UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT
BUILDING 161
NJDEPE REGISTRATION NOS.: 90010-14 AND 90010-68

Closure Approval No. C-91-2838

October 28, 1993

W.O. No.: 03886-088-001

Prepared For:

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

Prepared by:

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EXECUTIVE SUMMARY

On 12 March 1993, two underground storage tanks (USTs) were closed at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The tanks, New Jersey Department of Environmental Protection and Energy (NJDEPE) Registration No. 90010-68 and 90010-14, were located immediately south of Building 161 in the Main Post area of Fort Monmouth. UST No. 90010-68 was a single wall fiberglass, 550-gallon waste oil UST. UST No. 90010-14 was a single wall steel, 1000-gallon No. 2 fuel oil UST. The USTs were located immediately adjacent to one another and were closed simultaneously. Mr. Douglas Greenfield of the NJDEPE Division of Hazardous Waste Management (NJDEPE-DHWM) was onsite for the duration of the UST closure activities. All Service Environmental, Inc. performed the tank closures.

Soils surrounding the tanks were screened visually and with air monitoring instruments for evidence of contamination. The tanks were inspected following removal for holes, cracks or punctures as an indication of historical leakage from the tanks. No holes were noted in UST No. 90010-68, the 550-gallon waste oil UST, and no potentially contaminated soils were identified surrounding this UST.

Following removal of UST No. 90010-68, four post-excavation samples were collected from the sidewalls of the excavation surrounding this UST, immediately above groundwater. Groundwater was present in the excavation at approximately four feet below ground surface (BGS). These samples were analyzed for total petroleum hydrocarbons (TPHC) and priority pollutants plus 40 tentatively identified compounds (PP+40). All samples contained either non-detectable concentrations of contaminants or concentrations below proposed NJDEPE subsurface cleanup criteria.

Upon removal and inspection of UST No. 90010-14, the 1000-gallon No. 2 fuel oil UST, several corrosion holes of approximately 1/16 of an inch in diameter were noted. Additionally, a sheen was noted on groundwater within the excavation surrounding UST No. 90010-14, indicating that a discharge may have historically occurred from this UST. A discharge was reported to the NJDEPE by the DPW on 12 March 1993 (Case No. 93-3-12-2158-30). Groundwater was present in the excavation at approximately four feet BGS.

Following removal of UST No. 90010-14, three post-excavation samples were collected from the sidewalls of the excavation surrounding this UST, immediately above groundwater. These samples were analyzed for TPHC. In accordance with NJDEPE requirements, those samples which exhibited a concentration of TPHC exceeding 1,000 milligrams per kilogram (mg/kg) would have been also analyzed for volatile organic compounds plus 10 tentatively identified compounds (VO+10). Based on the concentrations of TPHC detected in the post-excavation samples, no samples were analyzed for VO+10. 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. All samples contained concentrations of total organic compounds below the proposed NJDEPE subsurface criterion of 10,000 mg/kg.

No further action is proposed at the former location of Building 161 in reference to UST No. 90010-68 since no soils surrounding this UST were identified during closure containing concentrations of contaminants exceeding proposed NJDEPE subsurface cleanup criteria.

It is proposed that one monitoring well be installed in the former location of UST No. 90010-14 to assess the impacts to groundwater, if any, from historical discharges from this UST. A groundwater sample will be collected from this well and will be analyzed for base neutral compounds plus 15 tentatively identified compounds (BN+15) and VO+10.

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SECTION 1.0

UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

Two (2) underground storage tanks (USTs), NJDEPE Registration No. 90010-14 and 90010-68, were closed at Building 161 at Fort Monmouth, New Jersey on 12 March 1993. This UST Closure and Site Investigation Report was prepared by Roy F. Weston Inc., (WESTON®) to assist the United States Army Directorate of Public Works (DPW) in complying with the New Jersey Department of Environmental Protection and Energy - 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" (NJAC 7:26E-I et seq. May 1992). This report presents the results of the DPW's implementation of the UST Decommissioning/Closure Plans submitted to the NJDEPE on 12 July 1991. UST No. 90010-68 was registered as a single wall steel, 1000-gallon waste oil UST; however upon removal and inspection of the tank, it was determined to be a single wall fiberglass, 550-gallon waste oil UST. It is likely that UST No. 90010-68 was originally a 1,000-gallon steel UST that was later replaced by a 500-gallon fiberglass UST, however no documentation of this replacement is available. UST No. 90010-14 was a single wall steel, 1,000-gallon No. 2 fuel oil UST.

All activities associated with the decommissioning of the USTs 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: NJAC 7:14B-1 et seq., NJAC 5:23-1 et seq., NJAC 7:26E-I et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 & 1910.120. All permits including but not limited to the NJDEPE Closure Approvals were posted on site for inspection. All Service Environmental Inc., the contractors that conducted the decommissioning activities, are registered and certified by the NJDEPE for performing UST closure activities. Closure of UST No. 90010-68 proceeded under approval and onsite supervision of the NJDEPE Division of Hazardous Waste Management (NJDEPE-DHWM). Closure of UST No. 90010-14 proceeded under approval from the NJDEPE-BUST (Closure Approval No. C91-2838). The NJDEPE Closure Approvals and the UST Site Assessment Summary Forms for the USTs have been included in Appendices A and B, respectively.

Section 1 of this UST Closure and Site Investigation Report provides a summary of the UST decommissioning activities. Section 2 of this report describes the site investigation activities that occurred as part of closure of the USTs. Conclusions and recommendations, including the results of the soil sampling investigation, are presented in the final section of this report.

1.2 SITE DESCRIPTION

Building 161 was located within the eastern portion of the Main Post area of U.S Army Fort Monmouth, in Fort Monmouth, New Jersey. A site location map is provided in Figure 1-1. Two (2) USTs, NJDEPE Registration Nos. 90010-68 and 90010-14, were closed on 12 March 1993. UST No. 90010-68 was a single wall fiberglass, 550-gallon waste oil UST. UST No. 90010-14 was a single wall steel, 1000-gallon No.2 fuel oil UST. Building 161 was formerly a military vehicle repair and maintenance facility. Building 161 was demolished following closure of the USTs.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding the former location of Building 161. Included is a description of the regional geology as well as descriptions of the local geology and hydrogeology of the Main Post area.

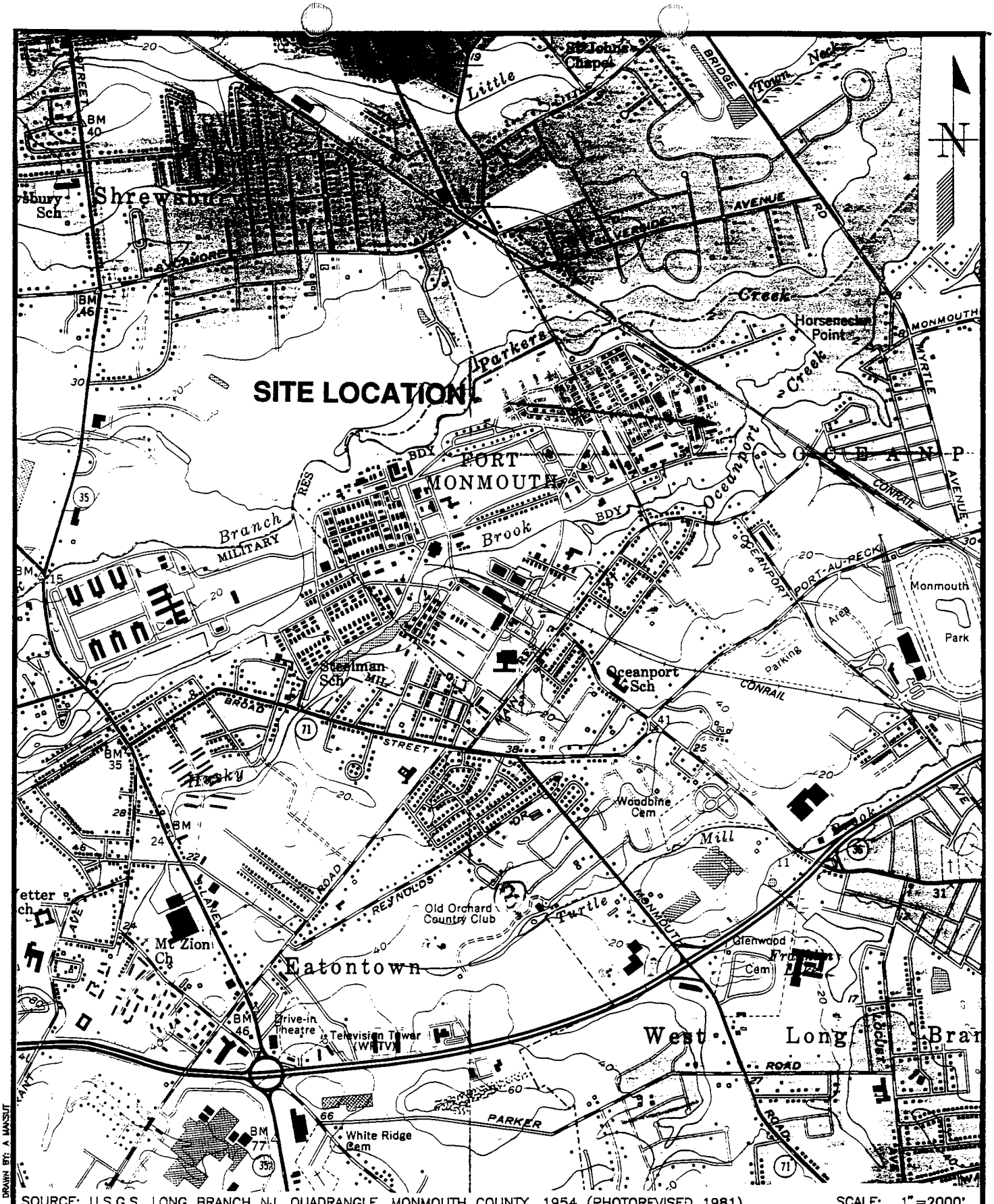
Regional Geology

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).

SITE LOCATION MAP



SOURCE: U.S.G.S. LONG BRANCH NJ, QUADRANGLE, MONMOUTH COUNTY, 1954 (PHOTOREVISED 1981) SCALE: 1"=2000'

REVISION #: 0000 DATE: 10-19-93 PLOT NAME:
FILE NAME: BLDG-161.DWG DRAWN BY: A.MASUIT

WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME:
UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT
BUILDING 161 – TANK NO. 14,16
FORT MONMOUTH, NEW JERSEY

CLIENT NAME:
U.S. ARMY–DEH
FORT MONMOUTH

SITE LOCATION MAP

DATE: 10–22–93

FIGURE #: 1–1

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-coarse-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).

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, water is typically encountered at depths of two to nine feet 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.

Due to the proximity of the Atlantic Ocean to Fort Monmouth, shallow groundwater may be tidally influenced and may flow towards creeks and brooks as the tide goes out and away from creeks and brooks as the tide comes in. However, an abundance of clay lenses and sand deposits were noted in borings installed throughout the Fort Monmouth. Therefore, direction of shallow groundwater flow should be determined on a case by case basis.

1.3 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 systems 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 individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

1.4 REMOVAL OF UNDERGROUND STORAGE TANKS

1.4.1 General Procedures

- All underground obstructions (utilities,... etc.) were marked out by the contractor performing the closure prior to excavation activities.
- All activities were carried out with the greatest regard to safety and health and the safeguarding of the environment.
- All excavated soils were screened visually and with an organic vapor analyzer (OVA) for evidence of contamination.
- Surface materials (i.e, asphalt, concrete, etc...) were excavated and staged separate from all soils and were recycled in accordance with all applicable regulation and laws.
- A Sub-Surface Evaluator from the DPW was present during all closure activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Soil was excavated to expose the USTs and 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 the removal of the associated piping, a manway was made in the USTs to allow for proper cleaning. The USTs were completely emptied of all liquids prior to removal from the ground. Liquids were transported and disposed of by Casie Protank Environmental Services. Hazardous waste manifests were completed and can be found in Appendix C. 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 or puncture holes. The presence or absence of holes was documented by the Sub-Surface Evaluator. No holes were observed upon the inspection of UST No. 90010-68; however, several holes of approximately 1/16 of an inch in diameter were observed upon inspection of UST No. 90010-14, the #2 fuel oil tank. A sheen was noted on groundwater in the excavation surrounding UST No. 90010-14, indicating that a discharge may have historically occurred from the UST. A discharge was reported to the NJDEPE by the DPW on 12 March 1993 (Case No. 93-3-12-2158-30). Soils surrounding the USTs were screened visually and with an OVA for evidence of contamination. No evidence of contamination was noted in soils

surrounding UST No. 90010-68. Approximately 10 cubic yards of potentially contaminated soil was removed from the area surrounding UST No. 009010-14.

All tanks were cleaned prior to disposal in accordance with NJDEPE-BUST regulations. Following cleaning of UST No. 90010-68, the waste oil UST, two rinsate samples (rinsate samples #1 and #2) were collected and analyzed for total petroleum hydrocarbons (TPHC). Rinsate samples were collected by passing washwater over the interior surface of the UST. In addition, a washwater blank sample was collected and analyzed for TPHC. Rinsate sample #1 was collected following the initial cleaning of the UST. Subsequently, the UST was again cleaned following the initial procedure and rinsate sample #2 was collected. Rinsate samples #1 and #2 contained TPHC concentrations of 153 and 134 milligrams per liter (mg/L), respectively. The washwater blank sample contained a non-detectable concentration of TPHC. Analytical results for the rinsate samples and washwater blank sample are presented in Appendix D.

A sheen and small amounts of product were noted on groundwater in the excavation surrounding UST No. 90010-14. Groundwater was located at approximately four feet BGS. The groundwater exhibiting a sheen and a small amount of free product was removed from the excavation using a vacuum truck. These liquids were disposed of and manifested with the liquids removed from UST No. 90010-14.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL:

UST No. 90010-14 was transported by All Service Environmental, Inc. and recycled by Mazza and Sons, Inc., in compliance with all applicable regulations and laws. UST No. 90010-68 was transported by All Service Environmental to the Monmouth County Reclamation Center, for disposal in compliance with all applicable regulations and laws. The tank reclamation certificates for UST Nos. 90010-68 and 90010-14 are provided in Appendix E.

The Subsurface Evaluator labelled each tank 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.

1.6 MANAGEMENT OF EXCAVATED SOILS:

Approximately 10 cubic yards of potentially contaminated soils were excavated as part of the removal of UST No. 90010-14. These soils were stockpiled separately from soils free of evidence of contamination. Potentially contaminated soils were transported to Soil Remediation of Philadelphia for disposal. The hazardous waste manifest for this soil is included in Appendix C. No potentially contaminated soils were excavated as part of the removal of UST No. 90010-68. 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 21st Century Environmental, Inc. and the U.S. Army, Fort Monmouth Environmental Laboratory, 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 (June 1992). Sampling frequency and parameters analyzed complied with the NJDEPE-BUST document "Technical Requirements for Site Remediation-Proposed New Rules" (NJAC 7: 26E-I et.seq. May 1992) which was the applicable regulation at the time of the closures. 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: 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

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

- Analytical Laboratory: Fort Monmouth Environmental Laboratory
  Contact Person: Brian McKee
  Phone Number: (908) 532-4359
  NJDEPE Company Certification No.: 13461

- NJDEPE On-site Representative: DOUG GREENFIELD
  DIVISION OF HAZARDOUS WASTE MANAGEMENT
  Phone Number: (609) 584-4200

2.2 FIELD SCREENING/MONITORING

All soils that were excavated as part of the removal of the USTs were screened visually and with an OVA, for evidence of contamination. Soils were also visually screened for evidence of contamination (staining, free product, etc..). Approximately 10 cubic yards of potentially contaminated soils were excavated as part of removal of UST No. 90010-14. No evidence of contamination was noted during excavation of soils surrounding UST No. 90010-68.

Soils on the sidewalls of the excavation were screened with an OVA by an individual under the direct supervision of a NJDEPE Certified Sub-Surface Evaluator. No evidence of contamination was noted within soils on the sidewalls or base of the excavation surrounding UST No. 90010-68. Additional soils were removed from the excavation surrounding UST No. 009010-14 until no evidence of contamination remained.

2.3 SOIL SAMPLING

Following removal of UST Nos. 90010-68 and 90010-14, post-excavation soil samples were collected in accordance with NJDEPE procedure and the approved closure plans. A summary of sampling activities including parameters analyzed is provided in Table 2-1. Figure 2-1 depicts the location of the post-excavation samples. The samples were collected along the sidewalls of the excavation immediately above groundwater (approximately four feet BGS) using decontaminated stainless steel scoops. Following soil sampling activities, the samples were chilled and delivered to 21st Century Environmental, Inc. located in Bridgeport, New Jersey for PP+40 analysis and to Fort Monmouth Environmental Laboratory in Fort Monmouth, New Jersey for TPHC analysis.

Following removal of UST No. 90010-68, four post-excavation samples (Samples AA, BB, CC and DD) were collected from the excavation surrounding this UST. These samples were analyzed for TPHC and priority pollutants plus 40 tentatively identified compound (PP+40). All samples contained either non-detectable concentrations of contaminants or concentrations below NJDEPE subsurface cleanup criteria.

Following removal of UST No. 90010-14, three post-excavation samples (Samples EE, FF, and GG) were collected from the excavation surrounding this UST and analyzed for TPHC. In accordance with NJDEPE requirements, those samples which exhibited a concentration of TPHC exceeding 1000 milligrams per kilogram (mg/kg) would also be analyzed for volatile organic compounds plus 10 tentatively identified compounds (VO+10). Based on TPHC analytical results, no samples were analyzed for VO+10.

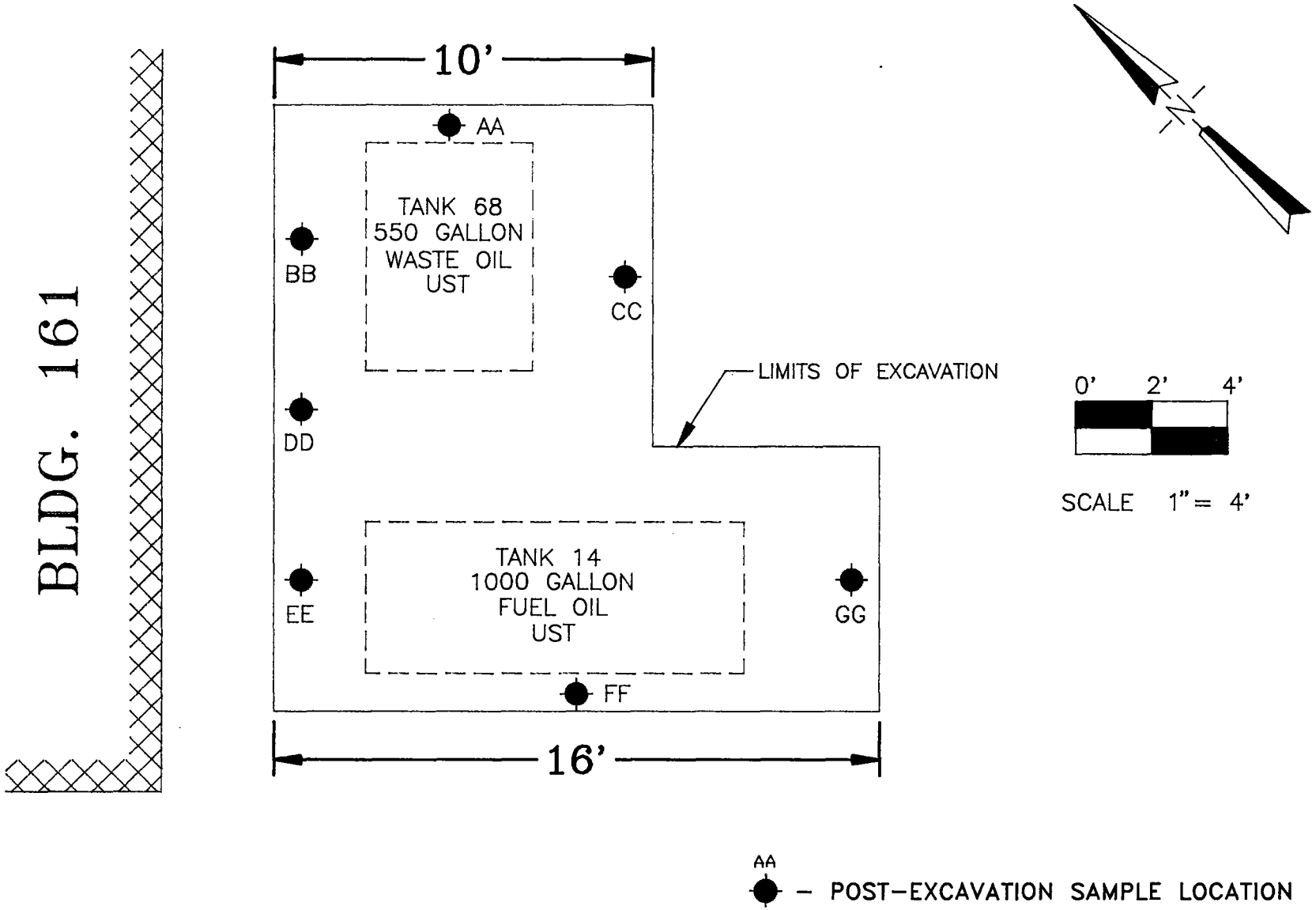
TABLE 2-1

SUMMARY OF POST-EXCAVATION SAMPLING
UST REGISTRATION NOS. 90010-68 AND 90010-14
TANK BUILDING NO. 161
FORT MONMOUTH, NEW JERSEY

Sample I.D No.	Date of Collection	Matrix	Sample Type	Analytical Parameters	Sampling Method
AA	3/12/93	Soil	Post-Excavation	TPHC, PP+40	Stainless Steel Scoop
BB	3/12/93	Soil	Post-Excavation	TPHC, PP+40	Stainless Steel Scoop
CC	3/12/93	Soil	Post-Excavation	TPHC, PP+40	Stainless Steel Scoop
DD	3/12/93	Soil	Post-Excavation	TPHC, PP+40	Stainless Steel Scoop
EE	3/12/93	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
FF	3/12/93	Soil	Post-Excavation	TPHC	Stainless Steel Scoop
GG	3/12/93	Soil	Post-Excavation	TPHC	Stainless Steel Scoop

TPHC - Total Petroleum Hydrocarbons.

PP+40 - Priority pollutant plus 40 - The priority pollutant list of 126 compounds and elements developed by EPA pursuant to Section 307(a)(1) of the Clean Water Act and 40 non-targeted organic compounds detected by gas chromatography/mass spectroscopy (GC/MS) analysis.



REVISION #:
FILE NAME: DEH-161.DWG DATE: 10-26-93 DRAWN BY: A MAKSUT

WESTON MANAGERS DESIGNERS/CONSULTANTS

PROJECT NAME:
UNDERGROUND STORAGE TANK CLOSURE
AND SITE INVESTIGATION REPORT
BUILING 161 – TANK 68,14
FORT MONMOUTH, NEW JERSEY

CLIENT NAME: U.S. ARMY–DEH
FORT MONMOUTH

SAMPLE LOCATIONS POST–EXCAVATION

FACILITY REGISTRATION
NO's 0090010–68 0090010–14

DATE: 10–07–93

FIGURE #: 2–1

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SECTION 3.0

CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the USTs and associated soils, the post-excavation sample results were compared to proposed NJDEPE subsurface cleanup criteria (NJAC 7:26D and revisions dated 8 March 1993). A summary of the analytical results and comparison to applicable proposed NJDEPE subsurface cleanup criteria are provided in Table 3-1. Table 3-2 provides a summary of analytical methods and quality assurance information. The analytical data package summary is provided in Appendix D. The full data package, including associated chromatography and quality control data is on file at U.S. Army Fort Monmouth, DPW.

Samples AA through DD were collected from the excavation surrounding UST No. 90010-68 and analyzed for TPHC and PP+40. TPHC were not detected in these samples. Bis(2-ethylhexyl)phthalate and several volatile organic compounds were detected in samples AA through DD, however at concentrations well below proposed NJDEPE subsurface cleanup criteria. Several metals were detected in samples AA through DD, however no subsurface cleanup criteria has been proposed by NJDEPE for these metals.

Samples EE, FF and GG were collected from the excavation surrounding UST No. 90010-14 and were analyzed for TPHC. Sample EE and FF contained non-detectable concentrations of TPHC. Sample GG contained a concentration of TPHC of 313 mg/kg. No subsurface cleanup criteria has been proposed for TPHC by the NJDEPE, however, the proposed NJDEPE subsurface cleanup criteria for total organic compounds is 10,000 mg/kg. No sample contained concentration of total organic compounds exceeding the proposed NJDEPE subsurface cleanup criterion.

3.2 CONCLUSIONS AND RECOMMENDATIONS:

DPW successfully removed UST Nos. 90010-68 and 90010-14 at Building 161 in the Main Post Area of U.S. Army Fort Monmouth. Based on visual inspection of the USTs and field screening of the soils adjacent to the USTs, it was determined that no discharge had historically occurred from UST No. 90010-68. Observation of corrosion holes within UST No. 90010-14 and the presence of a product a sheen on groundwater in the excavation surrounding UST No. 90010-14 indicates that a discharge may have historically occurred from UST No. 90010-14 (Case No. 93-3-12-2158-30).

TABLE 3-1

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NOS. 90010-68 AND 90010-14
BUILDING NO. 161
FORT MONMOUTH, NEW JERSEY

SAMPLE ID NO.		AA	BB	CC	DD	EE	FF	GG	PROPOSED NJDEPE SUBSURFACE CLEANUP CRITERIA
LAB ID NO.		1162.1	1162.2	1162.3	1162.4	1162.5	1162.6	1162.7	
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
SAMPLE TYPE		PE	PE	PE	PE	PE	PE	PE	
DATE OF COLLECTION		3/12/93	3/12/93	3/12/93/	3/12/93	3/12/93	3/12/93	3/12/93	
ANALYTICAL PARAMETER	UNITS								mg/kg
TPHC	mg/kg	ND	ND	ND	ND	ND	ND	313	NC*
BASE NEUTRAL COMPOUNDS									
BIS(2-ETHYLHEXYL)PHTHALATE		0.063JB	0.046JB	0.047JB	0.061JB	NA	NA	NA	100
VOLATILE ORGANIC COMPOUNDS	mg/kg								
ACETONE		0.022	0.0092J	0.0067J	0.0073J	NA	NA	NA	50
METHYLENE CHLORIDE		0.0062	0.0042J	0.0032J	0.0032J	NA	NA	NA	10
TOLUENE		0.0041J	ND	ND	ND				500
ETHYLBENZENE		0.0013J	ND	ND	ND	NA	NA	NA	100
M & P XYLENES		0.0066	ND	ND	ND	NA	NA	NA	NC

No further action is proposed at Building 161 in reference to UST No. 90010-68. Analytical results from post-excavation samples collected from the area surrounding this UST indicate that no soils are present with concentrations of contaminants exceeding proposed NJDEPE subsurface cleanup criteria.

Analytical results from post-excavation samples collected from the area surrounding this UST indicate that no soils are present with concentrations of contaminants exceeding proposed NJDEPE subsurface cleanup criteria.

It is proposed that one monitoring well be installed in the former location of UST No. 90010-14 to assess the impacts to groundwater, if any, from historical discharges from this UST. A groundwater sample will be collected from this well and will be analyzed for base neutral compounds plus 15 tentatively identified compounds (BN+15) and V0+10.

TABLE 3-1 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NOS. 90010-68 AND 90010-14
BUILDING NO. 161
FORT MONMOUTH, NEW JERSEY

SAMPLE ID NO.		AA	BB	CC	DD	EE	FF	GG	PROPOSED NJDEPE SUBSURFACE CLEANUP CRITERIA
LAB ID NO.		1162.1	1162.2	1162.3	1162.4	1162.5	1162.6	1162.7	
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
SAMPLE TYPE		PE	PE	PE	PE	PE	PE	PE	
DATE OF COLLECTION		3/12/93	3/12/93	3/12/93/	3/12/93	3/12/93	3/12/93	3/12/93	
ANALYTICAL PARAMETER	UNITS								mg/kg
VOLATILE ORGANIC COMPOUNDS	mg/kg								
O-XYLENE		0.0025J	ND	ND	ND	NA	NA	NA	NC
CYANIDE	mg/kg	ND	0.16	ND	0.15	NA	NA	NA	NC
PHENOLS	mg/kg	ND	ND	ND	ND	NA	NA	NA	NC
PRIORITY POLLUTANT METALS	mg/kg								
ANTIMONY		ND	ND	8.58	ND	NA	NA	NA	NC
ARSENIC		6.15	3.57	4.54	3.40	NA	NA	NA	NC
BERYLLIUM		ND	ND	ND	ND	NA	NA	NA	NC
CADMIUM		ND	ND	ND	ND	NA	NA	NA	NC

TABLE 3-1 (CONTINUED)

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NOS. 90010-68 AND 90010-14
BUILDING NO. 161
FORT MONMOUTH, NEW JERSEY

SAMPLE ID NO.		AA	BB	CC	DD	EE	FF	GG	PROPOSED NJDEPE SUBSURFACE CLEANUP CRITERIA
LAB ID NO.		1162.1	1162.2	1162.3	1162.4	1162.5	1162.6	1162.7	
MATRIX		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	
SAMPLE TYPE		PE	PE	PE	PE	PE	PE	PE	
DATE OF COLLECTION		3/12/93	3/12/93	3/12/93/	3/12/93	3/12/93	3/12/93	3/12/93	
ANALYTICAL PARAMETER	UNITS								mg/kg
PRIORITY POLLUTANT METALS	mg/kg								
CHROMIUM		42.3	38.5	50.7	53.7	NA	NA	NA	NC
COPPER		2.91	3.66	4.09	7.25	NA	NA	NA	NC
LEAD		6.88	8.84	7.71	18.4	NA	NA	NA	NC
MERCURY		ND	ND	ND	ND	NA	NA	NA	NC
NICKEL		ND	ND	ND	4.53	NA	NA	NA	NC
SELENIUM		ND	ND	0.46	0.42	NA	NA	NA	NC
SILVER		ND	ND	ND	ND	NA	NA	NA	NC
THALLIUM		ND	ND	ND	ND	NA	NA	NA	NC
ZINC		21.8	70.1	31.7	45.7	NA	NA	NA	NC

WESTON
MANAGERS DESIGNERS/CONSULTANTS

TABLE 3-1

SUMMARY OF ANALYTICAL RESULTS
UST REGISTRATION NOS. 90010-68 AND 90010-14
BUILDING NO. 161
FORT MONMOUTH, NEW JERSEY

Notes:

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.
NC:	-	No subsurface cleanup criterion has been proposed for this analyte by NJDEPE.
J:	-	Indicates detected below method detection limit.
ND:	-	Indicates compound not detected.
TPHC:	-	Total Petroleum Hydrocarbons.
PE:	-	Post-Excavation.
B:	-	Indicates also present in blank.
NA:	-	Not analyzed.
mg/kg:	-	Milligrams per Kilogram.

TABLE 3-2

ANALYTICAL METHODS/QUALITY ASSURANCE SUMMARY TABLE
UST REGISTRATION NOS. 90010-68 AND 90010-14
BUILDING NO. 161
FORT MONMOUTH, NEW JERSEY

Analytical Parameter	No. of Samples Collected	Matrix	Date Collected	Date Analysis Started	Preservation Method	USEPA SW-486 Analytical Method
TPHC	7	S	3/12/93	3/16/93	Cool to 4°C	418.1
VOCs	7	S	3/12/93	3/16/93	Cool to 4°C	8240
BNAs	7	S	3/12/93	3/16/93	Cool to 4°C	8270
PCBs	7	S	3/12/93	3/16/93	Cool to 4°C	8080
PP Metals	7	S	3/12/93	3/16/93	Cool to 4°C	6010, 7060, 7470, 7740, 7841

Notes:
PCBs: - Poly Chlorinated Biphenyls.
PP Metals: - Priority Pollutant Metals.
VOCs: - Volatile Organic Compounds.
TPHC: - Total Petroleum Hydrocarbons.

APPENDIX A

NJDEPE-DHWM CONDITIONAL CLOSURE LETTER AND NJDEPE-BUST CLOSURE APPROVAL FORM

State of New Jersey
Department of Environmental Protection and Energy
Office of Enforcement Policy
CENTRAL BUREAU OF WATER AND HAZARDOUS WASTE ENFORCEMENT
FIELD OPERATIONS

Scott A. Weiner
Commissioner

Edward M. Neafsey
Director

September 20,1991

James Ott, Deputy Director
Directorate of Engineering and Housing
U.S. Army Commmunications-Electronic Command
Building 167 SELHI-FE
Fort Monmouth, NJ 07003

Dear Mr. Ott

The Department of Environmental Protection & Energy has completed its review of your submitted closure plans for six underground waste oil tanks. It has been determined that the plan is acceptable conditioned on the following revision/modifications:

1.In addition to the total petroleum hydrocarbon (TPHC) analysis for each sample taken, the total priority pollutant analysis (PP+40 or TCL) should be utilized for an initial screening. These analyses would be helpful for the remediation of tank number 68 which is known to contain 1000 ppm of hydrogenated chlorides.

2.A detailed description of the steps needed to decontaminate the tanks should be included.

3.An indication of whether the tanks will be disposed off-site as hazardous waste. If not the tanks must be decontaminated and a final rinse water sample and a washwater blank sample must be analyzed for total petroleum hydrocarbons (TPHC) concentration to determine the adequacy of decontamination. The decontamination procedure may have to be repeated to achieve a concentration acceptable to the Department or until the TPHC results of two consecutive samples do not show an appreciable change.

Please Respond To:
CN 407
TRENTON, NJ 08625

Tel. # (609) 584-4200

Please submit these changes in an addendum to your submitted closure plans prior to beginning any closure activities. This writer should be notified 2 weeks in advance of initiation of closure activities.

If you have any questions regarding these requirements, please contact me at (609) 584-4200.

Yours truly,

Douglas Greenfield
Sr. Environmental Engineer
Hazardous Waste Enforcement
CBW&HWEFO

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 028, TRENTON, NJ 08625-0028

TMS #: C-91-2938 **UST #:** 0090010

U.S. Army Fort Monmouth
Fort Monmouth Building 161
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: 1-1000 gallon fuel oil storage tank

Site assessment: Five (5) soil samples will be taken for the tank, and one (1) for every 15 feet of piping; samples will be collected and analyzed as per the Technical Guidance Document (TPHC).

ON-SITE MANAGER: Dinkerrai Desai TELEPHONE: 908 532-1475

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

UST-011 GREEN = APPLICANT COPY APPLICANT COPY 1 COPY 2 COPY 3 COPY 4

APPENDIX B

NJDEPE UST ASSESSMENT SUMMARY FORMS

UST-014
2/91

UST #	
Date Rec'd	
TMS #	
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 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 _____

0090010-14
FACILITY REGISTRATION #

I. FACILITY NAME AND ADDRESS

U.S. Army Fort Monmouth New Jersey
Directorate of Engineering and Housing Building 167
Fort Monmouth New Jersey 07703 County Monmouth
Telephone No. 908-532-6224

OWNER'S NAME AND ADDRESS, if different from above

Telephone No. _____

II. DISCHARGE REPORTING REQUIREMENTS

A. Was contamination found? ___Yes X No If Yes, Case No._____
(Note: All discharges must be reported to the Environmental Action Hotline (609) 292-7172)

B. The substance(s) discharged was(were) N/A

C. Have any vapor hazards been mitigated? ___Yes ___No X N/A

III. DECOMMISSIONING OF TANK SYSTEMS Closure Approval No. C-91-2838

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? ___Yes ___No X 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 0

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? ___ Yes X No
If "Yes", please answer Question B-E
If "No", please answer Question B

B. The highest soil contamination still remaining in the ground has been determined to be:
1. N/A ppb total BTEX, N/A ppb total non-targeted VOC
2. N/A ppb total B/N, N/A ppb total non-targeted B/N
3. 313.0 ppm TPHC
4. N/A ppb N/A (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 ___ Yes X 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 ___ No X N/A

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

VI. GROUND WATER CONTAMINATION

A. Was ground water contamination found? ___ Yes X 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. N/A ppb total BTEX, N/A ppb total non-targeted VOC
2. N/A ppb total B/N, N/A ppb total non-targeted B/N
3. N/A ppb total MTBE, N/A ppb total TBA
4. N/A ppb N/A (for non-petroleum substance)
5. greatest thickness of separate phase product found N/A
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. ___ Yes ___ No X N/A

2. The number of these wells identified is N/A .

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 N/A 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 N/A feet from the source and its screening begins at a depth of N/A 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 N/A feet below grade. This well is located N/A 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 N/A feet from the source. This well is N/A feet deep and screening begins at a depth of N/A feet.

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

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

G. Delineation of contamination

1. The ground water contaminants have been delineated to MCLs or lower values at the property boundaries. ___Yes ___No
N/A

2. The plume is suspected to continue off the property at concentrations greater than MCLs.
___Yes ___No
N/A

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-6.3(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 Appleby SIGNATURE

COMPANY NAME U.S. Army Fort Monmouth DATE 10/29/93
(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) James Ott, P.E. SIGNATURE [signature]

COMPANY NAME U.S. Army Fort Monmouth DATE 10/29/93

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 _____

UST-014
2/91

UST #	
Date Rec'd	
TMS #	
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 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 _____

0090010-68
FACILITY REGISTRATION #

I. FACILITY NAME AND ADDRESS

U.S. Army, Fort Monmouth New Jersey
Directorate of Engineering and Housing, BLDNG 167
Fort Monmouth NJ 07703 County Monmouth
Telephone No. (908) 532-6224

OWNER'S NAME AND ADDRESS, if different from above

Telephone No. _____

II. DISCHARGE REPORTING REQUIREMENTS

A. Was contamination found? ___Yes __X No If Yes, Case No._____
(Note: All discharges must be reported to the Environmental Action Hotline (609) 292-7172)

B. The substance(s) discharged was(were) N/A

C. Have any vapor hazards been mitigated? ___Yes ___No X N/A

III. DECOMMISSIONING OF TANK SYSTEMS Closure Approval No. N/A

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? ___Yes ___No X 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 0

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? ___ Yes X No
If "Yes", please answer Question B-E
If "No", please answer Question B

B. The highest soil contamination still remaining in the ground has been determined to be:
1. 207 ppb total BTEX, N/A ppb total non-targeted VOC
2. 63 ppb total B/N, N/A ppb total non-targeted B/N
3. 0 ppm TPHC
4. N/A ppb N/A (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 ___ Yes ___ No
2. Free product contaminated soils are suspected to exist below the water table ___ Yes ___ No
3. Free product contaminated soils are suspected to exist off the property boundaries. ___ Yes ___ No

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

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

VI. GROUND WATER CONTAMINATION

A. Was ground water contamination found? ___ 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. _____ ppb total BTEX, _____ ppb total non-targeted VOC
2. _____ ppb total B/N, _____ ppb total non-targeted B/N
3. _____ ppb total MTBE, _____ ppb total TBA
4. _____ ppb _____ (for non-petroleum substance)
5. greatest thickness of separate phase product found _____
6. separate phase product has been delineated ___ Yes ___ No ___ 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. ___ Yes ___ No ___ N/A

2. The number of these wells identified is _____.

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 N/A 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 N/A feet from the source and its screening begins at a depth of N/A 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 N/A feet below grade. This well is located N/A 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 N/A feet from the source. This well is N/A feet deep and screening begins at a depth of N/A feet.

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

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

G. Delineation of contamination

1. The ground water contaminants have been delineated to MCLs or lower values at the property boundaries. ___Yes ___No
N/A

2. The plume is suspected to continue off the property at concentrations greater than MCLs.
___Yes ___No
N/A

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-6.3(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 Appleby SIGNATURE

COMPANY NAME U.S. Army Fort Monmouth DATE 10/29/93
(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 _____

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) James Ott, P.E. SIGNATURE _____

COMPANY NAME U.S. Army Fort Monmouth DATE 10/29/93

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 1

NO/NA RESPONSE EXPLANATION

SAS QUESTION #	RESPONSE	EXPLANATION
IIA.	No	No contaminants were identified in soil samples at concentrations exceeding proposed NJDEPE cleanup criteria.
IIB.	N/A	Same as above.
IIC.	N/A	Same as above.
IV.C.2	N/A	No soil borings were proposed in the closure plan.
V.A	No	No contaminants were identified in soil samples at concentrations exceeding proposed NJDEPE cleanup criteria.
V.B.1-4	N/A	Same as above.
V.C.1-3	N/A	Same as above.
V.D	N/A	Same as above.
V.E	N/A	Same as above.
VI.A	No	No groundwater monitoring wells were installed as part of closure of Facility Registration No. 0090010-14; therefore, no groundwater samples were collected. However, a groundwater monitoring well will be installed by DEH to assess the impacts, if any, from historical releases from Facility Registration No. 0090010-14.

ATTACHMENT 1

NO/NA RESPONSE EXPLANATION

SAS QUESTION #	RESPONSE	EXPLANATION
VI.B.1-6	N/A	Same as above.
VI.C.1-3	N/A	No groundwater investigation has been conducted in reference to Facility Registraiton No. 0090010-14; therefore, no well search was performed as part of the site assessment. However, a groundwater monitoring well will be installed by DEH to assess the impacts, if any, from historical releases from Facility Registration No. 0090010-14.
VI.E	N/A	Same as above.
VI.F	N/A	Same as above.
VI.G.1-3	N/A	No groundwater contamination resulting from a release from Facility Registraiton No. 0090010-14 has been identified. However, a groundwater monitoring well will be installed by DEH to assess the impacts, if any, from historical releases from Facility Registration No. 0090010-14.

ATTACHMENT I

NO/NA RESPONSE EXPLANATION

SAS QUESTION #	RESPONSE	EXPLANATION
IIA.	No	No contaminants were identified in soil samples at concentrations exceeding proposed NJDEPE cleanup criteria.
IIB.	N/A	Same as above.
IIC.	N/A	Same as above.
III.	N/A	Closure of Facility Registration No. 0090010-68 was conducted under approval and onsite oversight from the NJDEPE Division of Hazardous Waste Management.
IV.C.2	N/A	No soil borings were proposed in the closure plan.
V.A	No	No contaminants were identified in soil samples at concentrations exceeding proposed NJDEPE cleanup criteria.
V.B.1-4	N/A	Same as above.
V.C.1-3	N/A	Same as above.
V.D	N/A	Same as above.
V.E	N/A	Same as above.
VI.A	No	No groundwater monitoring wells were installed as part of closure of Facility Registration No. 0090010-68; therefore, no groundwater samples were collected.

ATTACHMENT I

NO/NA RESPONSE EXPLANATION

SAS QUESTION #	RESPONSE	EXPLANATION
VI.B.1-6	N/A	Same as above.
VI.C.1-3	N/A	No groundwater investigation has been conducted in reference to Facility Registration No. 0090010-68; therefore, no well search was performed as part of the site assessment.
VI.E	N/A	Same as above.
VI.F	N/A	Same as above.
VI.G.1-3	N/A	No groundwater contamination resulting from a release from Facility Registration No. 0090010-68 has been identified.

APPENDIX C

HAZARDOUS WASTE MANIFESTS

SOIL REMEDIATION of Philadelphia, Inc.

3201 South 61st Street
Philadelphia, PA 19153
Pennsylvania Department of Environmental Resources Permitted Facility

CERTIFICATE OF SOIL REMEDIATION

Soil Remediation of Philadelphia, Inc. certifies that 2422.69 tons of non-hazardous petroleum contaminated soil delivered by ALLIED ENVIRONMENTAL and identified as lot # 4.71 has been processed to destroy the hydrocarbon contamination. This soil has been remediated to meet Level A Protection as established by the Pennsylvania Department of Environmental Resources Cleanup Standards issued October 18, 1991. This states that the hydrocarbons are removed so that they are non-detectable thereby allowing the soil to be considered clean fill.

Certificate Issued To: U.S. ARMY FORT MONMOUTH

Authorized Signature: Albert J. Master

Date: 8-3-93

VRW-001 (REV. 9/88)

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. NJ321100097 — Manifest Document No.
2. Page 1 of
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
AM. TEL. COMMUNICATIONS ELECTRONICS COMMAND
MAIN POST MAIL CP JAMES SHIRGHIL BLDG #161
ATTN: SELM-DL-EM-MS, FT. MONMOUTH, N.J.

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

A. State Manifest Document Number [redacted]

B. State Generator's ID SAME

5. Transporter 1 Company Name: Casie/Pratank
6. US EPA ID Number
C. State Trans. ID
D. Transporter's Phone

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Trans. ID

9. Designated Facility Name and Site Address
Casie Ecology Oil Salvage
1209 N. Mill Rd
Vineland, NJ 08360
10. US EPA ID Number
F. Transporter's Phone ( )
G. State Facility's ID
H. Facility's Phone

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. Waste Combustible Liquid, N.O.S., (Petroleum Combustible Liquid, NA1993)	001	TT	XX850	X	X722
b. ~~Waste Combustible Liquid, N.O.S., (Petroleum Combustible Liquid, NA1993)~~					
c.					
d.					

J. Additional Descriptions for Materials Listed Above — K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
24 hour emergency response phone: 908-532-9911 JAMES SHIRGHIL Bldg 161
CWI#0092F2 E.P.A. #27

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.

GENERATOR

Printed/Typed Name	Signature	Month	Day	Year
Joseph M. Fallon	X Joseph M. Fallon	10	31	92

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Tom Verdi		11	2	92

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

TRANSPORTER

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

FACILITY

In case of an emergency or spill immediately call the state the emergency occurred in and the N.J. Dept. of Environmental Protection. (609) 292-5560 (Day) (609) 292-7172 (Night)

CASIE / PROTANK

April 15, 1993

U.S. Army Communications Electronics Command
c/o James Shirghio, Bldg #2504
Attn: SELFM-DL-EM-MS
Fort Monmouth, N.J. 07703

RE: Manifest #NJA1307870

Gentlemen:

Please be advised that in reference to the above mentioned manifest, we were advised that the words "Waste" and "Petroleum distillates" were to be X'd out of any manifests that the truckers used from their briefcases.

Our state inspector told us that in view of the cost of said manifests the X'ing out of these words was preferable to destroying them.

If you have any further questions please do not hesitate to call me.

Sincerely,

Anne J. Giacomoni

Anne J. Giacomoni
Environmental Co-ordinator

cc: All Service Environmental, Inc.
Attn: Susan O'Brien

Encl.

• P.O. BOX 92 • FRANKLINVILLE, N.J. 08322 • (609) 696-4401 • TELEFAX NO. (609) 696-7065

APPENDIX D

ANALYTICAL DATA PACKAGE

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 #: 1163.1+.2
Sample Rec'd: 03/12/93
Analysis Start: 03/17/93
Analysis Comp: 03/17/93

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

NJDEPE UST Reg.#: XXXXXXX-XX,XX,XX,XX
Closure Approval #: X-XX-XXXX/XX
NJDEPE Case #: XX-XX-XX-XXXX
Building #: **161**

Lab ID.	Description		Result (mg/L)	MDL
1163.1	Rinse #1		153.	1.0
1163.2	Rinse #2		134.	1.0
M Bl.	Method Blank		ND	1.0

Notes: ND = Not Detected, MDL = Method Detection Limit

Brian K. McKee
Laboratory Director

SERV-AIR, INC.
An E-SYSTEMS Company

CHAIN OF CUSTODY RECORD

CLIENT: U.S. Army Environmental Lab
PROJECT ID: Bldg. 161
ADDRESS: Fort Monmouth
SAMPLER: C. Appleby DEH - Subsurface
CITY/STATE: N.J.
PHONE #: 5326147

LAB ID #	SAMPLE ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE GRAB	SOIL	COMP	NO. OF BOTTLES	ANALYSIS REQUESTED
1163.1	Rinsate #1	3/12/93	1:45	X Ag				TPHC
1163.2	Rinsate #2	3/12/93	1:49	X Ag				TPHC
								- From Rinsed Containers

SAMPLE COLLECTED BY: C. Appleby	DATE	TIME	PRESERVED WITH: NaOH	H2SO4	HNO3	NONE	OTHER
RELINQUISHED BY:	3/13/93	1630hrs	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 #: 1162.1-.7
Sample Rec'd: 03/11/93
Analysis Start: 03/16/93
Analysis Comp: 03/16/93

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

NJDEPE UST Reg.#: XXXXXXX-XX,XX,XX,XX
Closure Approval #: X-XX-XXXX/XX
NJDEPE Case #: XX-XX-XX-XXXX
Building #: 161

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1162.1	S #AA	82	ND	3.3
1162.2	S #BB	90	ND	3.3
1162.3	S #CC	86	ND	3.3
1162.4	S #DD	83	ND	3.3
1162.5	S #EE	82	ND	3.3
1162.6	S #FF	82	ND	3.3
1162.7	S #GG	83	313.	3.3
1162.7	Duplicate	83	315.	3.3
1162.7	Spike	83	557.	3.3
M. Bl.	Method Blank	--	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
% Duplication = 99%
% Spike Recovery = 64%

Brian K. McKee
Laboratory Director

SERV-AIR, INC.
An E-SYSTEMS Company

CHAIN OF CUSTODY RECORD

CLIENT: U.S. Army Environmental Lab
PROJECT ID: 161
ADDRESS: Fort Monmouth, N.J.
SAMPLER: Appleby / Lockhovsky
CITY/STATE:
PHONE #:

LAB ID #	SAMPLE ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE GRAB	SOIL	COMP	NO. OF BOTTLES	ANALYSIS REQUESTED			
1162.1	AA	3/4	1520		X		1	21.789 TPHC.	18.006	82%	Solvent Ref *
1162.2	BB		1513		X		1	17.027	15.389	90%	
1162.3	CC		1530				1	14.864	12.729	86%	*
1162.4	DD		1538				1	18.997	15.758	83%	
1162.5	EE		1525				1	27.161	22.150	82%	*
1162.6	FF		1527				1	26.131	21.541	82%	
1162.7	GG		1530		X		1	21.195	17.623	83%	*
1167.8	Field Blank							19.463 Sample dup	16.188	83%	*
1167.9	Trip Blank										

SAMPLE COLLECTED BY: Appleby Lockhovsky	DATE 3/11	TIME 1600	PRESERVED WITH: NaOH	H2SO4	HNO3	NONE	OTHER
RELINQUISHED BY: Lockhovsky	3/11	1600	RECEIVED BY: S Hubbard				

* Note samples CC and GG are not duplicate samples.

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

E-SYSTEMS

PROJECT: UST-BLG 161

US ARMY FORT MONMOUTH, NJ

ANALYSIS NO:	CLIENT ID:
A 1261	Site AA
A 1262	Site BB
A 1263	Site CC
A 1264	Site DD
A 1265	Field Blank
A 1266	Trip Blank

DATE RECEIVED: MARCH15, 1993

TWENTY FIRST CENTURY
ENVIRONMENTAL, INC.

RICHARD W. LYNCH
LABORATORY MANAGER

TABLE OF CONTENTS

NARRATIVE

All extractions and analysis were completed within proper hold times for this batch of samples (A1261 to A1266). Please note that 1,1,2,2-Tetrachloroethane and 1,1,2-Trichloroethane were found in several semi-volatile searches. We believe this is a breakdown byproduct of methylene chloride caused during sonication.

CHAIN OF CUSTODY

A1261 to A1266

00002

CLIENT: E-Systems

ADDRESS:

CITY:

STATE: ZIP:

ATTN:

PROJECT DESCRIPTION:
UST - Bldg 161

P.O.#

ANALYSES REQUESTED

SAMPLE IDENTIFICATION	MATRIX	SAMPLE DATE	SAMPLE TIME	TYPE GR	TYPE C	PRESERV.	# OF CONT.	Priority Pollutants (+VOs)	VOA (8015)								REMARKS
Site AA	Soil	3/12/93	1520	✓		4°C	5	✓									
Site BB	↓	↑	1513	✓		↓	5	✓									
Site CC			1530	✓			5	✓									
Site DD	↓		1538	✓			5	✓									
Field Blank	water	↓	1515	✓		HNO3 (pH<2)	7	✓									
Trip Blank	↓	N/A	N/A	✓		↓	2		✓								
(Save TB as Bldg 750)																	

SAMPLED BY:	DATE/TIME	RECEIVED BY:	DATE/TIME	RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
SIG:	3/12/93		3/15/93		3/15/93	
PRINT: Charles M. Appleby	(see chain)	Mark D. Fetcher	1600	Mark D. Fetcher	1730	
COMPANY: U.S. Army		21st Cent Env		21st Cent Env		

RELINQUISHED BY:	DATE/TIME	RECEIVED FOR LAB:
SIG:	3-15-93	
PRINT:	1730	
COMPANY:		21st Cent Env

DELIVERY METHOD:
[ ] In Person; [ ] UPS; [ ] Fed Ex; [✓] Lab Courier;

DATA DELIVERABLES
[✓] Tier II
[ ] Results only
[ ] Other

TURNAROUND TIME
[✓] STANDARD (2-3 wks.)
The following need prior lab authorization:
[ ] 1 wk. [ ] 72 hrs.
[X] 48 hrs. [ ] 24 hrs.
AUTHORIZED BY:
DATE:

PRELIM RESULTS

Acid Extractables Base Neutrals	U.S.E.P.S. 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.
Cyanide	Analysis performed according to U.S.E.P.A. 335.2 (Spectrophotometric with distillation). Sample is reacted with Chloramine-T to produce Cyanogen, Chloride, CNCl. Red color develops when combined with Pyridine/Barbituric Acid Reagent; which is read at 578nm. Soil samples are prepared for analysis as prescribed in Method 9010 from SW846.
Phenols	Analysis performed according to U.S.E.P.A. 420.1 (Spectrophotometric, Manual 4AAP with distillation). Phenolic materials react with four (4) Aminoantipyrine and Potassium Ferricyanide at pH 10. Red color is read at 510 nm. Soil samples are prepared for analysis as prescribed in Method 9067 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, 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.

Pesticides/PCB's

U.S.E.P.A. Method 608 - This method covers the determination of pesticides and PCB's in samples by extraction/concentration with organic solvents and subsequent qualification/quantification by Gas Chromatography. The gas chromatograph utalized an electron capture detector (ECD) which is applicable for the determination of the compounds listed for the method in the U.S.E.P.A. Manual entitled "Test Procedures for the Analysis of Organic Pollutants".

Soil samples were prepared as prescribed in Method 3550 and analyzed as prescribed in Method 8080 from SW846.

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 3/15/93

ORGANICS
EXTRACTION

1. Acids 3/15/93
2. Base/Neutrals 3/15/93
3. Pesticides/PCB's/Herbicides 3/15/93 - 3/16/93
4. Petroleum Hydrocarbons/Oil & Grease NA

ANALYSIS

1. Volatiles 3/16/93 - 3/24/93
2. Acids 3/16/93 - 3/17/93
3. Base/Neutrals 3/16/93 - 3/17/93
4. Pesticides/PCB's/Herbicides 3/16/93 - 3/17/93
5. Petroleum Hydrocarbons/Oil & Grease NA
6. Total Organic Carbon NA

Section Supervisor
Review & Approval Jeffrey G Martin

INORGANICS

1. Metals 3/16/93 - 3/17/93
2. Cyanides 3/17/93
3. Phenols 3/17/93

OTHER ANALYTES

Section Supervisor
Review & Approval Mark Lewis

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

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

US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

ANALYSIS NO: A 1261

CLIENT ID: Site AA

PARAMETER	MDL (mg/kg)	RESULT (mg/kg)
CYANIDE	0.10	N.D.
PHENOL	0.50	N.D.

00007

US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

PRIORITY POLLUTANT LIST

ANALYSIS NO: A 1261

CLIENT ID: Site AA

METALS	MDL (mg/Kg)	RESULT (mg/Kg)
ANTIMONY	5.00	N.D.
ARSENIC	0.25	9.30
BERYLLIUM	1.00	N.D.
CADMIUM	1.00	N.D.
CHROMIUM	1.00	40.3
COPPER	1.00	2.91
LEAD	5.00	6.88
MERCURY	0.10	N.D.
NICKEL	5.00	N.D.
SELENIUM	0.25	0.83
SILVER	1.00	N.D.
THALLIUM	1.00	N.D.
ZINC	1.00	21.8

00008

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1261	DILUTION FACTOR	1.00
CLIENT ID	SITE AA BLDG 161	QA BATCH	
DATA FILE	>A1108	DATE ANALYZED	03/24/93

COMPOUND	UG/KG		MDL
Acrolein	ND		60
Acrylonitrile	ND		60
Chloromethane	ND		12
Bromomethane	ND		12
Vinyl Chloride	ND		12
Chloroethane	ND		12
Acetone	22	B	12
1,1-Dichloroethene	ND		6
Carbon Disulfide	ND		12
Methylene Chloride	ND	B	6
1,2-Dichloroethene(trans)	ND		6
1,1-Dichloroethane	ND		6
Vinyl Acetate	ND		6
2-Butanone	ND		12
Chloroform	ND		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	13	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	6.0	6
m&p-Xylenes	25	6
o-Xylene	12	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	105	70 - 121	OK
Toluene-d8	98.1	81 - 117	OK
Bromofluorobenzene	93.7	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	A1261	DILUTION FACTOR	1.00
CLIENT ID	BLDG 161, SITE AA	QA BATCH	
DATA FILE	>C0750	DATE ANALYZED	03/17/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		400	Acenaphthene	ND		400
Phenol	ND		400	2,4-Dinitrophenol	ND		2000
bis(-2-Chloroethyl)Ether	ND		400	4-Nitrophenol	ND		2000
2-Cholorophenol	ND		400	Dibenzofuran	ND		400
1,3-Dichlorobenzene	ND		400	2,4-Dinitrotoluene	ND		400
1,4-Dichlorobenzene	ND		400	2,6-Dinitrotoluene	ND		400
Benzyl Alcohol	ND		400	Diethylphthalate	ND		400
1,2-Dichlorobenzene	ND		400	4-Chlorophenyl-phenlyether	ND		400
2-Methylphenol	ND		400	Fluorene	ND		400
bis(2-chloroisopropyl)Ether	ND		400	4-Nitroaniline	ND		2000
4-Methylphenol	ND		400	4,6-Dinitro-2-Methylphenol	ND		2000
N-Nitroso-Di-n-Propylamine	ND		400	N-Nitrosodiphenylamine	ND		400
Hexachloroethane	ND		400	4-Bromophenyl-phenylether	ND		400
Nitrobenzene	ND		400	Hexachlorobenzene	ND		400
Isophorone	ND		400	Pentachlorophenol	ND		2000
2-Nitrophenol	ND		400	Phenanthrene	ND		400
2,4-Dimethylphenol	ND		400	Anthracene	ND		400
Benzoic Acid	ND		2000	Di-n-Butylphthalate	ND		400
bis(-2-Chloroethoxy)Methane	ND		400	Fluoranthene	ND		400
2,4-Dichlorophenol	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	40	JB	400
4-Chloro-3-Methylphenol	ND		400	Chrysene	ND		400
2-Methylnaphthalene	ND		400	Di-n-Octyl Phthalate	ND		400
Hexachlorocyclopentadiene	ND		400	Benzo(b)Fluoranthene	ND		400
2,4,6-Trichlorophenol	ND		400	Benzo(k)Fluoranthene	ND		400
2,4,5-Trichlorophenol	ND		2000	Benzo(a)Pyrene	ND		400
2-Chloronaphthalene	ND		400	Indeno(1,2,3-cd)Pyrene	ND		400
2-Nitroaniline	ND		2000	Dibenzo(a,h)Anthracene	ND		400
Dimethyl Phthalate	ND		400	Benzo(g,h,i)Perylene	ND		400
Acenaphthylene	ND		400	Benzidine	ND		800
3-Nitroaniline	ND		2000				

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

Lab Sample ID:
A1261

Lab Name: 21ST Century Environmental
Client ID: US ARMY FORT MONMOUTH, NJ UST-BLG 16
SITE AA

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Pesticides/PCBs

Concentration: (Low) Medium (Circle One) GPC Cleanup __Yes ✓No
Date Extracted/Prepared: 03/15/93 Sep. Funnel Extraction __Yes
Date Analyzed: 03/16/93 22:47 Continuous Liq-Liq Ext. __Yes
Conc/Dil Factor: 10.05g/10ml
Percent Moisture: 17

C.A.S. Number		ug/L or (ug/Kg)	
319-84-6	Alpha-BHC.	6.0	U
319-87-7	Beta-BHC	6.0	U
319-86-8	Delta-BHC.	6.0	U
58-89-9	Gamma-BHC (Lindane). . .	6.0	U
76-44-8	Heptachlor	6.0	U
309-00-2	Aldrin	6.0	U
1024-57-3	Heptachlor Epoxide . . .	6.0	U
959-98-8	Endosulfan I	6.0	U
60-57-1	Dieldrin	6.0	U
72-55-9	4,4'-DDE	6.0	U
72-20-8	Endrin	6.0	U
33213-65-9	Endosulfan II.	12	U
72-54-8	4,4'-DDD	12	U
1031-07-8	Endosulfan Sulfate . . .	12	U
50-29-3	4,4'-DDT	12	U
72-43-5	Methoxychlor	300	U
7421-93-4	Endrin Aldehyde.	12	U
57-74-9	Chlordane.	300	U
8001-35-2	Toxaphene.	600	U
12674-11-2	Arochlor-1016.	300	U
11104-28-2	Arochlor-1221.	300	U
11141-16-5	Arochlor-1232.	300	U
53469-21-9	Arochlor-1242.	300	U
12672-29-6	Arochlor-1248.	300	U
11097-69-1	Arochlor-1254.	300	U
11096-82-5	Arochlor-1260.	300	U

U Undetected J Estimated value below detection level

E1

EPA SAMPLE NUMBER

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SITE AA

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 161

Matrix: (soil/water) SOIL

Lab Sample ID: A1261

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

Lab File ID: >A1108

Level: LOW

Date Received: 03/15/93

% Moisture: 17

Date Analyzed 03/24/93

Column: CAP

Dilution Factor: 1

Number TICs Found 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1		UNKNOWN	3.16	12
2		UNKNOWN	8.80	8
3	620144	Benzene, 1-ethyl-3-methyl- (9CI)	18.17	10
4	95636	Benzene, 1,2,4-trimethyl- (8CI9CI)	19.02	10

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SITE AA

Matrix: (soil/water) SOIL

Lab Sample ID: A1261

Client Name: US Army, Ft.Monmouth,NJ

Client ID: Bldg 161

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

Lab File ID: >C0750

Level: LOW

Date Received: NA

% Moisture: 17

Date Analyzed 03/17/93

Extraction: (Sepf/Cont/Sonc) SONC

Date Extracted 03/15/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 3

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

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	79005	Ethane, 1,1,2-trichloro- (8CI9CI)	5.15	280
2	79345	Ethane, 1,1,2,2-tetrachloro- (8CI9CI)	8.64	800
3		UNKNOWN	31.07	440

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US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

ANALYSIS NO: A 1262

CLIENT ID: Site BB

PARAMETER	MDL (mg/kg)	RESULT (mg/kg)
CYANIDE	0.10	0.16
PHENOL	0.50	N.D.

00014

US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

PRIORITY POLLUTANT LIST

ANALYSIS NO: A 1262

CLIENT ID: Site BB

METALS	MDL (mg/Kg)	RESULT (mg/Kg)
ANTIMONY	5.00	N.D.
ARSENIC	0.25	4.74
BERYLLIUM	1.00	N.D.
CADMIUM	1.00	N.D.
CHROMIUM	1.00	38.5
COPPER	1.00	3.66
LEAD	5.00	8.84
MERCURY	0.10	N.D.
NICKEL	5.00	N.D.
SELENIUM	0.25	N.D.
SILVER	1.00	N.D.
THALLIUM	1.00	N.D.
ZINC	1.00	70.1

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1262	DILUTION FACTOR	1.00
CLIENT ID	SITE 88 BLDG 161	QA BATCH	
DATA FILE	>A1109	DATE ANALYZED	03/24/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG	MDL
Acrolein	ND		57	Bromodichloromethane	ND	6
Acrylonitrile	ND		57	2-Chloroethylvinylether	ND	11
Chloromethane	ND		11	2-Hexanone	ND	11
Bromomethane	ND		11	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND		11	Toluene	ND	6
Chloroethane	ND		11	cis-1,3-Dichloropropene	ND	6
Acetone	17	B	11	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND		6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND		11	4-Methyl-2-pentanone	ND	11
Methylene Chloride	ND	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		11	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	107	70 - 121	OK
Toluene-d8	99.1	81 - 117	OK
Bromofluorobenzene	95.8	74 - 121	OK

Percent Solid of 88.0 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	A1262	DILUTION FACTOR	1.00
CLIENT ID	BLDG 161, SITE BB	QA BATCH	
DATA FILE	>C0751	DATE ANALYZED	03/17/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		380	Acenaphthene	ND		380
Phenol	ND		380	2,4-Dinitrophenol	ND		1900
bis(-2-Chloroethyl)Ether	ND		380	4-Nitrophenol	ND		1900
2-Cholorophenol	ND		380	Dibenzofuran	ND		380
1,3-Dichlorobenzene	ND		380	2,4-Dinitrotoluene	ND		380
1,4-Dichlorobenzene	ND		380	2,6-Dinitrotoluene	ND		380
Benzyl Alcohol	ND		380	Diethylphthalate	ND		380
1,2-Dichlorobenzene	ND		380	4-Chlorophenyl-phenlyether	ND		380
2-Methylphenol	ND		380	Fluorene	ND		380
bis(2-chloroisopropyl)Ether	ND		380	4-Nitroaniline	ND		1900
4-Methylphenol	ND		380	4,6-Dinitro-2-Methylphenol	ND		1900
N-Nitroso-Di-n-Propylamine	ND		380	N-Nitrosodiphenylamine	ND		380
Hexachloroethane	ND		380	4-Bromophenyl-phenylether	ND		380
Nitrobenzene	ND		380	Hexachlorobenzene	ND		380
Isophorone	ND		380	Pentachlorophenol	ND		1900
2-Nitrophenol	ND		380	Phenanthrene	ND		380
2,4-Dimethylphenol	ND		380	Anthracene	ND		380
Benzoic Acid	ND		1900	Di-n-Butylphthalate	ND		380
bis(-2-Chloroethoxy)Methane	ND		380	Fluoranthene	ND		380
2,4-Dichlorophenol	ND		380	Pyrene	ND		380
1,2,4-Trichlorobenzene	ND		380	Butylbenzylphthalate	ND		380
Naphthalene	ND		380	3,3'-Dichlorobenzidine	ND		750
4-Chloroaniline	ND		380	Benzo(a)Anthracene	ND		380
Hexachlorobutadiene	ND		380	Bis(2-Ethylhexyl)Phthalate	76	JB	380
4-Chloro-3-Methylphenol	ND		380	Chrysene	ND		380
2-Methylnaphthalene	ND		380	Di-n-Octyl Phthalate	ND		380
Hexachlorocyclopentadiene	ND		380	Benzo(b)Fluoranthene	ND		380
2,4,6-Trichlorophenol	ND		380	Benzo(k)Fluoranthene	ND		380
2,4.5-Trichlorophenol	ND		1900	Benzo(a)Pyrene	ND		380
2-Chloronaphthalene	ND		380	Indeno(1,2,3-cd)Pyrene	ND		380
2-Nitroaniline	ND		1900	Dibenzo(a,h)Anthracene	ND		380
Dimethyl Phthalate	ND		380	Benzo(g,h,i)Perylene	ND		380
Acenaphthylene	ND		380	Benzidine	ND		750
3-Nitroaniline	ND		1900				

Percent Solid of 88.0 is used for all Target compounds.

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

Lab Name : 21ST CENTURY ENVIRONMENTAL

Client ID: US ARMY FORT MONMOUTH, NJ UST-BLG 161
SITE BB

Lab Sample ID:
A1262

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Pesticides/PCBs

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 03/15/93
Date Analyzed: 03/17/93 11:03
Conc/Dil Factor: 10.02g/10ml
Percent Moisture: 12

GPC Cleanup __ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg	
319-84-6	Alpha-BHC.	5.7	U
319-87-7	Beta-BHC	5.7	U
319-86-8	Delta-BHC.	5.7	U
58-89-9	Gamma-BHC (Lindane). . .	5.7	U
76-44-8	Heptachlor	5.7	U
309-00-2	Aldrin	5.7	U
1024-57-3	Heptachlor Epoxide . . .	5.7	U
959-98-8	Endosulfan I	5.7	U
60-57-1	Dieldrin	5.7	U
72-55-9	4,4'-DDE	5.7	U
72-20-8	Endrin	5.7	U
33213-65-9	Endosulfan II.	11	U
72-54-8	4,4'-DDD	11	U
1031-07-8	Endosulfan Sulfate . . .	11	U
50-29-3	4,4'-DDT	11	U
72-43-5	Methoxychlor	280	U
7421-93-4	Endrin Aldehyde.	11	U
57-74-9	Chlordane.	280	U
8001-35-2	Toxaphene.	570	U
12674-11-2	Arochlor-1016.	280	U
11104-28-2	Arochlor-1221.	280	U
11141-16-5	Arochlor-1232.	280	U
53469-21-9	Arochlor-1242.	280	U
12672-29-6	Arochlor-1248.	280	U
11097-69-1	Arochlor-1254.	280	U
11096-82-5	Arochlor-1260.	280	U

U Undetected J Estimated value below detection level

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SITE BB

Lab Name:21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 161

Matrix: (soil/water) Soil

Lab Sample ID: A1262

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

Lab File ID: >A1109

Level: (low/med) LOW

Date Received: 03/15/93

% Moisture: 12

Date Analyzed: 03/24/93

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.

E1

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SITE BB

Matrix: (soil/water) SOIL

Lab Sample ID: A1262

Client Name: US Army, Ft.Monmouth,NJ

Client ID: Bldg 161

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

Lab File ID: >C0751

Level: LOW

Date Received: NA

% Moisture: 12

Date Analyzed 03/17/93

Extraction: (Sepf/Cont/Sonc) SONC

Date Extracted 03/15/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	79005	Ethane, 1,1,2-trichloro- (8CI9CI)	5.12	270
2	79345	Ethane, 1,1,2,2-tetrachloro- (8CI9CI)	8.62	760
3		UNKNOWN	27.58	340
4		UNKNOWN	31.05	610

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US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

ANALYSIS NO: A 1263

CLIENT ID: Site CC

PARAMETER	MDL (mg/kg)	RESULT (mg/kg)
CYANIDE	0.10	N.D.
PHENOL	0.50	N.D.

00021

US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

PRIORITY POLLUTANT LIST

ANALYSIS NO: A 1263

CLIENT ID: Site CC

METALS	MDL (mg/Kg)	RESULT (mg/Kg)
ANTIMONY	5.00	8.58
ARSENIC	0.25	3.88
BERYLLIUM	1.00	N.D.
CADMIUM	1.00	N.D.
CHROMIUM	1.00	50.7
COPPER	1.00	4.09
LEAD	5.00	7.71
MERCURY	0.10	N.D.
NICKEL	5.00	N.D.
SELENIUM	0.25	0.46
SILVER	1.00	N.D.
THALLIUM	1.00	N.D.
ZINC	1.00	31.7

00022

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1263	DILUTION FACTOR	1.00
CLIENT ID	SITE CC BLDG 161	QA BATCH	
DATA FILE	>A1110	DATE ANALYZED	03/24/93

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	11 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	ND 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	104	70 - 121	OK
Toluene-d8	97.2	81 - 117	OK
Bromofluorobenzene	95.1	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	A1263	DILUTION FACTOR	1.00
CLIENT ID	BLDG 161, SITE CC	QA BATCH	
DATA FILE	>C0752	DATE ANALYZED	03/17/93

COMPOUND	UG/KG		MDL	COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		390	Acenaphthene	ND		390
Phenol	ND		390	2,4-Dinitrophenol	ND		2000
bis(-2-Chloroethyl)Ether	ND		390	4-Nitrophenol	ND		2000
2-Cholorophenol	ND		390	Dibenzofuran	ND		390
1,3-Dichlorobenzene	ND		390	2,4-Dinitrotoluene	ND		390
1,4-Dichlorobenzene	ND		390	2,6-Dinitrotoluene	ND		390
Benzyl Alcohol	ND		390	Diethylphthalate	ND		390
1,2-Dichlorobenzene	ND		390	4-Chlorophenyl-phenlyether	ND		390
2-Methylphenol	ND		390	Fluorene	ND		390
bis(2-chloroisopropyl)Ether	ND		390	4-Nitroaniline	ND		2000
4-Methylphenol	ND		390	4,6-Dinitro-2-Methylphenol	ND		2000
N-Nitroso-Di-n-Propylamine	ND		390	N-Nitrosodiphenylamine	ND		390
Hexachloroethane	ND		390	4-Bromophenyl-phenylether	ND		390
Nitrobenzene	ND		390	Hexachlorobenzene	ND		390
Isophorone	ND		390	Pentachlorophenol	ND		2000
2-Nitrophenol	ND		390	Phenanthrene	ND		390
2,4-Dimethylphenol	ND		390	Anthracene	ND		390
Benzoic Acid	ND		2000	Di-n-Butylphthalate	ND		390
bis(-2-Chloroethoxy)Methane	ND		390	Fluoranthene	ND		390
2,4-Dichlorophenol	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	B	390
4-Chloro-3-Methylphenol	ND		390	Chrysene	ND		390
2-Methylnaphthalene	ND		390	Di-n-Octyl Phthalate	ND		390
Hexachlorocyclopentadiene	ND		390	Benzo(b)Fluoranthene	ND		390
2,4,6-Trichlorophenol	ND		390	Benzo(k)Fluoranthene	ND		390
2,4,5-Trichlorophenol	ND		2000	Benzo(a)Pyrene	ND		390
2-Chloronaphthalene	ND		390	Indeno(1,2,3-cd)Pyrene	ND		390
2-Nitroaniline	ND		2000	Dibenzo(a,h)Anthracene	ND		390
Dimethyl Phthalate	ND		390	Benzo(g,h,i)Perylene	ND		390
Acenaphthylene	ND		390	Benzidine	ND		780
3-Nitroaniline	ND		2000				

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

Lab Name : 21ST CENTURY ENVIRONMENTAL
Client ID: US ARMY FORT MONMOUTH, NJ UST-BLG 161
SITE CC

Lab Sample ID:
A1263

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Pesticides/PCBs

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 03/15/93
Date Analyzed: 03/17/93 00:11
Conc/Dil Factor: 10.05g/10ml
Percent Moisture: 16

GPC Cleanup __ Yes __ No
Separatory Funnel Extraction __ Yes
Continuous Liquid-Liquid Extraction __ Yes

C.A.S. Number		ug/L or ug/Kg	
319-84-6	Alpha-BHC.	6.0	U
319-87-7	Beta-BHC	6.0	U
319-86-8	Delta-BHC.	6.0	U
58-89-9	Gamma-BHC (Lindane). . .	6.0	U
76-44-8	Heptachlor	6.0	U
309-00-2	Aldrin	6.0	U
1024-57-3	Heptachlor Epoxide . . .	6.0	U
959-98-8	Endosulfan I	6.0	U
60-57-1	Dieldrin	6.0	U
72-55-9	4,4'-DDE	6.0	U
72-20-8	Endrin	6.0	U
33213-65-9	Endosulfan II.	12	U
72-54-8	4,4'-DDD	12	U
1031-07-8	Endosulfan Sulfate . . .	12	U
50-29-3	4,4'-DDT	12	U
72-43-5	Methoxychlor	300	U
7421-93-4	Endrin Aldehyde.	12	U
57-74-9	Chlordane.	300	U
8001-35-2	Toxaphene.	600	U
12674-11-2	Aroclor-1016.	300	U
11104-28-2	Aroclor-1221.	300	U
11141-16-5	Aroclor-1232.	300	U
53469-21-9	Aroclor-1242.	300	U
12672-29-6	Aroclor-1248.	300	U
11097-69-1	Aroclor-1254.	300	U
11096-82-5	Aroclor-1260.	300	U

U Undetected J Estimated value below detection level

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO. _____

SITE CC _____

Lab Name: 21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 161

Matrix: (soil/water) Soil

Lab Sample ID: A1263

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

Lab File ID: >A1110

Level: (low/med) LOW

Date Received: 03/15/93

% Moisture: 16

Date Analyzed: 03/24/93

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

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SITE CC

Matrix: (soil/water) SOIL

Lab Sample ID: A1263

Client Name: US Army, Ft.Monmouth,NJ

Client ID: Bldg 161

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

Lab File ID: >C0752

Level: LOW

Date Received: NA

% Moisture: 16

Date Analyzed 03/17/93

Extraction: (Sepf/Cont/Sonc) SONC

Date Extracted 03/15/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 3

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

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	79005	Ethane, 1,1,2-trichloro- (8CI9CI)	5.08	360
2	79345	Ethane, 1,1,2,2-tetrachloro- (8CI9CI)	8.58	910
3		UNKNOWN	31.05	360

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US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

ANALYSIS NO: A 1264

CLIENT ID: Site DD

PARAMETER	MDL (mg/kg)	RESULT (mg/kg)
CYANIDE	0.10	0.15
PHENOL	0.50	N.D.

00028

US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

PRIORITY POLLUTANT LIST

ANALYSIS NO: A 1264

CLIENT ID: Site DD

METALS	MDL (mg/Kg)	RESULT (mg/Kg)
ANTIMONY	5.00	N.D.
ARSENIC	0.25	5.28
BERYLLIUM	1.00	N.D.
CADMIUM	1.00	N.D.
CHROMIUM	1.00	53.7
COPPER	1.00	7.25
LEAD	5.00	18.4
MERCURY	0.10	N.D.
NICKEL	5.00	4.53
SELENIUM	0.25	0.42
SILVER	1.00	N.D.
THALLIUM	1.00	N.D.
ZINC	1.00	45.7

00039

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Soil
SAMPLE NUMBER	A1264	DILUTION FACTOR	1.00
CLIENT ID	SITE DD BLDG 161	QA BATCH	
DATA FILE	>A1111	DATE ANALYZED	03/24/93

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	3.1 J	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	11 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	2.9 J	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	1.2 J	6
2-Butanone	ND	12	m&p-Xylenes	3.3 J	6
Chloroform	ND	6	o-Xylene	2.0 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	106	70 - 121	OK
Toluene-d8	96.8	81 - 117	OK
Bromofluorobenzene	91.1	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	A1264	DILUTION FACTOR	1.00
CLIENT ID	BLDG 161, SITE DD	QA BATCH	
DATA FILE	>C0753	DATE ANALYZED	03/17/93

COMPOUND	UG/KG		MDL
N-Nitrosodimethylamine	ND		400
Phenol	ND		400
bis(-2-Chloroethyl)Ether	ND		400
2-Cholorophenol	ND		400
1,3-Dichlorobenzene	ND		400
1,4-Dichlorobenzene	ND		400
Benzyl Alcohol	ND		400
1,2-Dichlorobenzene	ND		400
2-Methylphenol	ND		400
bis(2-chloroisopropyl)Ether	ND		400
4-Methylphenol	ND		400
N-Nitroso-Di-n-Propylamine	ND		400
Hexachloroethane	ND		400
Nitrobenzene	ND		400
Isophorone	ND		400
2-Nitrophenol	ND		400
2,4-Dimethylphenol	ND		400
Benzoic Acid	ND		2000
bis(-2-Chloroethoxy)Methane	ND		400
2,4-Dichlorophenol	ND		400
1,2,4-Trichlorobenzene	ND		400
Naphthalene	ND		400
4-Chloroaniline	ND		400
Hexachlorobutadiene	ND		400
4-Chloro-3-Methylphenol	ND		400
2-Methylnaphthalene	ND		400
Hexachlorocyclopentadiene	ND		400
2,4,6-Trichlorophenol	ND		400
2,4,5-Trichlorophenol	ND		2000
2-Chloronaphthalene	ND		400
2-Nitroaniline	ND		2000
Dimethyl Phthalate	ND		400
Acenaphthylene	ND		400
3-Nitroaniline	ND		2000

COMPOUND	UG/KG		MDL
Acenaphthene	ND		400
2,4-Dinitrophenol	ND		2000
4-Nitrophenol	ND		2000
Dibenzofuran	ND		400
2,4-Dinitrotoluene	ND		400
2,6-Dinitrotoluene	ND		400
Diethylphthalate	ND		400
4-Chlorophenyl-phenlyether	ND		400
Fluorene	ND		400
4-Nitroaniline	ND		2000
4,6-Dinitro-2-Methylphenol	ND		2000
N-Nitrosodiphenylamine	ND		400
4-Bromophenyl-phenylether	ND		400
Hexachlorobenzene	ND		400
Pentachlorophenol	ND		2000
Phenanthrene	ND		400
Anthracene	ND		400
Di-n-Butylphthalate	ND		400
Fluoranthene	ND		400
Pyrene	42	J	400
Butylbenzylphthalate	ND		400
3,3'-Dichlorobenzidine	ND		800
Benzo(a)Anthracene	ND		400
Bis(2-Ethylhexyl)Phthalate	73	JB	400
Chrysene	ND		400
Di-n-Octyl Phthalate	ND		400
Benzo(b)Fluoranthene	ND		400
Benzo(k)Fluoranthene	ND		400
Benzo(a)Pyrene	ND		400
Indeno(1,2,3-cd)Pyrene	ND		400
Dibenzo(a,h)Anthracene	ND		400
Benzo(g,h,i)Perylene	ND		400
Benzidine	ND		800

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

Lab Sample ID:
A1264

Lab Name: 21ST Century Environmental
Client ID: US ARMY FORT MONMOUTH, NJ UST-BLG 16 SITE DD

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Pesticides/PCBs

Concentration: Low Medium (Circle One) GPC Cleanup __Yes _X_No
Date Extracted/Prepared: 03/15/97 Sep. Funnel Extraction __Yes
Date Analyzed: 03/17/97 06:53 Continuous Liq-Liq Ext. __Yes
Conc/Dil Factor: 10.09g/10ml
Percent Moisture: 17

C.A.S. Number		ug/Kg	Q
319-84-6	Alpha-BHC	6.0	U
319-85-7	Beta-BHC	6.0	U
319-86-8	Delta-BHC	6.0	U
58-89-9	Gamma-BHC (Lindane)	6.0	U
76-44-8	Heptachlor	6.0	U
309-00-2	Aldrin	6.0	U
1024-57-3	Heptachlor Epoxide	6.0	U
959-98-8	Endosulfan I	6.0	U
60-57-1	Dieldrin	6.0	U
72-55-9	4,4'-DDE	6.0	U
72-20-8	Endrin	6.0	U
33213-65-9	Endosulfan II	12	U
72-54-8	4,4'-DDD	12	U
1031-07-8	Endosulfan Sulfate	12	U
50-29-3	4,4'-DDT	12	U
72-43-5	Methoxychlor	60	U
7421-93-4	Endrin Aldehyde	12	U
57-74-9	Chlordane	60	U
8001-35-2	Toxaphene	240	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

U Undetected J Estimated value below detection level

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SITE DD

Lab Name: 21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 161

Matrix: (soil/water) Soil

Lab Sample ID: A1264

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

Lab File ID: >A1111

Level: (low/med) LOW

Date Received: 03/15/93

% Moisture: 17

Date Analyzed: 03/24/93

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

EPA SAMPLE NUMBER

semi-VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

SITE DD

Matrix: (soil/water) SOIL

Lab Sample ID: A1264

Client Name: US Army, Ft.Monmouth, NJ

Client ID: A1264

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

Lab File ID: >C0753

Level: LOW

Date Received: NA

% Moisture: 17

Date Analyzed 03/17/93

Extraction: (Sepf/Cont/Sonc) SONC

Date Extracted 03/15/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST CONC
1	79005	Ethane, 1,1,2-trichloro- (8CI9CI)	5.12	360
2	79345	Ethane, 1,1,2,2-tetrachloro- (8CI9CI)	8.60	1000
3		UNKNOWN	27.52	320
4		UNKNOWN	31.03	520

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US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

ANALYSIS NO: A 1265

CLIENT ID: Field Blank

PARAMETER	MDL (mg/L)	RESULT (mg/L)
CYANIDE	0.01	N.D.
PHENOL	0.05	N.D.

00035

US ARMY FORT MONMOUTH, NJ UST-BLDG 161

CERTIFICATE OF ANALYSIS

PRIORITY POLLUTANT LIST

ANALYSIS NO: A 1265

CLIENT ID: Field Blank

METALS	MDL (mg/L)	RESULT (mg/L)
ANTIMONY	0.005	N.D.
ARSENIC	0.005	N.D.
BERYLLIUM	0.01	N.D.
CADMIUM	0.01	N.D.
CHROMIUM	0.01	N.D.
COPPER	0.01	N.D.
LEAD	0.05	N.D.
MERCURY	0.0005	N.D.
NICKEL	0.05	N.D.
SELENIUM	0.005	N.D.
SILVER	0.01	N.D.
THALLIUM	0.010	N.D.
ZINC	0.01	N.D.

00036

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER	US ARMY FT. MONMOUTH NJ	MATRIX	Water
SAMPLE NUMBER	A1265	DILUTION FACTOR	1.00
CLIENT ID	FIELD BLANK BLDG 161	QA BATCH	
DATA FILE	>A1059	DATE ANALYZED	03/16/93

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	6.2 JB	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	3.5 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	101	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
SEMIVOLATILE ANALYSIS DATA

JOB NUMBER	US ARMY, FT.MONMOUTH, NJ	MATRIX	Water
SAMPLE NUMBER	A1265	DILUTION FACTOR	1.00
CLIENT ID	BLDG 161 FIELD BLANK	QA BATCH	
DATA FILE	>C0733	DATE ANALYZED	03/16/93

COMPOUND	UG/L	MDL	COMPOUND	UG/L	MDL
N-Nitrosodimethylamine	ND	10	Acenaphthene	ND	10
Phenol	ND	10	2,4-Dinitrophenol	ND	50
bis(-2-Chloroethyl)Ether	ND	10	4-Nitrophenol	ND	50
2-Cholorophenol	ND	10	Dibenzofuran	ND	10
1,3-Dichlorobenzene	ND	10	2,4-Dinitrotoluene	ND	10
1,4-Dichlorobenzene	ND	10	2,6-Dinitrotoluene	ND	10
Benzyl Alcohol	ND	10	Diethylphthalate	ND	10
1,2-Dichlorobenzene	ND	10	4-Chlorophenyl-phenlyether	ND	10
2-Methylphenol	ND	10	Fluorene	ND	10
bis(2-chloroisopropyl)Ether	ND	10	4-Nitroaniline	ND	50
4-Methylphenol	ND	10	4,6-Dinitro-2-Methylphenol	ND	50
N-Nitroso-Di-n-Propylamine	ND	10	N-Nitrosodiphenylamine	ND	10
Hexachloroethane	ND	10	4-Bromophenyl-phenylether	ND	10
Nitrobenzene	ND	10	Hexachlorobenzene	ND	10
Isophorone	ND	10	Pentachlorophenol	ND	50
2-Nitrophenol	ND	10	Phenanthrene	ND	10
2,4-Dimethylphenol	ND	10	Anthracene	ND	10
Benzoic Acid	ND	50	Di-n-Butylphthalate	ND	10
bis(-2-Chloroethoxy)Methane	ND	10	Fluoranthene	ND	10
2,4-Dichlorophenol	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
4-Chloro-3-Methylphenol	ND	10	Chrysene	ND	10
2-Methylnaphthalene	ND	10	Di-n-Octyl Phthalate	ND	10
Hexachlorocyclopentadiene	ND	10	Benzo(b)Fluoranthene	ND	10
2,4,6-Trichlorophenol	ND	10	Benzo(k)Fluoranthene	ND	10
2,4.5-Trichlorophenol	ND	50	Benzo(a)Pyrene	ND	10
2-Chloronaphthalene	ND	10	Indeno(1,2,3-cd)Pyrene	ND	10
2-Nitroaniline	ND	50	Dibenzo(a,h)Anthracene	ND	10
Dimethyl Phthalate	ND	10	Benzo(g,h,i)Perylene	ND	10
Acenaphthylene	ND	10	Benzidine	ND	20
3-Nitroaniline	ND	50			

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

Lab Sample ID:
A1265

Lab Name: 21ST Century Environmental
Client ID: US ARMY FORT MONMOUTH, NJ UST-BLG 1(
FIELD BLANK

PESTICIDE ORGANICS ANALYSIS DATA SHEET

Pesticides/PCBs

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 03/16/93
Date Analyzed: 03/17/93 03:42
Conc/Dil Factor: 100mL/5mL
Percent Moisture: N/A

GPC Cleanup __Yes /No
Sep. Funnel Extraction /Yes
Continuous Liq-Liq Ext. __Yes

C.A.S. Number		(ug/L or ug/Kg)	
319-84-6	Alpha-BHC.	0.25	U
319-87-7	Beta-BHC	0.25	U
319-86-8	Delta-BHC.	0.25	U
58-89-9	Gamma-BHC (Lindane). . .	0.25	U
76-44-8	Heptachlor	0.25	U
309-00-2	Aldrin	0.25	U
1024-57-3	Heptachlor Epoxide . . .	0.25	U
959-98-8	Endosulfan I	0.25	U
60-57-1	Dieldrin	0.25	U
72-55-9	4,4'-DDE	0.25	U
72-20-8	Endrin	0.25	U
33213-65-9	Endosulfan II.	0.5	U
72-54-8	4,4'-DDD	0.5	U
1031-07-8	Endosulfan Sulfate . . .	0.5	U
50-29-3	4,4'-DDT	0.5	U
72-43-5	Methoxychlor	13	U
7421-93-4	Endrin Aldehyde.	0.5	U
57-74-9	Chlordane.	13	U
8001-35-2	Toxaphene.	25	U
12674-11-2	Arochlor-1016.	13	U
11104-28-2	Arochlor-1221.	13	U
11141-16-5	Arochlor-1232.	13	U
53469-21-9	Arochlor-1242.	13	U
12672-29-6	Arochlor-1248.	13	U
11097-69-1	Arochlor-1254.	13	U
11096-82-5	Arochlor-1260.	13	U

U Undetected J Estimated value below detection level

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

FIELD BLANK

Lab Name:21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 161

Matrix: (soil/water) Water

Lab Sample ID: A1265

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

Lab File ID: >A1059

Level: (low/med) LOW

Date Received: 03/15/93

% Moisture: NA

Date Analyzed: 03/16/93

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

FIELD BLANK

Matrix: (soil/water) SOIL

Lab Sample ID: A1265

Client: US Army, Ft.Monmouth, NJ

Client ID: Bldg 161

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: >C0733

Level: LOW

Date Received: NA

% Moisture: 100

Date Analyzed 03/16/93

Extraction: (Sepf/Cont/Sonc) SEPF

Date Extracted 03/15/93

GPC (Y or N): N

Column: DB-5

Dilution Factor: 1

Number TICs Found 0

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	A1266	DILUTION FACTOR	1.00
CLIENT ID	TRIP BLANK BLDG 161	QA BATCH	
DATA FILE	>A1060	DATE ANALYZED	03/16/93

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	5.3 JB	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	ND	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	106	76 - 114	OK
Toluene-d8	102	88 - 110	OK
Bromofluorobenzene	100	86 - 115	OK

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLANK

Lab Name: 21st Century Environmental

Client Name: US ARMY FT. MONMOUTH, NJ

Client ID: BLDG 161

Matrix: (soil/water) Water

Lab Sample ID: A1266

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

Lab File ID: >A1060

Level: (low/med) LOW

Date Received: 03/15/93

% Moisture: NA

Date Analyzed: 03/16/93

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.

APPENDIX E

TANK RECLAMATION CERTIFICATES

Bldg. 161

MAZZA & SONS, INC.

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

NO. _____

DATE 12 MAR 92

Customer's Name TRINITY PETROLEUM All Service Env.

Address TRUCK FIND

Make of Autos

Tires

Tank Bldg. 161

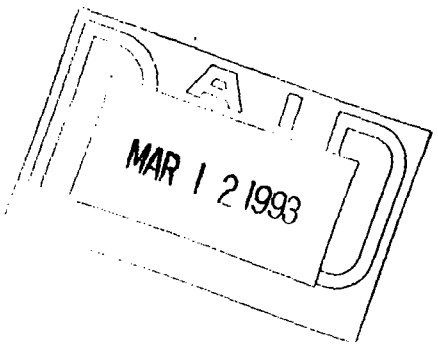
Price: Tank #6 14

19620 LB G

18120 LB T

1500

	Weight	Price
Cast Iron		
Steel	1500	
Lt. Iron		
Copper #1		
Copper #2		
Lt. Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT:		



RECEIVED MAR 22 1993

Weigher _____ Customer _____

Bldg. 161

MONMOUTH COUNTY
RECLAMATION CENTER
TINTON FALLS, NJ
MAILING ADDRESS: 6000 ASBURY AVE.
NEPTUNE, NJ 07753

FACILITY ID No. 1336F1SP01

RECEIPT DOCUMENT NUMBER

01293656

[redacted]
NONCHARGE
NONCHARGE / JOHN Q. PUBLIC
CASH AND CHECK CUSTOMERS
WEIGHING IN AND OUT
NJ

[redacted]
TARE WEIGHT 3.8000 (7600)
GROSS WEIGHT 4.2400 (8480)

[redacted]TE	OPER	ENTRY TIME	DEP NO	[redacted]			
04/28/93	MED	12:12	GR7771	GR7771	12:33 Check 11485	JEK	Normal

QUANTITY	CLASS	DESCRIPTION		UNIT PRICE	AMOUNT
0.4400	13	Bulky Waste MONMOUTH COUNTY EATONTOWN BOROUGH	Tons	95.65	42.09

Fiberglass Tanks Disposed of from Bldgs 150 & 161

RECEIVED APR 28 1993

*** Current Account Balance: 0.00 ***

TRANSPORTER'S SIGNATURE

DOCUMENT TOTAL 42.09

CUSTOMER COPY