United States Army
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Building 789
Main Post Area

NJDEP UST Registration No. 081533-126
NJDEP Closure Approval No. C-93-3612

February 1996

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ENVIRONMENTAL TECHNOLOGIES CORPORATION

UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 789

MAIN POST AREA
NJDEP UST REGISTRATION NO. 081533-126
NJDEP CLOSURE APPROVAL NO. C-93-3612

FEBRUARY 1996

PROJECT NO.: 09-5004-06
CONTRACT NO.: DACA51-94-D-0014

PREPARED FOR:

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

PREPARED BY:

SMITH ENVIRONMENTAL TECHNOLOGIES CORPORATION
BROMLEY CORPORATE CENTER
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BURLINGTON, NEW JERSEY 08016

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EXECUTIVE SUMMARY

UST Closure

On May 9, 1994, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) Closure Approval No. C-93-3612 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 081533-126, was located immediately adjacent to Building 789 in the Main Post area of U.S. Army, Fort Monmouth. UST No. 081533-126 was a 550-gallon No. 2 diesel oil UST. The UST fill port was located directly above the tank. The tank closure was performed by Cleaning Up The Environment Inc. (CUTE).

Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E). Soils surrounding the tank were screened visually and with air monitoring instruments for evidence of contamination. Following removal, the UST was inspected for holes. No holes were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank.

On May 9, 1994, following removal of the UST, post-excavation soil samples A, B, C, and D, were collected from a total of four (4) locations along the sidewalls of the excavation at a depth of 3.0 feet below ground surface (bgs). Sample E was collected along the base of the excavation at a depth of 4.5 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC). The piping length was less than 15 feet, therefore no piping samples were collected.

Findings

All post-excavation soil samples collected from the UST excavation at Building 789 contained TPHC concentrations below the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 milligrams per kilogram (mg/kg) (N.J.A.C. 7:26D and revisions dated February 3, 1994). Samples A, D, and E, contained levels of TPHC ranging in concentration from 4.14 mg/kg to 60.1 mg/kg. All other samples contained non-detectable concentrations of TPHC.

Site Restoration

Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and certified clean fill. The excavation site was then restored to its original condition.

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Site Assessment Quality Assurance

The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements*.

Conclusions and Recommendations

Based on OVA readings and the post-excavation soil sampling results, soils with TPHC concentrations exceeding the NJDEP soil cleanup criteria for total organic contaminants of 10,000 mg/kg do not exist in the former location of the UST or associated piping.

No further action is proposed in regard to the closure and site assessment of UST No. 081533-126 at Building 789.

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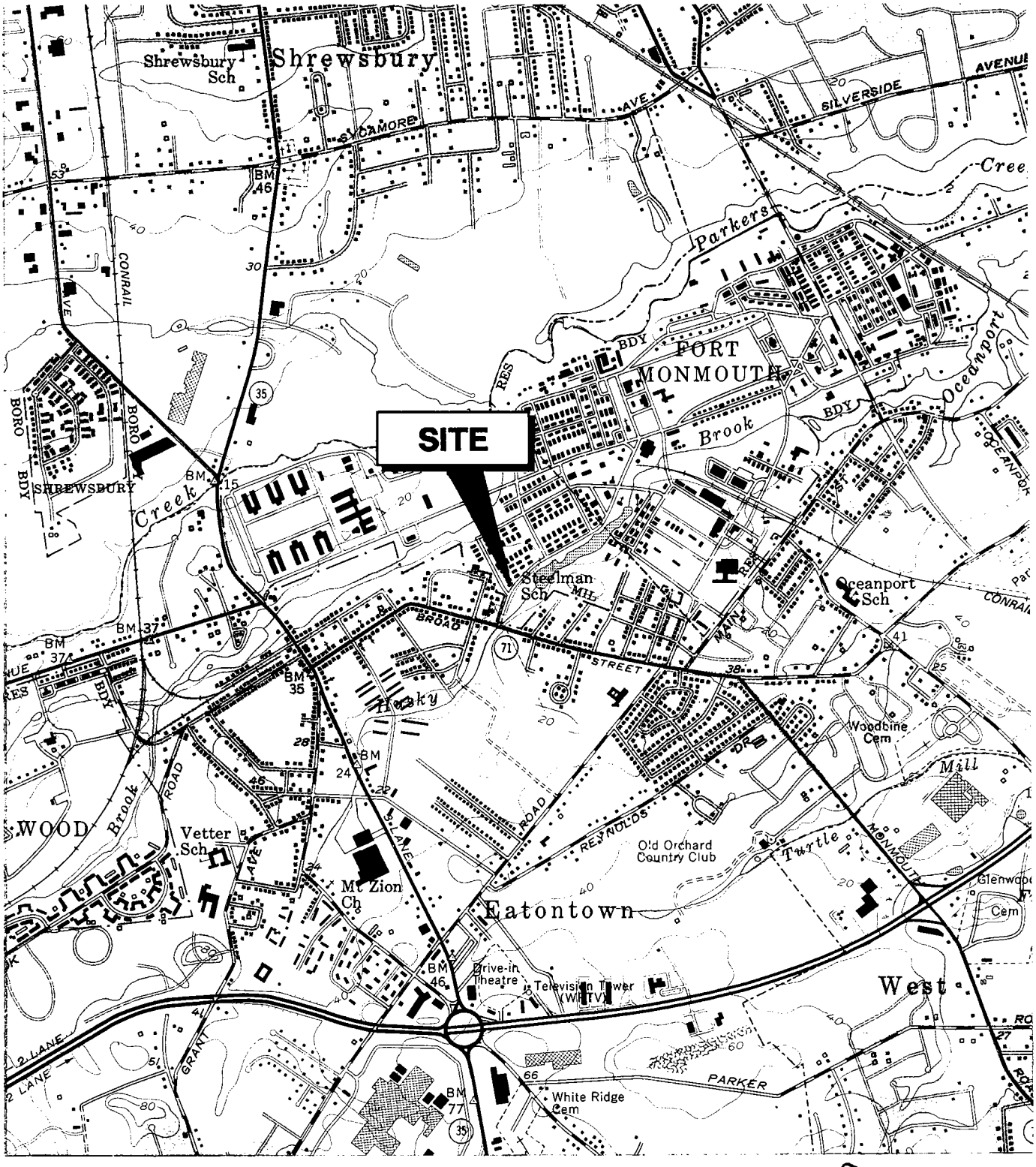

Source: BCM/Smith Environmental Technologies Corporation (028)

Project No. 09-5004-06

Figure 1
Site Location Map

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1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 081533-126, was closed at Building 789 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on May 9, 1994. Refer to site location map on Figure 1. This report presents the results of the DPW's implementation of the UST Decommissioning/Closure Plan submitted to the NJDEP on August 2, 1993. The plan was approved on September 7, 1993 and assigned TMS No. C-93-3612. The UST was a steel, 550-gallon tank containing No. 2 diesel oil.

Decommissioning activities for UST No. 081533-126 complied with all applicable Federal, State and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to: N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 & 1910.120. All permits including but not limited to the NJDEP-approved Decommissioning/Closure Plan were posted onsite for inspection. CUTE Inc., the contractor that conducted the decommissioning activities, is registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 081533-126 proceeded under the approval of the NJDEP Bureau of Underground Storage Tanks
(NJDEP-BUST). The NJDEP-BUST closure approval and signed certifications for UST No. 081533-126 are included in Appendices A and B, respectively.

Based on an inspection of the UST, field screening of subsurface soils and analytical results of collected soil samples, the DPW has concluded that no significant historical discharges are associated with the UST or associated piping.

This UST Closure and Site Investigation Report has been prepared by Smith Environmental Technologies Corporation, to assist the United States Army Directorate of Public Works (DPW) in complying with the NJDEP Bureau of Underground Storage Tanks (NJDEP-BUST) regulations. The applicable NJDEP-BUST regulations at the date of closure were the *Interim Closure Requirements for Underground Storage Tank Systems* (N.J.A.C. 7:14B-1 et seq. September 1990 and revisions dated November 1, 1991).

This report was prepared using information required at the time of closure. 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. 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 789 is located in the southwestern portion of the Main Post area of Fort Monmouth as shown on Figure 1. UST No. 081533-126 was located northwest of Building 789 and appurtenant piping ran less than 15 feet southeast from the fill port area to Building 789. The fill port area was located directly above the UST. A site map is provided on Figure 2.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding Building 789. Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Main Post area.

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, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapecza, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

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

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish brown clayey, medium-to-

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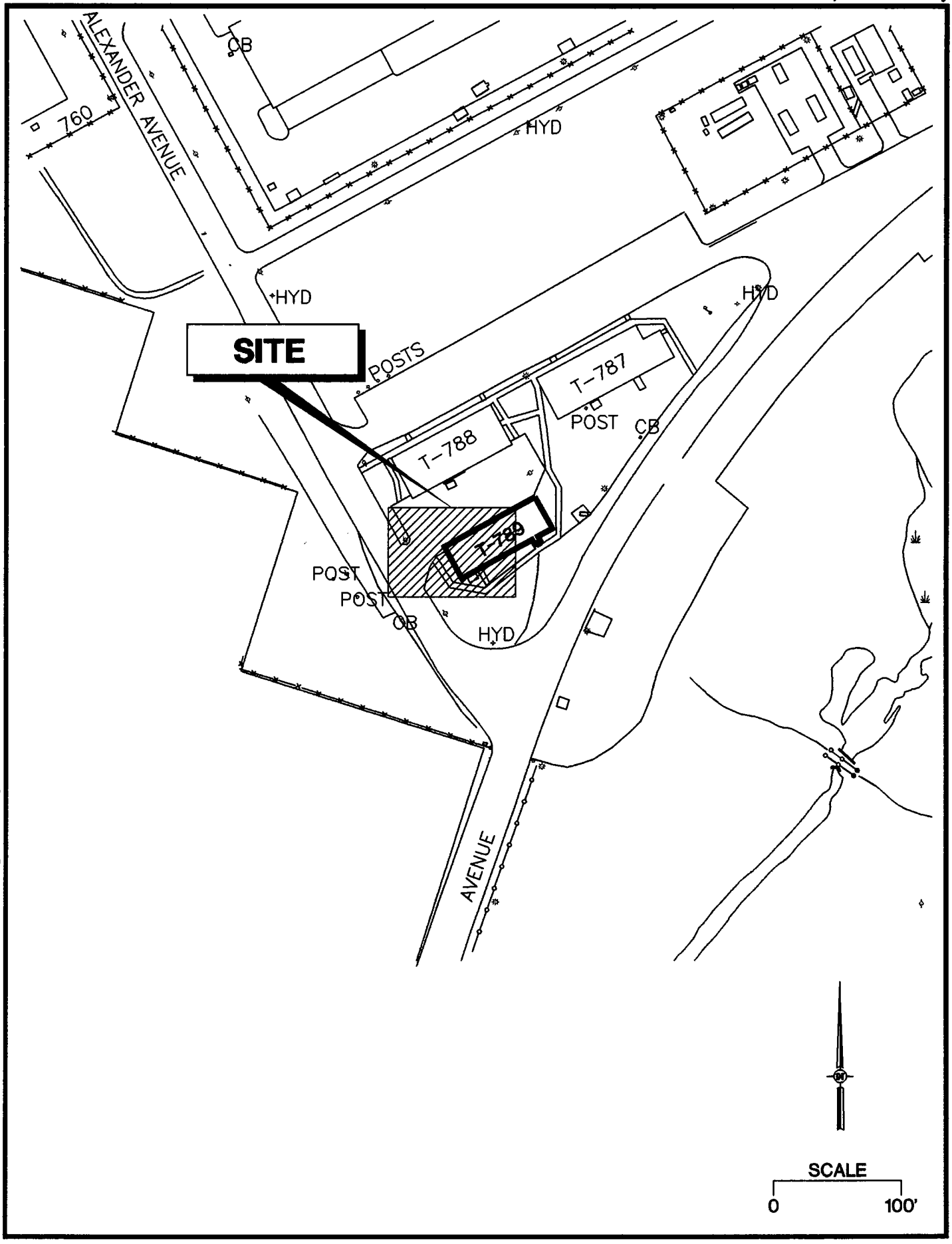
Fort Monmouth, New Jersey



Source: BCM/Smith Environmental Technologies Corporation (072)

Project No. 09-5004-06

Figure 2
Building 789
Site Map

coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray 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 in 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 of wells drilled in the Main Post area, water is typically encountered at depths of 2 to 9 feet below ground surface (bgs). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce 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 toward 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 Fort Monmouth. Therefore the direction of shallow groundwater should be determined on a case by case basis.

1.3 HEALTH AND SAFETY

Before, during, and after all decommissioning activities, hazards at the work site which may have posed a threat to the Health and Safety of all personnel who were involve with, or were affected by, the decommissioning of the UST system were minimized. All areas which posed, or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing an organic vapor analyzer (OVA). The individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

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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 visually examined and screened with an OVA for evidence of contamination. Potentially contaminated soils were identified and logged during closure activities.
- Surface materials (i.e., asphalt, concrete, etc.) were excavated and staged separately from all soil and recycled in accordance with all applicable regulations and laws.
- A Sub-Surface Evaluator from the DPW was present during all closure activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 428 gallons of liquid were transported by Freehold Cartage Inc. to Lionetti Oil Recovery Co. Inc., a NJDEP-approved petroleum recycling and disposal facility located in Old Bridge, New Jersey. Refer to Appendix C for waste manifest (No. NJA-1603245).

The UST was cleaned prior to removal from the excavation in accordance with NJDEP-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes or punctures were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. No evidence of contamination was observed.

Soil screening was also performed along the piping associated with the UST. No contamination was observed anywhere along the piping length.

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1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tank was transported by CUTE Inc., to Mazza and Sons Inc. for disposal in compliance with all applicable regulations and laws. See Appendix D for UST Disposal Certificate.

The Subsurface Evaluator labeled the UST prior to transport with the following information:

- site of origin
- contact person
- NJDEP UST Facility ID number
- name of transporter/contact person
- destination site/contact person

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on OVA air monitoring and TPHC analysis results from the post-excavation soil samples, no soils exhibited signs of contamination. Therefore, the excavated soils were used as backfill following removal of the UST.

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2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site Investigation was managed and carried out by U.S. Army DPW personnel. All analyses were performed and reported by U.S. Army, Fort Monmouth Environmental Laboratory, a NJDEP-certified testing laboratory. All sampling was performed under the direct supervision of a NJDEP Certified Sub-Surface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (1992). Sampling frequency and parameters analyzed complied with the NJDEP-BUST document *Interim Closure Requirements for Underground Storage Tank Systems* (September 1990 and revisions dated November 1, 1991) which was the applicable regulation at the date of the closure. All records of the Site Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in Closure and Site Investigation Activities:

- Closure Contractor: Cleaning Up The Environment Inc., (CUTE)
  Contact Person: Nancy Williams
  Phone Number: (201) 427-2881
  NJDEP Company Certification No.: 0200128

- Subsurface Evaluator: Dinkerrai M. Desai
  Employer: U.S. Army, Fort Monmouth
  Phone Number: (908) 532-1475
  NJDEP Certification No.: E0002266

- Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory
  Contact Person: Brian K. McKee
  Phone Number: (908) 532-4359
  NJDEP Company Certification No.: 13461

- Hazardous Waste Hauler: Freehold Cartage Inc.
  Contact Person: Barry Olsen
  Phone Number: (908) 462-1001
  NJDEP Hazardous Waste Hauler No.: 2265

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank and appurtenant piping, as well as the UST excavation sidewalls and bottom did not exhibit any evidence of potential contamination.

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2.3 SOIL SAMPLING

On May 9, 1994, post-excavation soil samples A, B, C, and D, were collected from a total of four (4) locations along the sidewalls of the UST excavation at a depth of 3.0 feet below ground surface (bgs). Sample E was collected along the base of the UST excavation at a depth of 4.5 feet bgs. The piping length was less than 15 feet, therefore no piping samples were collected. Refer to soil sampling location map on Figure 3. All samples were analyzed for total petroleum hydrocarbons (TPHC). Because none of the post-excavation soil samples exhibited a TPHC concentration exceeding 1,000 milligrams per kilogram (mg/kg), none were analyzed for volatile organic compounds with a forward library search for 10 tentatively identified compounds (VOCs).

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements* and the NJDEP *Field Sampling Procedures Manual.* A summary of sampling activities including parameters analyzed is provided in Table 1. The post-excavation soil samples were collected using decontaminated polystyrene scoops. Actual soil TPHC values may be higher than reported, due to sample utensil absorbency. If absorbency resulted in reducing the actual soil TPHC concentration by 50%, the highest soil contaminant would have been 120.2 mg/kg, still below the applicable NJDEP soil cleanup standard for total organic contaminants of 10,000 mg/kg. Following soil sampling activities, the samples were chilled and delivered to U.S. Army Fort Monmouth Environmental Laboratory located in Fort Monmouth, New Jersey, for analysis.

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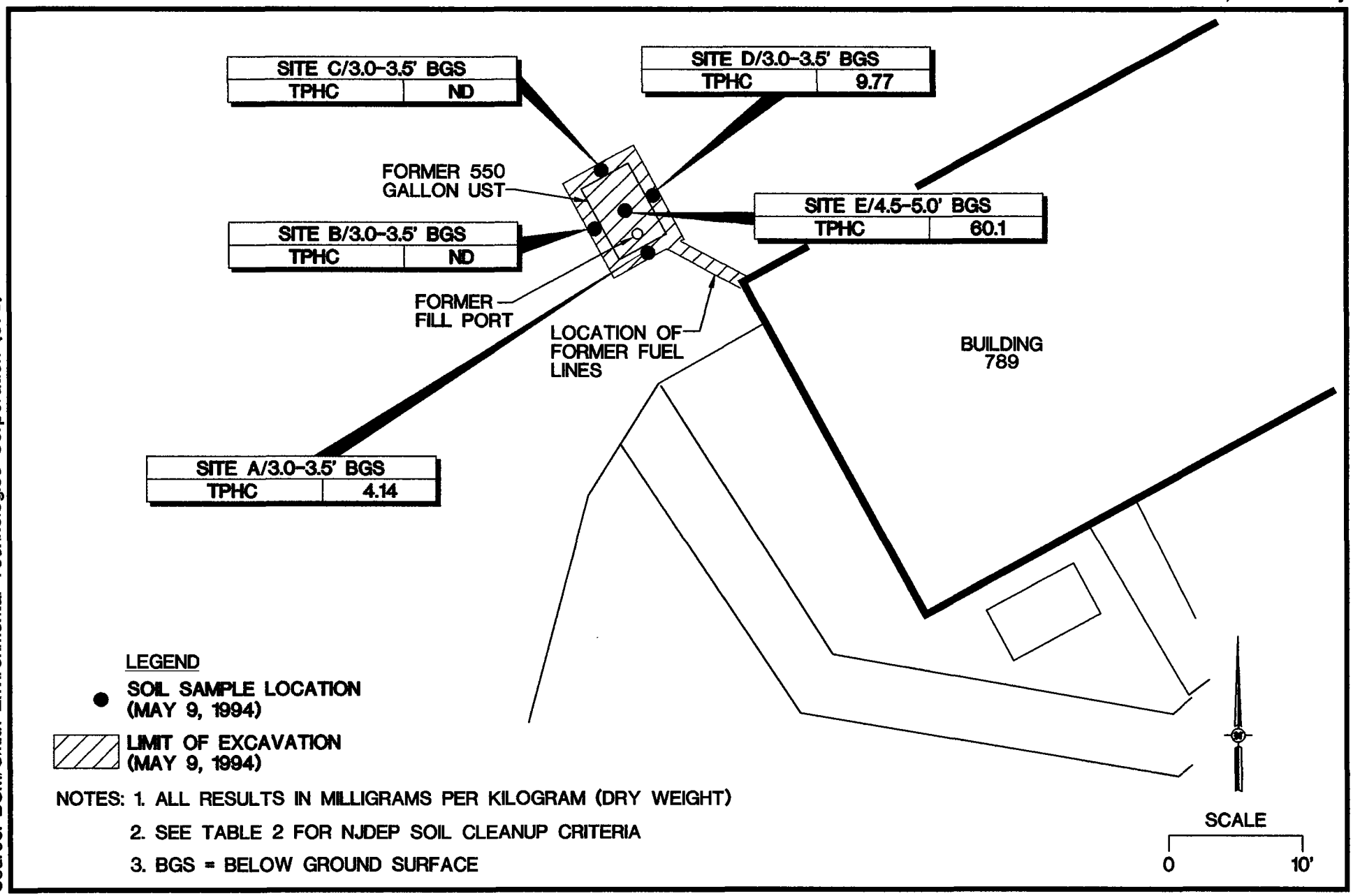
Department of Public Works
Fort Monmouth, New Jersey



Source: BCM/Smith Environmental Technologies Corporation (073)

Project No. 09-5004-06

Figure 3
Building 789
Soil Sampling Results

TABLE 1

SUMMARY OF SAMPLING ACTIVITIES
BUILDING 789, MAIN POST
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Matrix	Sample Type	Analytical Parameters (and USEPA Methods) *	Sampling Method
A	05-09-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
B	05-09-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
C	05-09-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
D	05-09-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
E	05-09-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop

*Note: TPHC Total Petroleum Hydrocarbons (Method 418.1 / soil and aqueous)

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3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST and associated piping, post-excavation soil samples were collected from a total of five (5) locations on May 9, 1994. All samples were analyzed for TPHC. The post-excavation soil sample results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling results are shown on Figure 3. The soil analytical data package is provided in Appendix E.

All post-excavation soil samples collected on May 9, 1994, from the UST excavation contained either non-detectable concentrations of TPHC or concentrations below the NJDEP soil cleanup criteria. Samples A, D, and E contained levels of TPHC ranging in concentration from 4.14 mg/kg to 60.1 mg/kg. All other samples contained a non-detectable concentration of TPHC.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 789 were below the NJDEP soil cleanup criteria for total organic contaminants.

Based on OVA readings and the post-excavation soil sampling results, soils with TPHC concentrations exceeding the NJDEP soil cleanup criteria of 10,000 mg/kg do not exist in the former location of the UST or associated piping.

No further action is proposed in regard to the closure and site assessment of UST No. 081533-126 at Building 789.

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 789
FT. MONMOUTH, NEW JERSEY

Sample ID/Depth	Sample Laboratory ID	Sample Date	Analysis Date	Compound Name	Sample Quantitation Limit (mg/kg)	Compound of Concern	Result (mg/kg)	NJDEP Soil Cleanup Criteria * (mg/kg)	Exceeds Cleanup Criteria
A/3.0-3.5'	1485.1	05-09-94	05-10-94	Total Solid	--	--	95 %	--	--
				TPHC	3.3	yes	4.14	10,000	--
B/3.0-3.5'	1485.2	05-09-94	05-10-94	Total Solid	--	--	93 %	--	--
				TPHC	3.3	yes	ND	10,000	--
C/3.0-3.5'	1485.3	05-09-94	05-10-94	Total Solid	--	--	96 %	--	--
				TPHC	3.3	yes	ND	10,000	--
D/3.0-3.5'	1485.4	05-09-94	05-10-94	Total Solid	--	--	94 %	--	--
				TPHC	3.3	yes	9.77	10,000	--
E/4.5-5.0'	1485.5	05-09-94	05-10-94	Total Solid	--	--	96 %	--	--
				TPHC	3.3	yes	60.1	10,000	--

Notes:

* Cleanup criteria for total organics
-- Not applicable / does not exceed criteria
TPHC Total Petroleum Hydrocarbons

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APPENDIX A

NJDEP BUST CLOSURE APPROVAL

UNDERGROUND STORAGE TANK SYSTEM
CLOSURE APPROVAL

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY

DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION
BUREAU OF UNDERGROUND STORAGE TANKS
CN-029, TRENTON, NJ 08625-0029

TMS #	UST #
C-93-3612	0081533

US Army
BLDG. 789
Ft. Monmouth, NJ

Monmouth

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: one 550 gallon #2 diesel UST(s) and appurtenant piping.
SITE ASSESSMENT: Soil samples will be taken every five (5) feet along the center line of each tank and one (1) soil sample for every 15 feet along all associated piping. Two (2) additional samples will be taken from around the tank and biased to the areas of highest field screened readings. Samples will be analyzed for TPHC. If sample results are greater than 1,000ppm than 25% of the samples will be analyzed for VO+10.

ON-SITE MANAGER: C. Appleby TELEPHONE: 908-532-1475

OWNER: TELEPHONE:

EFFECTIVE DATE: SEP 07 1993

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

Fred DeClemente

KEVIN F. KRATINA, BUREAU CHIEF
BUREAU OF UNDERGROUND STORAGE TANKS

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APPENDIX B

CERTIFICATIONS

UST-014
2/91

FOR STATE USE ONLY
UST # _____
Date Rec'd _____
TMS # _____
Staff _____

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

Scott A. Weiner
Commissioner

Karl J. Delaney
Director

UNDERGROUND STORAGE TANK SITE ASSESSMENT SUMMARY

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

This Summary form shall be used by all owners and operators of Underground Storage Tank Systems (USTS) who have either reported a release and are subject to the site assessment requirements of N.J.A.C. 7:14B-8.2 or who have closed USTS pursuant to N.J.A.C. 7:14B-9.1 et seq. and are subject to the site assessment requirements of N.J.A.C. 7:14B-9.2 and 9.3.

INSTRUCTIONS:

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

Date of Submission _____

Bldg. 789

081533-126
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-

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-93-3612

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. 60.0 ppm TPHC
4. N/A ppb _____ (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 N/A

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

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

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

G. Delineation of contamination

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

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

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

VII. SITE ASSESSMENT CERTIFICATION [preparer of site assessment plan - N.J.A.C. 7:14B-8.3(b) &9.5(a)3]

The person signing this certification as the "Qualified Ground Water Consultant" (as defined in N.J.A.C.7:14B-1.6) responsible for the design and implementation of the site assessment plan as specified in N.J.A.C. 7:14B-8.3(a) & 9.2(b)2, must supply the name of the certifying organization and certification number.

"I certify under penalty of law that the information provided in this document is true, accurate, and complete and was obtained by procedures in compliance with N.J.A.C. 7:14B-8 and 9. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment."

NAME (Print or Type) Dinkerrai M. Desai SIGNATURE _____

COMPANY NAME U.S. Army, Fort Monmouth DATE 2/14/95
(Preparer of Site Assessment Plan)

CERTIFYING ORGANIZATION NJDEP

CERTIFICATION NUMBER E0002266

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) _____ SIGNATURE _____

COMPANY NAME _____ DATE _____
(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 SIGNATURE James Ott

COMPANY NAME U.S. Army, Fort Monmouth DATE 2/14/96

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 _____

GENERATOR CERTIFICATION

I hereby certify that the waste described on Hazardous Waste Manifest No. NJA1603245 dated 4-21-94, is generated by one or more of the following processes and does not contain more than 2 ppm polychlorinated biphenyls (P.C.B.'s) and does not display any characteristic or contain any hazardous constituents other than for which waste oils are listed in New Jersey.

X721: Waste automotive crankcase and lubricating oils from automotive service and gasoline stations, truck terminals, and garages.

X722: Waste oil and bottom sludge generated from tank cleanouts from residential/commercial fuel oil tanks.

X723: Waste oil and bottom sludge generated by gasoline stations when gasoline and oil tanks are tested, cleaned or replaced.

X724: Waste petroleum oil generated when tank trucks or other vehicles or mobile vessels are cleaned, including, but not limited to, oil ballast water from product transport units of boats, barges, ships or other vessels.

X725: Oil spill cleanup residue which: A. is contaminated beyond saturation; or B. the generator fails to demonstrate that the spill material was not one of the listed hazardous waste oils.

X726: The following used and unused waste oils: metal working oils; turbine lubricating oils; diesel lubricating oils; and quenching oils.

X728: Bottom sludge generated from the processing, blending, and treatment of waste oil in waste oil processing facilities.

I am duly authorized to sign said certification.

Generator US Army Communics Joint Electronics Command

Generator's EPA ID No. NJ3210020597

Address Main Post Fort Monmouth 07703

Print Name Charles M. Apple Signature

Title Envir. Prot. Spec.

Date 4-21-94

Form 003 5/91

SMITH

APPENDIX C

WASTE MANIFEST

State of New Jersey
Department of Environmental Protection and Energy
Hazardous Waste Regulation Program
Manifest Section
CN 028, Trenton, NJ 08625-0028

J.L
02943

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039. Expires 9-30-94

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: NJ3210020597 Manifest Document No.
2. Page 1 of 1
Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: US Army Communications Electronics Command
c/o James Shirghio, Bldg 2504, ATTN: SELFM-DL-EM-MS,
Fort Monmouth, NJ 07703 MAIN POST
4. Generator's Phone (908) 532-6224

A. State Manifest Document Number: NJA 1603245
B. State Generator's ID: a) B12 789 ... b) B12 745 ...

5. Transporter 1 Company Name: Freehold Cartagxe, Inc.
6. US EPA ID Number: NJD054126164
C. State Trans. ID: NJDEP ...
D. Transporter's Phone (908) 462-1001

7. Transporter 2 Company Name:
8. US EPA ID Number:
E. State Trans. ID
F. Transporter's Phone (

9. Designated Facility Name and Site Address: Lionetti ~~Ox~~ Oil Recovery Co., Inc.
Runyon & Cheesequake Rds.
Old Bridge, NJ 08857
10. US EPA ID Number: NJD084044064
G. State Facility's ID
H. Facility's Phone (908) 721-0900

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. Petroleum oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III	X	001	TT	004728	G	X 7 2 2
b. Petroleum oil, NOS Class 3 (Petroleum oil) Combustible Liquid UN1270 PG III	X	001	TT	003106	G	X 7 2 2
c. Petroleum oil, NOS class 3 (Petroleum oil) Combustible Liquid UN1270 PG III	X	001	TT	005382	G	X 7 2 2
d. Petroleum oil NOS class 3 (Petroleum oil) Combustible Liquid UN1270 P	X	001	TT	005106	G	X 7 2 2

J. Additional Descriptions for Materials Listed Above
a. T,L Petroleum Oil 70% Water 30%
b. T,L Petroleum Oil 70% Water 30%
c. T,L Petroleum Oil 70% WATER 30%
d. T,L Petroleum Oil 70% Water 30%

K. Handling Codes for Wastes Listed Above
a. T04=Filtration
b. T04=Filtration
c. T04=Filtration
d. T04=Filtration

15. Special Handling Instructions and Additional Information
NOT REGULATED BY EPA. REGULATED AS HAZARDOUS WASTE IN NJ
24 HOUR EMERGENCY# 201-427-2881
NJ DECAL# 55462
a) #81533126
b) #81533119
C- 81533-114
D- 81533-UK

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

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

Printed/Typed Name: Charles M. Appleby SELFM-PW-EV
Signature: [signature]
Month Day Year: 6 4 2 1 1 9

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: David S. Smith
Signature: David S. Smith
Month Day Year: 10 4 2 1 1 9

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

19. Discrepancy Indication Space

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

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

In case of an emergency or spill immediately call the N.J. Dept. of Environmental Protection and Energy

SMITH

APPENDIX D

UST DISPOSAL CERTIFICATE

Fort Monmouth tanks
Bldg # Ust #
745 / 0081533-119
702 / 0081533-114
789 / 0081533-126
707 - No closure

MAZZA & SONS, INC.

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

NO. ______

DATE 13 May 94

Customer's Name: Cute Inc.

Address: ______

Make of Autos: Fort Monmouth ~~Bldg 707 No closure~~ Tanks

Bldg 745 NJDEP 0081533-119 39360 LB G
702 NJDEP 0081533-114
789 NJDEP 0081533-126 35720 LB G
707 No closure

3640

Tires
Tank
Price:

PAID MAY 13 1994

	Weight	Price
Cast Iron		
Steel	72 80	
Lt. Iron		
Copper #1		
Copper #2		
Lt. Copper		
Brass		
Alum Clean		
Lead		
Stainless		
Radiators		
Battery		
TOTAL AMOUNT:		

Weigher ______ Customer Don Ellis

SMITH

APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

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

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

Lab. ID #: 1485.1-.5
Sample Rec'd: 05/09/94
Analysis Start: 05/10/94
Analysis Comp: 05/10/94

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

NJDEPE UST Reg.#: 0081533-126
Closure #: C-93-3612
DICAR #:
Location #: Bldg. 789

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1485.1	Site A, S. Sidewall 3' OVA= ND	95	4.14	3.3
1485.2	Site B, W. Sidewall 3' OVA= ND	93	ND	3.3
1485.3	Site C, N. Sidewall 3' OVA= ND	96	ND	3.3
1485.4	Site D, E. Sidewall 3' OVA= ND	94	9.77	3.3
1485.5	Site E, Bottom 4.5' OVA= ND	96	60.1	3.3
M. Bl.	Method Blank	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added, NA = Not Applicable
1485.3dup= 100% 1485.3spike= 126% 1485.3spike dup= 119% RPD= 3.6%

Brian K. McKee
Laboratory Director

SERV-AIR, INC.
An E-SYSTEMS Company

P.O. #: PWS-007

Chain of Custody

Project #: C-93-3612	Sampler: C. Appleby	Date / Time 5/9/94 11:20	Start:
Customer: C. Appleby	Site Name: Bldg. 789 UST# 0081533-126 Closure # C-93-3612		Finish:
Phone: X26224			

Analysis Parameters: TPHC, % Solids, Munsell, OVA Reading

Preservation Method

Lab Sample ID Number	Date	Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	% Solids	Munsell				OVA Reading	Remarks
4485.1	5/9/94	1201	Site A - S - Sidewall - 3'	Soil	1	X	X	X				ND	Samples kept ≤4°C
.2	↓	1202	B - W - Sidewall - 3'	Soil	1	X	X	X				ND	
.3	↓	1203	C - N - Sidewall - 3'	Soil	1	X	X	X				ND	
.4	↓	1205	D - E - Side Wall - 3'	Soil	1	X	X	X				ND	
.5	↓	1206	E Pit Bottom - 4.5'	Soil	1	X	X	X				ND	OVA A52114 - Calibrated w/ Zero Air + 95 ppm methane at Gas Select 300 - Read 81 PPM OK - C.A. 11:50 am - 5-9-94

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:

Relinquished By (signature)	Date / Time	Received for Lab by (signature):	Date / Time
[signature]	5/9/94 1410	X [signature]	5/9/94 1410

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

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

FT. MONMOUTH OFFICE
E-SYSTEMS, INC. • P. O. BOX 369, BUILDING 1209 • FT. MONMOUTH NEW JERSEY 07703-5000 • (201) 544-0095

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

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

Lab. ID #: 1485.1-.5
Sample Rec'd: 05/09/94
Analysis Start: 05/10/94
Analysis Comp: 05/10/94

Analysis: Munsel

Lab ID#	Soil Color
1485.1	7.5YR 4/4 Brown
1485.2	7.5YR 4/4 Brown
1485.3	7.5YR 5/6 Strong Brown
1485.4	7.5YR 4/3 Brown
1485.5	7.5YR 4/3 Brown

Brian K. McKee
Laboratory Director

195-69/0-00

2CM/M 500 MV=CAL=0

Freon.

40.75 107 mV

81.5 213 mV

163 414 mV

Rinse

1485.1 5 mV

1485.2 2 mV

1485.3 1 mV

1485.4 10 mV

1485.5 47 mV

BLANK

1486.1 4 mV

1486.2 3 mV

1486.3 15 mV

1488.4 62 mV

1486.5 33 mV

1485.3 DSP 3 mV

1485.3 spike = 95 mV

1485.3 s Dsp = 89 mV

PHC Conformance/Non-conformance Summary Report

	No	Yes
1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank	✓	
2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)		✓
3. IR Spectra submitted for standards, blanks, & samples		✓
4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.		N/A
5. Extraction holding time met. (If not met, list number of days exceeded for each sample)		✓
6. Analysis holding time met. (If not met,list number of days exceeded for each sample)		✓

Comments: _____

Laboratory Authentication Statement

I certify under penalty of law, where applicable, that this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18 and 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analysis. I have personally examined the information contained in this report, and to the best of my knowledge, I believe that the submitted information is true, accurate, complete, and meets the above referenced standards where applicable. I am aware that there are significant penalties for purposefully submitting falsified information, including the possibility of a fine and imprisonment.

Brian K. McKee
Laboratory Manager