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OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
U.S. ARMY FORT MONMOUTH
P.O. 148
OCEANPORT, NEW JERSEY 07757

6 March 2018

Mr. Ashish Joshi
New Jersey Department of Environmental Protection
Division of Remediation Management & Response
Bureau of Northern Field Operations
7 Ridgedale Avenue (2nd Floor)
Cedar Knolls, NJ 07927-1112

**SUBJECT: Request for Unrestricted Use, No Further Action Approval
Site Investigation Reports for Parcel 72 Lodging Area Underground Storage
Tanks, Fort Monmouth, Monmouth County, Oceanport, New Jersey
PI G000000032**

Dear Mr. Joshi:

The U.S. Army Fort Monmouth (FTMM) Team has reviewed existing file information for underground storage tank (UST) sites within the Parcel 72 Lodging Area on the Main Post. The purpose of this submittal is to provide documentation of the closure status of all USTs identified within this parcel as this information may be useful for future property transfers.

The Parcel 72 Lodging Area is located in the northeastern portion of the Main Post of FTMM and is bordered by: Parkers Creek to the north; Oceanport Avenue to the east; Signal Avenue to the south; and Lockwood Avenue to the west. The locations of the USTs within the Parcel 72 Lodging Area are presented in Attachment A.

A summary table of the five USTs within the Parcel 72 Lodging Area is provided in Attachment B. All five USTs have been removed.

The five USTs are discussed below and closure documentation is attached.

- **UST 360:** a closure report is provided in Attachment C, summarizing the results of sampling following removal of the tank in 1994. Groundwater was not encountered during the removal operations, nor were there any indications of a release that would warrant evaluation of groundwater.
- **UST 361:** a closure report is provided in Attachment D, summarizing the results of sampling following removal of the tank in 1994. There were no indications of a release that would warrant evaluation of groundwater.
- **UST 362:** a closure report is provided in Attachment E, summarizing the results of sampling following removal of the tank in 1994. There were no indications of a release that would warrant evaluation of groundwater.
- **UST 363:** a closure report is provided in Attachment F, summarizing the results of sampling following removal of the tank in 1994. There were no indications of a release that would warrant evaluation of groundwater.

- **UST 364:** a closure report is provided in Attachment G, summarizing the results of sampling following removal of the tank in 1994. There were no indications of a release that would warrant evaluation of groundwater.

This information in this report supports the FTMM Team's conclusions that: 1) the USTs identified within the Parcel 72 Lodging Area have been adequately addressed by previous environmental activities under the FTMM tank removal and assessment program; and 2) further action at these former UST locations is not warranted. Unrestricted Use, NFA determinations are requested for UST 360, UST 361, UST 362, UST 363, and UST 364 based on the information provided in this report.

Thank you for reviewing this request; we look forward to your approval and/or comments. Our technical Point of Contact (POC) is Frank Accorsi at (732) 380-7523; frank.accorsi@parsons.com. I can be reached at (732) 380-7064; william.r.colvin18.civ@mail.mil.

Sincerely,


William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator

cc: Ashish Joshi, NJDEP (e-mail and 2 hard copies)
William Colvin, FTMM (e-mail and 1 hard copy)
Joseph Pearson, Calibre (e-mail)
James Moore, USACE (e-mail)
Joe Fallon, FMERA (e-mail)
Jim Kelly, USACE (e-mail)
Cris Grill, Parsons (e-mail)

Attachments:

- A. Location and Site Layout Drawings of Parcel 72 Lodging Area
- B. Summary Table of Parcel 72 Lodging Area Underground Storage Tanks
- C. UST 360 Report
- D. UST 361 Report
- E. UST 362 Report
- F. UST 363 Report
- G. UST 364 Report



New Jersey Department of Environmental Protection
Site Remediation Program

Report Certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites

These certifications are to be used for reports submitted for RCRA GPRA 2020, CERCLA, and Federal Facility Sites. The Department has developed guidance for report certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites under traditional oversight. The "Person Responsible for Conducting the Remediation Information and Certification" is required to be submitted with each report. For those sites that are required or opt to use a Licensed Site Remediation Professional (LSRP) the report must also be certified by the LSRP using the "Licensed Site Remediation Professional Information and Statement". For additional guidance regarding the requirement for LSRPs at RCRA GPRA 2020, CERCLA and Federal Facility Sites see http://www.nj.gov/dep/srp/srra/training/matrix/quick_ref/rcra_cercla_fed_facility_sites.pdf.

Document:

- "Request for Unrestricted Use, No Further Action Approval, Site Investigation Report for Parcel 72 Lodging Area Underground Storage Tanks, Fort Monmouth, Monmouth County, Oceanport, New Jersey" (06 March 2018)

PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: William R. Colvin

Representative First Name: William Representative Last Name: Colvin

Title: Fort Monmouth BRAC Environmental Coordinator (BEC)

Phone Number: (732) 380-7064 Ext: Fax:

Mailing Address: P.O. Box 148

City/Town: Oceanport State: NJ Zip Code: 07757

Email Address: william.r.colvin18.civ@mail.mil

This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein, including all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, to the best of my knowledge, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties.

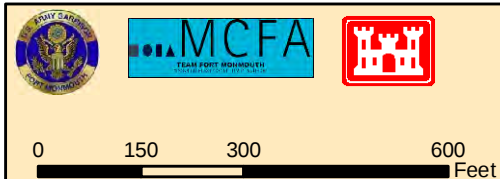
Signature: *William R Colvin* Date: 06 March 2018

Name/Title: William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator

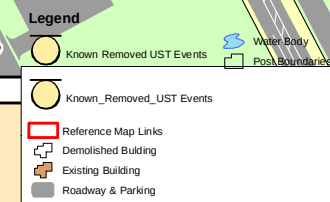
Completed form should be sent to:

Mr. Ashish Joshi
New Jersey Department of Environmental Protection
Division of Remediation Management & Response
Bureau of Northern Field Operations
7 Ridgedale Avenue (2nd Floor)
Cedar Knolls, New Jersey 07927-1112

Attachment A
Location and Site Layout Drawings of Parcel 72 Lodging Area



UST Removal Reference Map
Grid C1; Main Post
Fort Monmouth, New Jersey
FOUO



Map Created by:
 Fort Monmouth Installation GIO, Environmental Division
 Fort Monmouth, New Jersey
 Date: August 10, 2011
 All drawings must be field verified.
 New Jersey State Plane Feet, NAD83

Attachment B
Summary Table of Parcel 72 Lodging Area Underground Storage Tanks

Summary Table of Parcel 72 Lodging Area Underground Storage Tanks (USTs)

Site Name	Residential ?	Registration ID	DICAR	Tank Size and Type	Product	Date Tank Removed	No Further Action (NFA) Approved or Requested Status
360	YES	81533-70	None	3,000 gallon steel	#2 FUEL OIL	10/13/1994	NFA requested; supporting information included in the Attachment C report.
361	YES	81533-71	None	8,000 gallon steel	#2 FUEL OIL	5/27/1994	NFA requested; supporting information included in the Attachment D report.
362	YES	81533-72	None	8,000 gallon steel	#2 FUEL OIL	5/25/1994	NFA requested; supporting information included in the Attachment E report.
363	YES	81533-73	None	3,000 gallon steel	#2 FUEL OIL	7/8/1994	NFA requested; supporting information included in the Attachment F report.
364	YES	81533-74	None	1,500 gallon steel	#2 FUEL OIL	7/13/1994	NFA requested; supporting information included in the Attachment G report.

Attachment C
UST 360 Report

U.S. Army Garrison
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Main Post – Building 360

NJDEP UST Registration No.: 81533-70
UST No.: 81533-70

October 2010

**UNDERGROUND STORAGE TANK CLOSURE
AND SITE INVESTIGATION REPORT**

**MAIN POST – BUILDING 360
NJDEP UST REGISTRATION NO.: 81533-70**

OCTOBER 2010

PROJECT NO.: 10-24949

PREPARED FOR:

**U.S. ARMY GARRISON, FORT MONMOUTH, NJ
DIRECTORATE OF PUBLIC WORKS
BUILDING 167
FORT MONMOUTH, NJ 07703**

PREPARED BY:

**TECOM-VINNELL SERVICES, INC.
P.O. BOX 60
FT. MONMOUTH, NJ 07703**

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- Appendix B UST Disposal Certificate**
- Appendix C Photo Documentation**
- Appendix D Soil Analytical Data Package**

EXECUTIVE SUMMARY

UST Closure

On October 12, 1994, a steel underground storage tank (UST) was closed by removal in accordance with the Directorate of Public Works (DPW) UST Closure Plan for the U.S. Army Garrison, Fort Monmouth, New Jersey. The tank was located adjacent to Building 360 in Main Post area. Installed in 1960, UST No.: 81533-70 was a 3,000-gallon, steel, No. 2 heating oil tank. No piping was found at the time of removal. The tank closure was performed by Cleaning Up The Environment, Inc. (CUTE). Closure soil samples were collected on November 23, 1994.

Site Assessment

The site assessment was performed by CUTE personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. Soils surrounding the tank were screened visually and with air monitoring instruments for evidence of contamination. Upon removal, the UST was inspected for holes. No holes were found. No petroleum odors or stained soils were observed in the soils surrounding the tanks.

Closure soil samples were collected on November 23, 1994 after the removal of the UST. Closure samples A, B, C, D, and E were collected from a total of five (5) locations along the UST sidewalls and bottom of the excavation for the UST No.: 81533-70. A duplicate of sample E was collected. Sample G was collected along the piping. All samples were analyzed for total petroleum hydrocarbons (TPH). Groundwater was not encountered at the bottom of the excavation.

Findings

The closure soil samples collected from the UST excavation associated UST No.: 81533-70 contained TPH concentrations below the NJDEP health based criterion of 10,000 milligrams per kilogram (mg/kg) for total organic contaminants (N.J.A.C. 7:26E and revisions dated February 3, 1994). Samples A and B contained a TPH concentration of 101 mg/kg and 73.5 mg/kg. Sample C contained a TPH concentration of 56.6 mg/kg. The TPH concentration of sample D was 23.7 mg/kg. Sample E contained a TPH concentration of 34.6 mg/kg. The duplicate of sample E contained a TPH concentration of 35.0 mg/kg. The TPH concentration of sample G was 25.0 mg/kg.

Conclusions and Recommendations

Based on the closure soil sampling results, soils with TPH concentrations exceeding the NJDEP health based criterion of 10,000 mg/kg for total organic contaminants (N.J.A.C. 7:26E and revisions dated February 3, 1994) are not present in the former location of the UST.

No Further Action is proposed in regard to the closure and site assessment of UST No.: 81533-70 at Building 360.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No.: 81533-70, was closed at Building 360 of the Main Post at U.S. Army Garrison, Fort Monmouth, New Jersey. Refer to site location maps Figure 1 & 2. This report presents the results of the implementation of the Directorate of the Public Works UST Closure Plan, July 1993. Installed in 1960, the UST was a 3,000-gallon, steel tank, containing No. 2 heating oil for residential use. The UST was removed on October 12, 1994.

Decommissioning activities for UST No.: 81533-70 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. The closure and subsurface evaluation of the UST was conducted by a NJDEP licensed U.S. Army DPW personnel.

This UST Closure and Site Investigation Report has been prepared by TVS to assist the U.S. Army Garrison-DPW in complying with the NJDEP - Underground Storage Tanks regulations. The applicable NJDEP regulations at the date of closure were the *Closure of Underground Storage Tank Systems (N.J.A.C. 7:14B-9 et seq. December, 1987)*.

This report was prepared using information required by the *Technical Requirements for Site Remediation (N.J.A.C. 7:26E) (Technical Requirements)*. Section 1 provides a summary of the UST decommissioning activities. Section 2 describes the site investigation activities. Conclusions and recommendations are presented in Section 3 of this report.

1.2 SITE DESCRIPTION

Building 360 is located in the eastern portion of the Main Post area of Fort Monmouth, as shown on Figure 1 & 2. UST No.: 81533-70 was located adjacent to the building, as shown on Figure 3.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of Bldg. 360. 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.

Fort Monmouth lies within the Outer Coastal Plain subprovince of the New Jersey section of the Atlantic Coastal Plain physiographic province, which generally consists of a seaward-dipping wedge of unconsolidated sediments including interbedded clay, silt, sand, and gravel.

To the northwest is the boundary between the Outer and Inner Coastal Plains, marked by a line of hills extending southwest, from the Atlantic Highlands overlooking Sandy Hook Bay, to a point southeast of Freehold, New Jersey, and then across the state to the Delaware Bay. These formations of clay, silt, sand, and gravel formations were deposited on Precambrian and lower Paleozoic rocks and typically strike northeast-southwest, with a dip that ranges from 10 – 60 feet per mile. Coastal Plain sediments date from the Cretaceous through the Quaternary Periods and are predominantly derived from deltaic, shallow marine, and continental shelf environments.

The property is located within the outer fringe of the Atlantic Coastal Plain Physiographic Province, of New Jersey, approximately 20 miles south of Raritan Bay. This province is characterized by a wedge-shaped mass of unconsolidated to semi-consolidated marine, marginal marine and non-marine deposits of clay, silt, sand, and gravel. These sediments range in age from Cretaceous to Holocene and lie unconformably on pre-Cretaceous bedrock consisting of metamorphic schists and gneiss, with local occurrences of basalts, sandstone, and shale (Zapeczka, 1984). These sediments trend northeast-southwest and dip southeast toward the Atlantic Ocean. These sediments thicken southeastward from the Piedmont-Coastal Plain Province boundary to approximately 4,500 feet near Atlantic City, New Jersey. During the Cretaceous and Tertiary time period, sediments were deposited alternately in flood plains and in marine environments during sea transgression and sea regression periods. The formations record several major transgressive/regressive cycles and contain units that 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).

Regressive upward coarsening deposits, such as Englishtown and Kirkwood Formations and the Cohansey Sand are usually aquifers, while transgressive deposits, such as the Merchantville, Marshalltown, and Navesink Formations, act as confining units. The thicknesses of these units vary greatly, ranging from several feet to several hundred feet, and thicken to the southeast.

The eastern half of the Main Post is underlain by the Red Bank Formation, ranging in thickness from 20-30 feet, while the western half is underlain by the Hornerstown Formation, ranging in thickness from 20-30 feet. The predominant formation underlying the Charles Wood Area is also the Hornerstown, with small areas of Vincentown Formation intruding in the southwest corner. Sand and gravel deposited in recent geologic times lie above these formations. Interbedded sequences of clay serve as semi-confining units for groundwater. The mineralogy ranges from quartz to glauconite.

Udorthents-Urban land is the primary classification of soils on Fort Monmouth, which have been modified by excavating or filling. Soils at the Main Post include Freehold sandy loam, Downer sandy loam, and Kresson loam. Freehold and Downer are somewhat well drained, while Kresson is a poorly drained soil.

The Charles Wood Area has sandy loams of the Freehold, Shrewsbury, and Holmdel types. Shrewsbury is a hydric soil; Kresson and Holmdel are hydric due to inclusions of Shrewsbury. Downer is not generally hydric, but can be.

Local Geology

Fort Monmouth lies in the Atlantic and Eastern Gulf Coastal Plain groundwater region and is underlain by underformed, unconsolidated to semi-consolidated sedimentary deposits. The chemistry of the water near the surface is variable with generally low dissolved solids and high iron concentrations. In areas underlain by glauconitic sediments, the water chemistry is dominated by calcium, magnesium, and iron (*e.g.* Red Bank and Tinton sands). The sediments in the vicinity of Fort Monmouth were deposited in fluvial-deltaic to nearshore environments. The water table is generally shallow at the installation; water is typically encountered at depths ranging from 2 to 9 feet below ground surface (bgs) and in certain areas fluctuates with the tidal action in Parkers and Oceanport creeks at the Main Post.

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 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).

“Arsenic and lead are naturally occurring in soil and can vary widely. All soils contain naturally-occurring arsenic and lead in some amount (Kabata-Pendias and Pendias, 1984). In general, the concentrations of arsenic in any particular soil are dependent upon the parent material and the soil forming processes. Because the soil forming processes are relatively consistent in New Jersey, differences in arsenic concentrations depend primarily on the soil parent material and past and present land use (Motto, Personal comm., 1997).

Because the underlying geologic materials vary widely throughout New Jersey, naturally occurring concentrations of metals in New Jersey soils also vary widely. Even though soils within a specific soil series can be similar in texture and color, the mineral and organic matter composition of soil tend to be heterogeneous. As a result, concentrations of metals in adjacent soil samples can vary substantially over distances of a few feet.

Based on a Department survey of background concentrations of metals in soil in rural and suburban areas of the state, non-agricultural soils contained 0.02 – 22.7 ppm of arsenic with an average 3.25 ppm and less than 1.2- 150 ppm of lead with an average of 19.2 ppm (Fields, et al., 1993). A statistical test was conducted to determine the correlation between sand, silt and clay content of the samples and metal concentrations. Samples containing higher clay content tended to have higher concentrations of most metals, including arsenic and lead (Fields, et al., 1993).

While naturally-occurring lead concentrations have not been detected above the Department's residential soil cleanup criteria in New Jersey, elevated arsenic concentrations have been found. Higher concentrations of naturally-occurring arsenic have been specifically associated with soils containing glauconite. The US Geological Survey found arsenic concentrations generally lower than 10 ppm in sandy soils from undeveloped areas, but concentrations were as large as 40 ppm in samples containing higher clay content (Barringer, et al., 1998). Soil sampling conducted as part of site remediation activities have shown glauconite soils to commonly contain arsenic concentrations of 20-40 ppm and range as high as 260 ppm (Schick, Personal comm., 1998). The Department is currently involved in a research project with the New Jersey Geological Survey investigating metal levels in glauconite soils." *Findings and Recommendations for Remediation of Historic Pesticide Contamination, Historic Pesticide Contamination Task Force, Final Report March 1999*

Fort Monmouth has been an operational military facility for in excess of ninety (90) years; and in many areas of the Main Post, human activities have completely transformed the topography. Currently, Fort Monmouth is conducting a correlation study to determine the relative impact of the ubiquitous glauconitic silty sands and clays and the concentrations of dissolved arsenic observed in a number of monitoring wells on the post. Upon the completion of the study, the results will be provided to NJDEP for review and comment. It is the intent of the US Army to demonstrate that the preponderance of the dissolved arsenic is a function of soil type and chemistry and is not anthropogenic in nature.

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. The Hornerstown Formation acts as an upper boundary of the Red Bank aquifer, but it might yield enough water within its outcrop to supply individual household needs. The Red Bank outcrops along the northern edges of the Installation, and contains two members, an upper sand member and a lower clayey sand member. The upper sand member functions as the aquifer and is probably present on some of the surface of the Main Post and at a shallow depth below the Charles Wood Area. The Hornerstown and Red Bank formations overlay the larger Wenonah-Mount Laurel aquifer.

Based on records of wells drilled in the Main Post area, water is typically encountered at depths ranging from 2 to 9 feet below ground surface (bgs). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may yield 2 to 25 gallons per minute (gpm). Some local well owners have reported acidic water that requires treatment to remove iron. Acid sulfate soils are naturally occurring soils, sediments or organic substrates (e.g. peat) that are formed under waterlogged conditions. Soil and sediment materials rich in iron sulfide tend to be very dark and soft. Iron sulfides can react rapidly when they are disturbed (i.e. exposed to oxygen). Pyrite will tend to occur as more discrete crystals in soil and organic matter matrices and will react more slowly when disturbed. The oxidation of iron sulfide in the potential acid sulfate soil materials (sulfidic material) may result in the formation of actual acid sulfate soil material or sulfuric material.

These soils contain iron sulfide minerals (predominantly as the mineral pyrite) or their oxidation products. Soil horizons that contain sulfides are called 'sulfidic materials' (Isbell 1996; Soil Survey Staff 2003) and can be environmentally damaging if exposed to air by disturbance. Exposure results in the oxidation of pyrite.

1.3 HEALTH AND SAFETY

Work site health and safety hazards were minimized during all decommissioning activities. All areas which posed a vapor hazard were monitored by a qualified individual utilizing a calibrated photo-ionizer detector: Thermo Instruments Organic Vapor Monitor (OVM) – Model #580-B. The individual ascertained if the area was properly vented to render the area safe, as defined by OSHA. All work areas were properly vented to insure that there were no contaminants present in the breathing zone above permissible exposure limits (PEL's).

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

- All underground utilities were marked out by the respective trade shops or utility contractor prior to excavation activities.
- All activities were carried out with great regard to safety and health and the safeguarding of the environment.
- All excavated soils were visually examined and screened with an OVM 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.

- An NJDEP certified Subsurface Evaluator was present during all closure and remediation activities.

1.4.2 Underground Storage Tank Excavation

During decommissioning activities, surficial soil was carefully removed to expose the UST. The tank was completely empty and contained no liquids prior to removal from the ground.

After the UST was removed from the excavation, it was staged on an impervious surface, labeled and examined for holes. The Subsurface Evaluator observed no holes in the tank during the inspection. Soils surrounding the UST were screened visually and with an OVM for evidence of contamination. Soil staining or petroleum hydrocarbons were not observed.

1.5 UNDERGROUND STORAGE TANK DECOMMISSIONING AND DISPOSAL

Subsequent to disposal, the UST was purged with air to remove vapors prior to cutting. A 4 feet by 3 feet access hole was made in the UST using a pneumatic ripper gun with a non-sparking bit. The UST was cleaned first with rubber squeegees and adsorbent material broomed on the sidewalls and bottom. The adsorbent material was then drummed and subsequently put into Ft. Monmouth's 'Oil Spill Debris' roll-off container for proper disposal. The atmosphere in and around the tank was monitored using an OVM and an Oxygen/Lower Explosive Level (LEL) meter to ensure safe working conditions during cutting and cleaning activities.

The remaining liquid in the tank was removed and then transported by Freehold Cartage Inc. to Lionetti Oil Recovery Co., Inc., Runyon & Cheesequake Rds., Old Bridge, NJ for disposal in compliance with all applicable regulations and laws. The UST disposal certificate, along with the waste manifest, is included in Appendix B.

The Subsurface Evaluator labeled the UST with the following information:

- site of origin
- NJDEP UST Facility ID number
- date of removal
- size of tank
- previous contents of tank

Photographic documentation of the UST is included in Appendix C.

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site Investigation was managed by U.S. Army DPW personnel. All analyses were performed and reported by Fort Monmouth Environmental Testing Laboratory, a NJDEP-certified testing laboratory. All sampling was performed by a NJDEP Certified Subsurface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (1992). Sampling frequency and parameters analyzed complied with the NJDEP document *Technical Requirements for Site Remediation*, 7:26E-3.9 (June 7, 1993) 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.

- Ft. Monmouth Directorate of Public Works-Environmental Division
Contact Person: Joseph Fallon
Phone Number: (732) 532-6223
- Subsurface Evaluator: Charles Appleby
Employer: U. S. Army
Phone Number: (732) 532-5241
NJDEP License No.: 0009974
- Analytical Laboratory: Fort Monmouth Environmental Testing Laboratory
Contact Person: Dan Wright
Phone Number: (732) 532-4359
NJDEP Laboratory Certification No.: 13461

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP certified Subsurface Evaluator using an OVM and visual observations to identify potentially contaminated material, of which none were found.

2.3 SOIL SAMPLING

On November 23, 1994, closure soil samples A, B, C, D, and E were collected from a total of six (6) locations along the UST sidewalls of the excavation for the UST No.: 81533-70. A duplicate of sample E was collected. Sample G was collected along the piping. After collection, the samples were immediately placed on ice in a cooler and delivered to Fort Monmouth Environmental Testing Laboratory for analysis. Refer to soil sampling location map in Figure 3.

All samples were analyzed for total petroleum hydrocarbons (TPH). Groundwater was not encountered at the bottom of the excavation.

The site assessment was performed by CUTE personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* and the NJDEP *Field Sampling Procedures Manual*. A summary of sampling activities including parameters analyzed is provided on Table 1.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

Closure soil samples were collected from a total of seven locations (which included the duplicate) on November 23, 1994 to evaluate soil conditions following removal of the UST and piping. All samples were analyzed for TPH. The closure soil sample results were compared to the NJDEP health based criterion of 10,000 mg/kg for total organic contaminants (*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 on Table 2. The analytical data package, including associated quality control data, is provided in Appendix D.

Closure soil samples collected on November 23, 1994 from the UST site excavation contained concentrations of TPH below the NJDEP soil cleanup criteria.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for the UST closure of UST No. 81533-70 indicates that samples A and B contained a TPH concentration of 101 mg/kg and 73.5 mg/kg. Sample C contained a TPH concentration of 56.6 mg/kg. The TPH concentration of sample D was 23.7 mg/kg. Sample E contained a TPH concentration of 34.6 mg/kg. The TPH concentration of the duplicate of sample E was 35.0 mg/kg. The TPH concentration of sample G was 25.0 mg/kg.

Based on the closure soil sampling results, soils with TPH concentrations exceeding the NJDEP soil cleanup criterion for total organic contaminants of 10,000 mg/kg are not present in the location of former UST No.: 81533-70.

No Further Action is proposed in regard to the closure and site investigation of UST No.: 81533-70 at Building 360.

FIGURES

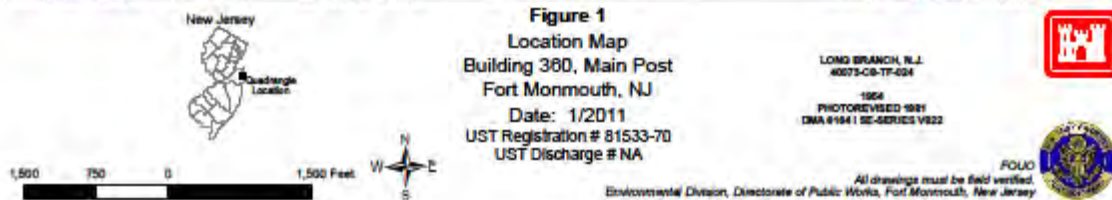
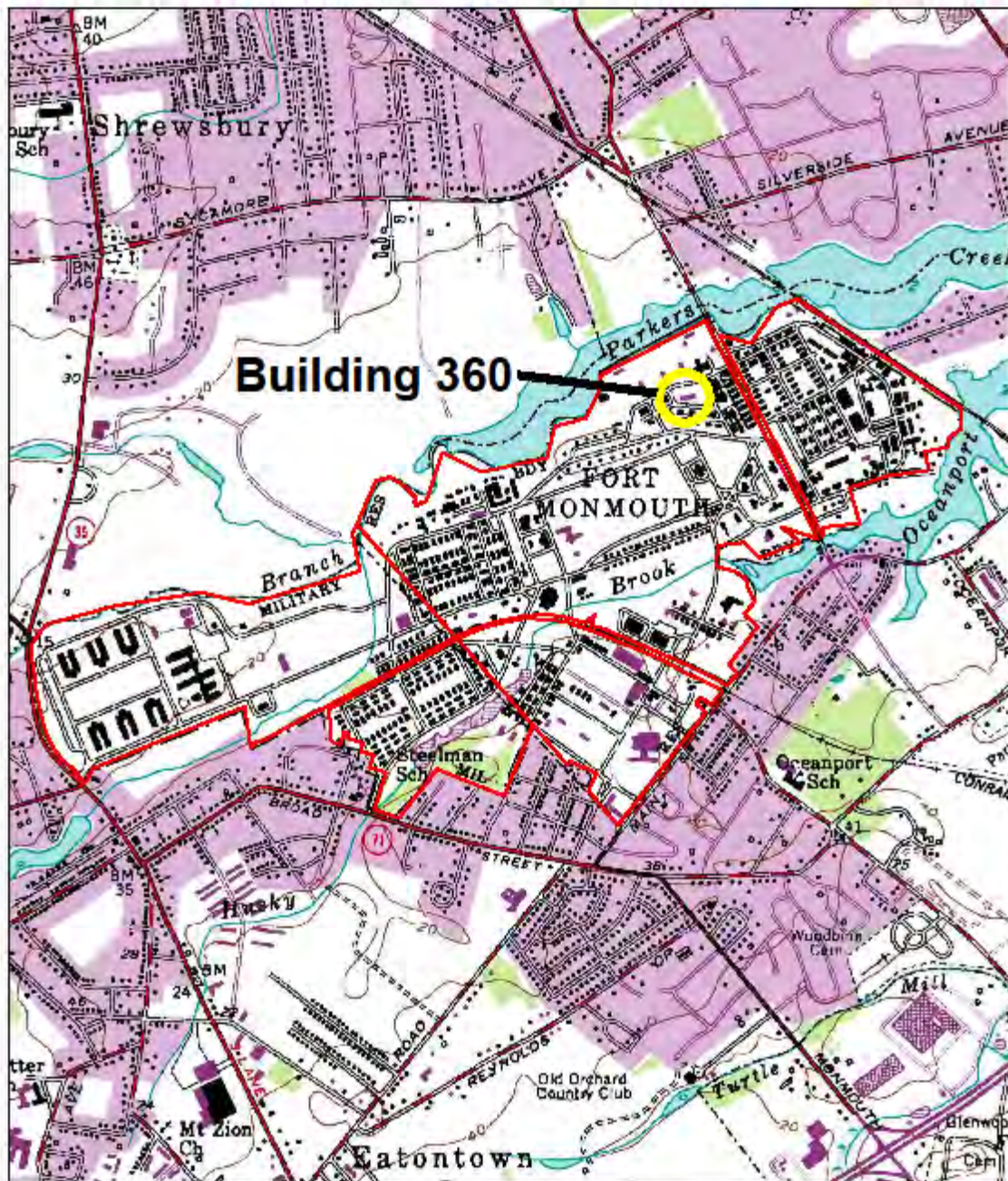
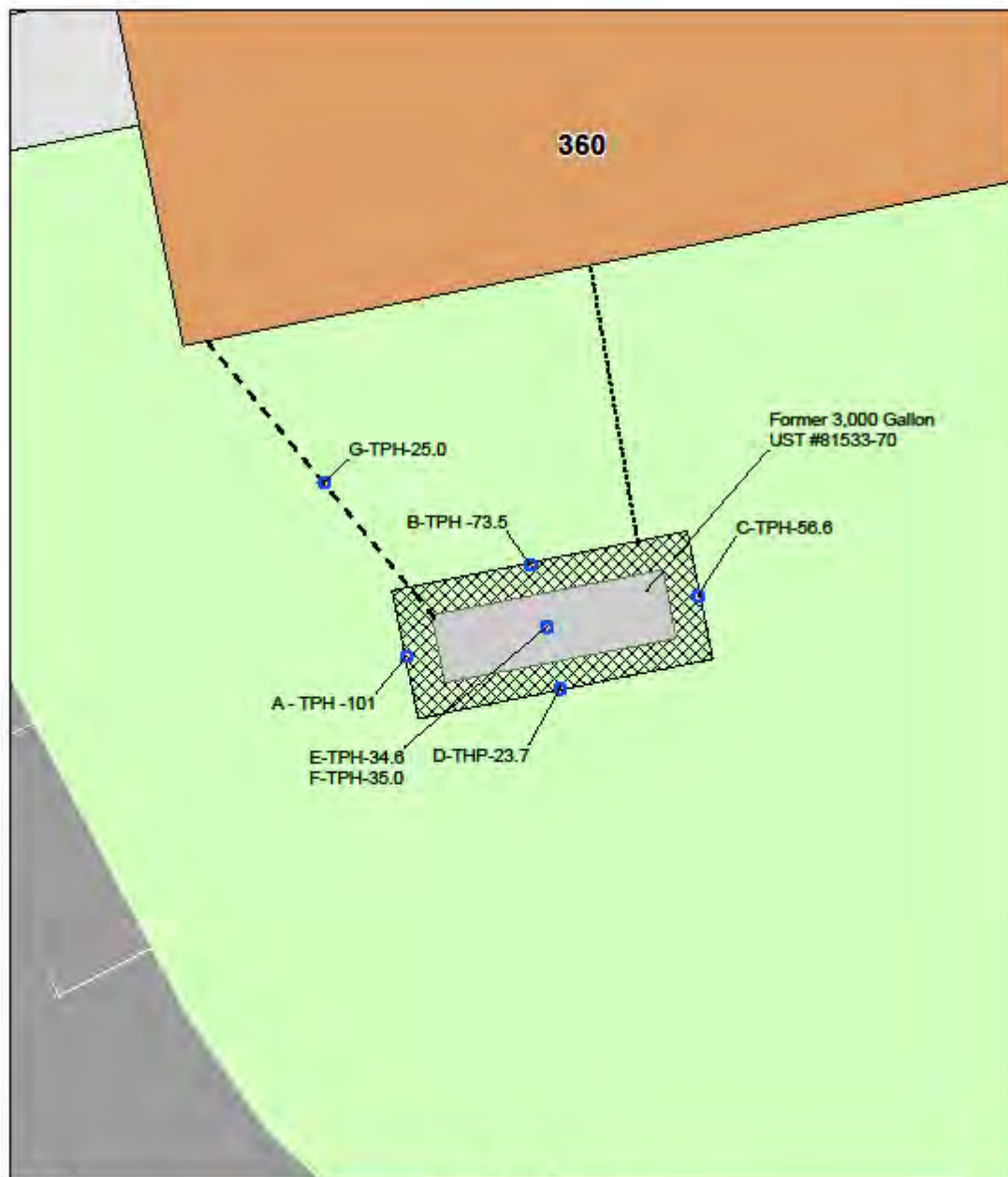




Figure 2
Location Map
Building 360 Main Post
Fort Monmouth, NJ
 Date: 1/2011
 UST Registration #81533-70
 UST Discharge # NA



All drawings must be field verified.
 Environmental Division, Directorate of Public Works, Fort Monmouth, New Jersey



Legend

- UST Excavation Limits
- UST
- UST Product Line
- UST Vent Line
- Soil Sample - 11/23/1994

10 5 0 10 Feet



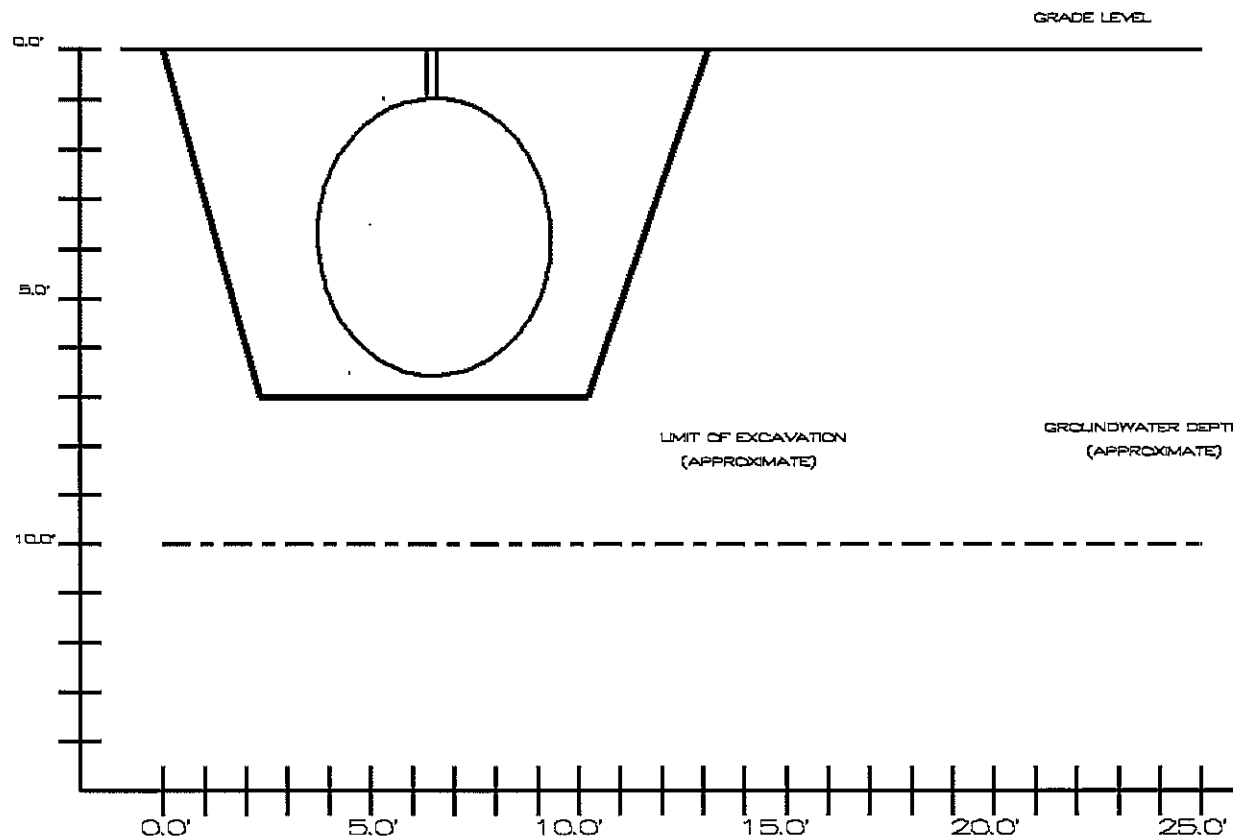
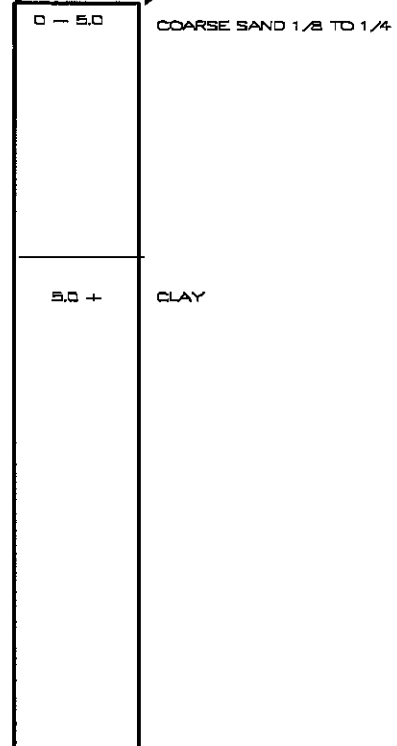
Figure 3

Soil Sampling Location Map
Building 360, Main Post
Fort Monmouth, NJ
Date: 1/2011
UST Registration # 81533-70
UST Discharge # NA



All drawings must be field verified.
Environmental Division, Directorate of Public Works, Fort Monmouth, New Jersey

SOL PROFILE (TYPICAL)



U.S. ARMY, FORT MONMOUTH, NJ
UNDERGROUND STORAGE TANK PROGRAM
DRAWN BY: KG FILENAME: PROF 380.TCD

STRATIGRAPHIC PLAN

**BUILDING 380
UST# 81533-70
MAIN POST, FORT MONMOUTH**

TABLES

TABLE 1

SUMMARY OF LABORATORY ANALYSIS **FT. MONMOUTH, BUILDING 360, UST No.: 81533-70** **23 November 1994**

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE DATE	SAMPLE MATRIX	ANALYTICAL PARAMETER	ANALYTICAL METHOD
A	1736.1	23-Nov-94	SOIL	TPH	418.1
B	1736.2	23-Nov-94	SOIL	TPH	418.1
C	1736.3	23-Nov-94	SOIL	TPH	418.1
D	1736.4	23-Nov-94	SOIL	TPH	418.1
E	1736.5	23-Nov-94	SOIL	TPH	418.1
F	1736.6	23-Nov-94	SOIL	TPH	418.1
G	1736.7	23-Nov-94	SOIL	TPH	418.1

ABBREVIATIONS:

TPH = Total Petroleum Hydrocarbons, EPA Method 418.1

TABLE 2

SUMMARY OF LABORATORY ANALYTICAL RESULTS

FT. MONMOUTH, BUILDING 360, UST No.: 81533-70

23 November1994

TOTAL PETROLEUM HYDROCARBONS

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE LOCATION	SAMPLE DEPTH	MATRIX	TPH RESULTS
			(in feet)		mg/kg
A	1736.1	NORTHWEST SIDEWALL	6.6	Soil	101
B	1736.2	NORTH SIDEWALL	5.0	Soil	73.5
C	1736.3	NORTHEAST SIDEWALL	5.0	Soil	56.6
D	1736.4	SOUTH SIDEWALL	5.0	Soil	23.7
E	1736.5	CENTER	7.0	Soil	34.6
F	1736.6	DUPLICATE-CENTER	7.0	Soil	35.0
G	1736.7	PIPING	5.0	Soil	25.0

ABBREVIATIONS:

mg/kg = Milligrams Per Kilogram = parts per million

ND = Compound Not Detected

Gray shading indicates exceedance of NJDEP health based criterion of 10,000 ppm total organic contaminants

APPENDIX A

CERTIFICATIONS

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

FOR STATE USE ONLY

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

UNDERGROUND STORAGE TANK CLOSURE PLAN
APPROVAL APPLICATION

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

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

INSTRUCTIONS:

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

Date of Application

7/28/93

FACILITY REGISTRATION #

0081533-70

Bldg. 360

I. FACILITY NAME AND ADDRESS

U.S. Army Fort Monmouth

DEH Bldg. 167

Fort Monmouth NJ 07703

Telephone No. (908) 532-1475

II. THIS CLOSURE PLAN IS FOR:

A. Substance stored in subject tank(s):

1. Petroleum Products:

Indicate Type of Product #2 Heating oil
(Write out product name; e.g.)

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

2. Hazardous Substances other than Petroleum Products (Describe)

Indicate Type of Product _____
(Write out product name; add sheet if necessary.)

B. Type of Activity: (Circle one)

1. Abandonment of Tank(s)

Attach the closure plan for abandonment, as required by N.J.A.C. 7:14B-9.2(b) or 9.3(b), which must contain the following items:

- a. Implementation schedule (3 copies per N.J.A.C. 7:14B-9.2(a)3)
- b. Site assessment plan
- c. Tank decommissioning plan
- d. A site map
- e. Attach all justification for abandonment-in-place as required by N.J.A.C. 7:14-9.1(d). Attach the certification statement (on the back page) for abandonment-in-place, if applicable.

2. Removal of Tank(s)

Attach the closure plan for removal as required by N.J.A.C. 7:14B-9.2(b) or 9.3(b). The following items must be included:

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

3. Temporary Closure

Indicate which situation applies and attach appropriate documentation.

- a. _____ Temporary closure for 12 months or less is subject to requirements of N.J.A.C. 7:14B-9.1(a).
- b. _____ Requesting an extension of temporary closure for more than 12 months per N.J.A.C. 7:14B-9.1(b) must perform site assessment and submit results.

4. Change in Service

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

III. FEE SCHEDULE

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

- A. Activities Which Require a Site Assessment 120.00 \$ 120.00
1. Removal or Abandonment without exemption to site assessment requirement
 2. Change in service from a regulated substance to a non-regulated substance
 3. Extension of period of Temporary Closure
- B. Activities Not Requiring a Site Assessment _____ \$ 80.00
1. Removal or abandonment with valid exemption
- C. Additional Activities
1. Change in service from one regulated substance to another regulated substance NO FEE

APPLICATION REVIEW FEE (activities in A, B, C) + \$ 50.00

TOTAL FEE DUE \$ 170.00

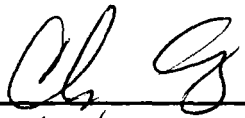
- IV. THE BUREAU OF UNDERGROUND STORAGE TANKS WILL REVIEW THE CLOSURE PLAN FOR COMPLETENESS AND APPROPRIATENESS AS SPECIFIED IN SUBCHAPTER 9 OF THE UST REGULATIONS. PLAN APPROVAL WILL INDICATE THAT THE OWNER OR OPERATOR MAY PROCEED WITH THE CLOSURE. FINAL APPROVAL OF THE CLOSURE IS NOT IMPLIED. ALL APPROPRIATE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

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

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

SIGNATURE OF CONTACT PERSON

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

NAME (Print or Type) CHARLES M. APPLEBY SIGNATURE 
TITLE ENVIRONMENTAL PROTECTION SPEC. DATE 7/28/93

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-93-3916

0081533

US Army
BLDG. 360
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 3,000 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

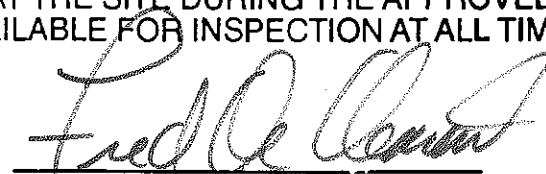
TELEPHONE: 908-532-1475

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.

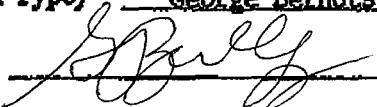


KEVIN F. KRATINA, BUREAU CHIEF
BUREAU OF UNDERGROUND STORAGE TANKS

**UNDERGROUND STORAGE TANK (UST)
CLOSURE CERTIFICATION**

BUILDING NO. 360NJDEP UST REGISTRATION NO. 81533-70DATE TANK REMOVED 10/12/94UO / CONTRACT NUMBER 91-0148

I CERTIFY UNDER PENALTY OF LAW THAT TANK DECOMMISSIONING ACTIVITIES WERE PERFORMED IN COMPLIANCE WITH NJAC 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) George BernatskySIGNATURE NJDEP UST CLOSURE CERTIFICATE NO. 0003249COMPANY PERFORMING TANK DECOMMISSIONING CUTE IncNJDEP UST CLOSURE CORPORATE CERTIFICATE NO. 0200128DATE OF SUBMITTAL 12/5/94

APPENDIX B

UST DISPOSAL CERTIFICATE

Tony Remaldi
East Monmouth
Easton town, New Jersey

MAZZA & SONS, INC.

Metal Recyclers
 Auto and Truck
 9230 Shatto Rd.
 Tinton Falls, NJ
 (800) 922-9292

NO. _____

DATE 11/02/94

Tank # 360 - Unit # 0081533-70

Customer's Name Craft IncAddress 103 Godwin Ave, Marlboro MA, 01432

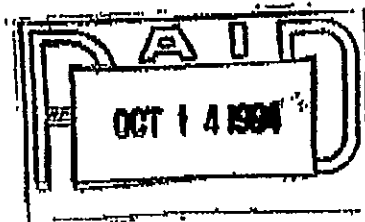
Make of
 Autos

Tires
 Tank
 Price:

TANK # 360
✓

38600 LB 5

35300 LB 5

3100

Weight Price

Cast Iron	
Steel	<u>62.00</u>
Lt. Iron	
Copper #1	
Copper #2	
Lt. Copper	
Brass	
Alum Clean	
Lead	
Stainless	
Radiators	
Battery	

TOTAL AMOUNT:

Weigher _____

Customer Donelli



State of New Jersey
Department of Environmental Protection
Hazardous Waste Regulation Division
Marionette Station
CN 028, Trenton, NJ 08646

Please print or print in bold letters. (Handwritten entries for identification (12-inch by 12-inch))

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's OR EPA ID # NJ3121002659703240		NJ 1603240	
2. Generator's Name and Address US Army Communications Electronics Command ATTN: SBL FM PL-EM-MS FT. Monmouth, NJ C/O James S. [unclear] 908 532-6223 07763		3. Transporter's Name and Address Freehold Contage INC NJSD0541126164		Main Post FT Monmouth, NJ NJDEPE 1225 Transporter's Phone 908 462-1001	
4. Designated Facility Name and Address Lionetti Oil Recovery Co Inc Runyon + Chesapeake A.D. all [unclear] NJ NJSD0184044064		5. US EPA ID Number		6. Facility's Phone	
7. US DOT Description (including Proper Shipping Name, Hazard Class and ID Number)		8. US EPA ID Number		9. Facility's ID	
a. Petroleum oil, not class 3 (Petroleum oil)		b. Combustible liquid 4X1270 PG III 001T 0014216X 922 ✓		c. [unclear]	
d. [unclear]		e. [unclear]		f. [unclear]	
10. Addressee's Name and Address Petroleum oil 60 water 40		11. Addressee's Name and Address TP4 Filtration		12. Addressee's Name and Address TP4 Filtration	
13. Special Handling Instructions Not EPA Regulated. Hazardous waste in NJ NJ Decal # 55182 24 hr Emergency phone # 201-427-2881		14. EPA ID Number a) B12360 NJDEPE 0081533-70		15. EPA ID Number NJDEPE 0081533-70	
16. GENERATOR'S CERTIFICATION I hereby certify that the information provided on this manifest is true and correct to the best of my knowledge and belief.		17. TRANSPORTER'S CERTIFICATION I hereby certify that the information provided on this manifest is true and correct to the best of my knowledge and belief.		18. FACILITY'S CERTIFICATION I hereby certify that the information provided on this manifest is true and correct to the best of my knowledge and belief.	
Printed Name Jim SHIREGIO		Signature J.E. Shiregio		Date 10/2/94	
Printed Name David S. Smith		Signature David S. Smith		Date 10/2/94	
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.		21. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest, except as noted in item 19.	
Printed Name		Signature		Month Day Year	

EPA Form 8700-2K (Rev. 8/88) Hazardous Waste Manifest

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

NJ 1603240



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

USF File Copy
Bldg. 360

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-

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NJ 3211002059703199		Manifest Document No. 03199		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 Main Post, c/o James Shirghio, Bldg 2504, ATTN: SELFM-DL-EM-MS Fort Monmouth, NJ 07703				A. State Manifest Document Number NJA 1603199					
4. Generator's Phone (908) 532-6223				6. US EPA ID Number		B. State Generator's ID Samg			
5. Transporter 1 Company Name Freehold Cartage Inc.				N J D 0 5 4 1 2 6 1 6 4		C. State Trans. ID NJDEPES 226			
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone (908) 462-1001			
9. Designated Facility Name and Site Address Lionetti Oil Recovery Co., Inc. Runyon & Cheesequake Rds. Old Bridge, NJ 08857				10. US EPA ID Number		E. State Trans. ID			
				11. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Unit	
						No. Type		Quantity	
								14. Waste No.	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III				0 0 1 T T		00125 G		X 7 2 2	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III				0 0 1 T T		00525 G		X 7 2 2	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) combustible liquid UN 1270 PG III				0 0 1 T T		00627 G		X 7 2 2	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III				0 0 1 T T		00022 G		X 7 2 2	
J. Additional Descriptions for Materials Listed Above				K. Handling Codes for Wastes Listed Above					
a. petroleum oil 90% water X % 10 T,L				petroleum oil 90% water 10% T,L		T04 Filtration, T04 Filtration			
b. petroleum oil 48% water % 10 T,L				petroleum oil % px water % T,L		T04 Filtration, T04 Filtration			
15. Special Handling Instructions and Additional Information NOT EPA REGULATED. REGULATED AS HAZARDOUS WASTE IN NJ. 24 HOUR EMERGENCY PHONE: 201-427-2881 NJ DECAL# 56897				11a. ERG# 27 A. VST 0081533-70 B. 0081533-72 C. VST 0081533-71 D. VST 0081533-73					
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 Joseph M. Fallon				Signature Joseph M. Fallon		Month Day Year 052694			
17. Transporter 1 Acknowledgement of Receipt of Materials									
Printed/Typed Name David S. Smith				Signature David S. Smith		Month Day Year 052694			
18. Transporter 2 Acknowledgement of Receipt of Materials									
Printed/Typed Name				Signature		Month Day Year			
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.									
Printed/Typed Name				Signature		Month Day Year			

APPENDIX C

PHOTO DOCUMENTATION



BLD 360 3000 Gal-#2 oil
UST 0081533-70

APPENDIX D

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 #: 1736.1-.7
Sample Rec'd: 11/23/94
Analysis Start: 11/28/94
Analysis Comp: 11/28/94

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

NJDEPE UST Reg. #: 81533-70
Closure #:
DICAR #:
Location #: Bldg. 360

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1736.1	Site A, NW Sidewall OVA=ND *	94	101.	6.6
1736.2	Site B, N Sidewall OVA=ND	94	73.5	6.6
1736.3	Site C, NE Sidewall OVA=ND	92	56.6	6.6
1736.4	Site D, S Sidewall OVA=ND	94	23.7	6.6
1736.5	Site E, CENTER OVA=ND	89	34.6	6.6
1736.6	Site F, Dup. of E OVA=ND	88	35.0	6.6
1736.7	Site G, Pipe OVA=ND	89	25.0	6.6
M. Bl.	Method Blank	100	ND	3.3

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

* = Silica Gel Added, NA = Not Applicable

1736.4dup= 100% 1736.4S= 121% 1736.4SD= 199% RPD= 1.3%
Cal Chk =104%



Brian K. McKee
Laboratory Director

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 #: 1736.1-.7
Sample Rec'd: 11/23/94
Analysis Start: 11/28/94
Analysis Comp: 11/28/94

Analysis: Munsel

[illegible]

B. K. M

Brian K. McKee
Laboratory Director

U.S. ARMY FORT MONMOUTH

Residues (Bag)

P.O. #: *PWB-7*

Chain of Custody

Project #:		Sampler: <i>Cut/George</i>		Date / Time: <i>11/23 9-15</i>		Analysis Parameters		Start:				
Customer: <i>Dinkor Desai</i>		Site Name: <i>BLDG 360</i>						Finish:				
Phone:		<i>81533-170</i>										
Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPH VOCs Mn Pb Cu Cd Ni Cr Fe Zn Mn Pb Cu Cd Ni Cr Fe Zn				Preservation Method	Remarks		
1736.1	11/23 9-20	Site A sidewalk NW	Soil	1		X	X	X			ND	Site L40 C
.2	" 9-24	Site D " N	"	1		X	X	X			ND	Induced
.3	" 9-28	Site C " NE	"	1		X	X	X			ND	
.4	" 9-32	Site D " S	"	1		X	X	X			ND	OVH Substantial
.5	" 9-37	Site E (tent v)	"	1		X	X	X			ND	Wth zero v
.6	" 9-40	Site F Dup of C	"	1		X	X	X			ND	2 methanol
.7	" 9-41	Site G (Pipe)	"	1		X	X	X			ND	95 IPA
												Ref 590
												OVA #
												A52114
Relinquished By (signature)		Date / Time		Received By (signature)		Shipped By:						
Relinquished By (signature)		Date / Time		Received for Lab by (signature):		Date / Time						
<i>[Signature]</i>		11/23/94 1100		<i>Sarah J. Hubbard</i>		11/23/94 1100						
Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.												

SRI-ENV COC Form 01

Page 1 of 1 Pages

Rev. A Date: 02 Apr 93

Environmental Laboratory

Certification Number 13461

Monday, Nov 28, 1944 1315

Salah J. Hubbard

2CM/M 500 MV=CAL-0

Std 40.75 67 MV

Std 81.5 133 MV

Std 163 255 MV

method Blanks 0 MV

1736.1 25 MV Bldg 360

1736.2 19 MV

1736.3 15 MV

1736.4 8 MV

1736.4 8 MV Dup.

1736.4 85 MV Spk

1736.4 84 MV Dup-Spk

1736.5 10 MV

1736.6 10 MV

1736.7 8 MV

40-75 Std 69 MV

163 Std 254 MV

1737.1 10 MV 667 Bldg

1737.2 7 MV

1737.3 8 MV

1737.4 9 MV

1737.5 10 MV

1737.6 10 MV

195-6970-00

PRINTED IN U.S.A.

No Yes

- ✓

✓

- ✓

- 

-

- ☒

Laboratory Authentication Statement

Project #1736


Brian K. McKee
Laboratory Manager

Attachment D
UST 361 Report

United States Army

Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

***Building 361
Main Post***

**NJDEP UST Registration No. 0081533-71
NJDEP Closure Approval No. C-93-3915
Residential Non-Regulated UST**

February 1997

SMITH
TECHNOLOGY CORPORATION



**UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT**

BUILDING 361

MAIN POST

**NJDEP UST REGISTRATION NO. 0081533-71
NJDEP CLOSURE APPROVAL NO. C-93-3915
RESIDENTIAL NON-REGULATED UST**

FEBRUARY 1997

**PROJECT NO. 09-5004-08
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 TECHNOLOGY CORPORATION
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THREE TERRI LANE
BURLINGTON, NEW JERSEY 08016**



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EXECUTIVE SUMMARY

UST Closure

On May 27, 1994, a steel underground storage tank (UST) was closed by removal in accordance with the New Jersey Department of Environmental Protection (NJDEP) Closure Approval No. C-93-3915 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0081533-71, was non-regulated and was located immediately adjacent to Building 361 in the Main Post area of U.S. Army, Fort Monmouth. UST No. 0081533-71 was an 8,000-gallon No. 2 fuel oil UST. The UST fill port was located approximately 13 feet west of 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) and the NJDEP *Field Sampling Procedures Manual*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank.

On May 27, 1994, following the removal of the UST, post-excavation soil samples C and D, were collected from two (2) locations along the sidewalls of the excavation. The sidewall samples were collected at a depth of 6.0 feet below ground surface (bgs). Samples E and F were collected from two (2) locations along the base of the excavation, at a depth of 7.0 feet bgs.

Following removal of the UST fuel lines, samples A and B were collected along the former piping length of the excavation, which was approximately 15 feet in length. The fuel lines ran in a southern direction from the UST to Building 361. Samples G and H were collected along the former piping excavation which ran approximately 13 feet west of the UST to the remote fill port area. The samples from both piping locations were collected at a depth of 2.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC).

Findings

All post-excavation soil samples collected from the UST excavation and from below piping associated with the former UST at Building 361 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, B, C, F, G, and H, collected on May 27, 1994, contained TPHC concentrations ranging from 11.0 mg/kg to 82.0 mg/kg. Samples D and E 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.

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 for Site Remediation*.

Discrepancies

The removal contractor collected soil samples using polystyrene scoops instead of NJDEP approved stainless steel scoops. The results of the soil samples were therefore evaluated at 50% of the actual value to compensate for any potential loss due to absorbency of the polystyrene scoop.

Conclusions and Recommendations

Based on 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. 0081533-71 at Building 361. Since the UST is non-regulated, this report and data will be kept on-file at Fort Monmouth. No submission to the NJDEP shall be made.



1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

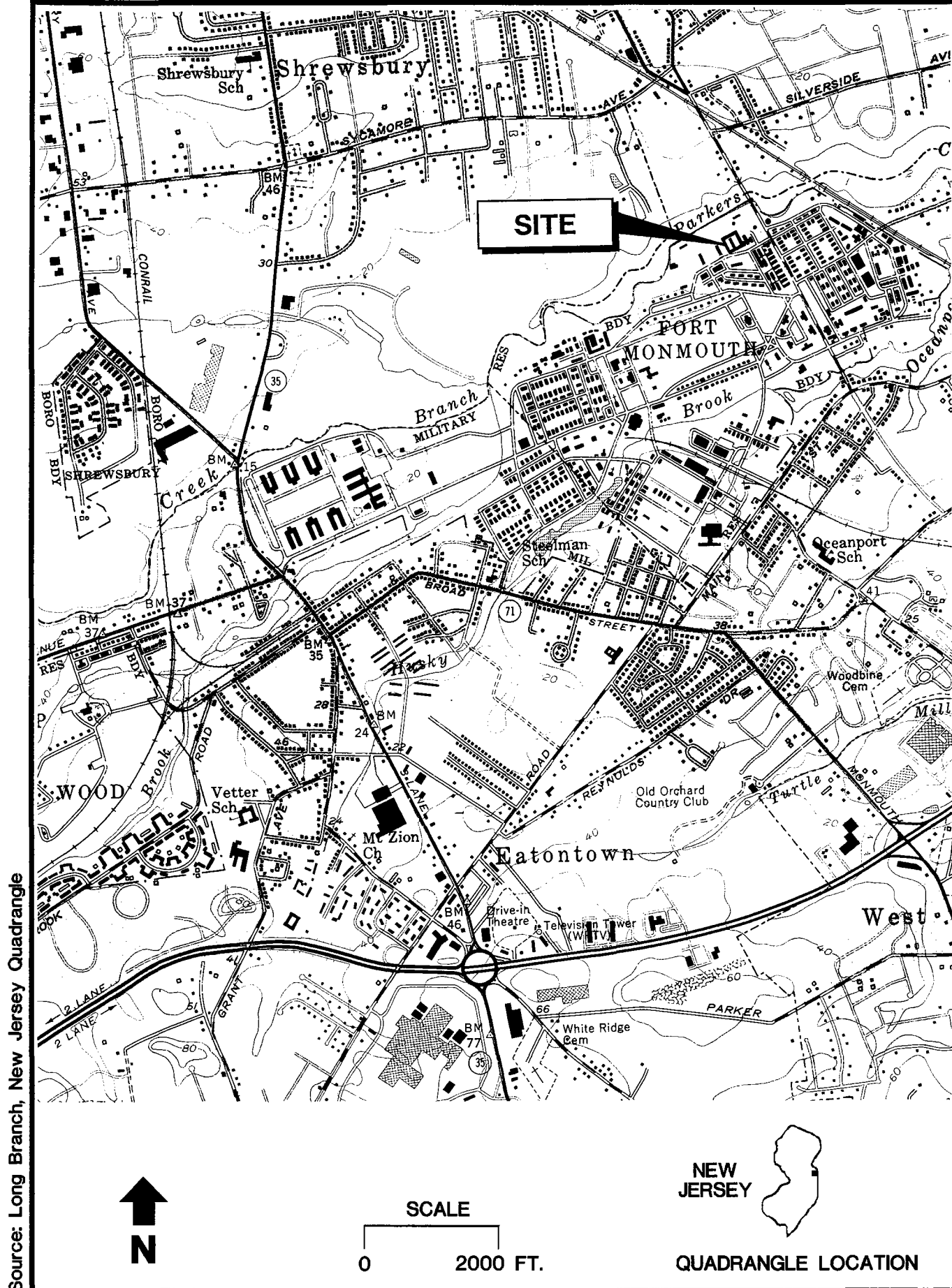
One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 0081533-71, was closed at Building 361 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on May 27, 1994. Refer to site location map on Figure 1. This report presents the results of the DPW's implementation of the UST Decommissioning/Closure Plan submitted to the NJDEP on July 28, 1993. The plan was approved on September 7, 1993 and assigned TMS No. C-93-3915. The UST was a steel 8,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 0081533-71 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. 0081533-71 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. 0081533-71 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 Technology Corporation. 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 361 is located in the northeastern portion of the Main Post area of Fort Monmouth, as shown on Figure 1. UST No. 0081533-71 was located north of Building 361 and appurtenant piping ran approximately 15 feet south from the UST to Building 361. The UST's remote fill port was located approximately 13 feet southwest of 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 361. 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.

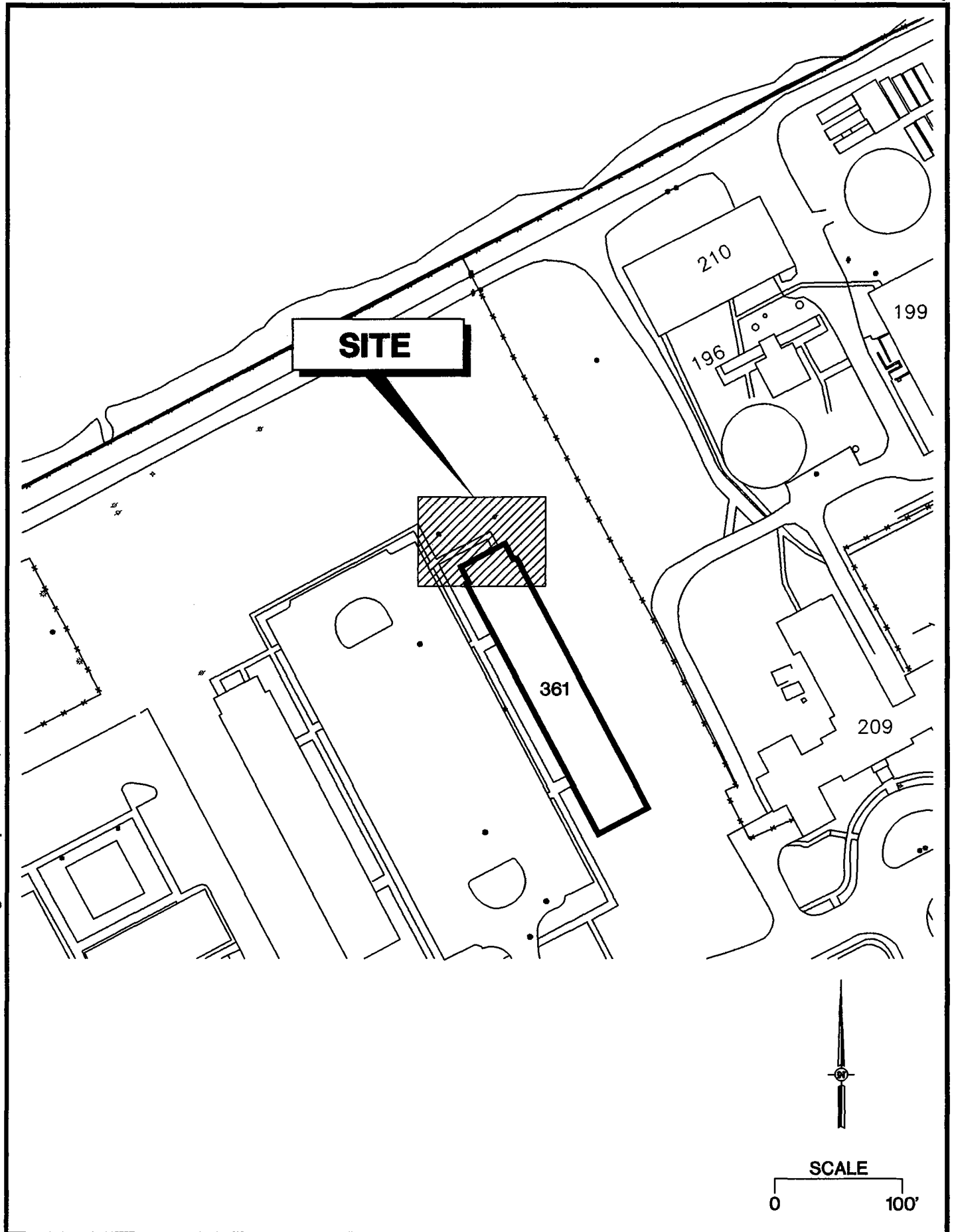
In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapeczka, 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 Zapeczka, 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

Source: Smith Environmental Technologies Corporation (104)



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 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.



1.4 REMOVAL OF UNDERGROUND STORAGE TANK

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 Site Assessment 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 627 gallons of liquid were transported by Freehold Cartage Inc. to Lionetti Oil Recovery Co., a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey. Refer to Appendix C for the waste manifest (NJ-1603199).

The UST was cleaned prior to removal from the excavation in accordance with the 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 noted anywhere along the piping length.



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 removal contractor 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.



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)
Closure Supervisor: John Lonergan
Phone Number: (201) 427-2881
NJDEP Certification No.: 3248
- Subsurface Evaluator: Charles Appleby
Employer: U.S. Army, Fort Monmouth
Phone Number: (908) 532-6224
NJDEP Certification No.: 2056
- 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) 721-0900
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.

2.3 SOIL SAMPLING

On May 27, 1994, post-excavation soil samples C and D, were collected along the southern and eastern sidewalls of the excavation, at a depth of 6.0 feet below ground surface (bgs). Samples E and F were collected from the base of the excavation, at a depth of 7.0 feet bgs. Samples A and B were collected along the former piping portion of the excavation which ran approximately 15 feet from the UST to Building 361. Samples G and H were collected along the former piping portion of the excavation which ran approximately 13 feet west of the UST to the remote fill port area. All piping samples were collected at a depth of 2.0 feet bgs. All samples were analyzed for TPHC.

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 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 percent, the highest soil contaminant would have been 164.0 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.

TABLE 1
PAGE 1 OF 1

SUMMARY OF SAMPLING ACTIVITIES
BUILDING 361, MAIN POST
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Matrix	Sample Type	Analytical Parameters (and USEPA Methods) *	Sampling Method
A	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
B	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
C	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
D	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
E	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
F	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
G	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
H	5/27/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop

* Note:

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

Smith Technology Corporation (Project No. 09-5004-08)

soil361.doc



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 eight (8) locations on May 27, 1994. All samples were analyzed for TPHC. The post-excavation sampling 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 analytical data package is provided in Appendix E.

All post-excavation soil samples collected on May 27, 1994, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Post-excavation soil samples A, B, C, F, G, and H contained TPHC concentrations ranging from 11.0 mg/kg to 82.0 mg/kg. Post-excavation soil samples D and E contained non-detectable concentrations of TPHC.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 361 were below the NJDEP soil cleanup criteria for total organic contaminants.

Based on the post-excavation 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.

The existing discrepancy as listed in the Executive Summary is believed to be acceptable as explained and does not warrant further investigation or explanation. Procedures have been corrected to eliminate recurrences in the future.

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-71 at Building 361. Since the UST is non-regulated, this report and data will be kept on-file at Fort Monmouth. No submission to the NJDEP shall be made.

TABLE 2
PAGE 1 OF 1

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 361
FT. MONMOUTH, NEW JERSEY

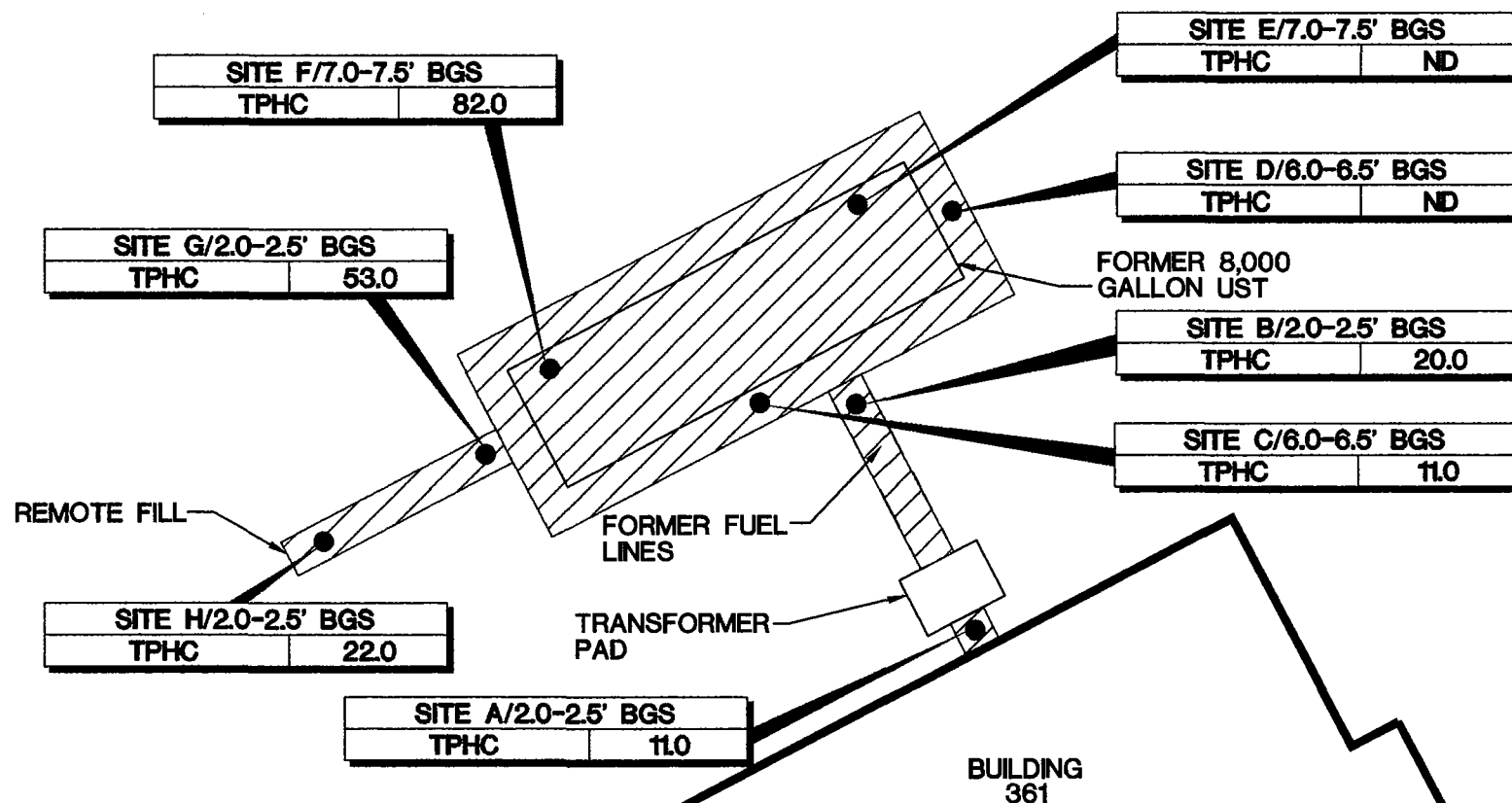
Sample ID/Depth	Sample Laboratory ID	Sample Date	Analysis Date	Compound Name	Sample Quantitation Limit (mg/kg)	Compound of Concern	Result (mg/kg)	NJDEP Soil Cleanup Criteria * (mg/kg)	Exceeds Cleanup Criteria
A/2.0-2.5'	1507.1	5/27/94	5/31/94	Total Solid	--	--	91 %	--	--
				TPHC	6.6	yes	11.0	10,000	--
B/2.0-2.5'	1507.2	5/27/94	5/31/94	Total Solid	--	--	90 %	--	--
				TPHC	6.6	yes	20.0	10,000	--
C/6.0-6.5'	1507.3	5/27/94	5/31/94	Total Solid	--	--	91 %	--	--
				TPHC	6.6	yes	11.0	10,000	--
D/6.0-6.5'	1507.4	5/27/94	5/31/94	Total Solid	--	--	91 %	--	--
				TPHC	6.6	yes	ND	10,000	--
E/7.0-7.5'	1507.5	5/27/94	5/31/94	Total Solid	--	--	83 %	--	--
				TPHC	6.6	yes	ND	10,000	--
F/7.0-7.5'	1507.6	5/27/94	5/31/94	Total Solid	--	--	87 %	--	--
				TPHC	6.6	yes	82.0	10,000	--
G/2.0-2.5'	1507.7	5/27/94	5/31/94	Total Solid	--	--	94 %	--	--
				TPHC	6.6	yes	53.0	10,000	--
H/2.0-2.5'	1507.8	5/27/94	5/31/94	Total Solid	--	--	92 %	--	--
				TPHC	6.6	yes	22.0	10,000	--

Notes:

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

Actual soil TPHC values may be higher than reported due to absorbency by polystyrene scoops. If absorbency resulted in reducing the actual soil TPHC concentration by 50%, the highest soil contaminant would be 164.0 mg/kg.

Smith Technology Corporation (Project No. 09-5004-08)

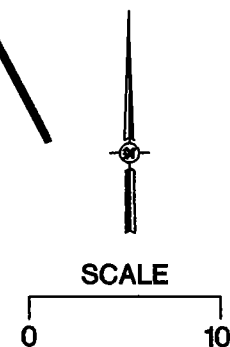


LEGEND

● SOIL SAMPLE LOCATION
(MAY 27, 1994)

▨ LIMIT OF EXCAVATION
(MAY 27, 1994)

- NOTES: 1. ALL RESULTS IN MILLIGRAMS PER KILOGRAM (DRY WEIGHT)
2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
3. BGS = BELOW GROUND SURFACE



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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-93-3915

0081533

US Army
BLDG. 361
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 8,000 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.



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

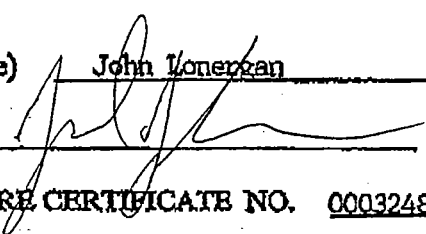
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APPENDIX B
CERTIFICATIONS

UNDERGROUND STORAGE TANK (UST)
CLOSURE CERTIFICATION

BUILDING NO. 361NJDEP UST REGISTRATION NO. 81533-71DATE TANK REMOVED 5/26/94JO / CONTRACT NUMBER 91-0148

I CERTIFY UNDER PENALTY OF LAW THAT TANK DECOMMISSIONING ACTIVITIES WERE PERFORMED IN COMPLIANCE WITH NJAC 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) John MonaghanSIGNATURE NJDEP UST CLOSURE CERTIFICATE NO. 0003248COMPANY PERFORMING TANK DECOMMISSIONING CUTE IncNJDEP UST CLOSURE CORPORATE CERTIFICATE NO. 0200128DATE OF SUBMITTAL 6/10/94

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

UST File Copy
Bldg. 361

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-

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	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 Main Post, c/o James Shirghio, Bldg 2504, ATTN: SELFM-DL-EM-MS Fort Monmouth, NJ 07703		NJ 3211002059703199		A. State Manifest Document Number NJ 1603199	
4. Generator's Phone (908) 532-6223		5. Transporter 1 Company Name Freehold Cartage Inc.		B. State Generator's ID Same	
6. US EPA ID Number NJ 054126164		7. Transporter 2 Company Name		C. State Trans. ID NJDEPES2426	
8. US EPA ID Number		9. Designated Facility Name and Site Address Lionetti Oil Recovery Co., Inc. Runyon & Cheesequake Rds. Old Bridge, NJ 08857		D. Transporter's Phone (908) 462-1001	
10. US EPA ID Number		11. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		E. State Trans. ID	
12. Containers		13. Unit		14. Waste No.	
0 0 1 T T		00125 G		X 7 12 1	
0 0 1 T T		00525 G		X 7 12 1	
0 0 1 T T		00627 G		X 7 12 1	
0 0 1 T T		00022 G		X 7 12 1	
J. Additional Descriptions for Materials Listed Above petroleum oil 90% water X % 10 T,L petroleum oil 90% water % 10 T,L		K. Handling Codes for Wastes Listed Above T04 Filtration T04 Filtration			
15. Special Handling Instructions and Additional Information NOT EPA REGULATED. REGULATED AS HAZARDOUS WASTE IN NJ. 24 HOUR EMERGENCY PHONE: 201-427-2881 NJ DECAL# 56897		11a. ERG# 27 A. UST 0081533-70 B. 0081533-72 C. UST 0081533-71 D. UST 0081533-73			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and a 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 Joseph M. Fallon		Signature Joseph M. Fallon	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name David S. Smith		Signature David S. Smith		Month Day Year 05269	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name		Signature		Month Day Year	

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

CALCULATION SHEET

Building No. 361

NJDEPE Reg. No. 0081533 - 71

Tank Size 8000 gal

Tank Void 60.0 tons

CLEAN FILL

ITEM NO.	DESCRIPTION	QUANTITY	TICKET #
02222-1.1	clean fill	22.55	18710
"	"	22.5	18714

TOTAL 45.05

STONE

ITEM NO.	DESCRIPTION	QUANTITY	TICKET #
02222-1.2	3/4" stone	14.95	936031

TOTAL 14.95

ID#27 soil to stockpile $(45.05 + 14.95) - 60.0 = \phi$ tons

Chargeable clean fill $45.05 - 60.0 = \phi$

Chargeable stone 14.95 (Cute used to cover void)

JUN- 7-94 TUE 13:58

C.U.T.E.

FAX NO. 201 423 8050

P. 16



S.C.M.I. • SOUND BROOK



CUSTOMER'S COPY

CONTROL NO.
A-930031

Stavola Construction Materials, Inc.

PLANT: CHIMNEY ROCK ROAD, SOUND BROOK, N.J. • 908/368-9700

Bldg 361 - 14.95T

Bldg 362 - 5.66T

X JOE
DRIVER'S SIGNATURE

RECEIVED & ACCEPTED BY:

X Don Ellis C.U.T.E.
CUSTOMER'S SIGNATURE

EXECUTIVE OFFICE
HAMILTON ROAD
TINTON FALLS, N.J.
908/542-2329

CRUSHED STONE • SAND
• GRAVEL

ADDRESS REPLY TO
P.O. BOX 482
RED BANK, N.J. 07701

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY VEHICLES DELIVERING MATERIALS OFF PUBLIC ROADS.

EXPLANATION OF DELIVERY CODES

- 1 - F.O.B.
- 2 - DELIVERED
- 3 - NET DELIVERED

DATE	05/20/94	CUST. NO.	08888	JOB NO.	09:31	TICKET NO.	930031
CUSTOMER				DELIVER TO		GROSS	
CLEANING UP THE ENVIRONMENT 103 GODWIN AVE. P.O. BOX 237 MIDLAND PARK NJ 07432				ZONE 1 FT MONMOUTH ***** GIBBS HALL *****		36.31	
TRUCKER				METHOD OF PAYMENT		TARE	
61428		TRUCK NO.	1	CHARGE		15.70	
DRIVER NO.				DELIVERY CODE		NET	
				2		20.51	
QUANTITY		PRODUCT CODE/DESCRIPTION		UNIT OF MEASURE	UNIT PRICE	EXTENDED	FREIGHT
20.61		13 3/4 INCH CLEAN S		1			4.35
COMMENTS						SALES TAX	
LOADS						TOTAL	
1						20.61	
WAIT TIME						GRAND TOTAL	

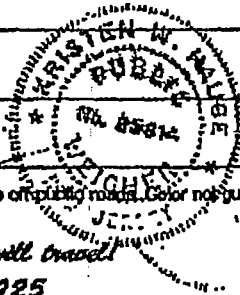


1459 W. Park Ave., Wayside
Asbury Park, N.J. 07712
808-493-8933

18710

Name Big A TruckingAddress Edison F11Order Date 6/7/94Deliver Date 6/7/94Delivered ☐ C.O.D. ☐F.O.B./P.U. ☐ Charge ☒

Item(s)	Quantity / Measure (tons, lbs., yds., ea.)	Unit Price	Total
		711.00	
		260.00	
		451.00	22.55 tons
Driver <u> </u>		Sub Total	
Received <u> </u>		Delivery	
* Company not responsible for damage done on public roads. Color not guaranteed		N.J. Tax	
Have gravel with gravel since 1925		Total	





Joseph Scoville Road & Gravel Co.

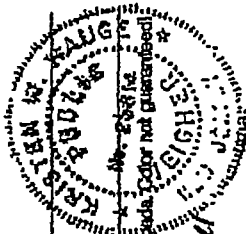
1453 W. Park Ave., Mayfield
Asbury Park, N.J. 07712
808-489-3333

18714
May 27, 74

Order Date
Deliver Date
Delivered ☐ G.O.D. ☐
F.O.B./P.U. ☐ Charge ☒

Name Bag A Trucking
Address CLAN TAPLETON

Item(s)	Quantity / Measure (tons) (cuyd) (cu yd)	Unit Price	Total
	7 26000		
	N 45000	22.5 tons	



Driver

Received Don Gills

* Company not responsible for damage done off public roads. (Color not guaranteed)

These gravel will travel
since 1925

Sub Total
Delivery
N.J. Tax
Total

SMITH

APPENDIX D

UST DISPOSAL CERTIFICATE

JUN- 7-94 TUE 14:00

C. U. T. E.

FAX NO. 201 423 8050

P. 19

Fort Monmouth
Bldg 361-0081533-71

MAZZA & SONS, INC.

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

NO. _____

DATE 27 May 94

Customer's Name

Cate Inc

Address

Bldg 361 45T 0081533-71Make of
Auto

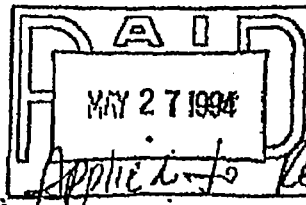
Tires

Tank

Price

45480 LB G

39640 LB G

6810

Weight

Price

Cast Iron

Steel

L. Iron

Copper #1

Copper #2

L. Copper

Brass

Alum Clean

Lead

Stainless

Radiation

Battery

TOTAL AMOUNT:

Weight

Customer

Don Ellis



APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

Copy made at 490 - 5-1-94 Ct.

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 #: 1507.1-.8
Sample Rec'd: 05/27/94
Analysis Start: 05/31/94
Analysis Comp: 05/31/94

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

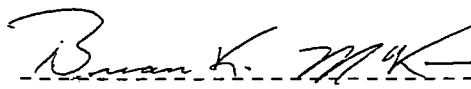
NJDEPE UST Reg.#: 0081533-71
Closure #: C-93-3915
DICAR #:
Location #: Bldg. 361

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1507.1	Site A, pipes @ Bldg 2' OVA= ND	91	11.0	6.6
1507.2	Site B, pipes @ UST 2' OVA= ND	90	20.0	6.6
1507.3	Site C, Ctr. S. Wall 6' OVA= 3.0	91	11.0	6.6
1507.4	Site D, Ctr. E. Wall 6' OVA= ND	91	ND	6.6
1507.5	Site E, N.E. Bottom 7' OVA= ND	83	ND	6.6
1507.6	Site F, N.W. Bottom 7' OVA= 10.	87	82.0	6.6
1507.7	Site G, remotefill @UST 2' OVA=ND	94	53.0	6.6
1507.8	Site H, remotefill @St. 2' OVA=ND	92	22.0	6.6
M. Bl.	Method Blank	100	ND	3.3

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

* = Silica Gel Added, NA = Not Applicable

1507.4 dup= 100% 1507.4 s= 90% 1507.4 sd= 93% RPD= 3.3%



Brian K. McKee
Laboratory Director

Report of Analysis

DPW, SELFM-PW-EV

Lab. ID #: 1507.1-8

Sample Rec'd: 05/27/94

Analysis Start: 05/31/94

Analysis Comp: 05/31/94

Analysis: Munsel

[illegible]

Brian K. McK

Brian K. McKee
Laboratory Director

SERV-AIR, INC.

P.O. #: PWS-007

Chain of Custody

Project #: C93-3915		Sampler: C. Appleby / cute Inc.		Date / Time: 5-27-94 1315		Analysis Parameters		Start:	
Customer: C. Appleby SELFM- PW- EV		Site Name: Bldg 361 wt# 008153-71 Close # C93-3915						Finish:	
Phone: X 26224								Preservation Method	
Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	% Solids	Manual	Own Reading	Remarks
1507.1	5/27/94 1451	Site A - Piers at Bldg 3'	Soil	1	X	X	X	NO	Samples kept. <4°C
2	1446	Site B Piers at wt 2'		1	X	X	X	NO	- Samples collected by
3	1446	Site C Center S wall 6'		1	X	X	X	3	hand w/out front - track
4	1447	Site D Center E wall 6'		1	X	X	X	NO	Available on-site - J. Longan
5	1450	Site E NE Bottom 7'		1	X	X	X	NO	Refused to use them.
6	1451	Site F NW Bottom 7'		1	X	X	X	10	ova-1286C Sr-A52114
7	1501	Site G Remote Fill at wt 2'		1	X	X	X	NO	Collected 5/27/94 - C. Appleby w/
8	1500	Site H Remote Fill at St. 2'		1	X	X	X	NO	Zero Air, 95 ppm nothous & loss Select 300 - read 94 ppm bound Copy. 1420 hrs
Relinquished By (signature)		Date / Time		Received By (signature)		Shipped By: HMD			
Relinquished By (signature)		Date / Time		Received for Lab by (signature):		Date / Time			
C. Appleby		5-27-94 1515		Sarah J. Hubbard		5-27-94 1525			
Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.									

May 31, 1994

Tuesday

0917

Sarah J. Hubbard

BLANK 0 MV

40.75 105 MV

80.1 207 MV

163 407 MV

1507.1 6 MV

1507.2 9 MV

1507.3 6 MV

1507.4 3 MV

1507.4 3 MV Dup.

1507.4 33 MV Spt.

1507.4 34 MV Dup Spt.

1507.5 4 MV

1507.6 29 MV

1507.7 21 MV

1507.8 10 MV

PRINTED IN U.S.A.

195-6970-

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.

☐ ☒

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)

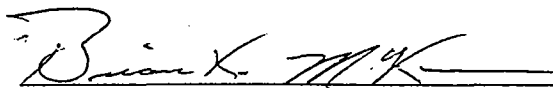
☐ ☒

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.

Project #1507


Brian K. McKee
Laboratory Manager

Attachment E
UST 362 Report

United States Army

Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

***Building 362
Main Post***

NJDEP UST Registration No. 0081533-72

NJDEP Closure Approval No. C-93-3914

Residential Non-Regulated UST

February 1997

SMITH
TECHNOLOGY CORPORATION



**UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT**

BUILDING 362

MAIN POST

NJDEP UST REGISTRATION NO. 0081533-72

NJDEP CLOSURE APPROVAL NO. C-93-3914

RESIDENTIAL NON-REGULATED UST

FEBRUARY 1997

PROJECT NO. 09-5004-08

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 TECHNOLOGY CORPORATION
BROMLEY CORPORATE CENTER
THREE TERRI LANE
BURLINGTON, NEW JERSEY 08016**

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1.2.1 Geological/Hydrogeological Setting	2
1.3 HEALTH AND SAFETY	3
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APPENDICES

Appendix A	NJDEP-BUST Closure Approval
Appendix B	Certifications
Appendix C	Waste Manifest
Appendix D	UST Disposal Certificate
Appendix E	Soil Analytical Data Package



EXECUTIVE SUMMARY

UST Closure

On May 25, 1994, a steel underground storage tank (UST) was closed by removal in accordance with the New Jersey Department of Environmental Protection (NJDEP) Closure Approval No. C-93-3914 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0081533-72, was a residential non-regulated UST and was located immediately adjacent to Building 362 in the Main Post area of U.S. Army, Fort Monmouth. UST No. 0081533-72 was an 8,000-gallon No. 2 fuel 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) and the NJDEP *Field Sampling Procedures Manual*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank.

On May 26, 1994, post-excavation soil samples 1, 2, 3, 4, 5, 6, 7, 8, and DUP 8, were collected from a total of eight (8) locations along the base and sidewalls of the UST excavation. Post-excavation soil samples 1, 2, 3, and 4, were collected from the sidewalls of the excavation at a depth of 5.0 feet below ground surface (bgs). Post-excavation soil samples 5, 6, 7, 8, and DUP 8 were collected from the base of the excavation. The base samples were collected at a depth of 6.0 feet bgs. Two (2) samples (samples 10 and 11) were collected along the former piping length of the excavation, which ran approximately 26 feet in length. The piping samples were collected at a depth of 1.0 foot bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC).

Findings

All post-excavation soil samples collected from the UST excavation and from below piping associated with the former UST at Building 362 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 7, 10, and 11 contained levels of TPHC ranging in concentration from 10.0 mg/kg to 20.0 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.

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 for Site Remediation*.

Discrepancies

The removal contractor collected soil samples using polystyrene scoops instead of NJDEP approved stainless steel scoops. The results of the soil samples were therefore evaluated at 50% of the actual value to compensate for any potential loss due to absorbency of the polystyrene scoop.

Conclusions and Recommendations

Based on 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. 0081533-72 at Building 362. Since the UST is non-regulated, this report and data will be kept on-file at Fort Monmouth. No submission to the NJDEP shall be made.



1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 0081533-72, was closed at Building 362 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on May 25, 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 July 28, 1993. The plan was approved on September 7, 1993 and assigned TMS No. C-93-3914. The UST was a steel 8,000-gallon tank containing No. 2 fuel oil.

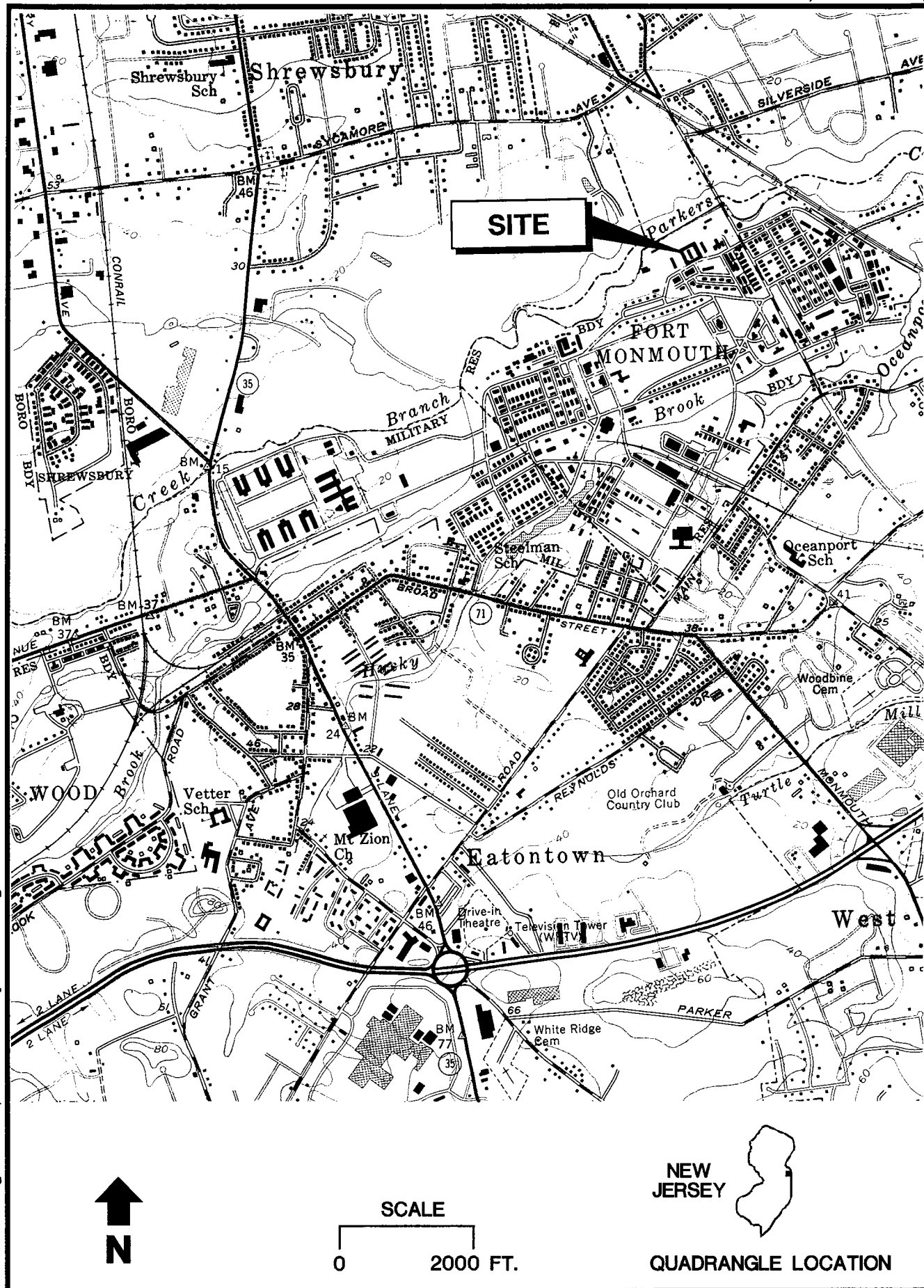
Decommissioning activities for UST No. 0081533-72 complied with all applicable Federal, State and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to: N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (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. 0081533-72 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. 0081533-72 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 Technology Corporation. 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.

Source: Long Branch, New Jersey Quadrangle



Project No. 09-5004-08

Figure 1
Site Location Map
Building 362

1.2 SITE DESCRIPTION

Building 362 is located in the northeastern portion of the Main Post area of Fort Monmouth, as shown on Figure 1. UST No. 0081533-72 was located north of Building 362 and appurtenant piping ran approximately 20 feet southwest from the excavation to Building 362. The fill port area was located directly above the tank. 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 362. 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.

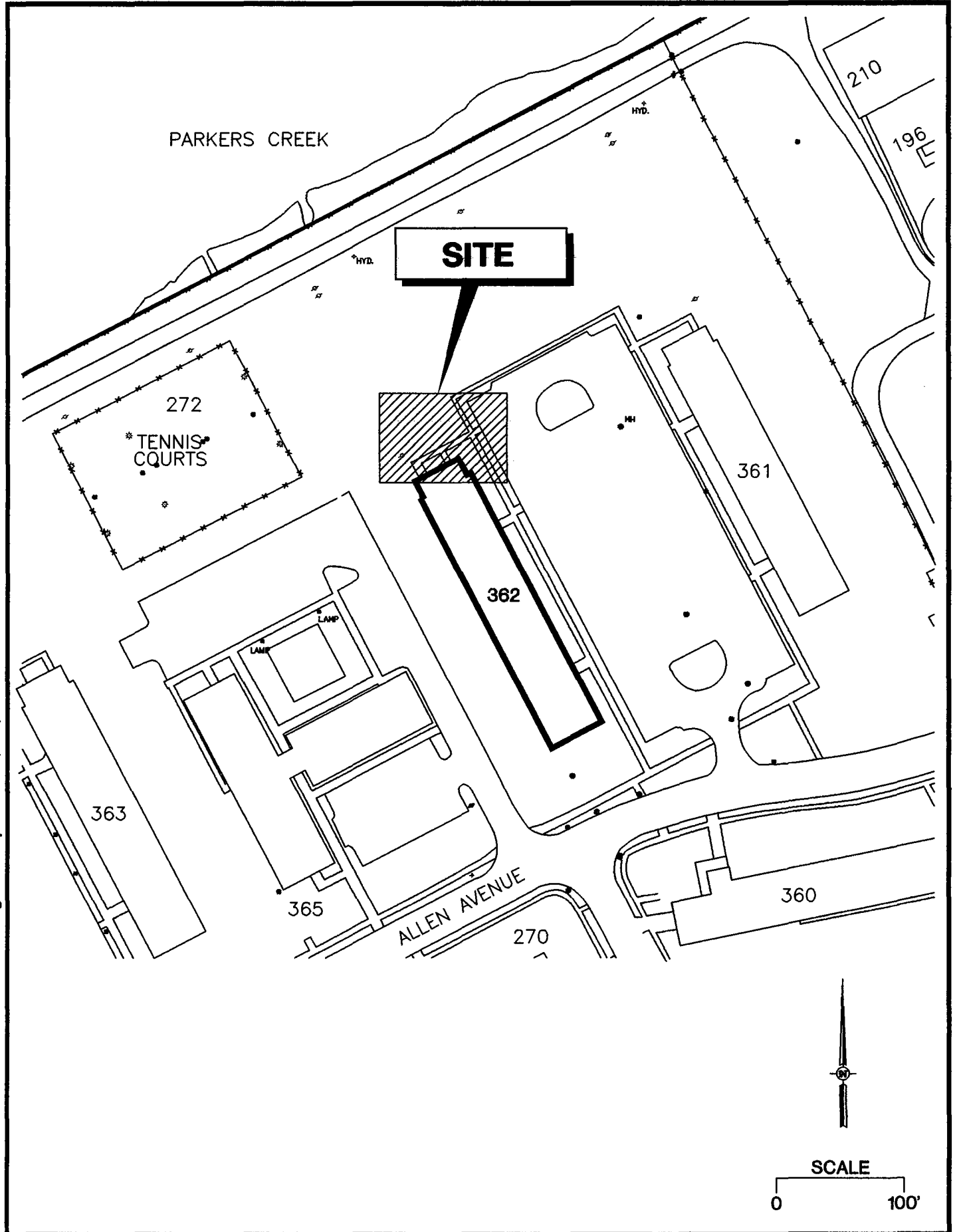
In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapeczka, 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 Zapeczka, 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

Source: Smith Environmental Technologies Corporation (100)



Project No. 09-5004-08

Figure 2
**Building 362
Site Map**

(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 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 involved with, or were affected by, the decommissioning of the UST system were minimized. All areas which posed, or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing an organic vapor analyzer (OVA). The individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

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 Site Assessment 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 525 gallons of liquid were transported by Freehold Cartage Inc. to Lionetti Oil Recovery Co. Inc., a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey. Refer to Appendix C for the waste manifest (NJA-1603199).

The UST was cleaned prior to removal from the excavation in accordance with the 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 noted anywhere along the piping length.



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.

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)
Closure Supervisor: John Lonergan
Phone Number: (201) 427-2881
NJDEP Certification No.: 3248
- 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) 721-0900
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.

2.3 SOIL SAMPLING

On May 26, 1994, following the removal of the UST, post-excavation soil samples 1, 2, 3, 4, 5, 6, 7, 8, and DUP 8, were collected from a total of eight (8) locations along the base and sidewalls of the UST excavation. Post-excavation soil samples 1, 2, 3, and 4, were collected from the sidewalls of the excavation at a depth of 5.0 feet below ground surface (bgs). Post-excavation soil samples 5, 6, 7, 8, and DUP 8 were collected from the base of the excavation at a depth of 6.0 feet bgs. Two (2) samples (samples 10 and 11) were collected along the former piping length of the excavation, which was approximately 26 feet in length. The piping samples were collected at a depth of 1.0 foot bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC).

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 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 percent, the highest soil contaminant would have been 40.0 mg/kg, still well 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.

TABLE 2
PAGE 1 OF 1

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 362
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
Site 5.5'	1/5.0-	1506.1	5/26/94	5/26/94	Total Solid	--	89 %	--	--
Site 5.5'	2/5.0-	1506.2	5/26/94	5/26/94	TPHC	6.6	ND	10,000	--
Site 5.5'	3/5.0-	1506.3	5/26/94	5/26/94	Total Solid	--	90 %	--	--
Site 5.5'	4/5.0-	1506.4	5/26/94	5/26/94	TPHC	6.6	ND	10,000	--
Site 5.5'	5/6.0-	1506.5	5/26/94	5/26/94	Total Solid	--	87 %	--	--
Site 6.5'	6/6.0-	1506.6	5/26/94	5/26/94	TPHC	6.6	ND	10,000	--
Site 6.5'	7/6.0-	1506.7	5/26/94	5/26/94	Total Solid	--	84 %	--	--
Site 6.5'	8/6.0-	1506.8	5/26/94	5/26/94	TPHC	6.6	ND	10,000	--
Site 6.5'	9/6.0-	1506.9	5/26/94	5/26/94	Total Solid	--	82 %	--	--
Site 6.5'	10/1.0-	1506.10	5/26/94	5/26/94	TPHC	6.6	ND	10,000	--
Site 6.5'	11/1.0-	1506.11	5/26/94	5/26/94	Total Solid	--	86 %	--	--
Site 6.5'	12/1.0-	1506.12	5/26/94	5/26/94	TPHC	6.6	10.0	10,000	--
Site 6.5'	13/1.0-	1506.13	5/26/94	5/26/94	Total Solid	--	86 %	--	--
Site 6.5'	14/1.0-	1506.14	5/26/94	5/26/94	TPHC	6.6	ND	10,000	--
Site 6.5'	15/1.0-	1506.15	5/26/94	5/26/94	Total Solid	--	84 %	--	--
Site 6.5'	16/1.0-	1506.16	5/26/94	5/26/94	TPHC	6.6	ND	10,000	--
Site 6.5'	17/1.0-	1506.17	5/26/94	5/26/94	Total Solid	--	93 %	--	--
Site 6.5'	18/1.0-	1506.18	5/26/94	5/26/94	TPHC	6.6	19.0	10,000	--
Site 6.5'	19/1.0-	1506.19	5/26/94	5/26/94	Total Solid	--	90 %	--	--
Site 6.5'	20/1.0-	1506.20	5/26/94	5/26/94	TPHC	6.6	20.0	10,000	--

Notes:

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

Actual soil TPHC values may be higher than reported due to absorbency by polystyrene scoops. If absorbency resulted in reducing the actual soil TPHC concentration by 50%, the highest soil contaminant would be 40.0 mg/kg.

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 ten (10) locations on May 26, 1994. All samples were analyzed for TPHC. The post-excavation sampling 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 analytical data package is provided in Appendix E.

All post-excavation soil samples collected on May 26, 1994, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Post-excavation soil samples 7, 10, and 11 contained levels of TPHC ranging in concentrations from 10.0 mg/kg to 20.0 mg/kg. All other samples contained non-detectable concentrations of TPHC.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 362 were below the NJDEP soil cleanup criteria for total organic contaminants.

Based on the post-excavation 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.

The existing discrepancy as listed in the Executive Summary is believed to be acceptable as explained and does not warrant further investigation or explanation. Procedures have been corrected to eliminate recurrences in the future.

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-72 at Building 362. Since the UST is non-regulated, this report and data will be kept on-file at Fort Monmouth. No submission to the NJDEP shall be made.

TABLE 1

SUMMARY OF SAMPLING ACTIVITIES
BUILDING 362, MAIN POST
FORT MONMOUTH, NEW JERSEY

PAGE 1 of 1

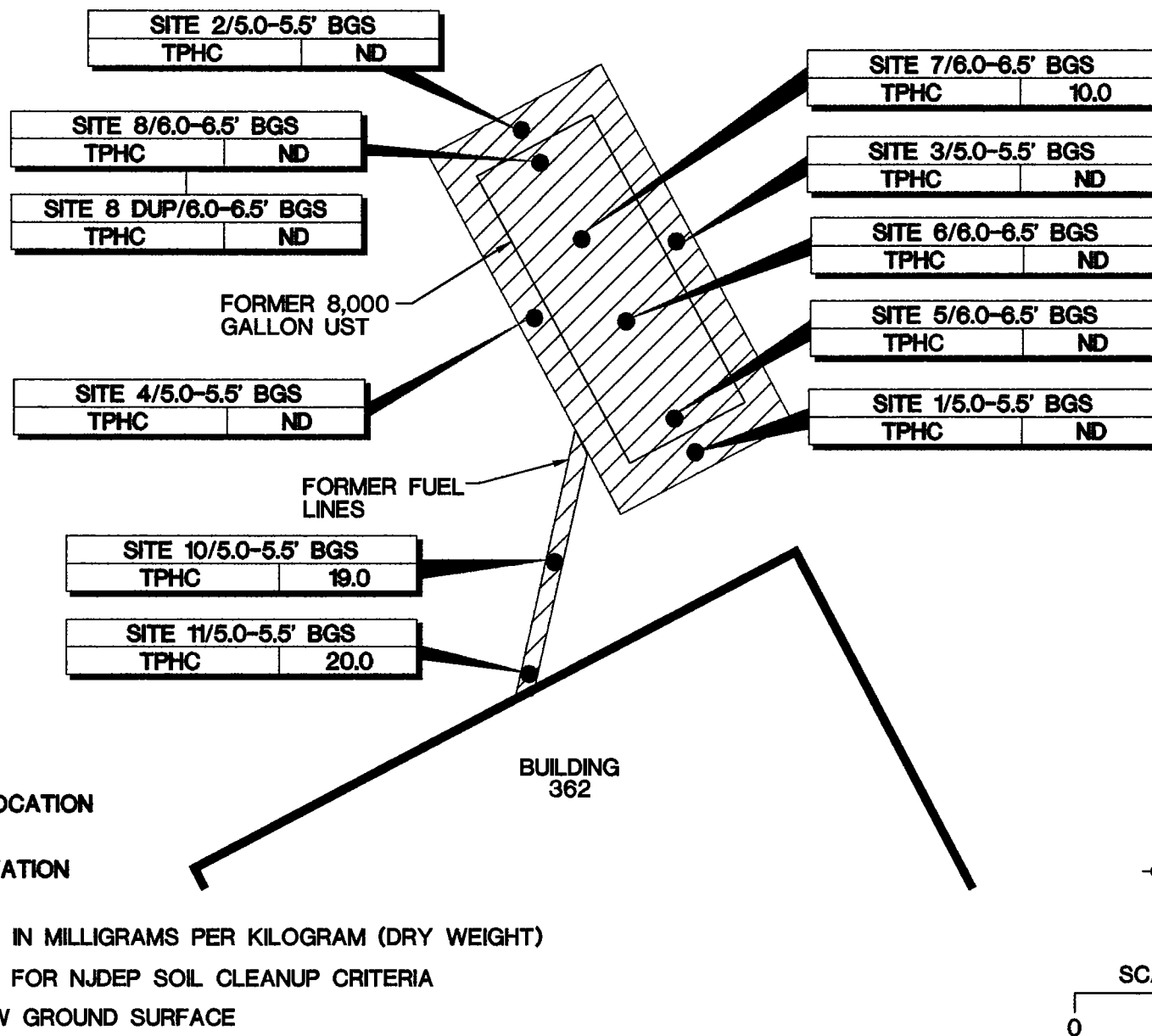
Sample ID	Date of Collection	Matrix	Sample Type	Analytical Parameters (and USEPA Methods) *	Sampling Method
Site 1	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 2	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 3	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 4	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 5	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 6	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 7	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 8	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Dup Site 8	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 10	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 11	5/26/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop

* Note:

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

Smith Technology Corporation (Project No. 09-5004-08)

soil362.doc





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-93-3914

0081533

US Army
BLDG. 362
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 8.000 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

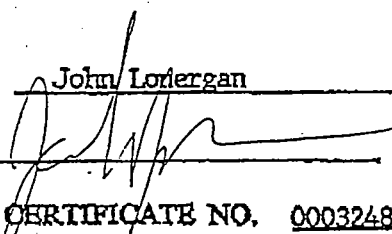
THIS FORM MUST BE DISPLAYED AT THE SITE DURING THE APPROVED
ACTIVITY AND MUST BE MADE AVAILABLE FOR INSPECTION AT ALL TIMES.


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

APPENDIX B
CERTIFICATIONS

**UNDERGROUND STORAGE TANK (UST)
CLOSURE CERTIFICATION**BUILDING NO. 362NJDEP UST REGISTRATION NO. 81533-72DATE TANK REMOVED 5/27/94DO / CONTRACT NUMBER 91-0148

I CERTIFY UNDER PENALTY OF LAW THAT TANK DECOMMISSIONING ACTIVITIES WERE PERFORMED IN COMPLIANCE WITH NJAC 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) John LoriganSIGNATURE NJDEP UST CLOSURE CERTIFICATE NO. 0003248COMPANY PERFORMING TANK DECOMMISSIONING CUTE IncNJDEP UST CLOSURE CORPORATE CERTIFICATE NO. 0200128DATE OF SUBMITTAL 6/10/94

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

UST Rm Copy
Bldg. 362

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-

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	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 Main Post, c/o James Shirghio, Bldg 2504, ATTN: SELFM-DL-EM-MS Fort Monmouth, NJ 07703		N J 13211002059703799		A. State Manifest Document Number NJA 1603199	
4. Generator's Phone (908) 532-6223		6. US EPA ID Number		B. State Generator's ID Same	
5. Transporter 1 Company Name Freehold Cartage Inc.		N J D 05411261164		C. State Trans. ID NSDEPES 2426	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (908) 462-1001	
9. Designated Facility Name and Site Address Lionetti Oil Recovery Co., Inc. Runyon & Cheesequake Rds. Old Bridge, NJ 08857		10. US EPA ID Number		E. State Trans. ID	
		N J D 018404140164		F. Transporter's Phone ()	
				G. State Facility's ID	
				Facility's Phone (908) 721-0900	
11. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Unit	14. Waste No.
		No. Type		Quantity	
a. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T		0.0125 G	X 7 2 1
b. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T		0.0585 G	X 7 2 1
c. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) combustible liquid UN 1270 PG III		0 0 1 T T		0.0627 G	X 7 2 1
d. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T		0.0022 G	X 7 2 1
J. Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above			
petroleum oil 90% a. water X % 10 T, L		petroleum oil 90% water 10% T, L		T04 Filtration, T04 Filtrati	
petroleum oil 90% b. water % 10 T, L		petroleum oil % water % T, L		T04 Filtration, T04 Filtrati	
15. Special Handling Instructions and Additional Information NOT EPA REGULATED. REGULATED AS HAZARDOUS WASTE IN NJ. 24 HOUR EMERGENCY PHONE: 201-427-2881 NJ DECAL# 56897		11a. ERG# 27 A. UST 0081533-70 B. 0081533-72 C. UST 0081533-71 D. UST 0081533-73			
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 Joseph M. Fallon		Signature Joseph M. Fallon		Month Day Yr 10 5 26 9	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name David S. Smith		Signature David S. Smith		Month Day Yr 10 5 26 9	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Yr	
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 Yr	

SIGNATURE AND INFORMATION MUST BE LEGIBLE ON ALL COPIES

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

CALCULATION SHEET

Building No. 362

NJDEPE Reg. No. 0081533-72

Tank Size 8000 gal

Tank Void 60.0 tons

CLEAN FILL

ITEM NO.	DESCRIPTION	QUANTITY	TICKET #
02222-1.1	clean fill	22.75	18715
11	"	23.0	18716

TOTAL 45.75

STONE

ITEM NO.	DESCRIPTION	QUANTITY	TICKET #
02222-1.2	3/4" stone	5.66	930031
"	"	8.59	929213

TOTAL 14.25

ID#27 soil to stockpile $(45.75 + 14.25) - 60.0 = \emptyset$ tons

Chargeable clean fill $45.75 - 60.0 = \emptyset$

Chargeable stone $14.25 - \emptyset$

JUN- 7-94 TUE 13:54

C.C.T.E.

FAX NO. 201 423 6050

P. 08

S.C.M.I. BOUND BROOK



CUSTOMER'S COPY

 CONTROL NO.
A-930031
Stavola Construction Materials, Inc.

PLANT: CHIMNEY ROCK ROAD, BOUND BROOK, N.J. - 908/358-9700

Bldg 361 - 14,957

Bldg 362 - 5,667

 X JO
 DRIVER'S SIGNATURE

RECEIVED & ACCEPTED BY

 X Don Ellis CUTE
 CUSTOMER'S SIGNATURE

 EXECUTIVE OFFICE
 HAMILTON ROAD
 TINTON FALLS, N.J.
 908/642-2328

 CRUSHED STONE • SAND
 • GRAVEL

 ADDRESS REPLY TO
 P.O. BOX 482
 RED BANK, N.J. 07701

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY VEHICLES DELIVERING MATERIALS OFF PUBLIC ROADS.

EXPLANATION OF DELIVERY CODES.

- 1 - F.O.B.
- 2 - DELIVERED
- 3 - NOT DELIVERED

DATE	05/28/94	CUST. NO.	28088	JOB NO.	-89131	TICKET NO.	930031
CUSTOMER				DELIVER TO		GROSS	
CLEANING UP THE ENVIRONMENT				ZONE: FT MONMOUTH		36.31	
103 GODWIN AVE.				***** SIASS HALL *****		TARE	
P.O. BOX 237						15.70	
MIDLAND PARK NJ 07432						NET	
						20.61	
TRUCK	TRUCK NO.	DRIVER NO.	METHOD OF PAYMENT			DELIVERY CODE	ZONE
61429	1		CHARGE			2	030
QUANTITY	PRODUCT CODE/DESCRIPTION		UNIT OF MEASURE	UNIT PRICE	EXTENDED	FREIGHT	SALES TAX
20.61	13 3/4 INCH CLEAN S		T			4.35	
LOADS						WAIT TIME	
1						GRAND TOTAL	
ACCU. TONS						20.61	

JUN- 7-94 TUE 13:55

C.U.T.E.

FAX NO. 201 423 6050

P.09

S.C.M.I. - BOUND BROOK



CUSTOMER'S COP

CONTROL NO.
A-929213

Stavola Construction Materials, Inc.

PLANT: CHIMNEY ROCK ROAD, BOUND BROOK, N.J. • 908/358-5700

Used 8.59 Tons
on 362

16.39 tons

X Harold
DRIVER'S SIGNATURE

RECEIVED & ACCEPTED BY:

X [Signature]
CUSTOMER'S SIGNATURE

EXECUTIVE OFFICE
HAMILTON ROAD
TINTON FALLS, N.J.
908/542-2328

CRUSHED STONE • SAND
GRAVEL

ADDRESS REPLY TO
P.O. BOX 482
RED BANK, N.J. 07701

THIS COMPANY WILL NOT BE RESPONSIBLE FOR DAMAGE CAUSED BY VEHICLES DELIVERING MATERIALS OFF PUBLIC ROADS.

EXPLANATION OF DELIVERY CODES

- 1 - F.O.B.
- 2 - DELIVERED
- 3 - NET DELIVERED

DATE	05/20/94	CUST. NO.	08888	JOB NO.	10122	TICKET NO.	929213
CUSTOMER				DELIVER TO		GROSS	
CLEANING UP THE ENVIRONMENT				ZONE 1 FT MONMOUTH		37.98	
103 BODWIN AVE.				BEHIND BLDG 296		TARE	
P.O. BOX 237						13.00	
MIDLAND PARK NJ. 07432						NET	
						24.98	
TRUCKER	TRUCK NO.	DRIVER NO.	METHOD OF PAYMENT			DELIVERY CODE	ZONE
20991	6		CHARGE			2	030
QUANTITY	PRODUCT CODE/DESCRIPTION		UNIT OF MEASURE	UNIT PRICE	EXTENDED	FREIGHT	SALES TAX
24.98	13 3/4 INCH CLEAN S		T			4.35	
COMMENTS						WAIT TIME	
LOADS 3						GRAND TOTAL	
ACCU. TONS 72.80							



1453 W. Park Ave., Wayside
Asbury Park, N.J. 07712
908-483-3333

10/10

Order Date May 27, 94

Name Big A Trucking

Deliver Date 1-1

Address Clark Fill

Delivered ☐ C.O.D. ☐

F.O.B./P.U. ☐ Charge ☒

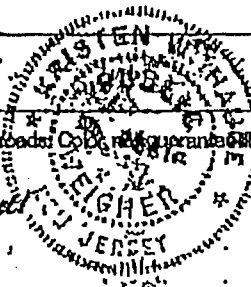
Item(s)	Quantity / Measure (tons, lbs., yds., ea.)	Unit Price	Total
	G 71500		
	T 26000		
	N 45500	22.75T	

Driver _____

Received Don Ellis

* Company not responsible for damage done off public roads. Call for insurance info.

Have gravel sold since 1925



Sub Total

Delivery

N.J. Tax

Total

SMITH

APPENDIX D

UST DISPOSAL CERTIFICATE

East Monmouth
Bldg 362 - 0081533-72

MAZZA & SONS, INC.

Metal Recyclers
Auto and Truck
3230 Shaffo Rd.
Tinton Falls, NJ
(808) 922-8292

NO. _____

DATE 27 May 94

Customer's Name

CUTE inc.

Address _____

Bldg 362 45T 0081533-72Make of
Auto

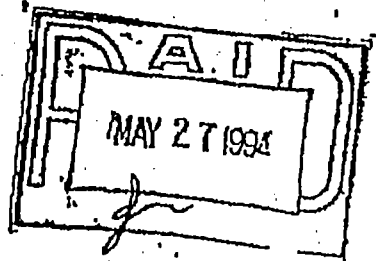
Tires

Tank

Price

47960 LB 6

30320 LB 6

17640

Weight Price

Cast Iron

Steel

Ti. Iron 264.60

Copper #1

Copper #2

Li. Copper

Brass

Alum Clean

Lead

Stainless

Radiators

Battery

TOTAL AMOUNT

Weigher _____

Customer _____

MAZZA & SONS, INC.

Recycling Division

3230 Shaft Road • Tinton Falls, NJ 07753

(908) 922-9292

75450

Recycling Material Receipt Form

Customer: Cute inc.
 Address: Midland Park
 Job Location: Easton town / Ft Monmouth
 Date: 27 May 94

Truck/Container No. Dump 1
 License Plate/D.E.P.# XA-B 4391

- ☐ 10 yd
☒ 20 yd
☐ 30 yd
☐ 40 yd
☐ 50 yd

52160 LB @
 27M20
 24740 12.37

Concrete 362
 1612 362

Concrete	
Asphalt	49.48
Stumps	
Brush	
Wood	
Pallets	
Glass	
Tires	
Painted Wood	
Shingles	
TOTAL:	COD BAL

Weighmaster: AACustomer: Danella

3.5 marked
 953 7224

Should be
 concrete

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 #: 1506.1-.11
Sample Rec'd: 05/26/94
Analysis Start: 05/26/94
Analysis Comp: 05/26/94

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

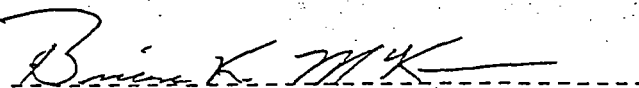
NJDEPE UST Reg.#: 0081533-72
Closure #: C-93-3941
DICAR #:
Location #: Bldg. 362

Lab ID.	Description	%Solid	Result	MDL (mg/Kg)
1506.1	Site 1, S. Sidewall 5' OVA= ND	89	ND	6.6
1506.2	Site 2, N. Sidewall 5' OVA= ND	90	ND	6.6
1506.3	Site 3, E. Sidewall 5' OVA= ND	87	ND	6.6
1506.4	Site 4, W. Sidewall 5' OVA= ND	84	ND	6.6
1506.5	Site 5, S.S. Bottom 6' OVA= ND	90	ND	6.6
1506.6	Site 6, M.S. Bottom 6' OVA= ND	82	ND	6.6
1506.7	Site 7, M.N. Bottom 6' OVA= ND	86	10.0	6.6
1506.8	Site 8, N.N. Bottom 6' OVA= ND	86	ND	6.6
1506.9	Dupe of Site 8 OVA= ND	84	ND	6.6
1506.10	Piperun 5' off corner OVA= ND	93	19.0	6.6
1506.11	Piperun at Bldg. OVA= ND	90	20.0	6.6
M. Bl.	Method Blank	100	ND	3.3

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

* = Silica Gel Added, NA = Not Applicable

1506.11dup= 60% 1506.11s= 83% 1506.11sd= 85% RPD= 2.4%



Brian K. McKee
Laboratory Director

4

Lab. ID #: 1506.1-.11
Sample Rec'd: 05/26/94
Analysis Start: 05/26/94
Analysis Comp: 05/26/94

Brian K. McKee
Laboratory Director

SERV-AIR, INC.

P.O. #:

Chain of Custody

Project #: 1506		Sampler: Eugene		Date / Time: 5/24/94 1400		Analysis Parameters		Start:	
Customer: DPW		Site Name: Bldg 362						Finish:	
Phone: x26224		0081533-72						Preservation Method	
		C-93-3941							

Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	g solid	mussel								Remarks
1506.1	5/24/94 1435	#1, Sidewalk S. 5'	Soil	1	X	X	X							ND	H ₂ O @ 6'
.2	1422	#2 N 5'		1	X	X	X							ND	<40°C
.3	1430	#3 E 5'		1	X	X	X							ND	
.4	1426	#4 W 5'		1	X	X	X							ND	
.5	1440	#5 S.S. Bottom 6'		1	X	X	X							ND	
.6	1443	#6 M.S. 6'		1	X	X	X							ND	OJA SN: A52114
.7	1445	#7 MN 6'		1	X	X	X							ND	CAL 5-26-94 @ 1400 hrs
.8	1450	#8 NN 6'		1	X	X	X							ND	Φ Air and CH ₄ @ 95 ppm
.9	1450	DUP OF 8		1	X	X	X							ND	Reading = 95
.10	1453	Pipe, 5' off corner		1	X	X	X							ND	@ 300, 10X scale
	1455	Pipe @ Bldg Penetration		1	X	X	X							ND	(BKM)

Relinquished By (signature): <i>Eugene</i>	Date / Time: 5-26 1500	Received By (signature):	Shipped By:
Relinquished By (signature):	Date / Time:	Received for Lab by (signature): <i>B. McKee</i>	Date / Time: 5-26-94 1515

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

Blank		5-26-94 1575
40.75	113 mV	
81.5	224 mV	
163	443 mV	
Blank		
1506.1	1 mV	
1506.2	1 mV	
1506.3	1 mV	
1506.4	1 mV	
1506.5	0 mV ND	
1506.6	0 mV ND	
1506.7	5 mV	
1506.8	0 mV ND	
1506.9	2 mV	
1506.10	VOID	VOID
1506.11	VOID	VOID
1506.10	9 mV	
1506.11	9 mV	
1506.11	Dup 6 mV	
1506.11	Spk 22 mV	
1506.11	Dup Spk 33 mV	

PHC Conformance/Non-conformance Summary Report

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

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.

Project #1506


Brian K. McKee
Laboratory Manager

Attachment F
UST 363 Report

United States Army

Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

***Building 363
Main Post***

NJDEP UST Registration No. 0081533-73

NJDEP Closure Approval No. C-93-9313

Residential Non-Regulated

February 1997

SMITH
TECHNOLOGY CORPORATION



**UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT**

BUILDING 363

**MAIN POST
NJDEP UST REGISTRATION NO. 0081533-73
NJDEP CLOSURE APPROVAL NO. C-93-9313
RESIDENTIAL NON-REGULATED**

FEBRUARY 1997

**PROJECT NO.: 09-5004-08
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 TECHNOLOGY CORPORATION
BROMLEY CORPORATE CENTER
THREE TERRI LANE
BURLINGTON, NEW JERSEY 08016**



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Appendix A	NJDEP-BUST Closure Approval
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Appendix E	Soil Analytical Data Package



EXECUTIVE SUMMARY

UST Closure

On July 8, 1994, a steel underground storage tank (UST) was closed by removal in accordance with the New Jersey Department of Environmental Protection (NJDEP) Closure Approval No. C-93-9313 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST was a residential non-regulated tank (NJDEP Registration No. 0081533-73) located immediately adjacent to Building 363 in the Main Post area of U.S. Army, Fort Monmouth. UST No. 0081533-73 was a 3,000-gallon No. 2 oil UST. The UST fill port was located approximately 44 feet west and 128 feet south of the UST. 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) and the NJDEP *Field Sampling Procedures Manual*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank.

On July 8, 1994, following the removal of the UST, post-excavation soil samples A, B, C, D, E, and F were collected from a total of six (6) locations along the sidewalls of the excavation. The sidewall samples were collected at a depth of 6.0 feet below ground surface (bgs). Post-excavation soil samples G, H, and DUP H were collected from a total of two (2) locations along the base of the excavation, at a depth of 9.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC).

On July 11, 1994, following removal of the UST fuel lines, samples 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, were collected along the former piping length of the excavation, which ran approximately 172 feet in length from the UST to the remote fill port. The samples were collected at depths ranging from 0.5 feet at the remote fill port to 3.0 feet at the UST. Samples 13 (A), and 14 (B) were collected from the piping portion of the excavation which ran approximately 17 feet south from the UST to Building 363. The piping samples were collected at a depth of 0.5 feet bgs. All samples were analyzed for TPHC.

Findings

All post-excavation soil samples collected from the UST excavation and from below piping associated with the former UST at Building 363 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, B, C, D, E, F, G, H, and DUP H, collected on July 8, 1994, contained non-detectable concentrations of TPHC. Samples 1, 8, 10, 11, 12, and 13 (A), collected on July 11, 1994, contained levels of TPHC ranging in concentration from 7.68 mg/kg to 252.0 mg/kg. Samples 2, 3, 4, 5, 6, 7, 9 and 14 (B) 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.

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 for Site Remediation*.

Discrepancies

The removal contractor collected soil samples using polystyrene scoops instead of NJDEP approved stainless steel scoops. The results of the soil samples were therefore evaluated at 50% of the actual value to compensate for any potential loss due to absorbency of the polystyrene scoop.

Conclusions and Recommendations

Based on 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. 0081533-73 at Building 363.



1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

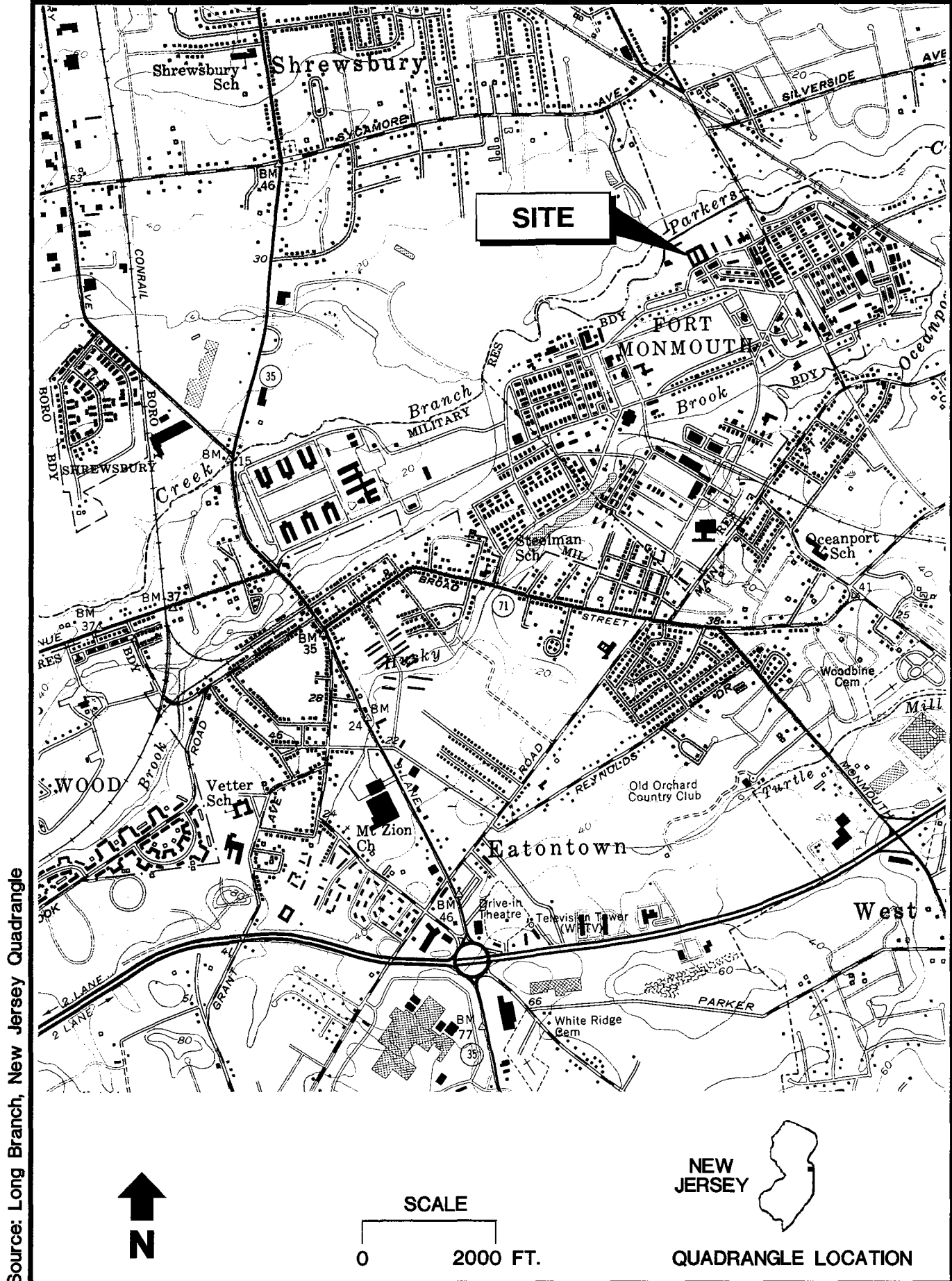
One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 0081533-73, was closed at Building 363 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on July 8, 1994. Refer to site location map on Figure 1. This report presents the results of the DPW's implementation of the UST Decommissioning/Closure Plan submitted to the NJDEP on July 28, 1993. The plan was approved on September 7, 1993 and assigned TMS No. C-93-3913. The UST was a steel 3,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 0081533-73 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. 0081533-73 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. 0081533-73 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 Technology Corporation. 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.



Source: Long Branch, New Jersey Quadrangle

Project No. 09-5004-08

Figure 1
Site Location Map
Building 363

1.2 SITE DESCRIPTION

Building 363 is located in the northeastern portion of the Main Post area of Fort Monmouth, as shown on Figure 1. UST No. 0081533-73 was located northwest of Building 363 and appurtenant piping ran approximately 17 feet south from the excavation to Building 363. The UST fill port was located southwest of the excavation. Its piping ran approximately 44 feet west and 128 feet south from the excavation to the remote fill port. 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 363. 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.

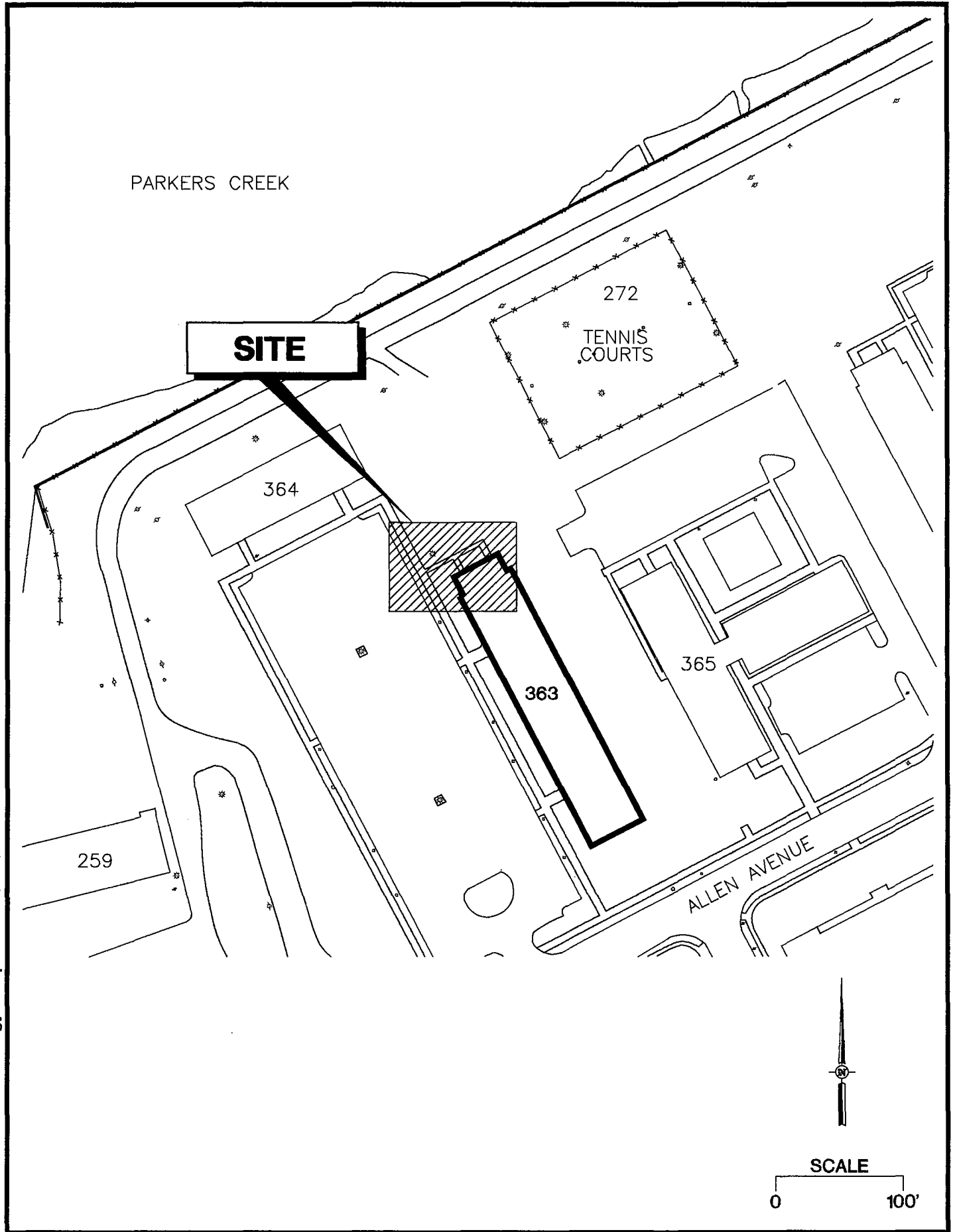
In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapeczka, 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 Zapeczka, 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

Source: Smith Technology Corporation (108)



(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 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, Vincenttown 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.

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

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 Site Assessment 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 22 gallons of liquid were transported by Freehold Cartage Inc. to Lionetti Oil Recovery Co. Inc., a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey. Refer to Appendix C for the waste manifest (NJA-163199).

The UST was cleaned prior to removal from the excavation in accordance with the 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 noted anywhere along the piping length.



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 removal contractor 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.

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)
Closure Supervisor: John Lonergan
Phone Number: (201) 427-2881
NJDEP Certification No.: 3248
- Subsurface Evaluator: Joseph M. Fallon
Employer: U.S. Army, Fort Monmouth
Phone Number: (908) 532-1475
NJDEP Certification No.: 000244
- 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) 721-0900
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.

2.3 SOIL SAMPLING

On July 8, 1994, post-excavation soil samples A, B, C, D, E, and F were collected from a total of six (6) locations along the sidewalls of the UST excavation at a depth of 6.0 feet bgs. Post-excavation soil samples G, H, and DUP H were collected from a total of two (2) locations along the base of the UST excavation at a depth of 9.0 feet bgs. All samples were analyzed for TPHC.

On July 11, 1994, following removal of the UST fuel lines, samples 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, and 12, were collected along the former piping length of the excavation, which ran approximately 172 feet in length from the UST to the remote fill port. The samples were collected at depths ranging from 0.5 feet at the remote fill port to 3.0 feet at the UST. Samples 13 (A), and 14 (B) were collected from the piping portion of the excavation which ran approximately 17 feet south from the UST to Building 363. The piping samples were collected at a depth of 0.5 feet bgs. All samples were analyzed for TPHC.

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 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 504.0 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.

TABLE 1
PAGE 1 OF 1

SUMMARY OF SAMPLING ACTIVITIES
BUILDING 363, MAIN POST
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Matrix	Sample Type	Analytical Parameters (and USEPA Methods) *	Sampling Method
A	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
B	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
C	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
D	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
E	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
F	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
G	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
H	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
DUP H	7/08/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 1	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 2	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 3	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 4	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 5	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 6	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 7	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 8	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 9	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 10	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 11	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 12	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 13 (A)	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop
Site 14 (B)	7/11/94	Soil	Post-Excavation	TPHC	Polystyrene Scoop

* Note:

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

Smith Technology Corporation (Project No. 09-5004-08)

soil363.doc

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 eight (8) locations on July 8, 1994, and from fourteen (14) locations on July 11, 1994. All samples were analyzed for TPHC. The post-excavation sampling 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 analytical data package is provided in Appendix E.

All post-excavation soil samples collected on July 8, 1994, and on July 11, 1994, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Post-excavation soil samples A, B, C, D, E, F, G, H, and DUP H, collected on July 8, 1994, contained non-detectable concentrations of TPHC. Post-excavation soil samples 1, 8, 10, 11, 12, and 13 (A), collected on July 11, 1994, contained TPHC concentrations ranging from 7.68 mg/kg to 252.0 mg/kg. Samples 2, 3, 4, 5, 6, 7, 9, and 14 (B) contained non-detectable concentrations of TPHC.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 363 were below the NJDEP soil cleanup criteria for total organic contaminants.

Based on the post-excavation 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.

The existing discrepancy as listed in the Executive Summary is believed to be acceptable as explained and does not warrant further investigation or explanation. Procedures have been corrected to eliminate recurrences in the future.

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-73 at Building 363. Since the UST is non-regulated, this report and data will be kept on-file at Fort Monmouth. No submission to the NJDEP shall be made.

TABLE 2
PAGE 1 OF 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 363
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/6.0-6.5'	1558.1	7/08/94	7/11/94	Total Solid	--	--	92 %	--	--
				TPHC		yes	ND	10,000	--
B/6.0-6.5'	1558.2	7/08/94	7/11/94	Total Solid	--	--	92 %	--	--
				TPHC		yes	ND	10,000	--
C/6.0-6.5'	1558.3	7/08/94	7/11/94	Total Solid	--	--	89 %	--	--
				TPHC		yes	ND	10,000	--
D/6.0-6.5'	1558.4	7/08/94	7/11/94	Total Solid	--	--	91 %	--	--
				TPHC		yes	ND	10,000	--
E/6.0-6.5'	1558.5	7/08/94	7/11/94	Total Solid	--	--	90 %	--	--
				TPHC		yes	ND	10,000	--
F/6.0-6.5'	1558.6	7/08/94	7/11/94	Total Solid	--	--	92 %	--	--
				TPHC		yes	ND	10,000	--
G/9.0-9.5'	1558.7	7/08/94	7/11/94	Total Solid	--	--	90 %	--	--
				TPHC		yes	ND	10,000	--
H/9.0-9.5'	1558.8	7/08/94	7/11/94	Total Solid	--	--	90 %	--	--
				TPHC		yes	ND	10,000	--
Dup H/9.0-9.5'	1558.9	7/08/94	7/11/94	Total Solid	--	--	92 %	--	--
				TPHC		yes	ND	10,000	--

Notes:

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

Smith Technology Corporation (Project No. 09-5004-08)

TABLE 2
PAGE 2 OF 2

POST-EXCAVATION SOIL SAMPLING RESULTS
BUILDING 363
FT. MONMOUTH, NEW JERSEY

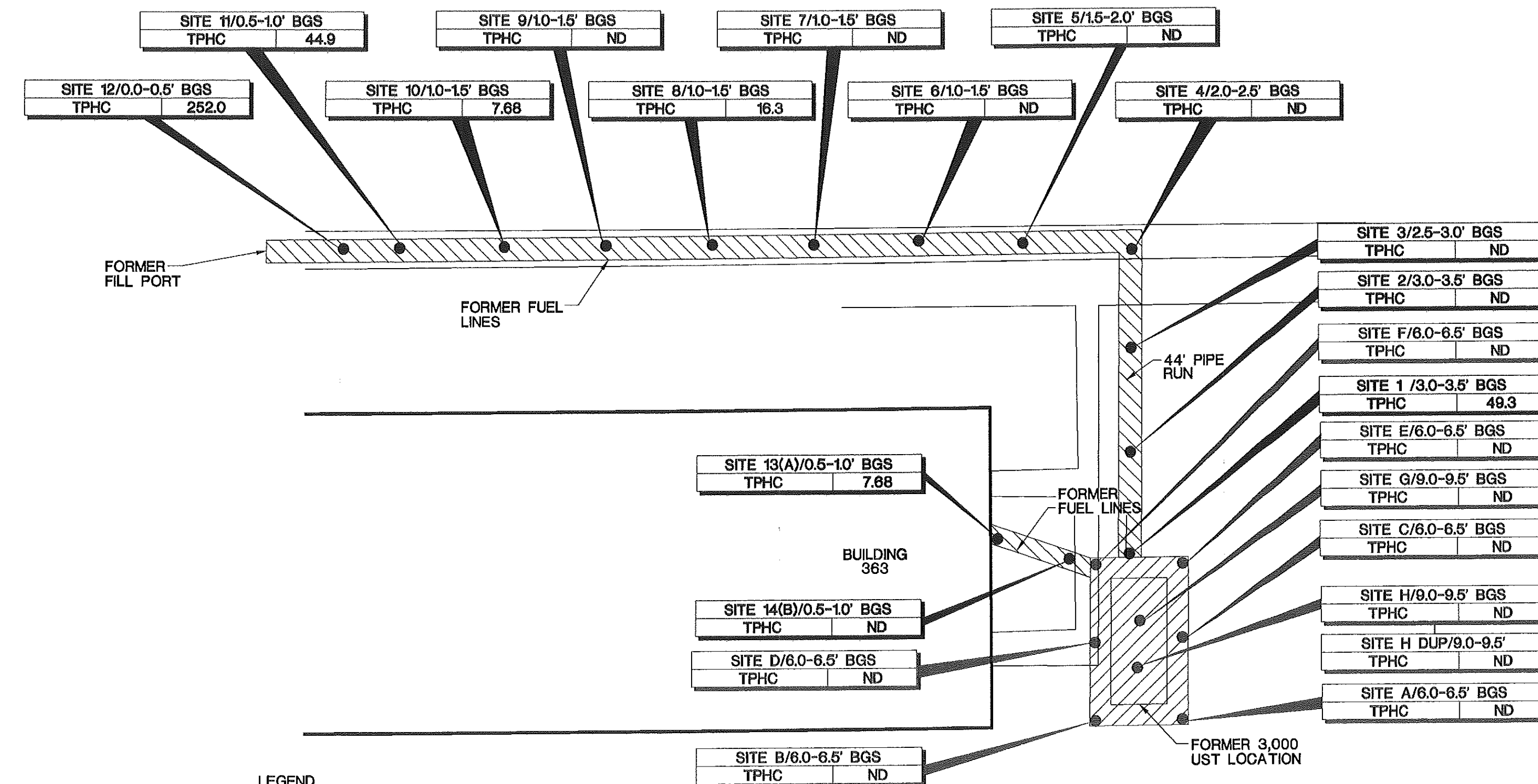
Sample ID/Depth	Sample Laboratory ID	Sample Date	Analysis Date	Compound Name	Sample Quantitation Limit (mg/kg)	Compound of Concern	Result (mg/kg)	NJDEP Soil Cleanup Criteria * (mg/kg)	Exceeds Cleanup Criteria
Site 1/3.0-3.5'	1560.1	7/11/94	7/12/94	Total Solid	--	--	91 %	--	--
				TPHC	6.6	yes	49.3	10,000	--
Site 2/3.0-3.5'	1560.2	7/11/94	7/12/94	Total Solid	--	--	97 %	--	--
				TPHC	6.6	yes	ND	10,000	--
Site 3/2.5-3.0'	1560.3	7/11/94	7/12/94	Total Solid	--	--	95 %	--	--
				TPHC	6.6	yes	ND	10,000	--
Site 4/2.0-2.5'	1560.4	7/11/94	7/12/94	Total Solid	--	--	92 %	--	--
				TPHC	6.6	yes	ND	10,000	--
Site 5/1.5-2.0'	1560.5	7/11/94	7/12/94	Total Solid	--	--	94 %	--	--
				TPHC	6.6	yes	ND	10,000	--
Site 6/1.0-1.5'	1560.6	7/11/94	7/12/94	Total Solid	--	--	96%	--	--
				TPHC	6.6	yes	ND	10,000	--
Site 7/1.0-1.5'	1560.7	7/11/94	7/12/94	Total Solid	--	--	93%	--	--
				TPHC	6.6	yes	ND	10,000	--
Site 8/1.0-1.5'	1560.8	7/11/94	7/12/94	Total Solid	--	--	94%	--	--
				TPHC	6.6	yes	16.3	10,000	--
Site 9/1.0-1.5'	1560.9	7/11/94	7/12/94	Total Solid	--	--	92%	--	--
				TPHC	6.6	yes	ND	10,000	--
Site 10/1.0-1.5'	1560.10	7/11/94	7/12/94	Total Solid	--	--	92%	--	--
				TPHC	6.6	yes	7.68	10,000	--
Site 11/0.5-1.0'	1560.11	7/11/94	7/12/94	Total Solid	--	--	96%	--	--
				TPHC	6.6	yes	44.9	10,000	--
Site 12/0.0-0.5'	1560.12	7/11/94	7/12/94	Total Solid	--	--	93%	--	--
				TPHC	6.6	yes	252.0	10,000	--
Site 13 (A) / 0.5-1.0'	1560.13	7/11/94	7/12/94	Total Solid	--	--	92%	--	--
				TPHC	6.6	yes	7.68	10,000	--
Site 14 (B) / 0.5-1.0'	1560.14	7/11/94	7/12/94	Total Solid	--	--	98%	--	--
				TPHC	6.6	yes	ND	10,000	--

Notes:

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

Actual soil TPHC values may be higher than reported due to absorbency by polystyrene scoops. If absorbency resulted in reducing the actual soil TPHC concentration by 50%, the highest soil contaminant would be 504.0 mg/kg.

Smith Technology Corporation (Project No. 09-5004-08)



LEGEND

● SOIL SAMPLE LOCATION (JULY 8, 1994)

● SOIL SAMPLE LOCATION (JULY 11, 1994)

▨ LIMIT OF EXCAVATION (JULY 8, 1994)

▨ LIMIT OF EXCAVATION (JULY 11, 1994)

NOTES: 1. ALL RESULTS IN MILLIGRAMS PER KILOGRAM (DRY WEIGHT)
2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
3. BGS = BELOW GROUND SURFACE

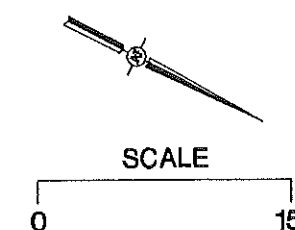


Figure 3
Building 363
Soil Sampling Results



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-93-3913

0081533

US Army
BLDG. 363
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 3,000 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.



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

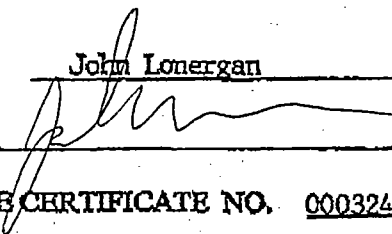
SMTH

APPENDIX B
CERTIFICATIONS

UNDERGROUND STORAGE TANK (UST)
CLOSURE CERTIFICATION

BUILDING NO. 363NJDEP UST REGISTRATION NO. 81533-73DATE TANK REMOVED 7/8/94HO / CONTRACT NUMBER 91-0148

I CERTIFY UNDER PENALTY OF LAW THAT TANK DECOMMISSIONING ACTIVITIES WERE PERFORMED IN COMPLIANCE WITH NJAC 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) John LonerganSIGNATURE NJDEP UST CLOSURE CERTIFICATE NO. 0003248COMPANY PERFORMING TANK DECOMMISSIONING CUTE IncNJDEP UST CLOSURE CORPORATE CERTIFICATE NO. 0200128DATE OF SUBMITTAL 8/16/94

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

last File Copy
Bldg. 363

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

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

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	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 Main Post, c/o James Shirghio, Bldg 2504, ATTN: SELF-DL-EM-MS Fort Monmouth, NJ 07703		N J 3 2 1 1 0 0 2 0 5 9 7 0 3 1 9 9		A. State Manifest Document Number NJA 1603199	
4. Generator's Phone (908) 532-6223		6. US EPA ID Number		B. State Generator's ID Same	
5. Transporter 1 Company Name Freehold Cartage Inc.		N J D 0 5 4 1 1 2 6 1 1 6 4		C. State Trans. ID NSDEPES 24265	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (908) 462-1001	
9. Designated Facility Name and Site Address Lionetti Oil Recovery Co., Inc. Runyon & Cheesequake Rds. Old Bridge, NJ 08857		10. US EPA ID Number N J D 0 8 4 0 4 4 0 6 4		E. State Trans. ID F. Transporter's Phone () 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)		12. Containers		13. Total Quantity	14. Unit
a. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		No. Type			Wt/Vol
		0 0 1 T T		00125 G	X 7 2 2
b. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T		00525 G	X 7 2 2
c. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) combustible liquid UN 1270 PG III		0 0 1 T T		00627 G	X 7 2 2
d. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T		00022 G	X 7 2 2
J. Additional Descriptions for Materials Listed Above		K. Handling Codes for Wastes Listed Above			
petroleum oil 90% water X % 10 T, L		petroleum oil 90% water 10% T, L		T04 Filtration, T04 Filtration	
petroleum oil 90% water % 10 T, L		petroleum oil % water % T, L		T04 Filtration, T04 Filtration	
15. Special Handling Instructions and Additional Information NOT EPA REGULATED. REGULATED AS HAZARDOUS WASTE IN NJ. 24 HOUR EMERGENCY PHONE: 201-427-2881 NJ DECAL# 56897		11a. ERG# 27 A. VST 0081533-70 B. 0081533-72		C. VST 0081533-71 D. VST 0081533-73	
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 Joseph M. Fallon		Signature Joseph M. Fallon		Month Day Year 10 5 26 94	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name David S. Smith		Signature David S. Smith		Month Day Year 10 5 26 94	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Signature Month Day Year					

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

CALCULATION SHEET

Building No. 363

NJDEPE Reg. No. 0081533-73

Tank Size 3000 gal

Tank Void 22.5 tons

CLEAN FILL

ITEM NO.	DESCRIPTION	QUANTITY	TICKET #
	<i>Fill</i>	<i>22.8</i>	<i>18770</i>

TOTAL *22.8*

STONE

ITEM NO.	DESCRIPTION	QUANTITY	TICKET #

TOTAL *Ø*

ID#27 soil to stockpile (*Ø* + 22.8) - 22.5 = .3 tons *∴ no charge*

Chargeable clean fill .3 *∴ no charge*

Chargeable stone *Ø*

AUG-10-94 WED 9:14

C. U. T.

FAX NO. 201 423 50

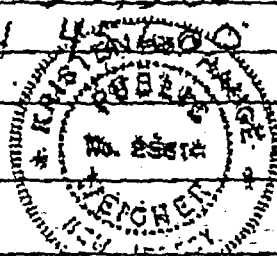
P. 15



1453 W. Park Ave., Wayside
Asbury Park, N.J. 07712
908-493-3333

18770

Name Big A TruckingAddress Chen E. IIOrder Date 7/11/94Deliver Date 7/11/94Delivered ☐C.O.D. ☐F.O.B./P.U. ☐Charge ☒

Item(s)	Quantity / Measure - (tons, lbs., yds., ea.)	Unit Price	Total
	6 71.180 1 25.580 N 4.580	22.8 tons	
		Sub Total	
Driver _____		Delivery	
Received <u>if fi</u>		N.J. Tax	
* Company not responsible for damage done off public roads. Color not guaranteed!		Total	
Have gravel with gravel! since 1925			

SMITH

APPENDIX D

UST DISPOSAL CERTIFICATE

AUG-10-94 WED 9:14

C. U. T.

FAX NO. 201 423-5050

P. 18

BLDG 363-UST 081533-73

172' - Remote 4" Line -

MAZZA & SONS, INC.

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

NO. 1

DATE 11 July 94

Customer's Name

Cute inc

Address

Ft. Monmouth, Eatontown, NJ

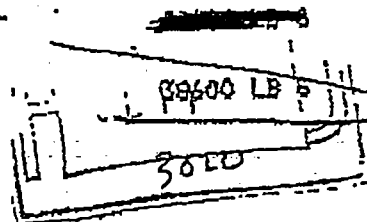
Make of
Autos

Tires

Tank

Price

35580 LB 6



Weight

Price

Cast Iron

Steel

Lt. Iron

Copper #1

Copper #2

Lt. Copper

Brass

Alum Clean

Lead

Stainless

Radiators

Battery

TOTAL AMOUNT:

Weigher

C

Customer

Dan Ellis



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 #: 1558.1-.9
Sample Rec'd: 07/08/94
Analysis Start: 07/11/94
Analysis Comp: 07/11/94

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

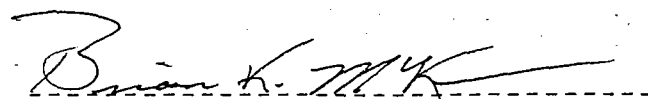
NJDEPE UST Reg. #:
Closure #:
DICAR #:
Location #: Bldg. 363

Lab ID.	Description	%Solid	Result	MDL (mg/Kg)
1558.1	Site A OVA= ND	92	ND	6.6
1558.2	Site B OVA= ND	92	ND	6.6
1558.3	Site C OVA= ND	89	ND	6.6
1558.4	Site D OVA= ND	91	ND	6.6
1558.5	Site E OVA= ND	90	ND	6.6
1558.6	Site F OVA= ND	92	ND	6.6
1558.7	Site G OVA= ND	90	ND	6.6
1558.8	Site H OVA= ND	90	ND	6.6
1558.9	Site I OVA= NA	92	ND	6.6
M. Bl.	Method Blank	100	ND	3.3

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

* = Silica Gel Added, NA = Not Applicable

1558.9 dup= 100% 1558.9 s= 114% 1558.9 sd= 105% RPD= 8.2%



Brian K. McKee
Laboratory Director

40.75 - 106
81.5 - 207
163 - 401

R.9997

U.S. ARMY FO. MONMOUTH

0 0 Jan 4/1968

Bldg 363

Enviornmental Laboratory

Sample	Ext.	M.V.	Mg/Kg	Wet	Dry	%S	Munsell	Color
1558.1	15	0	ND	6.972	6.440	.92	7.5YR $\frac{3}{4}$	dark Brown
.2		2	ND	8.633	7.985	.92	7.5YR $\frac{3}{4}$	dark Brown
.3		0	ND	8.7871	7.017	.89	7.5YR $\frac{4}{6}$	Strong Brown
.4		0	ND	8.261	7.486	.91	7.5YR $\frac{3}{4}$	dark Brown
.5		0	ND	8.462	7.601	.90	7.5YR $\frac{4}{6}$	Strong Brown
.6		2	ND	7.059	6.505	.92	7.5YR $\frac{3}{3}$	dark Brown
.7		0	ND	8.871	7.971	.90	7.5YR $\frac{3}{4}$	dark Brown
.8		2	ND	6.664	5.989	.90	7.5YR $\frac{3}{4}$	dark Brown
.9		2	ND	8.642	7.933	.92	7.5YR $\frac{3}{4}$	dark Brown
Dup .9		2	ND	—	—	.92	—	—
Spk .9		43	114	—	—	.92	—	—
Dup Spk .9		40	105	—	—	.92	—	—
1555.1(1A)		83	245.7	7.245	6.303	.87	5Y $\frac{3}{2}$	dark olive gray
1557.1(2B)		0	ND	9.385	8.162	.87	5Y $\frac{3}{2}$	dark olive gray
1557.7(2C)	✓	208	650	9.627	8.145	.85	10YR $\frac{3}{3}$	dark Brown

Certification Number 13461

V. Swans
TPH Result

SE-RV-AIR, INC.

P.O. #:

Chain of Custody

Project #:	Sampler: <i>George Burtch</i>	Date / Time	Analysis Parameters	Start:
Customer:	Site Name: <i>Blodg 363</i>			Finish:
Phone:	<i>C-93-3913</i>			Preservation Method

Lab Sample ID Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPHC	8 Solids	Mnscel								Remarks
1558.1	7-8-94 1510	Site A	Soil	1	X	X	X							ND	24°C
.2	1512	B		1	X	X	X							ND	
.3	1515	C		1	X	X	X							ND	
.4	1517	D		1	X	X	X							ND	
.5	1520	E		1	X	X	X							ND	
.6	1523	F		1	X	X	X							ND	
.7	1529	G		1	X	X	X							ND	OSA EN A52114
.8	1533	H		1	X	X	X							ND	CAL 1450 7/8/94:
✓ .9	✓	I. DSP	✓	1	X	X	X							NA	Span = 3 @ R/C + 95ppm Methane Read 66 BKM

Relinquished By (signature)	Date / Time	Received By (signature)	Shipped By:
Relinquished By (signature)	Date / Time	Received for Lab by (signature): <i>B. MK</i>	Date / Time: <i>7/8/94 1640</i>

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

Report of Analysis

DPW, SELFM-PW-EV

Bldg. 167

Ft. Monmouth, NJ 07703

Lab. ID #: 1558.1-9

Sample Rec'd: 07/08/94

Analysis Start: 07/11/94

Analysis Comp: 07/11/94

Analysis: Munsel

[illegible]

B. 704

Brian K. McKee
Laboratory Director

July 11, 1994 0947

Sarah J. Hubbard

Blank 0 MV

40.75 106 MV

81.5 207 MV

163 401 MV

1558.1 0 MV

1558.2 2 MV

1558.3 0 MV

1558.4 0 MV

1558.5 0 MV

1558.6 2 MV

1558.7 0 MV

1558.8 2 MV

1558.9 2 MV

1558.9 2 MV Dup.

1558.9 43 MV Spike

1558.9 40 MV Dup Spike

1555.1 83 MV

1557.1 0 MV

1557.3 208 MV

193-6970-00

PRINTED IN USA

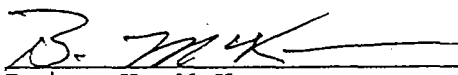
PHC Conformance/Non-conformance Summary Report

	<u>No</u>	<u>Yes</u>
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.	☐	☒
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.

Project #1558



Brian K. McKee
Laboratory Manager

40.7 - 106
81.5 - 207
163 - 401

2.9997

U.S. ARMY FC MONMOUTH

July 11, 1997
J. A. V. Swanson

Bldg 363

Environmental Laboratory

Sample	Ext.	M.V.	Mg/Kg	Wet	Dry	%S	Munsell	Color
1558.1	15	0	ND	6.972	6.440	.92	7.5YR 3/4	dark Brown
.2		2	ND	8.633	7.985	.92	7.5YR 3/4	dark Brown
.3		0	ND	8.7871	7.017	.89	7.5YR 4/6	Strong Brown
.4		0	ND	8.261	7.486	.91	7.5YR 3/4	dark Brown
.5		0	ND	8.462	7.601	.90	7.5YR 4/6	Strong Brown
.6		2	ND	7.059	6.505	.92	7.5YR 3/3	dark Brown
.7		0	ND	8.871	7.971	.90	7.5YR 3/4	dark Brown
.8		2	ND	6.664	5.989	.90	7.5YR 3/4	dark Brown
.9		2	ND	8.642	7.933	.92	7.5YR 3/4	dark Brown
Dup .9		2	ND	—	—	.92	—	—
Spk .9		43	114	—	—	.92	—	—
Dup Spk .9		40	105	—	—	.92	—	—
1555.1(1A)		83	245.7	7.245	6.303	.87	5Y 3/2	dark olive gray
1557.1(2B)		0	ND	9.385	8.162	.87	5Y 3/2	dark olive gray
1557.7(3A)		208	650	9.627	8.145	.85	10YR 3/3	dark Brown

Certification Number 13461

V. Swanson
TPH Results

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 #: 1560.1-.14
Sample Rec'd: 07/11/94
Analysis Start: 07/12/94
Analysis Comp: 07/12/94

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

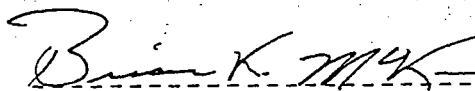
NJDEPE UST Reg. #: 0081533-73
Closure #:
DICAR #:
Location #: Bldg. 363 pipe run

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1560.1	Site 1	91	49.3	6.6
1560.2	Site 2	97	ND	6.6
1560.3	Site 3	95	ND	6.6
1560.4	Site 4	92	ND	6.6
1560.5	Site 5	94	ND	6.6
1560.6	Site 6	96	ND	6.6
1560.7	Site 7	93	ND	6.6
1560.8	Site 8	94	16.3	6.6
1560.9	Site 9	92	ND	6.6
1560.10	Site 10	92	7.68	6.6
1560.11	Site 11	96	44.9	6.6
1560.12	Site 12	93	252.	6.6
M. Bl.	Method Blank	100	ND	3.3

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

* = Silica Gel Added, NA = Not Applicable

1560.8 dup= 118% 1560.8 s=80.6% 1560.8 sd=71.9% RPD=11.4%



Brian K. McKee
Laboratory Director


Brian K. McKee
Laboratory Director

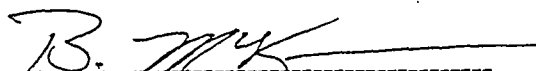
Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

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

Lab. ID #: 1560.1-.14
Sample Rec'd: 07/11/94
Analysis Start: 07/12/94
Analysis Comp: 07/12/94

Analysis: Munsel

Lab ID#	Soil Color
1560.1	10YR 3/3 Dark Brown
1560.2	10YR 4/6 Dark Yellowish Brown
1560.3	10YR 3/6 Dark Yellowish Brown
1560.4	10YR 3/6 Dark Yellowish Brown
1560.5	10YR 3/6 Dark Yellowish Brown
1560.6	10YR 3/1 Very Dark Gray
1560.7	10YR 3/3 Dark Brown
1560.8	10YR 3/3 Dark Brown
1560.9	10YR 3/3 Dark Brown
1560.10	10YR 3/2 Very Dark Grayish Brown
1560.11	10YR 3/2 Very Dark Grayish Brown
1560.12	10YR 3/4 Dark Yellowish Brown
1560.13	10YR 3/4 Dark Yellowish Brown
1560.14	10YR 3/4 Dark Yellowish Brown


Brian K. McKee
Laboratory Director

U.S. ARMY FORT MONMOUTH

P.O. #:

Chain of Custody

Project #:		Sampler: <i>Joe Fallon</i>		Date / Time: <i>7/11/94</i>		Analysis Parameters		Start:	
Customer: <i>DPW</i>		Site Name: <i>Bldg 363</i>		Site #:		<i>TPH, Pb, S, Manganese</i>		Finish:	
Phone:		Closure # <i>0081533</i>		Tank # <i>73</i>				Preservation Method	
Lab Sample Number	Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	Remarks				
<i>1560.1</i>	<i>7/11/94 1434</i>	<i># 1</i>	<i>Soil</i>	<i>1</i>					
<i>2</i>	<i>7/11/94 1437</i>	<i># 2</i>							
<i>3</i>	<i>7/11/94 1440</i>	<i># 3</i>							
<i>4</i>	<i>7/11/94 1443</i>	<i># 4</i>							
<i>5</i>	<i>7/11/94 1446</i>	<i># 5</i>							
<i>6</i>	<i>7/11/94 1450</i>	<i># 6</i>							
<i>7</i>	<i>7/11/94 1453</i>	<i># 7</i>							
<i>8</i>	<i>7/11/94 1456</i>	<i># 8</i>							
<i>9</i>	<i>7/11/94 1458</i>	<i># 9</i>							
<i>10</i>	<i>7/11/94 1502</i>	<i># 10</i>							
<i>11</i>	<i>7/11/94 1505</i>	<i># 11</i>							
Relinquished By (signature): <i>Joe Fallon</i>		Date / Time: <i>7/11/94 3:48</i>		Received By (signature): <i>Sarah J. Hubbard</i>		Shipped By:			
Relinquished By (signature):		Date / Time:		Received for Lab by (signature):		Date / Time:			
Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.									

July 12, 1994 1208

Sarah J. Hubbard

Blank

40.75 106 MV

81.5 209 MV

163 402 MV

1560.1 21 MV

1560.2 0 MV

1560.3 5 MV

1560.4 0 MV

1560.5 0 MV

1560.6 2 MV

1560.7 1 MV

1560.8 10 MV

1560.8 11 MV Dup

1560.8 38 MV Spike

1560.8 35 MV Dup Spk

1560.9 7 MV

1560.10 4 MV

1560.11 20 MV

1560.12 91 MV

1560.13 7 MV

1560.14 4 MV

1559.1 2 MV

1561.1 93 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.

— NA

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.

Project #1560

B. McKee
Brian K. McKee
Laboratory Manager

EMSL

New Jersey Department of Environmental Protection
Division of Water Resources
Bureau of Underground Storage Tanks
CN-029, Trenton, New Jersey 08625

LABORATORY AUTHENTICATION STATEMENT

I certify under penalty of law, where applicable, this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18, 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analyses. I have personally examined and am familiar with the information contained in this report, and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, complete, and meets the standards specified in N.J.A.C. 7:18, 40 CFR Part 136, and/or SW 846. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.



Laboratory Manager (as defined in N.J.A.C. 7:18)

Attachment G
UST 364 Report

U.S. Army Garrison
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Main Post – Building 364

NJDEP UST Registration No.: 81533-74
UST No.: 81533-74

October 2010

**UNDERGROUND STORAGE TANK CLOSURE
AND SITE INVESTIGATION REPORT**

**MAIN POST – BUILDING 364
NJDEP UST REGISTRATION NO.: 81533-74**

OCTOBER 2010

PROJECT NO.: 10-24949

PREPARED FOR:

**U.S. ARMY GARRISON, FORT MONMOUTH, NJ
DIRECTORATE OF PUBLIC WORKS
BUILDING 167
FORT MONMOUTH, NJ 07703**

PREPARED BY:

**TECOM-VINNELL SERVICES, INC.
P.O. BOX 60
FT. MONMOUTH, NJ 07703**

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- Appendix B UST Waste Manifest**
- Appendix C Photo Documentation**
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EXECUTIVE SUMMARY

UST Closure

On July 13, 1994, a steel underground storage tank (UST) was closed by removal in accordance with the Directorate of Public Works (DPW) UST Closure Plan for the U.S. Army Garrison, Fort Monmouth, New Jersey. The tank was located adjacent to Building 364 in Main Post area. Installed in 1970, UST No.: 81533-74 was a 1,500-gallon, steel, No. 2 heating oil tank. The tank with all associated piping was present at the time of removal. The tank closure was performed by Cleaning Up The Environment, Inc. (CUTE).

Site Assessment

The site assessment was performed by TVS personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. Soils surrounding the tank were screened visually and with air monitoring instruments for evidence of contamination. Upon removal, the UST was inspected for holes. A hole was located on the top quarter portion of the UST. No petroleum odors or stained soils were observed in the soils surrounding the tanks.

Closure soil samples were collected on July 13, 1994 after the removal of the UST. Closure samples C, D, E, and F were collected from a total of four (4) locations along the UST sidewalls of the excavation for the UST No.: 81533-74. Samples A and B were collected along the piping. Sample G was collected from the soil pile. All samples were analyzed for total petroleum hydrocarbons (TPH). Groundwater was not encountered at the bottom of the excavation; a concrete pad was located at 7.5'.

Findings

The closure soil samples collected from the UST excavation associated UST No.: 81533-74 contained TPH concentrations below the NJDEP health based criterion of 10,000 milligrams per kilogram (mg/kg) for total organic contaminants (N.J.A.C. 7:26E and revisions dated February 3, 1994). Sample A contained a TPH concentration of 109.0 mg/kg. The TPH concentration of sample B was 39.0 mg/kg. Sample C contained a TPH concentration of 13.0 mg/kg. The TPH concentration of samples D, E, F, and G was Not Detect.

Conclusions and Recommendations

Based on the closure soil sampling results, soils with TPH concentrations exceeding the NJDEP health based criterion of 10,000 mg/kg for total organic contaminants (N.J.A.C. 7:26E and revisions dated February 3, 1994) are not present in the former location of the UST.

No Further Action is proposed in regard to the closure and site assessment of UST No.: 81533-74 at Building 364.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No.: 81533-74, was closed at Building 364 of the Main Post at U.S. Army Garrison, Fort Monmouth, New Jersey. Refer to site location maps Figure 1 & 2. This report presents the results of the implementation of the Directorate of the Public Works UST Closure Plan, July, 1993. Installed in 1970, the UST was a 1,500-gallon, steel tank, containing No. 2 heating oil for residential use. The UST was removed on July 13, 1994.

Decommissioning activities for UST No.: 81533-74 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. The closure and subsurface evaluation of the UST was conducted by NJDEP licensed U.S. Army-DPW personnel.

This UST Closure and Site Investigation Report has been prepared by TVS to assist the U.S. Army Garrison-DPW in complying with the NJDEP - Underground Storage Tanks regulations. The applicable NJDEP regulations at the date of closure were the *Closure of Underground Storage Tank Systems (N.J.A.C. 7:14B-9 et seq. December, 1987)*.

This report was prepared using information required by the *Technical Requirements for Site Remediation (N.J.A.C. 7:26E) (Technical Requirements)*. Section 1 provides a summary of the UST decommissioning activities. Section 2 describes the site investigation activities. Conclusions and recommendations are presented in Section 3 of this report.

1.2 SITE DESCRIPTION

Building 364 is located in the eastern portion of the Main Post area of Fort Monmouth, as shown on Figure 1 & 2. UST No.: 81533-74 was located adjacent to the building, as shown on Figure 3.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of Bldg. 364. 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.

Fort Monmouth lies within the Outer Coastal Plain subprovince of the New Jersey section of the Atlantic Coastal Plain physiographic province, which generally consists of a seaward-dipping wedge of unconsolidated sediments including interbedded clay, silt, sand, and gravel.

To the northwest is the boundary between the Outer and Inner Coastal Plains, marked by a line of hills extending southwest, from the Atlantic Highlands overlooking Sandy Hook Bay, to a point southeast of Freehold, New Jersey, and then across the state to the Delaware Bay. These formations of clay, silt, sand, and gravel formations were deposited on Precambrian and lower Paleozoic rocks and typically strike northeast-southwest, with a dip that ranges from 10 – 60 feet per mile. Coastal Plain sediments date from the Cretaceous through the Quaternary Periods and are predominantly derived from deltaic, shallow marine, and continental shelf environments.

The property is located within the outer fringe of the Atlantic Coastal Plain Physiographic Province, of New Jersey, approximately 20 miles south of Raritan Bay. This province is characterized by a wedge-shaped mass of unconsolidated to semi-consolidated marine, marginal marine and non-marine deposits of clay, silt, sand, and gravel. These sediments range in age from Cretaceous to Holocene and lie unconformably on pre-Cretaceous bedrock consisting of metamorphic schists and gneiss, with local occurrences of basalts, sandstone, and shale (Zapeczka, 1984). These sediments trend northeast-southwest and dip southeast toward the Atlantic Ocean. These sediments thicken southeastward from the Piedmont-Coastal Plain Province boundary to approximately 4,500 feet near Atlantic City, New Jersey. During the Cretaceous and Tertiary time period, sediments were deposited alternately in flood plains and in marine environments during sea transgression and sea regression periods. The formations record several major transgressive/regressive cycles and contain units that 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).

Regressive upward coarsening deposits, such as Englishtown and Kirkwood Formations and the Cohansey Sand are usually aquifers, while transgressive deposits, such as the Merchantville, Marshalltown, and Navesink Formations, act as confining units. The thicknesses of these units vary greatly, ranging from several feet to several hundred feet, and thicken to the southeast.

The eastern half of the Main Post is underlain by the Red Bank Formation, ranging in thickness from 20-30 feet, while the western half is underlain by the Hornerstown Formation, ranging in thickness from 20-30 feet. The predominant formation underlying the Charles Wood Area is also the Hornerstown, with small areas of Vincentown Formation intruding in the southwest corner. Sand and gravel deposited in recent geologic times lie above these formations. Interbedded sequences of clay serve as semi-confining units for groundwater. The mineralogy ranges from quartz to glauconite.

Udorthents-Urban land is the primary classification of soils on Fort Monmouth, which have been modified by excavating or filling. Soils at the Main Post include Freehold sandy loam, Downer sandy loam, and Kresson loam. Freehold and Downer are somewhat well drained, while Kresson is a poorly drained soil.

The Charles Wood Area has sandy loams of the Freehold, Shrewsbury, and Holmdel types. Shrewsbury is a hydric soil; Kresson and Holmdel are hydric due to inclusions of Shrewsbury. Downer is not generally hydric, but can be.

Local Geology

Fort Monmouth lies in the Atlantic and Eastern Gulf Coastal Plain groundwater region and is underlain by underformed, unconsolidated to semi-consolidated sedimentary deposits. The chemistry of the water near the surface is variable with generally low dissolved solids and high iron concentrations. In areas underlain by glauconitic sediments, the water chemistry is dominated by calcium, magnesium, and iron (*e.g.* Red Bank and Tinton sands). The sediments in the vicinity of Fort Monmouth were deposited in fluvial-deltaic to nearshore environments. The water table is generally shallow at the installation; water is typically encountered at depths ranging from 2 to 9 feet below ground surface (bgs) and in certain areas fluctuates with the tidal action in Parkers and Oceanport creeks at the Main Post.

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 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).

“Arsenic and lead are naturally occurring in soil and can vary widely. All soils contain naturally-occurring arsenic and lead in some amount (Kabata-Pendias and Pendias, 1984). In general, the concentrations of arsenic in any particular soil are dependent upon the parent material and the soil forming processes. Because the soil forming processes are relatively consistent in New Jersey, differences in arsenic concentrations depend primarily on the soil parent material and past and present land use (Motto, Personal comm., 1997).

Because the underlying geologic materials vary widely throughout New Jersey, naturally occurring concentrations of metals in New Jersey soils also vary widely. Even though soils within a specific soil series can be similar in texture and color, the mineral and organic matter composition of soil tend to be heterogeneous. As a result, concentrations of metals in adjacent soil samples can vary substantially over distances of a few feet.

Based on a Department survey of background concentrations of metals in soil in rural and suburban areas of the state, non-agricultural soils contained 0.02 – 22.7 ppm of arsenic with an average 3.25 ppm and less than 1.2- 150 ppm of lead with an average of 19.2 ppm (Fields, et al., 1993). A statistical test was conducted to determine the correlation between sand, silt and clay content of the samples and metal concentrations. Samples containing higher clay content tended to have higher concentrations of most metals, including arsenic and lead (Fields, et al., 1993).

While naturally-occurring lead concentrations have not been detected above the Department's residential soil cleanup criteria in New Jersey, elevated arsenic concentrations have been found. Higher concentrations of naturally-occurring arsenic have been specifically associated with soils containing glauconite. The US Geological Survey found arsenic concentrations generally lower than 10 ppm in sandy soils from undeveloped areas, but concentrations were as large as 40 ppm in samples containing higher clay content (Barringer, et al., 1998). Soil sampling conducted as part of site remediation activities have shown glauconite soils to commonly contain arsenic concentrations of 20-40 ppm and range as high as 260 ppm (Schick, Personal comm., 1998). The Department is currently involved in a research project with the New Jersey Geological Survey investigating metal levels in glauconite soils." *Findings and Recommendations for Remediation of Historic Pesticide Contamination, Historic Pesticide Contamination Task Force, Final Report March 1999*

Fort Monmouth has been an operational military facility for in excess of ninety (90) years; and in many areas of the Main Post, human activities have completely transformed the topography. Currently, Fort Monmouth is conducting a correlation study to determine the relative impact of the ubiquitous glauconitic silty sands and clays and the concentrations of dissolved arsenic observed in a number of monitoring wells on the post. Upon the completion of the study, the results will be provided to NJDEP for review and comment. It is the intent of the US Army to demonstrate that the preponderance of the dissolved arsenic is a function of soil type and chemistry and is not anthropogenic in nature.

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. The Hornerstown Formation acts as an upper boundary of the Red Bank aquifer, but it might yield enough water within its outcrop to supply individual household needs. The Red Bank outcrops along the northern edges of the Installation, and contains two members, an upper sand member and a lower clayey sand member. The upper sand member functions as the aquifer and is probably present on some of the surface of the Main Post and at a shallow depth below the Charles Wood Area. The Hornerstown and Red Bank formations overlay the larger Wenonah-Mount Laurel aquifer.

Based on records of wells drilled in the Main Post area, water is typically encountered at depths ranging from 2 to 9 feet below ground surface (bgs). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may yield 2 to 25 gallons per minute (gpm). Some local well owners have reported acidic water that requires treatment to remove iron. Acid sulfate soils are naturally occurring soils, sediments or organic substrates (e.g. peat) that are formed under waterlogged conditions. Soil and sediment materials rich in iron sulfide tend to be very dark and soft. Iron sulfides can react rapidly when they are disturbed (i.e. exposed to oxygen). Pyrite will tend to occur as more discrete crystals in soil and organic matter matrices and will react more slowly when disturbed. The oxidation of iron sulfide in the potential acid sulfate soil materials (sulfidic material) may result in the formation of actual acid sulfate soil material or sulfuric material.

These soils contain iron sulfide minerals (predominantly as the mineral pyrite) or their oxidation products. Soil horizons that contain sulfides are called ‘sulfidic materials’ (Isbell 1996; Soil Survey Staff 2003) and can be environmentally damaging if exposed to air by disturbance. Exposure results in the oxidation of pyrite.

1.3 HEALTH AND SAFETY

Work site health and safety hazards were minimized during all decommissioning activities. All areas which posed a vapor hazard were monitored by a qualified individual utilizing a calibrated photo-ionizer detector: Thermo Instruments Organic Vapor Monitor (OVM) – Model #580-B. The individual ascertained if the area was properly vented to render the area safe, as defined by OSHA. All work areas were properly vented to insure that there were no contaminants present in the breathing zone above permissible exposure limits (PEL’s).

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

- All underground utilities were marked out by the respective trade shops or utility contractor prior to excavation activities.
- All activities were carried out with great regard to safety and health and the safeguarding of the environment.
- All excavated soils were visually examined and screened with an OVM 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.

- An NJDEP certified Subsurface Evaluator was present during all closure and remediation activities.

1.4.2 Underground Storage Tank Excavation

During decommissioning activities, surficial soil was carefully removed to expose the UST. The tank was completely empty and contained no liquids prior to removal from the ground.

After the UST was removed from the excavation, it was staged on an impervious surface, labeled and examined for holes. The Subsurface Evaluator observed a hole in the top quarterly portion of the tank during the inspection. Soils surrounding the UST were screened visually and with an OVM for evidence of contamination. Soil staining or petroleum hydrocarbons were not observed.

1.5 UNDERGROUND STORAGE TANK DECOMMISSIONING AND DISPOSAL

Subsequent to disposal, the UST was purged with air to remove vapors prior to cutting. A 4 feet by 3 feet access hole was made in the UST using a pneumatic ripper gun with a non-sparking bit. The UST was cleaned first with rubber squeegees and adsorbent material broomed on the sidewalls and bottom. The adsorbent material was then drummed and subsequently put into Ft. Monmouth's 'Oil Spill Debris' roll-off container for proper disposal. The atmosphere in and around the tank was monitored using an OVM and an Oxygen/Lower Explosive Level (LEL) meter to ensure safe working conditions during cutting and cleaning activities.

The tank liquids were transported by Freehold Cartage Inc. to Lionetti Oil Recovery Co., Inc., Old Bridge, NJ for disposal in compliance with all applicable regulations and laws. Refer to Appendix B for UST waste manifest.

The Subsurface Evaluator labeled the UST with the following information:

- site of origin
- NJDEP UST Facility ID number
- date of removal
- size of tank
- previous contents of tank

Photographic documentation of the UST is included in Appendix C.

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site Investigation was managed by U.S. Army DPW personnel. All analyses were performed and reported by Fort Monmouth Environmental Testing Laboratory, a NJDEP-certified testing laboratory. All sampling was performed by a NJDEP Certified Subsurface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (1992). Sampling frequency and parameters analyzed complied with the NJDEP document *Technical Requirements for Site Remediation*, 7:26E-3.9 (June 7, 1993) 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.

- Ft. Monmouth Directorate of Public Works-Environmental Division
Contact Person: Joseph Fallon
Phone Number: (732) 532-6223
- Subsurface Evaluator: Charles Appleby
Employer: U. S. Army
Phone Number: (732) 532-5241
NJDEP License No.: 0009974
- Analytical Laboratory: Fort Monmouth Environmental Testing Laboratory
Contact Person: Dan Wright
Phone Number: (732) 532-4359
NJDEP Laboratory Certification No.: 13461

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP certified Subsurface Evaluator using an OVM and visual observations to identify potentially contaminated material, of which none were found.

2.3 SOIL SAMPLING

On July 13, 1994, closure soil samples C, D, E, and F were collected from a total of four (4) locations along the UST sidewalls of the excavation for the UST No.: 81533-74. Samples A and B were collected along the piping. Sample G was collected from the soil pile. Refer to soil sampling location map in Figure 3. All samples were analyzed for total petroleum hydrocarbons

(TPH). Groundwater was not encountered at the bottom of the excavation; a concrete pad was located at 7.5'.

The site assessment was performed by U.S. Army-DPW personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* and the NJDEP *Field Sampling Procedures Manual*. A summary of sampling activities including parameters analyzed is provided on Table 1. The closure soil samples were collected. After collection, the samples were immediately placed on ice in a cooler and delivered to Fort Monmouth Environmental Testing Laboratory for analysis.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

Closure soil samples were collected from a total of seven locations on July 13, 1994 to evaluate soil conditions following removal of the UST and piping. All samples were analyzed for TPH. The closure soil sample results were compared to the NJDEP health based criterion of 10,000 mg/kg for total organic contaminants (*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 on Table 2. The analytical data package, including associated quality control data, is provided in Appendix D.

Closure soil samples collected on July 13, 1994 from the UST site excavation contained concentrations of TPH below the NJDEP soil cleanup criteria.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for the UST closure of UST No. 81533-74 indicates that sample A contained a TPH concentration of 109.0 mg/kg. The TPH concentration of sample B was 39.0 mg/kg. Sample C contained a TPH concentration of 13.0 mg/kg. The TPH concentration of samples D, E, F, and G was Not Detect.

Based on the closure soil sampling results, soils with TPH concentrations exceeding the NJDEP soil cleanup criterion for total organic contaminants of 10,000 mg/kg are not present in the location of former UST No.: 81533-74.

No Further Action is proposed in regard to the closure and site investigation of UST No.: 81533-74 at Building 364.

FIGURES

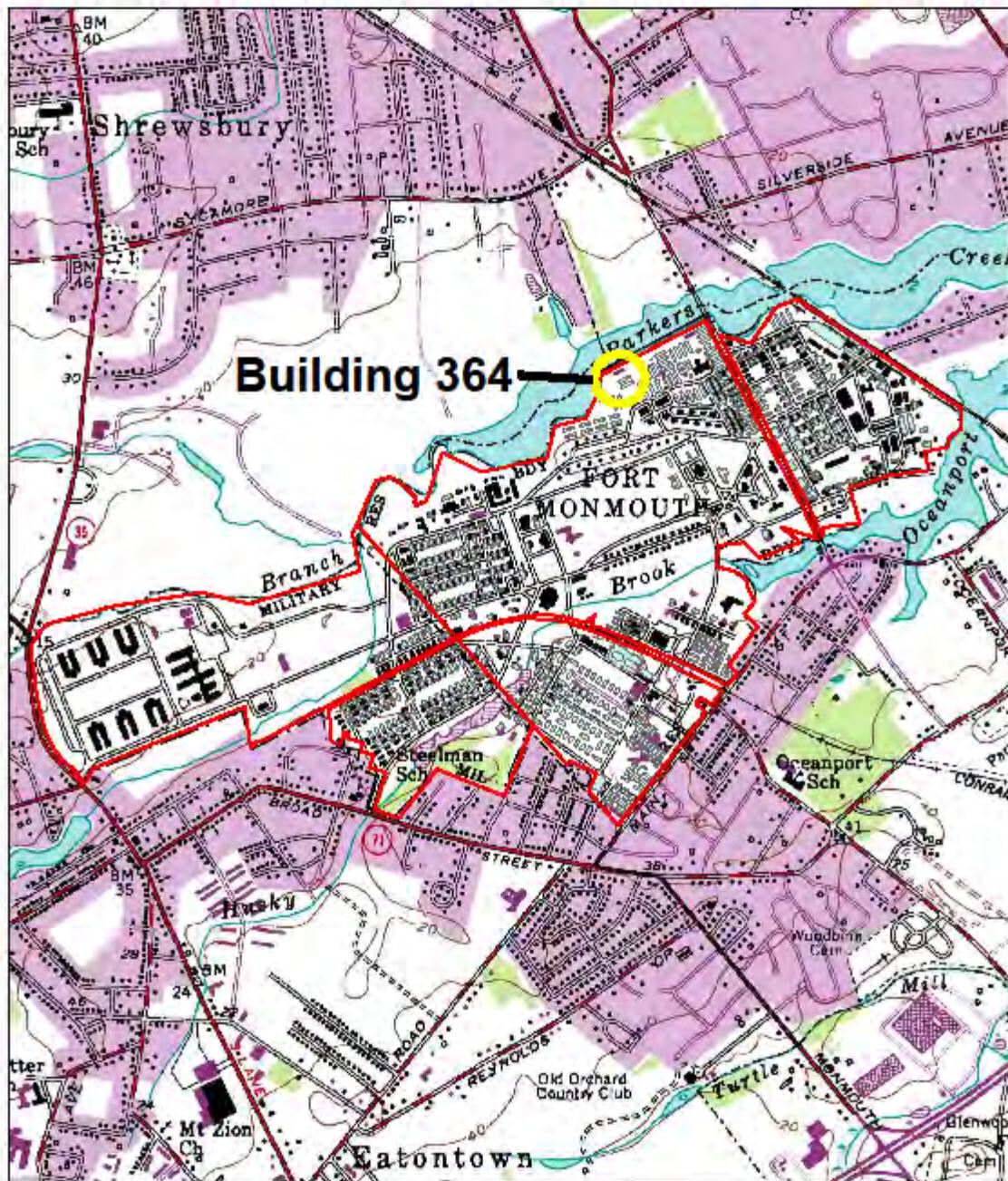


Figure 1
 Location Map
 Building 364, Main Post
 Fort Monmouth, NJ
 Date: 1/2011
 UST Registration # 81533-74
 UST Discharge # NA

LONG BRANCH, N.J.
 40073-CB-TF-004
 1984
 PHOTO REVISIT 1981
 DMA #1641 SE-SERIES V822



FOUO
 All drawings must be field verified.
 Environmental Division, Directorate of Public Works, Fort Monmouth, New Jersey

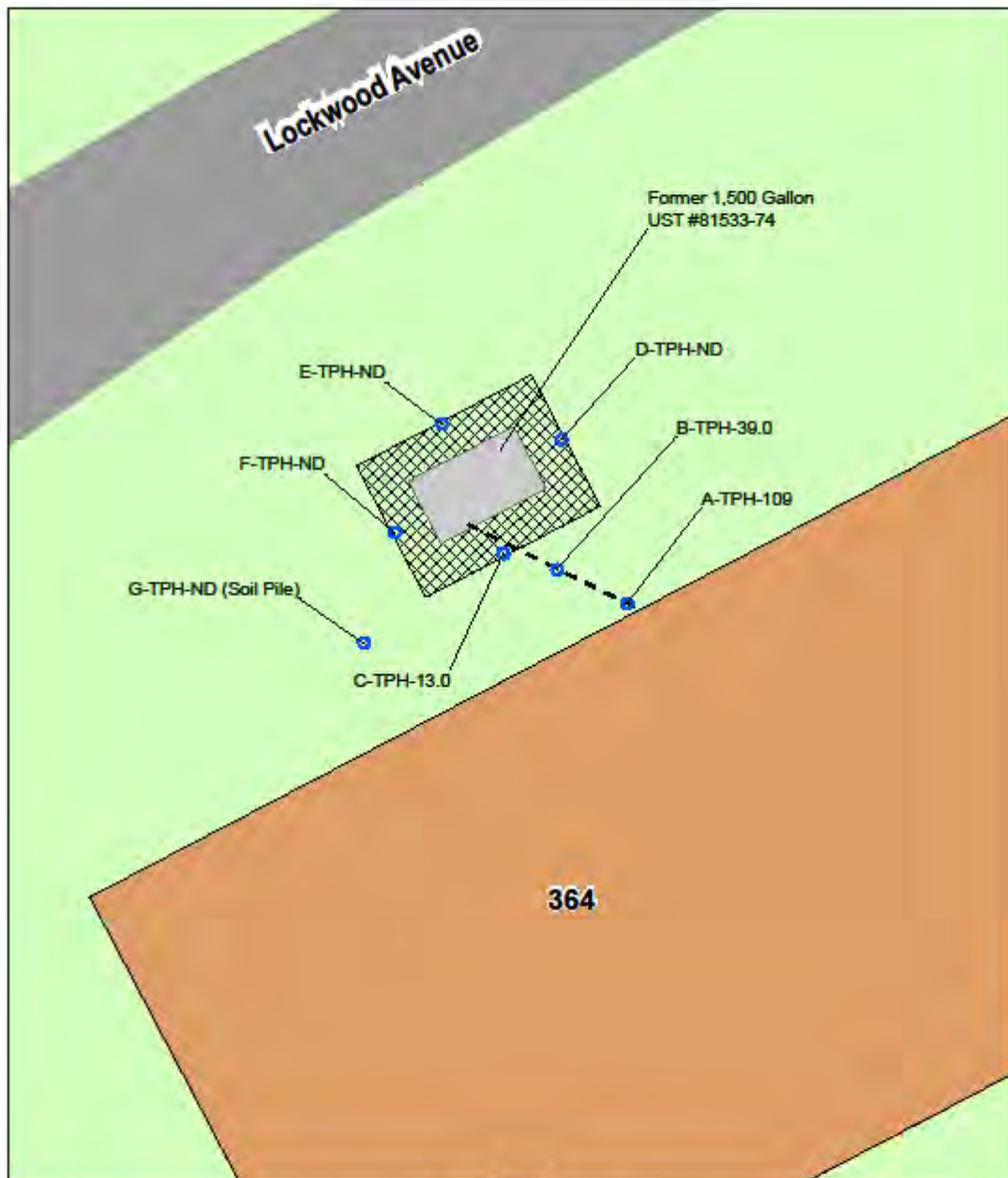


Figure 2
Location Map
Building 364 Main Post
Fort Monmouth, NJ
 Date: 1/2011
 UST Registration # 81533-74
 UST Discharge # NA



All drawings must be field verified.
 Environmental Division, Directorate of Public Works, Fort Monmouth, New Jersey





Legend
 [Grey Box] UST
 [Cross-hatched Box] UST Excavation Limits
 [Dashed Line] UST Pipe
 [Blue Dot] Soil Sample - 7/13/1994

10 5 0 10 Feet



Figure 3
 Soil Sampling Location Map
 Building 364, Main Post
 Fort Monmouth, NJ
 Date: 1/2011
 UST Registration # 81533-74
 UST Discharge # NA



All drawings must be field verified.
 Environmental Division, Directorate of Public Works, Fort Monmouth, New Jersey

TABLES

TABLE 1

SUMMARY OF LABORATORY ANALYSIS

FT. MONMOUTH, BUILDING 364, UST No.: 81533-74

13 July 1994

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE DATE	SAMPLE MATRIX	ANALYTICAL PARAMETER	ANALYTICAL METHOD
A	1563.1	13-Jul-94	SOIL	TPH	418.1
B	1563.2	13-Jul-94	SOIL	TPH	418.1
C	1563.3	13-Jul-94	SOIL	TPH	418.1
D	1563.4	13-Jul-94	SOIL	TPH	418.1
E	1563.5	13-Jul-94	SOIL	TPH	418.1
F	1563.6	13-Jul-94	SOIL	TPH	418.1
G	1563.7	13-Jul-94	SOIL	TPH	418.1

ABBREVIATIONS:

TPH = Total Petroleum Hydrocarbons, EPA Method 418.1

TABLE 2

SUMMARY OF LABORATORY ANALYTICAL RESULTS

FT. MONMOUTH, BUILDING 364, UST No.: 81533-74

13 July 1994

TOTAL PETROLEUM HYDROCARBONS

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE LOCATION	SAMPLE DEPTH (in feet)	MATRIX	TPH RESULTS mg/kg
A	1563.1	SOUTH PIPE	1.5	Soil	109
B	1563.2	CENTER PIPE	1.5	Soil	39.0
C	1563.3	SOUTH SIDEWALL	8.0	Soil	13.0
D	1563.4	EAST SIDEWALL	8.0	Soil	ND
E	1563.5	NORTH SIDEWALL	8.0	Soil	ND
F	1563.6	WEST SIDEWALL	8.0	Soil	ND
G	1563.7	WEST SOIL PILE	N/A	Soil	ND

ABBREVIATIONS:

mg/kg = Milligrams Per Kilogram = parts per million

ND = Compound Not Detected

Gray shading indicates exceedance of NJDEP health based criterion of 10,000 ppm total organic contaminants

APPENDIX A

CERTIFICATIONS

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-93-3566

0081533

US Army
BLDG. 364
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 1,500 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: 808-532-1475

OWNER:

TELEPHONE:

EFFECTIVE DATE: **SFP 07 1993**

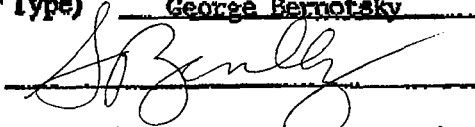
THIS FORM MUST BE DISPLAYED AT THE SITE DURING THE APPROVED
ACTIVITY AND MUST BE MADE AVAILABLE FOR INSPECTION AT ALL TIMES.


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

UNDERGROUND STORAGE TANK (UST)
CLOSURE CERTIFICATION

BUILDING NO. 364NJDEP UST REGISTRATION NO. 81533-74DATE TANK REMOVED 7/13/94UO / CONTRACT NUMBER 91-0148

I CERTIFY UNDER PENALTY OF LAW THAT TANK DECOMMISSIONING ACTIVITIES WERE PERFORMED IN COMPLIANCE WITH NJAC 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) George BernotskySIGNATURE NJDEP UST CLOSURE CERTIFICATE NO. 0003249COMPANY PERFORMING TANK DECOMMISSIONING CUTE IncNJDEP UST CLOSURE CORPORATE CERTIFICATE NO. 0200128DATE OF SUBMITTAL 8/16/94

APPENDIX B

UST WASTE MANIFEST



State of New Jersey
Department of Environmental Protection and Energy
Hazardous Waste Regulation Program
Manifest Section
CN 421, Trenton, NJ 08625-0421

ust File Copy
Bldg. 364

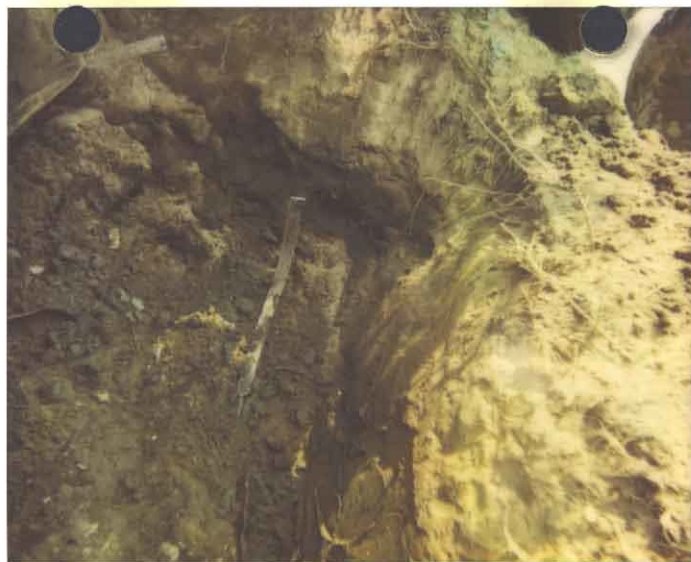
Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

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

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No. NJ 13 12 11 10 10 12 10 15 19 17 0 7262	Manifest Document No. 0 7262	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 Main Post, c/o James Shirghio, Bldg 2504, ATTN: SELFM-DL-EM-MS Fort Monmouth, NJ 07703		A. State Manifest Document Number NJA 1907262				
4. Generator's Phone (908) 532-6223		B. State Generator's ID (Gen. Site Address) SAME				
5. Transporter 1 Company Name Freehold Cartage Inc.		6. US EPA ID Number NJ 10 15 14 11 12 6 1 16 14		C. State Trans. ID-NJDEPE -52265 Decal No.- -56897		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (908) 462-1001		
9. Designated Facility Name and Site Address Lionetti Oil Recovery Co., Inc. Runyon & Cheesequake Rds. Old Bridge, NJ 08857		10. US EPA ID Number NJ 10 18 14 10 14 14 10 16 14		E. State Trans. ID-NJDEPE Decal No.- F. Transporter's Phone () G. State Facility's ID H. Facility's Phone (908) 721-0900		
11. US DOT Description (Including Proper Shipping Name, Hazard Class or Division, ID Number and Packing Group) a. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible liquid UN 1270 PG III		12. Containers No. Type		13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
		0 0 1 T T		003050		X 7 2 2
b. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T				X 7 2 2
c. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T				X 7 2 2
d. X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III		0 0 1 T T				X 7 2 2
J. Additional Descriptions for Materials Listed Above petroleum oil 90% water 10% petroleum oil 90% water 10%		K. Handling Codes for Wastes Listed Above T04 Filtration T04 Filtration T04 Filtration T04 Filtration				
15. Special Handling Instructions and Additional Information NOT EPA REGULATED. REGULATED AS HAZARDOUS WASTE IN NJ. 11a. ERG# 27 24 HOUR EMERGENCY PHONE: 201-427-2881 A. UST 0081533-74 NJ DECAL#						
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 Joseph M. Fallon		Signature Joseph M. Fallon		Month Day Year 05 26 94		
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name David S. Smith		Signature David S. Smith		Month Day Year 05 26 94		
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year		
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name Signature Month Day Year						

APPENDIX C

PHOTO DOCUMENTATION



APPENDIX D

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 #: 1563.1-.7
Sample Rec'd: 07/13/94
Analysis Start: 07/14/94
Analysis Comp: 07/14/94

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

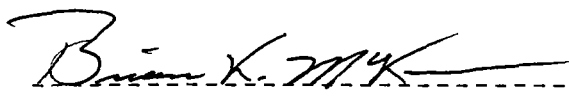
NJDEPE UST Reg.#: 0081533-74
Closure #: C-93-3566
DICAR #:
Location #: Bldg. 364

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1563.1	Site A, S. Pipe 1.5' OVA= ND	92	109.	6.6
1563.2	Site B, Ctr. Pipe 1.5' OVA= ND	91	39.0	6.6
1563.3	Site C, S. Sidewall 8' OVA= 20	85	13.0	6.6
1563.4	Site D, E. Sidewall 8' OVA= 100	86	ND	6.6
1563.5	Site E, N. Sidewall 8' OVA= 10	85	ND	6.6
1563.6	Site F, W. Sidewall 8' OVA= 100	87	ND	6.6
1563.7	Site G, W. Soil Pile OVA= 10	85	ND	6.6
M. Bl.	Method Blank	100	ND	3.3

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

* = Silica Gel Added, NA = Not Applicable

1563.1 dup= 97% 1563.1 s= 96% 1563.1 sd= 96% RPD= 0.0%



Brian K. McKee
Laboratory Director

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 #: 1563.1-.7
Sample Rec'd: 07/13/94
Analysis Start: 07/14/94
Analysis Comp: 07/14/94

Analysis: Munsel

[illegible]

B. MK

Brian K. McKee
Laboratory Director

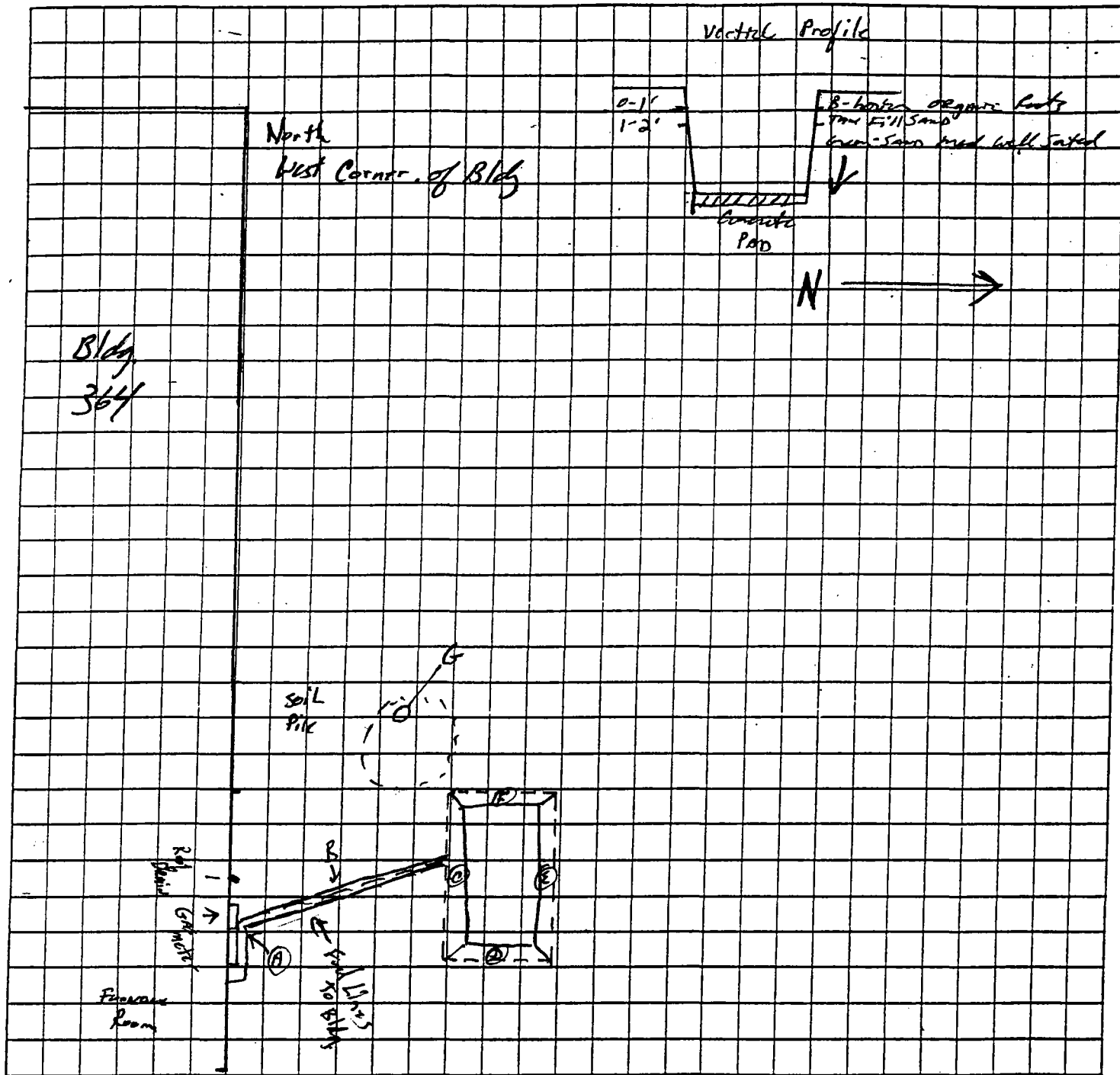
SERV-AIR, INC.

P.O. #: *PLS-007*

Chain of Custody

Project #: <i>C93-3566</i>		Sampler: <i>Greg B. / Date Time</i>		Date / Time: <i>7/13/94 1400</i>		Analysis Parameters		Start:	
Customer: <i>C. Appleby SELF-PM-PW-EV</i>		Site Name: <i>Bldg. 364</i>						Finish:	
Phone: <i>908 532-6224</i>		UST #: <i>0081533-74</i>						Preservation Method	
Lab Sample ID Number		Date/Time	Customer Sample Location/ID Number	Sample Matrix	# of Bottles	TPH/C C/L Solids Munsell CWA PPM			Remarks
<i>15603.1</i>	<i>7-13-94 1456</i>	<i>Site A - South Pipe Chase 1.5'</i>	<i>Soil</i>	<i>1</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>ND</i>	<i>Kept 24°C</i>
<i>.2</i>	<i>1458</i>	<i>Site B - Center Pipe Chase 1.5'</i>	<i>Soil</i>	<i>1</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>ND</i>	
<i>.3</i>	<i>1435</i>	<i>Site C - South Sidewalk 8.0'</i>	<i>Soil</i>	<i>1</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>20</i>	
<i>.4</i>	<i>1440</i>	<i>Site D - East Sidewalk 8.0'</i>	<i>Soil</i>	<i>1</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>100</i>	
<i>.5</i>	<i>1450</i>	<i>Site E - North Sidewalk 8.0'</i>	<i>Soil</i>	<i>1</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>10</i>	
<i>.6</i>	<i>1448</i>	<i>Site F - West Sidewalk 8.0'</i>	<i>Soil</i>	<i>1</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>10</i>	<i>CWA - SW 52114</i>
<i>✓ .7</i>	<i>1505</i>	<i>Site G - West Soil Pile</i>	<i>Soil</i>	<i>1</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>10</i>	<i>Cal. 7-13-94 1400h</i>
									<i>w/ 95 PPM methanol - Zero</i>
									<i>High - Read 77 PPM</i>
									<i>high humidity OK - C4</i>
Relinquished By (signature)		Date / Time	Received By (signature)		Shipped By:				
					<i>Hand</i>				
Relinquished By (signature)		Date / Time	Received for Lab by (signature):			Date / Time			
<i>Charles Appleby</i>		<i>7-13-94 1535</i>	<i>Janet J. Hubbard</i>			<i>7/13/94 1535</i>			
Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.									
<i>Attached.</i>									

PROPOSED SITE PLAN



NOTE: Indicate scale and compass direction.

REMARKS

Removal Site Assessment

Depth - Pipe Chase Exc. 15'

UST Excavation 7.5'

Site & Soil Pit highest DHA 10 ppm

Pit Excavation Samples taken 1' Below Adjacent to Concrete PAD.

7-13-94 et - 1"=10'

TANK LOCATION

BLDG# 364

TANK # 0081533-74

TANK SIZE 1500 gal

TANK CONTENTS #2 Fuel oil

July 14, 1994 0935

Blank 0 MV

40.75 107 MV

81.5 204 MV

163 401 MV

1563.1 41 MV Dup

1563.1 40 MV Dup

1563.1 57 MV Spk

1563.1 57 MV Dup. Spk.

1563.2 17 MV

1563.3 8 MV

1563.4 0 MV

1563.5 2 MV

1563.6 5 MV

1563.7 3 MV

1564.1 22 MV

1564.2 4 MV

No Yes

- ✓

 ✓

- ✓

- NA

- ✓

-

B. McK
Brian K. McKee
Laboratory Manager