlorobenzene	ND	380	Butylbenzylphthalate	ND	380
Naphthalene	ND	380	3,3'-Dichlorobenzidine	ND	770
4-Chloroaniline	ND	380	Benzo(a)Anthracene	130 J	380
Hexachlorobutadiene	ND	380	Bis(2-Ethylhexyl)Phthalate	570	380
2-Methylnaphthalene	470	380	Chrysene	150 J	380
Hexachlorocyclopentadiene	ND	380	Di-n-Octyl Phthalate	ND	380
2-Chloronaphthalene	ND	380	Benzo(b)fluoranthene	110 J	380
2-Nitroaniline	ND	1900	Benzo(k)Fluoranthene	ND	380
Dimethyl Phthalate	ND	380	Benzo(a)Pyrene	140 J	380
Acenaphthylene	ND	380	Indeno(1,2,3-cd)Pyrene	110 J	380
3-Nitroaniline	ND	1900	Dibenzo(a,h)Anthracene	ND	380
Acenaphthene	ND	380	Benzo(g,h,i)Perylene	110 J	380
Dibenzofuran	ND	380	Benzidine	ND	770
2,4-Dinitrotoluene	ND	380			

Percent Solid of 86.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.10

ab Name: 21st Century Environmental

ient Name: US ARMY FT. MONMOUTH, NJ — Client ID: BLDG 108

Matrix: (soil/water) SOIL — Lab Sample ID: A1803

mple wt/vol: 5 (g/mL) g — Lab File ID: >A1600

Level: (low/med) LOW — Date Received: 05/03/93

% Moisture: 14 — Date Analyzed: 05/17/93

lumn: DB-624 — Dilution Factor: 1

mber TICs found: 0 — CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

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E1

EPA SAMPLE NUMBER

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

1191.10

Matrix: (soil/water) SOIL

Lab Sample ID: A1803

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1257

Level: LOW

Date Extracted; 05/04/93

% Moisture: 14

Date Analyzed 05/14/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 10

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	3.77	70
2	108383	Benzene, 1,3-dimethyl- (9CI)	6.38	130
3	611143	Benzene, 1-ethyl-2-methyl- (9CI)	8.57	100
4	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	9.83	70
5	1120214	Undecane (8CI9CI)	11.31	30
6		UNKNOWN	13.01	70
7	62238113	Decane, 2,3,5-trimethyl- (9CI)	15.99	30
8		UNKNOWN	19.25	1200
9		UNKNOWN	24.31	570
10		UNKNOWN	30.21	170

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1804	DILUTION FACTOR	1.00
CLIENT ID	1191.11 BLDG 108	COMMENTS	HNU ND
DATA FILE	>A1601	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	60	Bromodichloromethane	ND	6
Acrylonitrile	ND	60	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	4.6 JB	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4.2 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m&p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	94.2	70 - 121	OK
Toluene-d8	93.9	81 - 117	OK
Bromofluorobenzene	97.8	74 - 121	OK

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMETAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1804	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.11	QA BATCH	
DATA FILE	>C1258	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	400	2,6-Dinitrotoluene	ND	400
bis(-2-Chloroethyl)Ether	ND	400	Diethylphthalate	ND	400
1,3-Dichlorobenzene	ND	400	4-Chlorophenyl-phenylether	ND	400
1,4-Dichlorobenzene	ND	400	Fluorene	ND	400
Benzyl Alcohol	ND	400	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	400	N-Nitrosodiphenylamine	ND	400
bis(2-chloroisopropyl)Ether	ND	400	4-Bromophenyl-phenylether	ND	400
N-Nitroso-Di-n-Propylamine	ND	400	Hexachlorobenzene	ND	400
Hexachloroethane	ND	400	Phenanthrene	370 J	400
Nitrobenzene	ND	400	Anthracene	100 J	400
Isophorone	ND	400	Di-n-Butylphthalate	ND	400
Benzoic Acid	ND	2000	Fluoranthene	670	400
bis(-2-Chloroethoxy)Methane	ND	400	Pyrene	670	400
1,2,4-Trichlorobenzene	ND	400	Butylbenzylphthalate	ND	400
Naphthalene	ND	400	3,3'-Dichlorobenzidine	ND	800
4-Chloroaniline	ND	400	Benzo(a)Anthracene	130 J	400
Hexachlorobutadiene	ND	400	Bis(2-Ethylhexyl)Phthalate	670	400
2-Methylnaphthalene	43 J	400	Chrysene	530	400
Hexachlorocyclopentadiene	ND	400	Di-n-Octyl Phthalate	ND	400
2-Chloronaphthalene	ND	400	Benzo(b)fluoranthene	430	400
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	80 J	400
Dimethyl Phthalate	ND	400	Benzo(a)Pyrene	430	400
Acenaphthylene	ND	400	Indeno(1,2,3-cd)Pyrene	290 J	400
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	ND	400
Acenaphthene	ND	400	Benzo(g,h,i)Perylene	300 J	400
Dibenzofuran	ND	400	Benzidine	ND	800
2,4-Dinitrotoluene	ND	400			

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.11

ab Name:21st Century Environmental

ient Name: US ARMY FT. MONMOUTH, NJ — Client ID: BLDG 108

trix: (soil/water) SOIL — Lab Sample ID: A1804

Sample wt/vol: 5 (g/mL) g — Lab File ID: >A1601

vel: (low/med) LOW — Date Received: 05/03/93

Moisture: 17 — Date Analyzed: 05/17/93

Column: DB-624 — Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

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E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.11

Matrix: (soil/water) SOIL

Lab Sample ID: A1804

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1258

Level: LOW

Date Extracted: 05/04/93

% Moisture: 17

Date Analyzed 05/14/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 12

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	1120214	Undecane (8CI9CI)	13.01	30
2	629505	Tridecane (8CI9CI)	15.99	30
3		UNKNOWN	19.25	1300
4	112958	Eicosane (8CI9CI)	19.81	70
5	55045119	Tridecane, 5-propyl- (9CI)	19.88	70
6		UNKNOWN	22.50	130
7		UNKNOWN	24.30	770
8		UNKNOWN	24.89	1200
9	238846	11H-Benzo[a]fluorene (8CI9CI)	25.44	170
10		UNKNOWN	26.76	800
11	192972	Benzo[e]pyrene (8CI9CI)	30.22	270
12		UNKNOWN	31.13	300

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1805	DILUTION FACTOR	1.00
CLIENT ID	1191.13 BLDG 108	COMMENTS	HNU ND
DATA FILE	>A1602	DATE ANALYZED	05/17/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG	MDL
Acrolein	ND		54	Bromodichloromethane	ND	5
Acrylonitrile	ND		54	2-Chloroethylvinylether	ND	11
Chloromethane	ND		11	2-Hexanone	ND	11
Bromomethane	ND		11	trans-1,3-Dichloropropene	ND	5
Vinyl Chloride	ND		11	Toluene	ND	5
Chloroethane	ND		11	cis-1,3-Dichloropropene	ND	5
Acetone	ND	B	11	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND		5	1,1,2-Trichloroethane	ND	5
Carbon Disulfide	ND		11	4-Methyl-2-pentanone	ND	11
Methylene Chloride	5.0	JB	5	Tetrachloroethene	ND	5
1,2-Dichloroethene(trans)	ND		5	Dibromochloromethane	ND	5
1,1-Dichloroethane	ND		5	Chlorobenzene	ND	5
Vinyl Acetate	ND		5	Ethylbenzene	ND	5
2-Butanone	ND		11	m&p-Xylenes	ND	5
Chloroform	ND		5	o-Xylene	ND	5
1,1,1-Trichloroethane	ND		5	Styrene	ND	5
Carbon Tetrachloride	ND		5	Bromoform	ND	5
1,2-Dichloroethane	ND		5	m-Dichlorobenzene	ND	5
Benzene	ND		5	p-Dichlorobenzene	ND	5
Trichloroethene	ND		5	o-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND		5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	96.3	70 - 121	OK
Toluene-d8	87.3	81 - 117	OK
Bromofluorobenzene	98.6	74 - 121	OK

Percent Solid of 92.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1805	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191,13	QA BATCH	
DATA FILE	>C1248	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	360	2,6-Dinitrotoluene	ND	360
bis(-2-Chloroethyl)Ether	ND	360	Diethylphthalate	ND	360
1,3-Dichlorobenzene	ND	360	4-Chlorophenyl-phenylether	ND	360
1,4-Dichlorobenzene	ND	360	Fluorene	ND	360
Benzyl Alcohol	ND	360	4-Nitroaniline	ND	1800
1,2-Dichlorobenzene	ND	360	N-Nitrosodiphenylamine	ND	360
bis(2-chloroisopropyl)Ether	ND	360	4-Bromophenyl-phenylether	ND	360
N-Nitroso-Di-n-Propylamine	ND	360	Hexachlorobenzene	ND	360
Hexachloroethane	ND	360	Phenanthrene	100 J	360
Nitrobenzene	ND	360	Anthracene	ND	360
Isophorone	ND	360	Di-n-Butylphthalate	ND	360
Benzoic Acid	ND	1800	Fluoranthene	180 J	360
bis(-2-Chloroethoxy)Methane	ND	360	Pyrene	200 J	360
1,2,4-Trichlorobenzene	ND	360	Butylbenzylphthalate	ND	360
Naphthalene	ND	360	3,3'-Dichlorobenzidine	ND	720
4-Chloroaniline	ND	360	Benzo(a)Anthracene	110 J	360
Hexachlorobutadiene	ND	360	Bis(2-Ethylhexyl)Phthalate	50 J	360
2-Methylnaphthalene	ND	360	Chrysene	130 J	360
Hexachlorocyclopentadiene	ND	360	Di-n-Octyl Phthalate	ND	360
2-Chloronaphthalene	ND	360	Benzo(b)fluoranthene	120 J	360
2-Nitroaniline	ND	1800	Benzo(k)Fluoranthene	ND	360
Dimethyl Phthalate	ND	360	Benzo(a)Pyrene	110 J	360
Acenaphthylene	ND	360	Indeno(1,2,3-cd)Pyrene	70 J	360
3-Nitroaniline	ND	1800	Dibenzo(a,h)Anthracene	ND	360
Acenaphthene	ND	360	Benzo(g,h,i)Perylene	80 J	360
Dibenzofuran	ND	360	Benzidine	ND	720
2,4-Dinitrotoluene	ND	360			

Percent Solid of 92.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.13

Lab Name: 21st Century Environmental

ient Name: US ARMY FT. MONMOUTH, NJ — Client ID: BLDG 108

Matrix: (soil/water) SOIL — Lab Sample ID: A1805

mple wt/vol: 5 (g/mL) g — Lab File ID: >A1602

vel: (low/med) LOW — Date Received: 05/03/93

% Moisture: 8 — Date Analyzed: 05/17/93

lumn: DB-624 — Dilution Factor: 1

umber TICs found: 0 — CONCENTRATION UNITS: (ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

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E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.13

Matrix: (soil/water) SOIL

Lab Sample ID: A1805

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1248

Level: LOW

Date Extracted: 05/04/93

% Moisture: 8

Date Analyzed 05/13/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 18

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	4.60	70
2	108383	Benzene, 1,3-dimethyl- (9CI)	6.39	70
3		UNKNOWN	7.44	130
4	611143	Benzene, 1-ethyl-2-methyl- (9CI)	8.56	70
5	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	9.84	70
6	1120214	Undecane (8CI9CI)	13.00	70
7		UNKNOWN	14.55	70
8		UNKNOWN	15.67	70
9	629505	Tridecane (8CI9CI)	15.98	70
10		UNKNOWN	16.68	30
11	544763	Hexadecane (8CI9CI)	16.83	70
12	128370	Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	17.58	70
13	629629	Pentadecane (8CI9CI)	18.60	70
14		UNKNOWN	19.24	1200
15	544763	Hexadecane (8CI9CI)	19.80	70
16	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	19.88	100
17		UNKNOWN	21.06	100
18		UNKNOWN	23.83	730

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1806	DILUTION FACTOR	500.00
CLIENT ID	1191.14 BLDG 108	COMMENTS	HNU 3
DATA FILE	>A1603	DATE ANALYZED	05/17/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG		MDL
Acrolein	ND		30000	Bromodichloromethane	ND		3000
Acrylonitrile	ND		30000	2-Chloroethylvinylether	ND		6000
Chloromethane	ND		6000	2-Hexanone	ND		6000
Bromomethane	ND		6000	trans-1,3-Dichloropropene	ND		3000
Vinyl Chloride	ND		6000	Toluene	ND		3000
Chloroethane	ND		6000	cis-1,3-Dichloropropene	ND		3000
Acetone	ND	B	6000	1,1,2,2-Tetrachloroethane	ND		3000
1,1-Dichloroethene	ND		3000	1,1,2-Trichloroethane	ND		3000
Carbon Disulfide	ND		6000	4-Methyl-2-pentanone	ND		6000
Methylene Chloride	2300	JB	3000	Tetrachloroethene	ND		3000
1,2-Dichloroethene(trans)	ND		3000	Dibromochloromethane	ND		3000
1,1-Dichloroethane	ND		3000	Chlorobenzene	ND		3000
Vinyl Acetate	ND		3000	Ethylbenzene	1100	J	3000
2-Butanone	ND		6000	m&p-Xylenes	6200		3000
Chloroform	ND		3000	o-Xylene	1400	J	3000
1,1,1-Trichloroethane	ND		3000	Styrene	ND		3000
Carbon Tetrachloride	ND		3000	Bromoform	ND		3000
1,2-Dichloroethane	ND		3000	m-Dichlorobenzene	ND		3000
Benzene	ND		3000	p-Dichlorobenzene	ND		3000
Trichloroethene	ND		3000	o-Dichlorobenzene	ND		3000
1,2-Dichloropropane	ND		3000				

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	94.3	70 - 121	OK
Toluene-d8	100.0	81 - 117	OK
Bromofluorobenzene	97.3	74 - 121	OK

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1806	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.14	QA BATCH	
DATA FILE	)C1249	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	400	2,6-Dinitrotoluene	ND	400
bis(-2-Chloroethyl)Ether	ND	400	Diethylphthalate	ND	400
1,3-Dichlorobenzene	ND	400	4-Chlorophenyl-phenylether	ND	400
1,4-Dichlorobenzene	ND	400	Fluorene	470	400
Benzyl Alcohol	ND	400	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	400	N-Nitrosodiphenylamine	ND	400
bis(2-chloroisopropyl)Ether	ND	400	4-Bromophenyl-phenylether	ND	400
N-Nitroso-Di-n-Propylamine	ND	400	Hexachlorobenzene	ND	400
Hexachloroethane	ND	400	Phenanthrene	2200	400
Nitrobenzene	ND	400	Anthracene	700	400
Isophorone	ND	400	Di-n-Butylphthalate	ND	400
Benzoic Acid	ND	2000	Fluoranthene	2400	400
bis(-2-Chloroethoxy)Methane	ND	400	Pyrene	1900	400
1,2,4-Trichlorobenzene	ND	400	Butylbenzylphthalate	ND	400
Naphthalene	210 J	400	3,3'-Dichlorobenzidine	ND	800
4-Chloroaniline	ND	400	Benzo(a)Anthracene	1400	400
Hexachlorobutadiene	ND	400	Bis(2-Ethylhexyl)Phthalate	97 J	400
2-Methylnaphthalene	330 J	400	Chrysene	1500	400
Hexachlorocyclopentadiene	ND	400	Di-n-Octyl Phthalate	ND	400
2-Chloronaphthalene	ND	400	Benzo(b)fluoranthene	1000	400
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	400
Dimethyl Phthalate	ND	400	Benzo(a)Pyrene	1300	400
Acenaphthylene	ND	400	Indeno(1,2,3-cd)Pyrene	800	400
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	370 J	400
Acenaphthene	370 J	400	Benzo(g,h,i)Perylene	900	400
Dibenzofuran	310 J	400	Benzidine	ND	800
2,4-Dinitrotoluene	ND	400			

Percent Solid of 83.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

1191.14

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1806

Sample wt/vol: 01 (g/mL) g

Lab File ID: >A1603

Level: MED

Date Received: 05/03/93

% Moisture: 17

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 500

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	591764	Hexane, 2-methyl- (8CI9CI)	9.70	14000
2	589344	Hexane, 3-methyl- (8CI9CI)	9.98	16000
3	142825	Heptane (DOT)(8CI9CI)	10.65	7200
4	108872	Cyclohexane, methyl- (8CI9CI)	11.53	16000
5	617787	Pentane, 3-ethyl- (8CI9CI)	12.38	7300
6	592278	Heptane, 2-methyl- (8CI9CI)	12.48	13000
7	589811	Heptane, 3-methyl- (8CI9CI)	12.71	13000
8	111659	Octane (DOT)(8CI9CI)	13.40	8900
9	17302237	Nonane, 4,5-dimethyl- (8CI9CI)	15.10	16000
10	17302339	Undecane, 6-methyl- (8CI9CI)	15.30	8900
11	622968	Benzene, 1-ethyl-4-methyl- (9CI)	18.19	13000
12	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	18.36	14000
13	108678	Benzene, 1,3,5-trimethyl- (9CI)	19.04	13000
14	1074437	Benzene, 1-methyl-3-propyl- (9CI)	20.21	8900
15	1758889	Benzene, 2-ethyl-1,4-dimethyl- (9CI)	20.35	12000
16	1120214	Undecane (8CI9CI)	20.58	6600
17	535773	Benzene, 1-methyl-3-(1-methylethyl)- (9CI)	21.04	10000
18	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	21.27	7000
19	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	22.68	16000
20	25117742	Benzonitrile, 4-ethoxy- (9CI)	22.99	6700

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.14

Matrix: (soil/water) SOIL

Lab Sample ID: A1806

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1249

Level: LOW

Date Extracted: 05/04/93

% Moisture: 17

Date Analyzed 05/13/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	17302282	Nonane, 2,6-dimethyl- (8CI9CI)	9.89	970
2	1120214	Undecane (8CI9CI)	11.34	570
3	95932	Benzene, 1,2,4,5-tetramethyl- (8CI9CI)	11.64	730
4		UNKNOWN	12.28	600
5		UNKNOWN	13.04	1200
6	17301289	Undecane, 3,6-dimethyl- (8CI)	13.27	1200
7		UNKNOWN	13.68	600
8	6044719	Dodecane, 6-methyl- (8CI9CI)	13.87	600
9	17301278	Undecane, 2,10-dimethyl- (8CI9CI)	14.04	670
10	17312571	Dodecane, 3-methyl- (8CI9CI)	14.15	530
11	62016346	Octane, 2,3,7-trimethyl- (9CI)	14.19	1200
12		UNKNOWN	14.86	800
13		UNKNOWN	15.26	1200
14	74645980	Dodecane, 2,7,10-trimethyl- (9CI)	15.71	1500
15		UNKNOWN	16.03	1100
16		UNKNOWN	16.73	1500
17	52896909	Heptane, 3-ethyl-5-methyl- (9CI)	16.88	2100
18	62108263	Decane, 2,6,8-trimethyl- (9CI)	19.24	1800
19	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	19.92	2100
20	10544500	Sulfur, mol. (S8) (8CI9CI)	23.89	3300

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1802	DILUTION FACTOR	1.00
CLIENT ID	1191.15 BLDG 108	COMMENTS	HNU 3
DATA FILE	>A1604	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	60	Bromodichloromethane	ND	6
Acrylonitrile	ND	60	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropane	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	39 B	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	5.6 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	1.7 J	6
2-Butanone	ND	12	m&p-Xylenes	7.7	6
Chloroform	ND	6	o-Xylene	3.5 J	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	92.9	70 - 121	OK
Toluene-d8	99.0	81 - 117	OK
Bromofluorobenzene	87.4	74 - 121	OK

Percent Solid of 84.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	A1807	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.15	QA BATCH	
DATA FILE	>C1250	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	390	2,6-Dinitrotoluene	ND	390
bis(-2-Chloroethyl)Ether	ND	390	Diethylphthalate	ND	390
1,3-Dichlorobenzene	ND	390	4-Chlorophenyl-phenylether	ND	390
1,4-Dichlorobenzene	ND	390	Fluorene	ND	390
Benzyl Alcohol	ND	390	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	390	N-Nitrosodiphenylamine	ND	390
bis(2-chloroisopropyl)Ether	ND	390	4-Bromophenyl-phenylether	ND	390
N-Nitroso-Di-n-Propylamine	ND	390	Hexachlorobenzene	ND	390
Hexachloroethane	ND	390	Phenanthrene	ND	390
Nitrobenzene	ND	390	Anthracene	ND	390
Isophorone	ND	390	Di-n-Butylphthalate	ND	390
Benzoic Acid	ND	2000	Fluoranthene	ND	390
bis(-2-Chloroethoxy)Methane	ND	390	Pyrene	ND	390
1,2,4-Trichlorobenzene	ND	390	Butylbenzylphthalate	ND	390
Naphthalene	ND	390	3,3'-Dichlorobenzidine	ND	780
4-Chloroaniline	ND	390	Benzo(a)Anthracene	ND	390
Hexachlorobutadiene	ND	390	Bis(2-Ethylhexyl)Phthalate	ND	390
2-Methylnaphthalene	ND	390	Chrysene	ND	390
Hexachlorocyclopentadiene	ND	390	Di-n-Octyl Phthalate	ND	390
2-Chloronaphthalene	ND	390	Benzo(b)fluoranthene	ND	390
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	390
Dimethyl Phthalate	ND	390	Benzo(a)Pyrene	ND	390
Acenaphthylene	ND	390	Indeno(1,2,3-cd)Pyrene	ND	390
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	ND	390
Acenaphthene	ND	390	Benzo(g,h,i)Perylene	ND	390
Dibenzofuran	ND	390	Benzidine	ND	780
2,4-Dinitrotoluene	ND	390			

Percent Solid of 84.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.15

Client Name: US ARMY FT. MONMOUTH, NJ Client ID: BLDG 108

Matrix: (soil/water) SOIL Lab Sample ID: A1807

Sample wt/vol: 5 (g/mL) g Lab File ID: >A1604

Level: LOW Date Received: 05/03/93

% Moisture: 16 Date Analyzed 05/17/93

Column: CAP Dilution Factor: 1

Number TICs Found 18 CONCENTRATION UNITS (ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	624839	Methane, isocyanato- (9CI)	7.88	6
2	591764	Hexane, 2-methyl- (8CI9CI)	9.75	11
3	589344	Hexane, 3-methyl- (8CI9CI)	10.02	11
4	142825	Heptane (DOT)(8CI9CI)	10.69	5
5	108872	Cyclohexane, methyl- (8CI9CI)	11.59	10
6	592278	Heptane, 2-methyl- (8CI9CI)	12.53	10
7	589435	Hexane, 2,4-dimethyl- (8CI9CI)	12.76	10
8	111659	Octane (DOT)(8CI9CI)	13.45	5
9	2216300	Heptane, 2,5-dimethyl- (8CI9CI)	14.44	4
10	921471	Hexane, 2,3,4-trimethyl- (8CI9CI)	15.16	7
11	2216333	Octane, 3-methyl- (8CI9CI)	15.37	5
12	611143	Benzene, 1-ethyl-2-methyl- (9CI)	18.26	7
13	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	18.43	6
14	98828	Benzene, (1-methylethyl)- (9CI)	18.80	4
15	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	19.12	8
16	873494	Benzene, cyclopropyl- (8CI9CI)	20.29	4
17	934805	Benzene, 4-ethyl-1,2-dimethyl- (9CI)	20.42	5
18	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	22.76	5

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S ARMY FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.15

Matrix: (soil/water) SOIL

Lab Sample ID: A1807

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1250

Level: LOW

Date Extracted: 05/04/93

% Moisture: 16

Date Analyzed 05/13/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 6

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	UNKNOWN	19.23	970
2	UNKNOWN	21.07	30
3	UNKNOWN	23.82	470
4	UNKNOWN	24.32	430
5	UNKNOWN	24.88	270
6	UNKNOWN	26.79	830

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1808	DILUTION FACTOR	125.00
CLIENT ID	1191.16 BLDG 108	COMMENTS	HMU 100
DATA FILE	>A1616	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG		MDL
Acrolein	ND	7800	Bromodichloromethane	ND		780
Acrylonitrile	ND	7800	2-Chloroethylvinylether	ND		1600
Chloromethane	ND	1600	2-Hexanone	ND		1600
Bromomethane	ND	1600	trans-1,3-Dichloropropene	ND		780
Vinyl Chloride	ND	1600	Toluene	9500		780
Chloroethane	ND	1600	cis-1,3-Dichloropropene	ND		780
Acetone	ND	1600	1,1,2,2-Tetrachloroethane	ND		780
1,1-Dichloroethene	ND	780	1,1,2-Trichloroethane	ND		780
Carbon Disulfide	ND	1600	4-Methyl-2-pentanone	ND		1600
Methylene Chloride	870	780	Tetrachloroethene	ND		780
1,2-Dichloroethene(trans)	ND	780	Dibromochloromethane	ND		780
1,1-Dichloroethane	ND	780	Chlorobenzene	ND		780
Vinyl Acetate	ND	780	Ethylbenzene	21000		780
2-Butanone	ND	1600	m&p-Xylenes	170000	D	780
Chloroform	ND	780	o-Xylene	69000	D	780
1,1,1-Trichloroethane	ND	780	Styrene	ND		780
Carbon Tetrachloride	ND	780	Bromoform	ND		780
1,2-Dichloroethane	ND	780	m-Dichlorobenzene	ND		780
Benzene	760 J	780	p-Dichlorobenzene	ND		780
Trichloroethene	ND	780	o-Dichlorobenzene	ND		780
1,2-Dichloropropane	ND	780				

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	101	70 - 121	OK
Toluene-d8	106	81 - 117	OK
Bromofluorobenzene	93.0	74 - 121	OK

Percent Solid of 80.0 is used for all Target compounds

(J) Indicates detected below MDL
(B) Indicates also present in blank
(D) Calculated from a dilution
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1808	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.16	QA BATCH	
DATA FILE	>C1251	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	410	2,6-Dinitrotoluene	ND	410
bis(-2-Chloroethyl)Ether	ND	410	Diethylphthalate	ND	410
1,3-Dichlorobenzene	ND	410	4-Chlorophenyl-phenlyether	ND	410
1,4-Dichlorobenzene	ND	410	Fluorene	220 J	410
Benzyl Alcohol	ND	410	4-Nitroaniline	ND	2100
1,2-Dichlorobenzene	ND	410	N-Nitrosodiphenylamine	ND	410
bis(2-chloroisopropyl)Ether	ND	410	4-Bromophenyl-phenylether	ND	410
N-Nitroso-Di-n-Propylamine	ND	410	Hexachlorobenzene	ND	410
Hexachloroethane	ND	410	Phenanthrene	800	410
Nitrobenzene	ND	410	Anthracene	210 J	410
Isophorone	ND	410	Di-n-Butylphthalate	ND	410
Benzoic Acid	ND	2100	Fluoranthene	530	410
bis(-2-Chloroethoxy)Methane	ND	410	Pyrene	470	410
1,2,4-Trichlorobenzene	ND	410	Butylbenzylphthalate	ND	410
Naphthalene	1500	410	3,3'-Dichlorobenzidine	ND	820
4-Chloroaniline	ND	410	Benzo(a)Anthracene	220 J	410
Hexachlorobutadiene	ND	410	Bis(2-Ethylhexyl)Phthalate	2000	410
2-Methylnaphthalene	2500	410	Chrysene	210 J	410
Hexachlorocyclopentadiene	ND	410	Di-n-Octyl Phthalate	ND	410
2-Chloronaphthalene	ND	410	Benzo(b)fluoranthene	130 J	410
2-Nitroaniline	ND	2100	Benzo(k)Fluoranthene	ND	410
Dimethyl Phthalate	ND	410	Benzo(a)Pyrene	160 J	410
Acenaphthylene	ND	410	Indeno(1,2,3-cd)Pyrene	90 J	410
3-Nitroaniline	ND	2100	Dibenzo(a,h)Anthracene	ND	410
Acenaphthene	ND	410	Benzo(g,h,i)Perylene	97 J	410
Dibenzofuran	90 J	410	Benzidine	ND	820
2,4-Dinitrotoluene	ND	410			

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.16

Client Name: US ARMY FT. MONMOUTH, NJ

Client Name: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1808

Sample wt/vol: .04 (g/mL) g

Lab File ID: >A1616

Level: MED

Date Received: 05/03/93

% Moisture: 20

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 125

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	96140	Pentane, 3-methyl- (8CI9CI)	7.66	4900
2	96377	Cyclopentane, methyl- (8CI9CI)	8.60	4400
3	591764	Hexane, 2-methyl- (8CI9CI)	9.53	7900
4	589344	Hexane, 3-methyl- (8CI9CI)	9.81	7400
5	142825	Heptane (DOT)(8CI9CI)	10.47	15000
6	108872	Cyclohexane, methyl- (8CI9CI)	11.36	23000
7	584941	Hexane, 2,3-dimethyl- (8CI9CI)	12.21	7800
8	592278	Heptane, 2-methyl- (8CI9CI)	12.31	16000
9	583482	Hexane, 3,4-dimethyl- (8CI9CI)	12.54	14000
10	111659	Octane (DOT)(8CI9CI)	13.22	31000
11	17302237	Nonane, 4,5-dimethyl- (8CI9CI)	14.92	45000
12	611143	Benzene, 1-ethyl-2-methyl- (9CI)	18.02	110000
13	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	18.17	69000
14	622968	Benzene, 1-ethyl-4-methyl- (9CI)	18.54	40000
15	98828	Benzene, (1-methylethyl)- (9CI)	18.87	91000
16	108678	Benzene, 1,3,5-trimethyl- (9CI)	19.64	36000
17	1074437	Benzene, 1-methyl-3-propyl- (9CI)	20.03	69000
18	535773	Benzene, 1-methyl-3-(1-methylethyl)- (9CI)	20.16	66000
19	2870044	Benzene, 2-ethyl-1,3-dimethyl- (9CI)	20.86	39000
20	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	22.47	40000

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.16

Matrix: (soil/water) SOIL

Lab Sample ID: A1808

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1251

Level: LOW

Date Extracted: 05/04/93

% Moisture: 20

Date Analyzed 05/13/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	1120214	Undecane (8CI9CI)	11.32	1700
2	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	11.62	1100
3	95932	Benzene, 1,2,4,5-tetramethyl- (8CI9CI)	11.70	1200
4	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	12.22	1100
5		UNKNOWN	12.26	1500
6	7045718	Undecane, 2-methyl- (8CI9CI)	12.43	1200
7	6044719	Dodecane, 6-methyl- (8CI9CI)	13.25	1800
8	6682719	1H-Indene, 2,3-dihydro-4,7-dimethyl- (9CI)	13.87	1900
9	1560970	Dodecane, 2-methyl- (8CI9CI)	14.03	1300
10	62016346	Octane, 2,3,7-trimethyl- (9CI)	14.18	1400
11	90120	Naphthalene, 1-methyl- (8CI9CI)	14.84	1800
12	62108218	Decane, 6-ethyl-2-methyl- (9CI)	16.03	6000
13	575439	Naphthalene, 1,6-dimethyl- (8CI9CI)	16.19	1800
14	573988	Naphthalene, 1,2-dimethyl- (8CI9CI)	16.67	2200
15	17312822	Undecane, 4,6-dimethyl- (8CI)	16.86	2500
16	630013	Hexacosane (8CI9CI)	17.37	3200
17	17301289	Undecane, 3,6-dimethyl- (8CI)	19.22	3200
18	630024	Octacosane (8CI9CI)	19.83	7000
19	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	19.90	4000
20	629787	Heptadecane (8CI9CI)	22.05	3700

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1809	DILUTION FACTOR	125.00
CLIENT ID	1191.17 BLDG 108	COMMENTS	HNU 150
DATA FILE	>A1620	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	7600	Bromodichloromethane	ND	760
Acrylonitrile	ND	7600	2-Chloroethylvinylether	ND	1500
Chloromethane	ND	1500	2-Hexanone	ND	1500
Bromomethane	ND	1500	trans-1,3-Dichloropropene	ND	760
Vinyl Chloride	ND	1500	Toluene	ND	760
Chloroethane	ND	1500	cis-1,3-Dichloropropene	ND	760
Acetone	ND	1500	1,1,2,2-Tetrachloroethane	ND	760
1,1-Dichloroethene	ND	760	1,1,2-Trichloroethane	ND	760
Carbon Disulfide	ND	1500	4-Methyl-2-pentanone	ND	1500
Methylene Chloride	1000	760	Tetrachloroethene	ND	760
1,2-Dichloroethene(trans)	ND	760	Dibromochloromethane	ND	760
1,1-Dichloroethane	ND	760	Chlorobenzene	ND	760
Vinyl Acetate	ND	760	Ethylbenzene	340 J	760
2-Butanone	ND	1500	m&p-Xylenes	1900	760
Chloroform	ND	760	o-Xylene	ND	760
1,1,1-Trichloroethane	ND	760	Styrene	ND	760
Carbon Tetrachloride	ND	760	Bromoform	ND	760
1,2-Dichloroethane	ND	760	m-Dichlorobenzene	ND	760
Benzene	2500	760	p-Dichlorobenzene	ND	760
Trichloroethene	ND	760	o-Dichlorobenzene	ND	760
1,2-Dichloropropane	ND	760			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	103	70 - 121	OK
Toluene-d8	101	81 - 117	OK
Bromofluorobenzene	93.4	74 - 121	OK

Percent Solid of 82.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH, NJ	MATRIX	Soil
SAMPLE NUMBER	A1809	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.17	QA BATCH	
DATA FILE	>C1253	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	400	2,6-Dinitrotoluene	ND	400
bis(-2-Chloroethyl)Ether	ND	400	Diethylphthalate	ND	400
1,3-Dichlorobenzene	ND	400	4-Chlorophenyl-phenylether	ND	400
1,4-Dichlorobenzene	ND	400	Fluorene	180 J	400
Benzyl Alcohol	ND	400	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	400	N-Nitrosodiphenylamine	ND	400
bis(2-chloroisopropyl)Ether	ND	400	4-Bromophenyl-phenylether	ND	400
N-Nitroso-Di-n-Propylamine	ND	400	Hexachlorobenzene	ND	400
Hexachloroethane	ND	400	Phenanthrene	870 J	400
Nitrobenzene	ND	400	Anthracene	230 J	400
Isophorone	ND	400	Di-n-Butylphthalate	ND	400
Benzoic Acid	ND	2000	Fluoranthene	600	400
bis(-2-Chloroethoxy)Methane	ND	400	Pyrene	570	400
1,2,4-Trichlorobenzene	ND	400	Butylbenzylphthalate	ND	400
Naphthalene	870	400	3,3'-Dichlorobenzidine	ND	800
4-Chloroaniline	ND	400	Benzo(a)Anthracene	320 J	400
Hexachlorobutadiene	ND	400	Bis(2-Ethylhexyl)Phthalate	2200	400
2-Methylnaphthalene	1300	400	Chrysene	370 J	400
Hexachlorocyclopentadiene	ND	400	Di-n-Octyl Phthalate	ND	400
2-Chloronaphthalene	ND	400	Benzo(b)fluoranthene	200 J	400
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	400
Dimethyl Phthalate	ND	400	Benzo(a)Pyrene	250 J	400
Acenaphthylene	ND	400	Indeno(1,2,3-cd)Pyrene	140 J	400
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	70 J	400
Acenaphthene	190 J	400	Benzo(g,h,i)Perylene	150 J	400
Dibenzofuran	80 J	400	Benzidine	ND	800
2,4-Dinitrotoluene	ND	400			

Percent Solid of 82.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

1191.17

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1809

Sample wt/vol: .04 (g/mL) g

Lab File ID: >A1620

Level: MED

Date Received: 05/03/93

% Moisture: 18

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 125

Number TICs Found 19

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	109660	Pentane (ACN)(DOT)(8CI9CI)	5.45	1600
2	96140	Pentane, 3-methyl- (8CI9CI)	7.70	2400
3	96377	Cyclopentane, methyl- (8CI9CI)	8.64	2700
4	1120623	Cyclopentene, 3-methyl- (8CI9CI)	9.37	1600
5	690088	2-Pentene, 4,4-dimethyl-, (E)- (8CI9CI)	11.40	1800
6	16491159	Cyclopentene, 1,5-dimethyl- (8CI9CI)	12.24	660
7	592132	Hexane, 2,5-dimethyl- (8CI9CI)	12.34	650
8	103651	Benzene, propyl- (8CI9CI)	17.91	1700
9	620144	Benzene, 1-ethyl-3-methyl- (9CI)	18.06	850
10	611143	Benzene, 1-ethyl-2-methyl- (9CI)	18.60	780
11	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	19.69	2400
12	496117	1H-Indene, 2,3-dihydro- (9CI)	20.06	2600
13	874419	Benzene, 1-ethyl-2,4-dimethyl- (9CI)	20.91	930
14	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	21.13	990
15		UNKNOWN	21.21	1000
16	25155151	Benzene, methyl(1-methylethyl)- (9CI)	21.47	680
17	767997	Benzene, (1-methyl-1-propenyl)-, (Z)- (9CI)	22.25	670
18	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	22.55	1800
19	112549	Dodecanal (9CI)	23.48	770

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S. ARMY FORT MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.17

Matrix: (soil/water) SOIL

Lab Sample ID: A1809

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1253

Level: LOW

Date Extracted: 05/04/93

% Moisture: 18

Date Analyzed 05/14/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	6.66	1700
2		UNKNOWN	9.08	2500
3	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	9.25	1200
4	620144	Benzene, 1-ethyl-3-methyl- (9CI)	9.84	1600
5	1120214	Undecane (8CI9CI)	11.32	1100
6	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	11.61	900
7	527537	Benzene, 1,2,3,5-tetramethyl- (8CI9CI)	11.70	670
8	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	12.02	800
9	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	12.22	870
10		UNKNOWN	12.25	900
11	1120214	Undecane (8CI9CI)	13.02	2200
12	17301289	Undecane, 3,6-dimethyl- (8CI)	13.24	770
13	6682719	1H-Indene, 2,3-dihydro-4,7-dimethyl- (9CI)	13.86	870
14	90120	Naphthalene, 1-methyl- (8CI9CI)	14.83	970
15	62108218	Decane, 6-ethyl-2-methyl- (9CI)	16.00	1800
16	575439	Naphthalene, 1,6-dimethyl- (8CI9CI)	16.18	800
17	573988	Naphthalene, 1,2-dimethyl- (8CI9CI)	16.67	970
18	17312628	Decane, 5-propyl- (8CI)	16.85	1200
19		UNKNOWN	19.25	1400
20	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	19.88	1200

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1818	DILUTION FACTOR	125.00
CLIENT ID	1191.18 BLDG 108	COMMENTS	MNU 3
DATA FILE	>A1618	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	7400	Bromodichloromethane	ND	740
Acrylonitrile	ND	7400	2-Chloroethylvinylether	ND	1500
Chloromethane	ND	1500	2-Hexanone	ND	1500
Bromomethane	ND	1500	trans-1,3-Dichloropropene	ND	740
Vinyl Chloride	ND	1500	Toluene	920	740
Chloroethane	ND	1500	cis-1,3-Dichloropropane	ND	740
Acetone	ND	1500	1,1,2,2-Tetrachloroethane	ND	740
1,1-Dichloroethene	ND	740	1,1,2-Trichloroethane	ND	740
Carbon Disulfide	ND	1500	4-Methyl-2-pentanone	ND	1500
Methylene Chloride	870	740	Tetrachloroethene	ND	740
1,2-Dichloroethene(trans)	ND	740	Dibromochloromethane	ND	740
1,1-Dichloroethane	ND	740	Chlorobenzene	ND	740
Vinyl Acetate	ND	740	Ethylbenzene	850	740
2-Butanone	ND	1500	m&p-Xylenes	3400	740
Chloroform	ND	740	o-Xylene	1200	740
1,1,1-Trichloroethane	ND	740	Styrene	ND	740
Carbon Tetrachloride	ND	740	Bromoform	ND	740
1,2-Dichloroethane	ND	740	m-Dichlorobenzene	ND	740
Benzene	ND	740	p-Dichlorobenzene	ND	740
Trichloroethene	ND	740	o-Dichlorobenzene	ND	740
1,2-Dichloropropane	ND	740			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	103	70 - 121	OK
Toluene-d8	102	81 - 117	OK
Bromofluorobenzene	93.2	74 - 121	OK

Percent Solid of 84.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH, NJ	MATRIX	Soil
SAMPLE NUMBER	A1810	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.18	QA BATCH	
DATA FILE	>C1254	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	390	2,6-Dinitrotoluene	ND	390
bis(-2-Chloroethyl)Ether	ND	390	Diethylphthalate	ND	390
1,3-Dichlorobenzene	ND	390	4-Chlorophenyl-phenylether	ND	390
1,4-Dichlorobenzene	ND	390	Fluorene	ND	390
Benzyl Alcohol	ND	390	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	390	N-Nitrosodiphenylamine	ND	390
bis(2-chloroisopropyl)Ether	ND	390	4-Bromophenyl-phenylether	ND	390
N-Nitroso-Di-n-Propylamine	ND	390	Hexachlorobenzene	ND	390
Hexachloroethane	ND	390	Phenanthrene	ND	390
Nitrobenzene	ND	390	Anthracene	ND	390
Isophorone	ND	390	Di-n-Butylphthalate	ND	390
Benzoic Acid	ND	2000	Fluoranthene	80 J	390
bis(-2-Chloroethoxy)Methane	ND	390	Pyrene	80 J	390
1,2,4-Trichlorobenzene	ND	390	Butylbenzylphthalate	ND	390
Naphthalene	ND	390	3,3'-Dichlorobenzidine	ND	780
4-Chloroaniline	ND	390	Benzo(a)Anthracene	50 J	390
Hexachlorobutadiene	ND	390	Bis(2-Ethylhexyl)Phthalate	ND	390
2-Methylnaphthalene	ND	390	Chrysene	40 J	390
Hexachlorocyclopentadiene	ND	390	Di-n-Octyl Phthalate	ND	390
2-Chloronaphthalene	ND	390	Benzo(b)fluoranthene	60 J	390
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	390
Dimethyl Phthalate	ND	390	Benzo(a)Pyrene	ND	390
Acenaphthylene	ND	390	Indeno(1,2,3-cd)Pyrene	ND	390
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	ND	390
Acenaphthene	ND	390	Benzo(g,h,i)Perylene	ND	390
Dibenzofuran	ND	390	Benzidine	ND	780
2,4-Dinitrotoluene	ND	390			

Percent Solid of 84.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

1191.18

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1810

Sample wt/vol: .04 (g/mL) g

Lab File ID: >A1618

Level: MED

Date Received: 05/03/93

% Moisture: 16

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 125

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	591764	Hexane, 2-methyl- (8CI9CI)	9.52	6300
2	589344	Hexane, 3-methyl- (8CI9CI)	9.78	6500
3	142825	Heptane (DOT)(8CI9CI)	10.46	2700
4	108872	Cyclohexane, methyl- (8CI9CI)	11.36	4600
5	617787	Pentane, 3-ethyl- (8CI9CI)	12.23	1400
6	592278	Heptane, 2-methyl- (8CI9CI)	12.33	5800
7	589811	Heptane, 3-methyl- (8CI9CI)	12.55	5200
8	111659	Octane (DOT)(8CI9CI)	13.26	3000
9	2216333	Octane, 3-methyl- (8CI9CI)	14.25	2400
10	921471	Hexane, 2,3,4-trimethyl- (8CI9CI)	14.98	6800
11	2216300	Heptane, 2,5-dimethyl- (8CI9CI)	15.18	4300
12	15869940	Octane, 3,6-dimethyl- (8CI9CI)	16.72	1900
13	2471832	1H-Indene, 1-ethylidene- (9CI)	16.87	3200
14	2051301	Octane, 2,6-dimethyl- (8CI9CI)	17.60	2400
15	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	18.23	2300
16	108678	Benzene, 1,3,5-trimethyl- (9CI)	18.90	2700
17	17312537	Decane, 3,6-dimethyl- (8CI9CI)	19.69	1300
18	13151343	Decane, 3-methyl- (8CI9CI)	19.86	1200
19	611154	Benzene, 1-ethenyl-2-methyl- (9CI)	20.06	1300
20	112312	Decanal (8CI9CI)	23.50	1300

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
US ARMY FT. MONMOUTH, NJ BLDG 108

EPA SAMPLE NO.
1191.18

Name: Bridgeport Environmental

Contract: NJ 08555

Matrix: (soil/water) SOIL — Lab Sample ID: A1810

Sample wt/vol: 30 (g/mL) GM — Lab File ID: >C1254

Level: (low/med) LOW — Date Received: NA

% Moisture: 16 — Date Extracted: 05/04/93

Extraction: (Sepf/Cont/Sonc) SONC — Date Analyzed: 5/14/93

GPC Cleanup: (Y/N) N — Dilution Factor: 1

Number TICs found: 20 — CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	589435	Hexane, 2,4-dimethyl- (8CI9C	3.92	130.	
2.	111659	Octane (DOT)(8CI9CI)	4.61	130.	
3.	2216300	Heptane, 2,5-dimethyl- (8CI9	5.54	130.	
4.	3221612	Octane, 2-methyl- (8CI9CI)	6.32	370.	
5.	926829	Heptane, 3,5-dimethyl- (8CI9	6.48	270.	
6.	15869940	Octane, 3,6-dimethyl- (8CI9C	7.98	130.	
7.		Unknown	8.56	130.	
8.	15869939	Octane, 3,5-dimethyl- (8CI9C	8.60	170.	
9.	871830	Nonane, 2-methyl- (8CI9CI)	8.66	200.	
10.	62016346	Octane, 2,3,7-trimethyl- (9C	8.80	230.	
11.		Unknown	10.10	130.	
12.	62108252	Decane, 2,6,7-trimethyl- (9C	10.67	170.	
13.	13151343	Decane, 3-methyl- (8CI9CI)	10.78	130.	
14.	3074757	Hexane, 4-ethyl-2-methyl- (8	11.62	100.	
15.		Unknown	19.25	930.	
16.		Unknown	24.32	1300.	
17.		Unknown	24.80	1000.	
18.		Unknown	26.76	900.	
19.		Unknown	27.25	1600.	
20.		Unknown	28.97	970.	
21.					
22.					
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21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1811	DILUTION FACTOR	5.00
CLIENT ID	1191.19 BLDG 108	COMMENTS	HNU 5
DATA FILE	>A1619	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	310	Bromodichloromethane	ND	31
Acrylonitrile	ND	310	2-Chloroethylvinylether	ND	63
Chloromethane	ND	63	2-Hexanone	ND	63
Bromomethane	ND	63	trans-1,3-Dichloropropene	ND	31
Vinyl Chloride	ND	63	Toluene	ND	31
Chloroethane	ND	63	cis-1,3-Dichloropropene	ND	31
Acetone	ND	63	1,1,2,2-Tetrachloroethane	ND	31
1,1-Dichloroethene	ND	31	1,1,2-Trichloroethane	ND	31
Carbon Disulfide	ND	63	4-Methyl-2-pentanone	ND	63
Methylene Chloride	49	31	Tetrachloroethene	ND	31
1,2-Dichloroethene(trans)	ND	31	Dibromochloromethane	ND	31
1,1-Dichloroethane	ND	31	Chlorobenzene	ND	31
Vinyl Acetate	ND	31	Ethylbenzene	ND	31
2-Butanone	ND	63	m&p-Xylenes	25 J	31
Chloroform	ND	31	o-Xylene	ND	31
1,1,1-Trichloroethane	ND	31	Styrene	ND	31
Carbon Tetrachloride	ND	31	Bromoform	ND	31
1,2-Dichloroethane	ND	31	m-Dichlorobenzene	ND	31
Benzene	ND	31	p-Dichlorobenzene	ND	31
Trichloroethene	ND	31	o-Dichlorobenzene	ND	31
1,2-Dichloropropane	ND	31			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	119	70 - 121	OK
Toluene-d8	104	81 - 117	OK
Bromofluorobenzene	111	74 - 121	OK

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Soil
SAMPLE NUMBER	A1811	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.19	QA BATCH	
DATA FILE	>C1259	DATE ANALYZED	05/13/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	410	2,6-Dinitrotoluene	ND	410
bis(-2-Chloroethyl)Ether	ND	410	Diethylphthalate	ND	410
1,3-Dichlorobenzene	ND	410	4-Chlorophenyl-phenylether	ND	410
1,4-Dichlorobenzene	ND	410	Fluorene	930	410
Benzyl Alcohol	ND	410	4-Nitroaniline	ND	2100
1,2-Dichlorobenzene	ND	410	N-Nitrosodiphenylamine	ND	410
bis(2-chloroisopropyl)Ether	ND	410	4-Bromophenyl-phenylether	ND	410
N-Nitroso-Di-n-Propylamine	ND	410	Hexachlorobenzene	ND	410
Hexachloroethane	ND	410	Phenanthrene	2700	410
Nitrobenzene	ND	410	Anthracene	1600	410
Isophorone	ND	410	Di-n-Butylphthalate	ND	410
Benzoic Acid	ND	2100	Fluoranthene	7300	410
bis(-2-Chloroethoxy)Methane	ND	410	Pyrene	5300	410
1,2,4-Trichlorobenzene	ND	410	Butylbenzylphthalate	ND	410
Naphthalene	210 J	410	3,3'-Dichlorobenzidine	ND	820
4-Chloroaniline	ND	410	Benzo(a)Anthracene	3700	410
Hexachlorobutadiene	ND	410	Bis(2-Ethylhexyl)Phthalate	130 J	410
2-Methylnaphthalene	180 J	410	Chrysene	4000	410
Hexachlorocyclopentadiene	ND	410	Di-n-Octyl Phthalate	ND	410
2-Chloronaphthalene	ND	410	Benzo(b)fluoranthene	5300	410
2-Nitroaniline	ND	2100	Benzo(k)Fluoranthene	800	410
Dimethyl Phthalate	ND	410	Benzo(a)Pyrene	3300	410
Acenaphthylene	ND	410	Indeno(1,2,3-cd)Pyrene	2300	410
3-Nitroaniline	ND	2100	Dibenzo(a,h)Anthracene	970	410
Acenaphthene	ND	410	Benzo(g,h,i)Perylene	2500 J	410
Dibenzofuran	530	410	Benzidine	ND	820
2,4-Dinitrotoluene	ND	410			

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

1191.19

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) SOIL

Lab Sample ID: A1811

Sample wt/vol: 1 (g/mL) g

Lab File ID: >A1619

Level: LOW

Date Received: 05/03/93

% Moisture: 20

Date Analyzed 05/17/93

Column: CAP

Dilution Factor: 5

Number TICs Found 19

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	109660	Pentane (ACN)(DOT)(8CI9CI)	5.45	45
2		UNKNOWN	7.26	51
3	96140	Pentane, 3-methyl- (8CI9CI)	7.66	71
4	590738	Hexane, 2,2-dimethyl- (8CI9CI)	10.09	39
5	142825	Heptane (DOT)(8CI9CI)	10.36	21
6	15285162	1H-1,2,4-Triazol-3-amine, N-methyl- (9CI)	11.24	45
7		UNKNOWN	11.89	36
8	617787	Pentane, 3-ethyl- (8CI9CI)	12.09	41
9	1768361	Cyanic acid, propyl ester (8CI9CI)	12.42	31
10	2216333	Octane, 3-methyl- (8CI9CI)	14.10	19
11	13151069	1-Octene, 7-methyl- (8CI9CI)	14.82	28
12	464153	Bicyclo[2.2.1]heptane, 1,7,7-trimethyl- (9CI	20.22	21
13	934805	Benzene, 4-ethyl-1,2-dimethyl- (9CI)	20.90	20
14	10111134	Silane, trimethyl(1-methyl-1-propenyl)-, (E)	21.23	35
15	50871051	1,6-Heptadiene, 3-methyl- (9CI)	21.47	28
16	874351	1H-Indene, 2,3-dihydro-5-methyl- (9CI)	22.55	30
17		UNKNOWN	22.86	21
18	112549	Dodecanal (9CI)	23.50	46
19	91203	Naphthalene (ACN)(DOT)(8CI9CI)	23.72	24

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
US ARMY FT. MONMOUTH, NJ
BLDG 108

EPA SAMPLE NUMBER

1191.19

Matrix: (soil/water) SOIL

Lab Sample ID: A1811

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1259

Level: LOW

Date Extractd 05/04/93

% Moisture: 20

Date Analyzed 05/14/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	4889832	Bicyclo[3.1.1]hept-2-ene, 3,6,6-trimethyl- (	7.97	9500
2	103651	Benzene, propyl- (8CI9CI)	8.39	360
3	127913	.beta.-Pinene	8.88	1100
4	25155151	Benzene, methyl(1-methylethyl)- (9CI)	9.89	840
5	6044719	Dodecane, 6-methyl- (8CI9CI)	13.23	340
6	90120	Naphthalene, 1-methyl- (8CI9CI)	14.82	300
7	575439	Naphthalene, 1,6-dimethyl- (8CI9CI)	16.16	350
8		UNKNOWN	16.68	480
9	55045108	Tridecane, 6-propyl- (9CI)	16.84	490
10	7320538	Dibenzofuran, 4-methyl- (8CI9CI)	19.21	780
11		UNKNOWN	19.25	1500
12	1921706	Pentadecane, 2,6,10,14-tetramethyl- (8CI9CI)	19.88	690
13		UNKNOWN	21.20	1000
14		UNKNOWN	22.50	1300
15	612942	Naphthalene, 2-phenyl- (8CI9CI)	23.03	960
16		UNKNOWN	23.85	2900
17	243174	11H-Benzo[b]fluorene (8CI9CI)	25.45	810
18		UNKNOWN	25.64	660
19		UNKNOWN	26.17	440
20		UNKNOWN	27.06	1600

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A1812	DILUTION FACTOR	1.00
CLIENT ID	TRIP BLANK BLDG 108	COMMENTS	HNU ND
DATA FILE	>B0179	DATE ANALYZED	05/04/93

COMPOUND	UG/L		MDL	COMPOUND	UG/L	MDL
Acrolein	ND		50	Bromodichloromethane	ND	5
Acrylonitrile	ND		50	2-Chloroethylvinylether	ND	10
Chloromethane	ND		10	2-Hexanone	ND	10
Bromomethane	ND		10	trans-1,3-Dichloropropene	ND	5
Vinyl Chloride	ND		10	Toluene	ND	5
Chloroethane	ND		10	cis-1,3-Dichloropropene	ND	5
Acetone	ND	B	10	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND		5	1,1,2-Trichloroethane	ND	5
Carbon Disulfide	ND		10	4-Methyl-2-pentanone	ND	10
Methylene Chloride	2.4	J	5	Tetrachloroethene	ND	5
1,2-Dichloroethene(trans)	ND		5	Dibromochloromethane	ND	5
1,1-Dichloroethane	ND		5	Chlorobenzene	ND	5
Vinyl Acetate	ND		5	Ethylbenzene	ND	5
2-Butanone	ND		10	m&p-Xylenes	ND	5
Chloroform	ND		5	o-Xylene	ND	5
1,1,1-Trichloroethane	ND		5	Styrene	ND	5
Carbon Tetrachloride	ND		5	Bromoform	ND	5
1,2-Dichloroethane	ND		5	m-Dichlorobenzene	ND	5
Benzene	ND		5	p-Dichlorobenzene	ND	5
Trichloroethene	ND		5	o-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND		5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	103	76 - 114	OK
Toluene-d8	100.0	88 - 110	OK
Bromofluorobenzene	96.0	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TRIP BLANK

Lab Name: 21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A1812

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B0179

Level: (low/med) LOW

Date Received: 05/03/93

% Moisture: NA

Date Analyzed: 05/04/93

Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

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21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A1813	DILUTION FACTOR	1.00
CLIENT ID	FIELD BLANK BLDG 108	COMMENTS	HNU ND
DATA FILE	>80180	DATE ANALYZED	05/04/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	Bromodichloromethane	ND	5
Acrylonitrile	ND	50	2-Chloroethylvinylether	ND	10
Chloromethane	ND	10	2-Hexanone	ND	10
Bromomethane	ND	10	trans-1,3-Dichloropropene	ND	5
Vinyl Chloride	ND	10	Toluene	ND	5
Chloroethane	ND	10	cis-1,3-Dichloropropene	ND	5
Acetone	25 B	10	1,1,2,2-Tetrachloroethane	ND	5
1,1-Dichloroethene	ND	5	1,1,2-Trichloroethane	ND	5
Carbon Disulfide	ND	10	4-Methyl-2-pentanone	ND	10
Methylene Chloride	4.1 J	5	Tetrachloroethene	ND	5
1,2-Dichloroethene(trans)	ND	5	Dibromochloromethane	ND	5
1,1-Dichloroethane	ND	5	Chlorobenzene	ND	5
Vinyl Acetate	ND	5	Ethylbenzene	ND	5
2-Butanone	ND	10	m&p-Xylenes	ND	5
Chloroform	ND	5	o-Xylene	ND	5
1,1,1-Trichloroethane	ND	5	Styrene	ND	5
Carbon Tetrachloride	ND	5	Bromoform	ND	5
1,2-Dichloroethane	ND	5	m-Dichlorobenzene	ND	5
Benzene	ND	5	p-Dichlorobenzene	ND	5
Trichloroethene	ND	5	o-Dichlorobenzene	ND	5
1,2-Dichloropropane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	110	76 - 114	OK
Toluene-d8	103	88 - 110	OK
Bromofluorobenzene	97.5	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH,NJ	MATRIX	Water
SAMPLE NUMBER	A1813	DILUTION FACTOR	1.00
CLIENT ID	FIELD BLANK BLDG 108	QA BATCH	
DATA FILE	>C1276	DATE ANALYZED	05/18/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	ND	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	ND	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	ND	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD BLANK

Lab Name: 21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A1813

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B0180

Level: (low/med) LOW

Date Received: 05/03/93

% Moisture: NA

Date Analyzed: 05/04/93

Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
US ARMY FT. MONMOUTH,NJ BLDG 108

FIELD BLANK

ab Name:Bridgeport Environmental, Contract:N/A

ab Code: NJ 08555 Case No.: N/A SAS No.: N/A SDG No.: N/A

atrix: (soil/water) WATER Lab Sample ID: A1813

mple wt/vol: 1000 (g/mL) mL Lab File ID: >C1276

Level: (low/med) LOW Date Received: NA

Moisture: NA Date Extracted:05/04/93

Extraction: (Sepf/Cont/Sonc) SEPF Date Analyzed: 5/18/93

C Cleanup: (Y/N) N Dilution Factor: 1

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
8.		NO UNKNOWNS			
9.					
10.					
11.					
12.					
13.					
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29.					
30.					

FORM I SV-TIC 1/87 Rev.

00087

DATA PACKAGE

CERTIFICATE OF ANALYSIS

LEAD

U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

ANALYSIS NO:	CLIENT ID:	MDL (mg/kg)	RESULT (mg/kg)
A 1794	1191.1	5.00	30.7
A 1795	1191.2	5.00	N.D.
A 1796	1191.3	5.00	9.05
A 1797	1191.4	5.00	N.D.
A 1798	1191.5	5.00	16.3
A 1799	1191.6	5.00	52.1
A 1800	1191.7	5.00	12.4
A 1801	1191.8	5.00	N.D.
A 1802	1191.9	5.00	58.2
A 1803	1191.10	5.00	55.8
A 1804	1191.11	5.00	155
A 1805	1191.13	5.00	14.8
A 1806	1191.14	5.00	28.8
A 1807	1191.15	5.00	11.0
A 1808	1191.16	5.00	12.3
A 1809	1191.17	5.00	21.8
A 1810	1191.18	5.00	10.4
A 1811	1191.19	5.00	174

00089

CERTIFICATE OF ANALYSIS

U.S. ARMY FORT MONMOUTH, NJ

ANALYSIS NO: A 1813

CLIENT ID: BLDG 108 Field Blank

METAL	MDL (mg/L)	RESULT (mg/L)
LEAD	0.05	N.D.

00090

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1794	DILUTION FACTOR	1.00
CLIENT ID	1191.1 BLDG 108	COMMENTS	MNJ 5
DATA FILE	>A1590	DATE ANALYZED	05/17/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	62	Bromodichloromethane	ND	6
Acrylonitrile	ND	62	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	4.4 JB	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	7.1 B	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m&p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	99.7	70 - 121	OK
Toluene-d8	96.3	81 - 117	OK
Bromofluorobenzene	97.6	74 - 121	OK

Percent Solid of 81.0 is used for all Target compounds

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21ST CENTURY ENVIRONMENTAL
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH, NJ	MATRIX	Soil
SAMPLE NUMBER	A1794	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 1191.1	QA BATCH	
DATA FILE	>C1145	DATE ANALYZED	05/05/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
N-Nitrosodimethylamine	ND	410	2,6-Dinitrotoluene	ND	410
bis(-2-Chloroethyl)Ether	ND	410	Diethylphthalate	ND	410
1,3-Dichlorobenzene	ND	410	4-Chlorophenyl-phenlyether	ND	410
1,4-Dichlorobenzene	ND	410	Fluorene	69 J	410
Benzyl Alcohol	ND	410	4-Nitroaniline	ND	2000
1,2-Dichlorobenzene	ND	410	N-Nitrosodiphenylamine	ND	410
bis(2-chloroisopropyl)Ether	ND	410	4-Bromophenyl-phenylether	ND	410
N-Nitroso-Di-n-Propylamine	ND	410	Hexachlorobenzene	ND	410
Hexachloroethane	ND	410	Phenanthrene	300 J	410
Nitrobenzene	ND	410	Anthracene	83 J	410
Isophorone	ND	410	Di-n-Butylphthalate	ND	410
Benzoic Acid	ND	2000	Fluoranthene	360 J	410
bis(-2-Chloroethoxy)Methane	ND	410	Pyrene	200 J	410
1,2,4-Trichlorobenzene	ND	410	Butylbenzylphthalate	ND	410
Naphthalene	240 J	410	3,3'-Dichlorobenzidine	ND	810
4-Chloroaniline	ND	410	Benzo(a)Anthracene	140 J	410
Hexachlorobutadiene	ND	410	Bis(2-Ethylhexyl)Phthalate	1100	410
2-Methylnaphthalene	130 J	410	Chrysene	160 J	410
Hexachlorocyclopentadiene	ND	410	Di-n-Octyl Phthalate	ND	410
2-Chloronaphthalene	ND	410	Benzo(b)fluoranthene	200 J	410
2-Nitroaniline	ND	2000	Benzo(k)Fluoranthene	ND	410
Dimethyl Phthalate	ND	410	Benzo(a)Pyrene	130 J	410
Acenaphthylene	ND	410	Indeno(1,2,3-cd)Pyrene	90 J	410
3-Nitroaniline	ND	2000	Dibenzo(a,h)Anthracene	ND	410
Acenaphthene	62 J	410	Benzo(g,h,i)Perylene	82 J	410
Dibenzofuran	43 J	410	Benzidine	ND	810
2,4-Dinitrotoluene	ND	410			

Percent Solid of 81.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

1191.1

lient Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

atrix: (soil/water) SOIL

Lab Sample ID: A1794

Sample wt/vol: 5 (g/mL) g

Lab File ID: >A1590

evel: LOW

Date Received: 05/03/93

% Moisture: 19

Date Analyzed 05/17/93

olumn: CAP

Dilution Factor: 1

umber TICs Found 19

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/Kg

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	591764	Hexane, 2-methyl- (8CI9CI)	9.70	7
2	589344	Hexane, 3-methyl- (8CI9CI)	9.98	10
3	142825	Heptane (DOT)(8CI9CI)	10.63	5
4	5775962	1H-Pyrazole, 4,5-dihydro-1,5-dimethyl- (9CI)	11.53	5
5	592132	Hexane, 2,5-dimethyl- (8CI9CI)	12.47	12
6	589435	Hexane, 2,4-dimethyl- (8CI9CI)	12.71	14
7	111659	Octane (DOT)(8CI9CI)	13.39	10
8	624293	Cyclohexane, 1,4-dimethyl-, cis- (8CI9CI)	13.84	4
9	17302237	Nonane, 4,5-dimethyl- (8CI9CI)	15.09	11
10	2216333	Octane, 3-methyl- (8CI9CI)	15.29	7
11	135013	Benzene, 1,2-diethyl- (9CI)	20.17	4
12	1758889	Benzene, 2-ethyl-1,4-dimethyl- (9CI)	21.03	6
13	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	21.26	5
14	1640897	Cyclopentane, ethyl- (8CI9CI)	21.59	6
15	95932	Benzene, 1,2,4,5-tetramethyl- (8CI9CI)	21.78	6
16	2049958	Benzene, (1,1-dimethylpropyl)- (9CI)	22.01	4
17	2039896	Benzene, 2-ethenyl-1,4-dimethyl- (9CI)	22.67	15
18	17851273	Benzene, 1-ethyl-2,4,5-trimethyl- (8CI)	23.36	5
19	112549	Dodecanal (9CI)	23.61	15

E1

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS
U.S ARMY, FORT MONMOUTH. NJ
BLDG 108

EPA SAMPLE NUMBER

1191.1

Matrix: (soil/water) SOIL

Lab Sample ID: A1794

Sample wt/vol: 30 (g/mL) GM

Lab File ID: >C1145

Level: LOW

Date Extracted 05/04/93

% Moisture: 19

Date Analyzed 05/05/93

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	111659	Octane (DOT)(8CI9CI)	4.88	170
2	3221612	Octane, 2-methyl- (8CI9CI)	6.57	170
3	108383	Benzene, 1,3-dimethyl- (9CI)	6.64	300
4	103651	Benzene, propyl- (8CI9CI)	8.65	300
5	611143	Benzene, 1-ethyl-2-methyl- (9CI)	8.83	300
6	108678	Benzene, 1,3,5-trimethyl- (9CI)	8.97	200
7	17301289	Undecane, 3,6-dimethyl- (8CI)	9.67	200
8	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	10.10	200
9	496117	1H-Indene, 2,3-dihydro- (9CI)	10.36	370
10	135013	Benzene, 1,2-diethyl- (9CI)	10.64	200
1		UNKNOWN	10.76	300
2	934747	Benzene, 1-ethyl-3,5-dimethyl- (9CI)	10.81	170
13	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	11.88	230
4	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	11.95	130
5	874351	1H-Indene, 2,3-dihydro-5-methyl- (9CI)	12.28	170
16	767997	Benzene, (1-methyl-1-propenyl)-, (Z)- (9CI)	12.48	230
17		UNKNOWN	13.27	200
8	90120	Naphthalene, 1-methyl- (8CI9CI)	15.10	130
9	55045108	Tridecane, 6-propyl- (9CI)	17.10	130
20		UNKNOWN	24.16	670

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E-SYSTEMS

PROJECT: U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

ANALYSIS NO:	CLIENT ID:
A 2530	MW 1
A 2531	MW 2
A 2532	Field Blank
A 2533	MW 3
A 2534	MW 3 Dup
A 2535	Trip Blank

DATE RECEIVED: JULY 6, 1993

TWENTY FIRST CENTURY
ENVIRONMENTAL, INC.

Richard W Lynch

RICHARD W. LYNCH
LABORATORY MANAGER

TABLE OF CONTENTS

NARRATIVE

There were no problems encountered during the analysis of this batch of samples (A2530 to A2535). All extractions and analysis were completed within proper hold times.

HAIN OF CUSTODY

618 HERON DRIVE P O BOX 489 • BRIDGEPORT, NJ 08014 0489
609 467 9521 • 609 467 4523 FAX

CUSTOMER A-T MONMOUTH
ADDRESS
TELEPHONE
PROJECT
PROJECT MANAGER
PROJECT LOCATION BLDG # 108 STATE
PO NUMBER

TURNAROUND (INDICATE CALENDAR DAYS, CONFIRM WITH LAB) 2 5 7 14 21 OTHER
DELIVERABLES (PLEASE CIRCLE) TIER I TIER II ECRA
CLP RESULTS ONLY OTHER _____ BIAS CORRECTION
FAX RESULTS TO

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS

SAMPLED BY D.H. TURNER JR/ DJ. TURNER

A2530 - A2535

SAMPLE NUMBER	SAMPLE DESCRIPTION	MATRIX	DATE	TIME	COMP	GRAB	NUMBER OF CONTAINERS
	MW 1	WATER	7-6-93	14:00			5
	MW 2			14:45			5
	FIELD BLANK			15:15			5
	MW 3			15:45			5
	MW 3 DUP			16:00			5
	TCLP BLANK			6:00			2

METHOD / ANALYSIS

VOLATILE ORGANICS	SEMI VOA S (BNA S)	PESTICIDES / PCB S	PCB S	BTEX	TPH PETROLEUM HYDROCARBONS	CORROSIVITY	IGNITABILITY	FLASHPOINT	REACTIVITY	TOC	TCLP METALS	TCLP VOLATILE ORGANICS	TCLP SEMI VOA S (BNA S)	TCLP PEST / HERB	PRIORITY POLLUTANT METALS (13)	HSL METALS (23)	LEAD	ADDITIONAL ANALYSIS
✓	✓	✓																
✓	✓	✓																
✓	✓	✓																
✓	✓	✓																
✓	✓	✓																
✓																		

Relinquished By	Date	Time	Received By	Date	Time
Dan Y	7-6-93	19:00	G. Gu	7/6/93	1900

WHITE
LAB COPY

YELLOW
STOCK COPY

Acid Extractables
Base Neutrals

U.S.E.P.A. Method 625 - This method covers the determination of a number of organic compounds that are partitioned in an organic solvent and amenable to gas chromatography. This is a gas chromatography/mass spectrometer (GC/MS) method applicable to the determination of the compounds listed in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants".

A HP5970 was used with a DB-5 FSCC.

Method detection limits are as stated.

Soil samples were prepared for analysis as prescribed in Method 3550 and analyzed as prescribed in Method 8270 from SW846.

Metals

Soil samples for metal analysis were run in accordance with the methods prescribed in SW846. This includes a nitric acid digestion followed by either Furnace, Flame Atomic Absorption, Flameless Atomic Absorption. or Inductively Coupled Plasma analysis.

Aqueous samples for metals analysis were run in accordance with the methods prescribed in Methods for Chemical Analysis of Water and Wastes, EPA-600-4-79-020 March 1983.

Purgeables

U.S.E.P.A. Method 624 - This is a purge and trap Gas Chromatograph/Mass Spectrometer (GC/MS) method applicable to the determination of the compounds listed in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants".

An HP5996 GC/MS was used with a capillary column.

Method detection limits are as stated.

Soil samples are prepared for analysis as prescribed in Method 8240 from SW846.

LABORATORY CHRONICLE

RECEIPT/REFRIGERATION 7/6/93

ORGANICS
XTRACTION

1. Acids NA
2. Base/Neutrals 7/9/93
3. Pesticides/PCB's/Herbicides NA
4. Petroleum Hydrocarbons/Oil & Grease NA

NALYSIS

1. Volatiles 7/13/93
2. Acids NA
3. Base/Neutrals 7/13/93-7/14/93
4. Pesticides/PCB's/Herbicides NA
5. Petroleum Hydrocarbons/Oil & Grease NA
6. Total Organic Carbon NA

Section Supervisor
Review & Approval

_ORGANICS

1. Metals 7/16/93
2. Cyanides NA
3. Phenols NA

OTHER ANALYTES

Section Supervisor
Review & Approval

Quality Control Supervisor
Review & Approval

Laboratory Director
Review & Approval Richard W Lynch

] fractions are re-extracted and re-analyzed because initial endeavors did not meet
ity control acceptance criteria, include dates for both.

RESULT SUMMARY

CERTIFICATE OF ANALYSIS

U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

LEAD

ANALYSIS NO:	CLIENT ID:	MDL (mg/L)	RESULT (mg/L)
A 2530	MW 1	0.05	N.D.
A 2531	MW 2	0.05	1.03
A 2532	Field Blank	0.05	N.D.
A 2533	MW 3	0.05	N.D.
A 2534	MW 3 Dup	0.05	N.D.

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	42530	DILUTION FACTOR	1.00
CLIENT ID	MW-1 BLDG 108	COMMENTS	HNU NO
DATA FILE	[illegible]	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	6.3 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	3.8 J	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	ND	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	93.9	76 - 114	OK
Toluene-d8	104	98 - 110	OK
Bromofluorobenzene	101	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A2530	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-1	COMMENTS	MW- 0.0
DATA FILE	>C1597	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	ND	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	3.5 J	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	ND	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

MW-1

Client Name: US ARMY FT. MONMOUTH,NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A2530

Sample wt/vol: 5 (g/mL) mL

Lab File ID: S0672

Level: LOW

Date Received: 07/06/93

% Moisture: 100

Date Analyzed: 07/13/93

Column: CAP

Dilution Factor: 1

Number TICs Found: 12

CONCENTRATION UNITS (ug/L or ug/kg): ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	78784	Butane, 2-methyl- (8CI,9CI)	3.66	6
2	611143	Benzene, 1-ethyl-2-methyl- (9CI)	15.69	14
3	526738	Benzene, 1,2,3-trimethyl- (8CI,9CI)	15.80	13
4	98828	Benzene, (1-methylethyl)- (9CI)	16.16	43
5	620144	Benzene, 1-ethyl-3-methyl- (9CI)	16.47	11
6	622968	Benzene, 1-ethyl-4-methyl- (9CI)	17.23	34
7	300572	Benzene, 2-propenyl- (9CI)	17.59	28
8	934805	Benzene, 4-ethyl-1,2-dimethyl- (9CI)	17.76	10
9	25155151	Benzene, methyl(1-methylethyl)- (9CI)	18.27	4
10	527844	Benzene, 1-methyl-2-(1-methylethyl)- (9CI)	18.31	4
11	535773	Benzene, 1-methyl-3-(1-methylethyl)- (9CI)	18.45	21
12	120729	1H-Indole (9CI)	18.66	10

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

A2530

Client: US Army, Ft. Monmouth, NJ

Comments: HNU= 0.0

Matrix: (soil/water) WATER

Lab Sample ID: Bldg 108, MW1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C1597

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 07/13/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 07/06/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 4

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	108883	Benzene, methyl- (9CI)	3.37	4
2		Ethyl-methyl Benzene Isomer	8.61	7
3		Trimethyl Benzene Isomer	8.90	4
4		Ethyl-methyl Bezene Isomer	9.48	11

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VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	93531	DILUTION FACTOR	1.00
CLIENT ID	MW-2 BLDG 108	COMMENTS	HNU ND
DATA FILE	>80673	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	3.6 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	13	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	96.7	76 - 114	OK
Toluene-d8	103	88 - 110	OK
Bromofluorobenzene	101	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A2531	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108, MW-2	COMMENTS	HNU= 0.0
DATA FILE	>C1613	DATE ANALYZED	07/14/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	1.9 J	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	1.1 J	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	2.3 J	10
Benzoic Acid	ND	50	Fluoranthene	2.1 J	10
bis(-2-Chloroethoxyl)Methane	ND	10	Pyrene	2.3 J	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	ND	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	2.2 J	10
2-Methylnaphthalene	ND	10	Chrysene	1.1 J	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-2

Lab Name: 21st Century Environmental

Client Name: US ARMY FT MONMOUTH, NJ | Client ID: BLDG 108

Matrix: (soil/water) WATER | Lab Sample ID: A2531

Sample wt/vol: 5 (g/mL) mL | Lab File ID: >80673

Level: (low/med) LOW | Date Received: 07/06/93

% Moisture: NA | Date Analyzed: 07/13/93

Column: DB-624 | Dilution Factor: 1

Number TICs found: 0 | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

00014

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

A2531

Client: US Army, Ft. Monmouth NJ

Comments: HNU= 0.0

Matrix: (soil/water) WATER

Lab Sample ID: Bldg 108, MW2

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C1613

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 07/14/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 07/09/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	14.56	20
2		UNKNOWN	15.64	4
3		UNKNOWN	16.97	5
4		UNKNOWN	17.46	6
5		UNKNOWN	17.98	5
6		UNKNOWN	19.07	14
7		UNKNOWN	19.43	10
8	3891983	Dodecane, 2,6,10-trimethyl- (8CI9CI)	20.68	8
9		UNKNOWN	20.90	9
10		UNKNOWN	21.65	24
11		UNKNOWN	22.08	10
12		UNKNOWN	22.53	9
13		UNKNOWN	22.69	15
14		UNKNOWN	23.09	21
15		UNKNOWN	23.32	8
16		UNKNOWN	23.40	9
17		UNKNOWN	23.45	14
18		UNKNOWN	24.01	18
19		UNKNOWN	24.45	19
20		UNKNOWN	24.96	37

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	92532	DILUTION FACTOR	1 00
CLIENT ID	FIELD BLANK BLDG 108	COMMENTS	HNU ND
DATA FILE	[illegible]	DATE ANALYZED	[illegible]

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	7 2 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	ND	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1 2-Dichloroethane-d4	93 8	76 - 114	OK
Toluene-d8	99 6	88 - 110	OK
Bromofluorobenzene	100	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A2532	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108, FIELD BLANK	COMMENTS	NONE
DATA FILE	>C1598	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	ND	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	ND	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	ND	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD BLANK

Lab Name: 21st Century Environmental

Client Name: US ARMY FT MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A2532

Sample wt/vol 5 (g/mL) mL

Lab File ID: B0671

Level: (low/med) LOW

Date Received: 07/06/93

% Moisture NA

Date Analyzed: 07/13/93

Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

00018

E1

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

A2532

Client: US Army Ft. Monmouth, NJ

Comments:

Matrix: (soil/water) WATER

Lab Sample ID:Bldg 108, Fld Blnk

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C1598

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 07/13/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 07/09/93

GPC (Y or N). N

Column: DB-5

Dilution Factor: 1

Number TICs Found 1

CONCENTRATION UNITS (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	3.37	4

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	20677	DILUTION FACTOR	1 00
CLIENT ID	MW-3 BLDG 108	COMMENTS	HNU 0 06
DATA FILE	>80674	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	4 1 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	3 0 J	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	3 4 J	5
2-Butanone	ND	10	o-Xylene	2 4 J	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	10	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	12	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	86.3	76 - 114	OK
Toluene-d8	115	88 - 110	OUT
Bromofluorobenzene	108	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A2533	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108, MW-3	COMMENTS	HNU= 0.06
DATA FILE	>C1599	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenlyether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND-	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	ND	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	4.5 J	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	ND	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-3

Client Name: US ARMY FT. MONMOUTH,NJ

Client ID: ELOG 108

Matrix: (soil/water) WATER

Lab Sample ID: A2533

Sample wt/vol: 5 (g/mL) mL

Lab File ID: B0o7-

Level: LOW

Date Received: 07/0o/93

% Moisture: 100

Date Analyzed: 07/13/93

Column: CAP

Dilution Factor: 1

Number TICs Found: 5

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	96377	Cyclopentane, methyl- (8CI,9CI)	o.78	11
2	10574375	2-Pentene, 2,3-d.methyl- (8CI,9CI)	9.24	4
3	o11154	Benzene, 1-ethenyl-2-methyl- (9CI)	17.o5	31
4	25155151	Benzene, methyl(1-methylethyl)- (9CI)	18.49	10
5	oo929906	Tricyclo[3.2.1.02,4]oct-6-ene, 8-methylene-	18.70	9

00022

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

A2533

Client: US Army Ft. Monmouth, NJ

Comments: HNU= 0.06

Matrix: (soil/water) WATER

Lab Sample ID:Bldg 108, MW3

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C1599

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 07/13/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 07/09/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 1

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	UNKNOWN	9.74	4

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	23673	DILUTION FACTOR	1
CLIENT ID	MW-3 DUP ELOG 108	COMMENTS	MNU 0 06
DATA FILE	\90680	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	5 1 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	3 5 J	5
2-Butanone	ND	10	o-Xylene	2 5 J	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	11	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	13	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	97.8	76 - 114	OK
Toluene-d8	111	88 - 110	OUT
Bromofluorobenzene	101	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT.MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A2534	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-3 DUP	QA BATCH	
DATA FILE	>C1606	DATE ANALYZED	07/14/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenlyether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	ND	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	6.1 J	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	3.7 J	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenapnthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

MW-3 DUP

Client Name: US ARMY FT MONMOUTH, NJ

Client ID: BLDG 108

Matrix (soil/water) WATER

Lab Sample ID: A2534

Sample Wt/Vol: 5 (g/mL) mL

Lab File ID: >B0680

Level: LOW

Date Received 07/06/93

% Moisture 100

Date Analyzed 07/13/93

Column CAP

Dilution Factor: 1

Number TICs Found 5

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	96377	Cyclopentane, methyl- (8CI,9CI)	6.84	10
2	108872	Cyclohexane, methyl- (8CI,9CI)	9.33	4
3	496117	1H-Indene, 2,3-dihydro- (9CI)	17.71	25
4	25155151	Benzene, methyl(1-methylethyl)- (9CI)	18.56	8
5	767598	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	18.77	7

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

A2534

Client Name: US Army, Ft. Monmouth, NJ

Comments: HNU= 0.06

Matrix: (soil/water) WATER

Lab Sample ID: Bldg 108, MW3 Dup

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C1606

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 07/14/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 07/09/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 3

CONCENTRATION UNITS (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	9.73	8
2		UNKNOWN	24.05	5
3		UNKNOWN	24.95	5

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A2535	DILUTION FACTOR	1.00
CLIENT ID	TRIP BLANK BLDG 108	COMMENTS	HNU NO
DATE FILE	[illegible]	DATE ANALYZED	[illegible]

COMPOUND	UG/L		MDL
Acrolein	ND		50
Acrylonitrile	ND		50
Chloromethane	ND		10
Bromomethane	ND		10
Vinyl Chloride	ND		10
Chloroethane	ND		10
Acetone	ND	B	10
1,1-Dichloroethene	ND		5
Carbon Disulfide	ND		10
Methylene Chloride	ND		5
1,2-Dichloroethene(trans)	ND		5
1,1-Dichloroethane	ND		5
Vinyl Acetate	ND		5
2-Butanone	ND		10
Chloroform	ND		5
1,1,1-Trichloroethane	ND		5
Carbon Tetrachloride	ND		5
1,2-Dichloroethane	ND		5
Benzene	ND		5
Trichloroethene	ND		5
1,2-Dichloropropane	ND		5
Bromodichloromethane	ND		5

COMPOUND	UG/L	MDL
2-Chloroethylvinylether	ND	10
2-Hexanone	ND	10
trans-1,3-Dichloropropene	ND	5
Toluene	ND	5
cis-1,3-Dichloropropene	ND	5
1,1,2,2-Tetrachloroethane	ND	5
1,1,2-Trichloroethane	ND	5
4-Methyl-2-pentanone	ND	10
Tetrachloroethene	ND	5
Dibromochloromethane	ND	5
Chlorobenzene	ND	5
Ethylbenzene	ND	5
m&p-Xylenes	ND	5
o-Xylene	ND	5
Styrene	ND	5
Bromoform	ND	5
m-Dichlorobenzene	ND	5
p-Dichlorobenzene	ND	5
o-Dichlorobenzene	ND	5
Methyl Tertiary Butyl Ether	ND	10
Tertiary Butyl Alcohol	ND	50

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	91.1	76 - 114	OK
Toluene-d8	93.9	98 - 110	OK
Bromofluorobenzene	99.5	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TRIP BLANK

Lab Name: 21st Century Environmental

Client Name: US ARMY FT MONMOUTH, NJ — Client ID: BLDG 108

Matrix: (soil/water) WATER — Lab Sample ID: A2535

Sample wt/vol: 5 (g/mL) mL — Lab File ID: A206T0

Level: (low/med) LOW — Date Received: 07/06/93

% Moisture: NA — Date Analyzed: 07/13/93

Column: DB-624 — Dilution Factor: 1

Number TICs found: 0 — CONCENTRATION UNITS (ug/L or ug/Kg): ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

DATA PACKAGE

CERTIFICATE OF ANALYSIS

U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

LEAD

ANALYSIS NO:	CLIENT ID:	MDL (mg/L)	RESULT (mg/L)
A 2530	MW 1	0.05	N.D.
A 2531	MW 2	0.05	1.03
A 2532	Field Blank	0.05	N.D.
A 2533	MW 3	0.05	N.D.
A 2534	MW 3 Dup	0.05	N.D.

t Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A2530	DILUTION FACTOR	1 00
CLIENT ID	MW-1 BLDG 108	COMMENTS	HNU ND
DATA FILE	>80672	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	6 3 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	3 8 J	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	ND	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	93.9	76 - 114	OK
Toluene-d8	104	88 - 110	OK
Bromofluorobenzene	101	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-1

Client Name: US ARMY FT. MONMOUTH,NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A2530

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B0672

Level: LOW

Date Received: 07/06/93

% Moisture: 100

Date Analyzed 07/13/93

Column: CAP

Dilution Factor: 1

Number TICs Found 12

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	78784	Butane, 2-methyl- (8CI9CI)	3.66	6
2	611143	Benzene, 1-ethyl-2-methyl- (9CI)	15.69	14
3	526738	Benzene, 1,2,3-trimethyl- (8CI9CI)	15.80	13
4	98828	Benzene, (1-methylethyl)- (9CI)	16.16	43
5	620144	Benzene, 1-ethyl-3-methyl- (9CI)	16.47	11
6	622968	Benzene, 1-ethyl-4-methyl- (9CI)	17.23	34
7	300572	Benzene, 2-propenyl- (9CI)	17.59	28
8	934805	Benzene, 4-ethyl-1,2-dimethyl- (9CI)	17.76	10
9	25155151	Benzene, methyl(1-methylethyl)- (9CI)	18.27	4
10	527844	Benzene, 1-methyl-2-(1-methylethyl)- (9CI)	18.31	4
11	535773	Benzene, 1-methyl-3-(1-methylethyl)- (9CI)	18.45	21
12	120729	1H-Indole (9CI)	18.66	10

QUANT REPORT

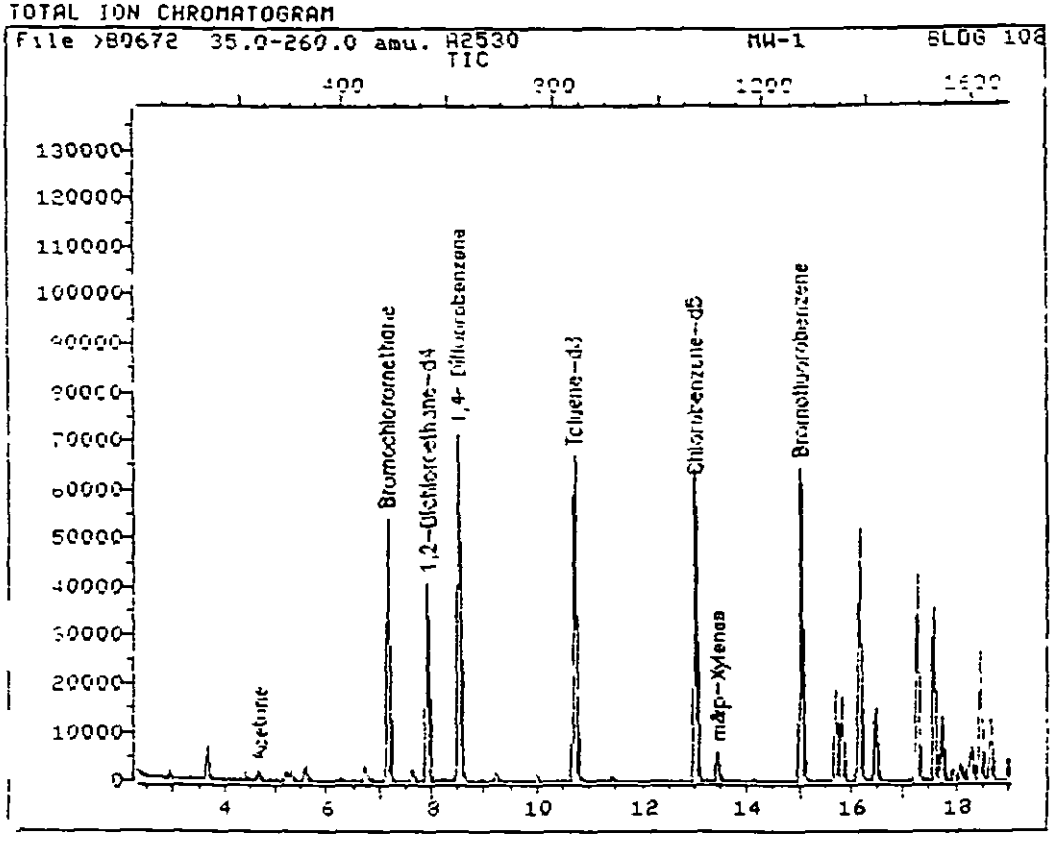
Operator ID: MANAGER Quant Rev: o Quant Time: 930713 20:15
Output File: ^B0672::QT Injected at: 930713 19:51
Data File: >B0672::D7 Dilution Factor: 1.00000
Name: A2530
Misc MW-1 BLDG 108 5mL

ID File: I00401:.SC
Title: USEPA 624 VOLATILES
Last Calibration: 930713 18:23

	Compound	R.T.	Scan#	Area	Conc	Units	q
1)	*Bromochloromethane	7.15	482	25418	50.00	UG/L	100
2)	Acetone	4.67	235	5199	6.26	UG/L	78
23)	1,2-Dichloroethane-d4	7.93	560	57222	46.93	UG/L	100
24)	*1,4-Difluorobenzene	8.52	619	105295	50.00	UG/L	100
37)	Toluene-d8	10.70	937	87190	51.83	UG/L	100
51)	*Chlorobenzene-d5	13.01	1067	67629	50.00	UG/L	100
44)	meo-Xylenes	13.45	1111	8811	3.83	UG/L	83
48)	Bromofluorobenzene	15.02	1268	45289	50.09	UG/L	100

* Compound is ISTD

TOTAL ION CHROMATOGRAM



Data File: >B0672.:D7 Quant Output File: ^B0672.:QT
Name A2530
Misc: MW-1 BLDG 108 5mL

Id File: ID0401::SC
Title: USEPA 624 VOLATILES
Last Calibration: 930713 18:27

Operator ID: MANAGER
Quant Time: 930713 20:15
Injected at: 930713 19:51

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A2530	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-1	COMMENTS	HNU= 0.0
DATA FILE	>C1597	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	ND	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	3.5 J	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	ND	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

A2530

Client: US Army, Ft. Monmouth, NJ

Comments: HNU= 0.0

Matrix: (soil/water) WATER

Lab Sample ID: Bldg 108, MW1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C1597

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 07/13/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 07/06/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 4

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	108883	Benzene, methyl- (9CI)	3.37	4
2		Ethyl-methyl Benzene Isomer	8.61	7
3		Trimethyl Benzene Isomer	8.90	4
4		Ethyl-methyl Bezene Isomer	9.48	11

QUANT REPORT

rator ID: JEFF
ut File: ^C1597::05
File: >C1597::E4
A2530 FT.MONMOUTH
: 071393 1000ML/1.0ML

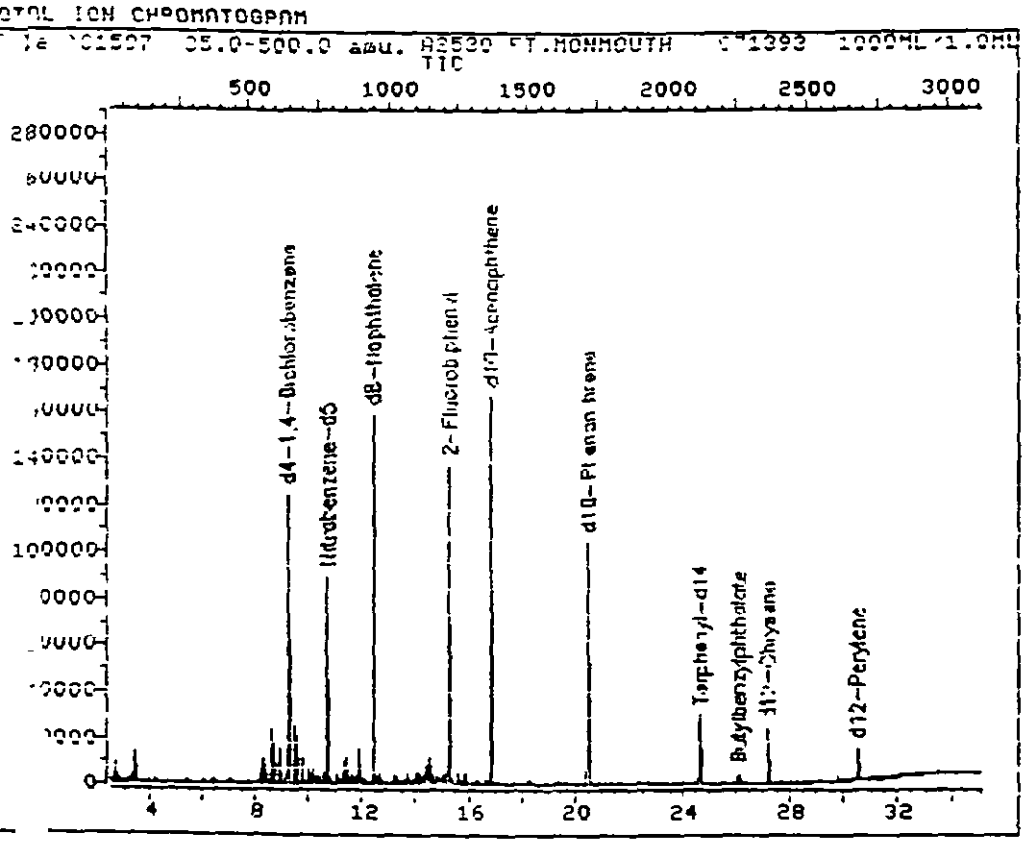
Quant Rev: 6 Quant Time: 930713 15:14
Injected at: 930713 12:22
Dilution Factor: 1.00000

BTL# 2

le: IDHSLC. 03
le: HSL BNA STD
Calibration: 930713 13:12

Compound	R.T.	Scan#	Area	Conc	Units	q
d4-1,4-Dichlorobenzene	9.22	640	54551	40.00	UG/L	93
d8-Naphthalene	12.39	943	137034	40.00	UG/L	86
Nitrobenzene-d5	10.70	781	48971	31.42	UG/L	87
d10-Acenaphthene	16.83	1368	78666	40.00	UG/L	95
2-Fluorobiphenyl	15.24	1216	85287	-31.51	UG/L	94
*d10-Phenanthrene	20.49	1719	85625	40.00	UG/L	99
*d12-Chrysene	27.17	2359	20177	40.00	UG/L	95
Terphenyl-d14	24.64	2117	24380	35.02	UG/L	93
Butylbenzylphthalate	26.08	2255	1995	3.49	UG/L	97
*d12-Perylene	30.51	2679	13654	40.00	UG/L	94

C mpound is ISTD



Data File: >C1597::E4 Quant Output File: ^C1597::D5
Name: A2530 FT.MONMOUTH
Misc: 071393 1000ML/1.0ML BTL# 2

Cmd File: IOHSLC::D3
Title: hSL BNA STD
Last Calibration: 930713 13:12

Operator ID: JEFF
Quant Time: 930713 15:14
Injected at: 930713 12:22

21st Century Environmental Inc
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A2531	DILUTION FACTOR	1.00
CLIENT ID	MW-2 BLDG 108	COMMENTS	HNU NO
DATA FILE	>P0623	DATE ANALYZED	07/13/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	3 6 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	13	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	96 7	76 - 114	OK
Toluene-d8	103	88 - 110	OK
Bromofluorobenzene	101	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-2

Lab Name: 21st Century Environmental

Client Name: US ARMY FT MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A2531

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B0673

Level: (low/med) LOW

Date Received: 07/06/93

% Moisture: NA

Date Analyzed: 07/13/93

GC Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev.

618 HERON DRIVE P O BOX 489 • BRIDGEPORT NJ 08014-0489 • 609-467 9521

E-SYSTEMS, INC.

PROJECT: U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

ANALYSIS NO:	CLIENT ID:
A 3809	MW 1
A 3810	MW 2
A 3811	MW 3
A 3812	MW 3 Dup

DATE RECEIVED: AUGUST 30, 1993

TWENTY FIRST CENTURY
ENVIRONMENTAL, INC.

Richard W Lynch

RICHARD W. LYNCH
LABORATORY MANAGER

METAL ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

		No	Yes
1.	Calibration Summary Meet Criteria	N/A	
2.	ICP Interference Check Sample Results Summary Submitted (if applicable) / Meet Criteria	N/A	
3.	Serial Dilution Summary Submitted (if applicable) / Meet Criteria	N/A	
4.	Laboratory Control Sample Summary Submitted (if applicable) / Meet Criteria		✓

5. Blank Contamination - If yes, list compounds and concentrations in each blank:

____

____

		No	Yes
6.	Matrix Spike/ Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range)		✓

____

____

		No	Yes
7.	Extraction Holding Time Met		✓

If not met, list number of days exceeded for each sample: ______________

____

____

		No	Yes
8.	Analysis Holding Time Met		✓

If not met, list number of days exceeded for each sample: ______________

____

____

Additional Comments: This form completed by [illegible]

____

____

Laboratory Manager: [signature] Date: 10-18-93

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
1. Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)	___	✓
2. GC/MS Tune Specifications		
a. BFB Meet Criteria	___	✓
b. DFTPP Meet Criteria	___	✓
3. GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series.	___	✓
4. GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series	___	✓
5. GC/MS Calibration Requirements		
a. Calibration Check Compounds	___	✓
b. System Performance Check Compounds	___	✓

6. Blank Contamination - If yes, list compounds and concentrations in each blank:

a. VOA Fraction 70 ppb Acetone
b. B/N Fraction _____
c. Acid Fraction _____

7. Surrogate Recoveries Meet Criteria	___	✓

If not met, list those compounds and their recoveries which fall outside the acceptable range:

a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

If not met, were the calculations checked and the results qualified as "estimated"? N/A

8. Matrix Spike/ Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range)	___	✓

a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

9. Internal Standard Area/Retention Time Shift Meet Criteria	___	✓

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (CONTINUED)

	No	Yes
10. Extraction Holding Time Met	___	✓

If not met, list number of days exceeded for each sample: _____

11. Analysis Holding Time Met	___	✓

If not met, list number of days exceeded for each sample: _____

Additional Comments: This Form Completed By Prime Contractor

Laboratory Manager: [signature] Date: 12-18-93

TABLE OF CONTENTS

NARRATIVE

There were no problems encountered during the analysis of this batch of samples (A3809 to A3812). All extractions and analysis were completed within proper hold times.

CHAIN OF CUSTODY

A3809-12

21ST CENTURY ENVIRONMENTAL

618 HERON DRIVE P O BOX 489 • BRIDGEPORT, NJ 08014 0489
609 467 9521 • 609 467 4523 FAX

CUSTOMER FT MONMOUTH
ADDRESS
TELEPHONE
PROJECT
PROJECT MANAGER
PROJECT LOCATION BUILDING #108 STATE
PO NUMBER

TURNAROUND (INDICATE CALENDAR DAYS, CONFIRM WITH LAB) 2 5 7 14 21 OTHER
DELIVERABLES (PLEASE CIRCLE). TIER I TIER II ECRA
CLP RESULTS ONLY OTHER _____ BIAS CORRECTION
FAX RESULTS TO

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS

SAMPLE NUMBER	SAMPLE DESCRIPTION	MATRIX	DATE	TIME	COMP	GRAB	NUMBER OF CONTAINERS	VOLATILE ORGANICS (ANALYSIS)	SEMI VOA'S (BNA'S)	PESTICIDES / PCB'S	PCB S	BTEX	TPH-PETROLEUM HYDROCARBONS	CORROSIVITY	IGNITABILITY	FLASHPOINT	REACTIVITY	TOC	TCLP METALS	TCLP VOLATILE ORGANICS	TCLP SEMI VOA'S (BNA S)	TCLP PEST / HERB	PRIORITY POLLUTANT METALS (13)	HSL METALS (23)	MTBE, TBA, Xylene	PB	ADDITIONAL ANALYSIS
			METHOD						624	625																	
	MW1	WATER	8-30-13	10:40			5	✓	+15	T15																	
	MW2			10:45			5	✓	✓	✓																	
	MW3			11:05			5	✓	✓	✓																	
	MW3 DUP		↓	11:15			6	✓	✓	✓																	

Relinquished By	Date	Time	Received By	Date	Time
	8/30/13	1200	Lynda Cantu	8/30/13	1800

WHITE
LAB COPY

YELLOW
[illegible] COPY

Purgeables

U.S.E.P.A. Method 624 - This is a purge and trap Gas Chromatograph/ Mass Spectrometer (GCMS) method applicable to the determination of the compunds listed in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants".

An HP5996 GC/MS was used with a capillary column.

Method detection limits are as stated.

Soil samples are prepared for analysis as prescribed in Method 8240/8260 from SW846.

Acid Extractables
Base Neutrals

U.S.E.P.A. Method 625 - This method covers the determination of a number of organic compounds that are partitioned in an organic solvent and amenable to gas chromatography. This is a gas chromatography/mass spectrometer (GC/MS) method applicable to the determination of the compounds listed in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants".

A HP5970 was used with a DB-5 FSCC.

Method detection limits are as stated.

Soil samples were prepared for analysis as prescribed in Method 3550 and analyzed as prescribed in Method 8270 from SW846.

Metals

Soil samples for metal analysis were run in accordance with the methods prescribed in SW846. This includes a nitric acid digestion followed by either Furnace, Flame Atomic Absorption, Flameless Atomic Absorption. or Inductively Coupled Plasma analysis.

Aqueous samples for metals analysis were run in accordance with the methods prescribed in Methods for Chemical Analysis of Water and Wastes, EPA-600-4-79-020 March 1983.

LABORATORY CHRONICLE

RECEIPT/REFRIGERATION 8/30/93

ORGANICS
EXTRACTION

1. Acids NA
2. Base/Neutrals 9/3/93
3. Pesticides/PCB's/Herbicides NA
4. Petroleum Hydrocarbons/Oil & Grease NA

ANALYSIS

1. Volatiles 9/2/93-9/5/93
2. Acids NA
3. Base/Neutrals 9/24/93-10/7/93
4. Pesticides/PCB's/Herbicides NA
5. Petroleum Hydrocarbons/Oil & Grease NA
6. Total Organic Carbon NA

Section Supervisor
Review & Approval Jeffrey L Smart

INORGANICS

1. Metals 9/10/93
2. Cyanides NA
3. Phenols NA

OTHER ANALYTES

Section Supervisor
Review & Approval Matthew R. Lis

Quality Control Supervisor
Review & Approval

Laboratory Director
Review & Approval Richard W Lynch

If fractions are re-extracted and re-analyzed because initial endeavors did not meet quality control acceptance criteria, include dates for both.

RESULT SUMMARY

CERTIFICATE OF ANALYSIS

U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

LEAD

ANALYSIS NO:	CLIENT ID:	MDL (mg/L)	RESULT (mg/L)
A 3809	MW 1	0.05	N.D.
A 3810	MW 2	0.05	N.D.
A 3811	MW 3	0.05	N.D.
A 3812	MW 3 Dup	0.05	N.D.

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A3809	DILUTION FACTOR	1.00
CLIENT ID	MW-1 BLDG 108	COMMENTS	HNU ND
DATA FILE	>B1442	DATE ANALYZED	09/03/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	1.4 J	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	10 B	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	3.2 J	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	4.6 J	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	21	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	ND	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	104	76 - 114	OK
Toluene-d8	101	88 - 110	OK
Bromofluorobenzene	97.9	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A3809	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108, MW-1	COMMENTS	NONE
DATA FILE	>C2363	DATE ANALYZED	09/24/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	17	10	Fluorene	ND	10
Benzyl Alcohol	1.3 J	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	1.9 J	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	22	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	4.0 J	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)Fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaonthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-1

Client Name: US ARMY FT MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A3809

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >81442

Level: LOW

Date Received: 08/30/93

% Moisture: 100

Date Analyzed 09/03/93

Column: CAP

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	78784	Butane, 2-methyl- (8CI9CI)	3.34	45
2		UNKNOWN	4.28	50
3	1438148	Oxirane, (1-methylethyl)- (9CI)	5.23	17
4	96377	Cyclopentane, methyl- (8CI9CI)	6.39	16
5	110827	Cyclohexane(DOT (8CI9CI)	7.28	11
6	930574	Cyclopropane, butyl- (9CI)	7.85	4
7	16491159	Cyclopentene, 1,5-dimethyl- (8CI9CI)	8.60	3
8	756025	1,4-Pentadiene, 2,3,3-trimethyl- (8CI9CI)	11.06	3
9	98828	Benzene, (1-methylethyl)- (9CI)	14.41	5
10	103651	Benzene, propyl- (8CI9CI)	15.14	5
11	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	15.45	3
12	611143	Benzene, 1-ethyl-2-methyl- (9CI)	15.81	4
13	620144	Benzene, 1-ethyl-3-methyl- (9CI)	16.12	6
14	496117	1H-Indene, 2,3-dihydro- (9CI)	17.24	11
15	99876	Benzene, 1-methyl-4-(1-methylethyl)- (9CI)	17.40	3
16	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	18.30	6
17	1640897	Cyclopentane, ethyl- (8CI9CI)	18.69	3
18	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	18.82	4
19	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	19.41	4
20	874351	1H-Indene, 2,3-dihydro-5-methyl- (9CI)	19.70	8

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Bldg 108 MW-1

Client: US Army, Ft. Monmouth, NJ

Comments: None

Matrix: (soil/water) WATER

Lab Sample ID: A3809

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C2363

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 09/24/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 09/03/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 3

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	Trimethyl Benzene Isomer	8.59	5
2	Dihydro-Methyl 1H-Indene	11.55	6
3	UNKNOWN	29.50	140

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A3810	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-2	COMMENTS	HNU NO
DATA FILE	>81427	DATE ANALYZED	09/02/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	8.3 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	1.6 J	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	14	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	112	76 - 114	OK
Toluene-d8	98.9	88 - 110	OK
Bromofluorobenzene	102	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A3810	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-2	COMMENTS	NONE
DATA FILE	>C2364	DATE ANALYZED	09/24/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	2.2 J	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	1.5 J	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	32	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	2.1 J	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)Fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenapnthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-2

Lab Name: 21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A3810

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B1427

Level: (low/med) LOW

Date Received: 08/30/93

% Moisture: NA

Date Analyzed: 09/02/93

Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Bldg 108
MW-2

Client: US Army, Ft. Monmouth, NJ

Comments: None

Matrix: (soil/water) WATER

Lab Sample ID: A3810

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C2364

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 09/24/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 09/03/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 2

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	UNKNOWN	26.05	6
2	UNKNOWN	27.70	5

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A3811	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-3	COMMENTS	HNU 0.01
DATA FILE	>B1428	DATE ANALYZED	09/02/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	2.2 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	3.2 J	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	11	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	111	76 - 114	OK
Toluene-d8	99.3	88 - 110	OK
Bromofluorobenzene	100	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	93811	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-3	COMMENTS	NONE
DATA FILE	>C2365	DATE ANALYZED	09/24/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	6.7 J	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	2.0 J	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	62	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	ND	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)Fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-3

Client Name: US ARMY FT. MONMOUTH, NJ Client ID: BLDG 108

Matrix: (soil/water) WATER Lab Sample ID: A3811

Sample wt/vol: 5 (g/mL) mL Lab File ID: >B1428

Level: LOW Date Received: 08/30/93

% Moisture: 100 Date Analyzed 09/02/93

Column: CAP Dilution Factor: 1

Number TICs Found 1 CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	496117	1H-Indene, 2,3-dihydro- (9CI)	17.29	9

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Bldg 108
MW-3

Comments: US Army, Ft. Monmouth, NJ

Comments: None

Matrix: (soil/water) WATER

Lab Sample ID: A3811

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C2365

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 09/24/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 09/03/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 1

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	UNKNOWN	29.49	4

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	93812	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-3 DUP	COMMENTS	HNU 0 01
DATA FILE	>81429	DATE ANALYZED	09/02/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	2.4 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	3.7 J	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	11	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	112	76 - 114	OK
Toluene-d8	100	88 - 110	OK
Bromofluorobenzene	100	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	43812	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 MW-3 DUP	COMMENTS	NONE
DATA FILE	>C2366	DATE ANALYZED	09/24/93

COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10
bis(-2-Chloroethyl)Ether	ND	10
1,3-Dichlorobenzene	ND	10
1,4-Dichlorobenzene	ND	10
Benzyl Alcohol	6.3 J	10
1,2-Dichlorobenzene	ND	10
bis(2-chloroisopropyl)Ether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10
Hexachloroethane	ND	10
Nitrobenzene	ND	10
Isophorone	ND	10
Benzoic Acid	ND	50
bis(-2-Chloroethoxy)Methane	ND	10
1,2,4-Trichlorobenzene	ND	10
Naphthalene	ND	10
4-Chloroaniline	ND	10
Hexachlorobutadiene	ND	10
2-Methylnapnthalene	ND	10
Hexachlorocyclopentadiene	ND	10
2-Chloronapnthalene	ND	10
2-Nitroaniline	ND	50
Dimethyl Phthalate	ND	10
Acenapnthylene	ND	10
3-Nitroaniline	ND	50
Acenapnthene	ND	10
Dibenzofuran	ND	10
2,4-Dinitrotoluene	ND	10

COMPOUND	UG/L	MDL
2,6-Dinitrotoluene	ND	10
Diethylphthalate	ND	10
4-Chlorophenyl-phenylether	ND	10
Fluorene	ND	10
4-Nitroaniline	ND	50
N-Nitrosodiphenylamine	ND	10
4-Bromophenyl-phenylether	ND	10
Hexachlorobenzene	ND	10
Phenanthrene	ND	10
Anthracene	ND	10
Di-n-Butylphthalate	1.6 J	10
Fluoranthene	ND	10
Pyrene	ND	10
Butylbenzylphthalate	49	10
3,3'-Dichlorobenzidine	ND	20
Benzo(a)Anthracene	ND	10
Bis(2-Ethylhexyl)Phthalate	ND	10
Chrysene	ND	10
Di-n-Octyl Phthalate	ND	10
Benzo(b)Fluoranthene	ND	10
Benzo(k)Fluoranthene	ND	10
Benzo(a)Pyrene	ND	10
Indeno(1,2,3-cd)Pyrene	ND	10
Dibenzo(a,h)Anthracene	ND	10
Benzo(g,h,i)Perylene	ND	10
Benzidine	ND	20

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-3DUP

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A3812

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B1429

Level: LOW

Date Received: 08/30/93

% Moisture: 100

Date Analyzed 09/02/93

Column: CAP

Dilution Factor: 1

Number TICs Found 1

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	496117	1H-Indene, 2,3-dihydro- (9CI)	17.22	9

E1

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NUMBER

Bldg 108
MW-3dup

Comments: US Army, Ft. Monmouth, NJ

Matrix: (soil/water) WATER

Sample wt/vol: 1000 (g/mL) ML

Level: LOW

% Moisture: 100

Extraction: (Sepf/Cont/Sonc) SEPF

GPC (Y or N): N

Column: DB-5

Number TICs Found 0

Comments: None

Lab Sample ID: A3812

Lab File ID: >C2366

Date Received: NA

Date Analyzed 09/24/93

Date Extracted 09/03/93

Dilution Factor: 1

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST CONC
	NO UNKNOWN COMPOUNDS IDENTIFIED		

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A3819	DILUTION FACTOR	1 00
CLIENT ID	BLDG 108 FIELD BLANK	COMMENTS	HNU ND
DATA FILE	>81436	DATE ANALYZED	09/02/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone.	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	4.3 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	ND	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	101	76 - 114	OK
Toluene-d8	99.1	88 - 110	OK
Bromofluorobenzene	100	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT. MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A3819	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108 FIELD BLANK	QA BATCH	
DATA FILE	>C2530	DATE ANALYZED	10/07/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	ND	10	Fluorene	ND	10
Benzyl Alcohol	ND	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	ND	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	ND	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	ND	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)Fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD BLANK

Lab Name: 21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A3819

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B1436

Level: (low/med) LOW

Date Received: 08/30/93

% Moisture: NA

Date Analyzed: 09/02/93

Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

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00025

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Bldg 108
Fld Blk

Client: US Army Ft. Monmouth, NJ

Comments: None

Matrix: (soil/water) WATER

Lab Sample ID: A3819

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C2530

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 10/07/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 09/03/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 3

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	25.66	5
2		UNKNOWN	26.49	7
3		UNKNOWN	28.07	5

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A3820	DILUTION FACTOR	1.00
CLIENT ID	TRIP BLANK BLDG 108	COMMENTS	HNU ND
DATA FILE	>81481	DATE ANALYZED	09/05/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	ND	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	2.1 JB	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	ND	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	ND	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	ND	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	ND	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	96.5	76 - 114	OK
Toluene-d8	99.4	88 - 110	OK
Bromofluorobenzene	96.6	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

TRIP BLANK

Lab Name:21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A3820

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B1481

Level: (low/med) LOW

Date Received: 08/30/93

% Moisture: NA

Date Analyzed: 09/05/93

Column: DB-624

Dilution Factor: 1

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	No Unknowns			

FORM I VOA-TIC 1/87 Rev

00028

DATA PACKAGE

CERTIFICATE OF ANALYSIS

U.S. ARMY-FORT MONMOUTH, NJ BLDG 108

LEAD

ANALYSIS NO:	CLIENT ID:	MDL (mg/L)	RESULT (mg/L)
A 3809	MW 1	0.05	N.D.
A 3810	MW 2	0.05	N.D.
A 3811	MW 3	0.05	N.D.
A 3812	MW 3 Dup	0.05	N.D.

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	93809	DILUTION FACTOR	1.00
CLIENT ID	MW-1 BLDG 108	COMMENTS	HNU ND
DATA FILE	>81442	DATE ANALYZED	09/03/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
Acrolein	ND	50	2-Chloroethylvinylether	ND	10
Acrylonitrile	ND	50	2-Hexanone	ND	10
Chloromethane	ND	10	trans-1,3-Dichloropropene	ND	5
Bromomethane	ND	10	Toluene	1.4 J	5
Vinyl Chloride	ND	10	cis-1,3-Dichloropropene	ND	5
Chloroethane	ND	10	1,1,2,2-Tetrachloroethane	ND	5
Acetone	10 B	10	1,1,2-Trichloroethane	ND	5
1,1-Dichloroethene	ND	5	4-Methyl-2-pentanone	ND	10
Carbon Disulfide	ND	10	Tetrachloroethene	ND	5
Methylene Chloride	3.2 J	5	Dibromochloromethane	ND	5
1,2-Dichloroethene(trans)	ND	5	Chlorobenzene	ND	5
1,1-Dichloroethane	ND	5	Ethylbenzene	ND	5
Vinyl Acetate	ND	5	m&p-Xylenes	4.6 J	5
2-Butanone	ND	10	o-Xylene	ND	5
Chloroform	ND	5	Styrene	ND	5
1,1,1-Trichloroethane	ND	5	Bromoform	ND	5
Carbon Tetrachloride	ND	5	m-Dichlorobenzene	ND	5
1,2-Dichloroethane	ND	5	p-Dichlorobenzene	21	5
Benzene	ND	5	o-Dichlorobenzene	ND	5
Trichloroethene	ND	5	Methyl Tertiary Butyl Ether	ND	10
1,2-Dichloropropane	ND	5	Tertiary Butyl Alcohol	ND	50
Bromodichloromethane	ND	5			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	104	76 - 114	OK
Toluene-d8	101	88 - 110	OK
Bromofluorobenzene	97.9	86 - 115	OK

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A3809	DILUTION FACTOR	1.00
CLIENT ID	BLDG 108, MW-1	COMMENTS	NONE
DATA FILE	>C2363	DATE ANALYZED	09/24/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	2,6-Dinitrotoluene	ND	10
bis(-2-Chloroethyl)Ether	ND	10	Diethylphthalate	ND	10
1,3-Dichlorobenzene	ND	10	4-Chlorophenyl-phenylether	ND	10
1,4-Dichlorobenzene	17	10	Fluorene	ND	10
Benzyl Alcohol	1.3 J	10	4-Nitroaniline	ND	50
1,2-Dichlorobenzene	ND	10	N-Nitrosodiphenylamine	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Bromophenyl-phenylether	ND	10
N-Nitroso-Di-n-Propylamine	ND	10	Hexachlorobenzene	ND	10
Hexachloroethane	ND	10	Phenanthrene	ND	10
Nitrobenzene	ND	10	Anthracene	ND	10
Isophorone	ND	10	Di-n-Butylphthalate	1.9 J	10
Benzoic Acid	ND	50	Fluoranthene	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Pyrene	ND	10
1,2,4-Trichlorobenzene	ND	10	Butylbenzylphthalate	22	10
Naphthalene	ND	10	3,3'-Dichlorobenzidine	ND	20
4-Chloroaniline	ND	10	Benzo(a)Anthracene	ND	10
Hexachlorobutadiene	ND	10	Bis(2-Ethylhexyl)Phthalate	4.0 J	10
2-Methylnaphthalene	ND	10	Chrysene	ND	10
Hexachlorocyclopentadiene	ND	10	Di-n-Octyl Phthalate	ND	10
2-Chloronaphthalene	ND	10	Benzo(b)Fluoranthene	ND	10
2-Nitroaniline	ND	50	Benzo(k)Fluoranthene	ND	10
Dimethyl Phthalate	ND	10	Benzo(a)Pyrene	ND	10
Acenaphthylene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
3-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Acenaphthene	ND	10	Benzo(g,h,i)Perylene	ND	10
Dibenzofuran	ND	10	Benzidine	ND	20
2,4-Dinitrotoluene	ND	10			

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

MW-1

Client Name: US ARMY FT MONMOUTH, NJ

Client ID: BLDG 108

Matrix: (soil/water) WATER

Lab Sample ID: A3809

Sample wt/vol: 5 (g/mL) mL

Lab File ID: >B1442

Level: LOW

Date Received: 08/30/93

% Moisture: 100

Date Analyzed 09/03/93

Column: CAP

Dilution Factor: 1

Number TICs Found 20

CONCENTRATION UNITS
(ug/L or ug/Kg) ug/L

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	78784	Butane, 2-methyl- (8CI9CI)	3.34	45
2		UNKNOWN	4.28	50
3	1438148	Oxirane, (1-methylethyl)- (9CI)	5.23	17
4	96377	Cyclopentane, methyl- (8CI9CI)	6.39	16
5	110827	Cyclohexane(DOT (8CI9CI)	7.28	11
6	930574	Cyclopropane, butyl- (9CI)	7.85	4
7	16491159	Cyclopentene, 1,5-dimethyl- (8CI9CI)	8.60	3
8	756025	1,4-Pentadiene, 2,3,3-trimethyl- (8CI9CI)	11.06	3
9	98828	Benzene, (1-methylethyl)- (9CI)	14.41	5
10	103651	Benzene, propyl- (8CI9CI)	15.14	5
11	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	15.45	3
12	611143	Benzene, 1-ethyl-2-methyl- (9CI)	15.81	4
13	620144	Benzene, 1-ethyl-3-methyl- (9CI)	16.12	6
14	496117	1H-Indene, 2,3-dihydro- (9CI)	17.24	11
15	99876	Benzene, 1-methyl-4-(1-methylethyl)- (9CI)	17.40	3
16	767588	1H-Indene, 2,3-dihydro-1-methyl- (9CI)	18.30	6
17	1640897	Cyclopentane, ethyl- (8CI9CI)	18.69	3
18	488233	Benzene, 1,2,3,4-tetramethyl- (8CI9CI)	18.82	4
19	824226	1H-Indene, 2,3-dihydro-4-methyl- (9CI)	19.41	4
20	874351	1H-Indene, 2,3-dihydro-5-methyl- (9CI)	19.70	8

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Bldg 108 MW-1

Client: US Army, Ft. Monmouth, NJ

Comments: None

Matrix: (soil/water) WATER

Lab Sample ID: A3809

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C2363

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 09/24/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 09/03/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 3

CONCENTRATION UNITS
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	Trimethyl Benzene Isomer	8.59	5
2	Dihydro-Methyl 1H-Indene	11.55	6
3	UNKNOWN	29.50	140

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

		No	Yes
1.	Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)	___	✓
2.	GC/MS Tune Specifications		
	a. BFB Meet Criteria	___	✓
	b. DFTPP Meet Criteria	___	✓
3.	GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series.	___	✓
4.	GC/MS Calibration - Initial Calibration performed within 30 days before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series	___	✓
5.	GC/MS Calibration Requirements		
	a. Calibration Check Compounds	___	✓
	b. System Performance Check Compounds	___	✓

6. Blank Contamination - If yes, list compounds and concentrations in each blank:

   a. VOA Fraction 22 ug/L Acetone
   b. B/N Fraction
   c. Acid Fraction

7.	Surrogate Recoveries Meet Criteria	✓	___

If not met, list those compounds and their recoveries which fall outside the acceptable range:

   a. VOA Fraction 3-Tol d8 High
   b. B/N Fraction
   c. Acid Fraction

	If not met, were the calculations checked and the results qualified as "estimated"?	N/A	___
8.	Matrix Spike/ Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range)	✓	___

   a. VOA Fraction
   b. B/N Fraction 6 of 22 Recoveries OST
   c. Acid Fraction

9.	Internal Standard Area/Retention Time Shift Meet Criteria	___	✓

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (CONTINUED)

	No	Yes
10. Extraction Holding Time Met	___	✓

If not met, list number of days exceeded for each sample: _____

11. Analysis Holding Time Met	___	✓

If not met, list number of days exceeded for each sample: _____

Additional Comments: This form completed By Prime Contractor

Laboratory Manager: Brian K. McKee Date: 8-16-93

METAL ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	No	Yes
1. Calibration Summary Meet Criteria	N/A	
2. ICP Interference Check Sample Results Summary Submitted (if applicable) / Meet Criteria	N/A	
3. Serial Dilution Summary Submitted (if applicable) / Meet Criteria	N/A	
4. Laboratory Control Sample Summary Submitted (if applicable) / Meet Criteria	N/A	

5. Blank Contamination - If yes, list compounds and concentrations in each blank:

None

6. Matrix Spike/ Matrix Spike Duplicate Recoveries Meet Criteria ✓
(If not met, list those compounds and their recoveries which fall outside the acceptable range)

7. Extraction Holding Time Met ✓

If not met, list number of days exceeded for each sample: _____

8. Analysis Holding Time Met ✓

If not met, list number of days exceeded for each sample: _____

Additional Comments: This form completed By Prime Contractor

Laboratory Manager: Brian McKee Date: 8-16-93

Bldg. 108 - UST Closure Rpt