

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:

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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

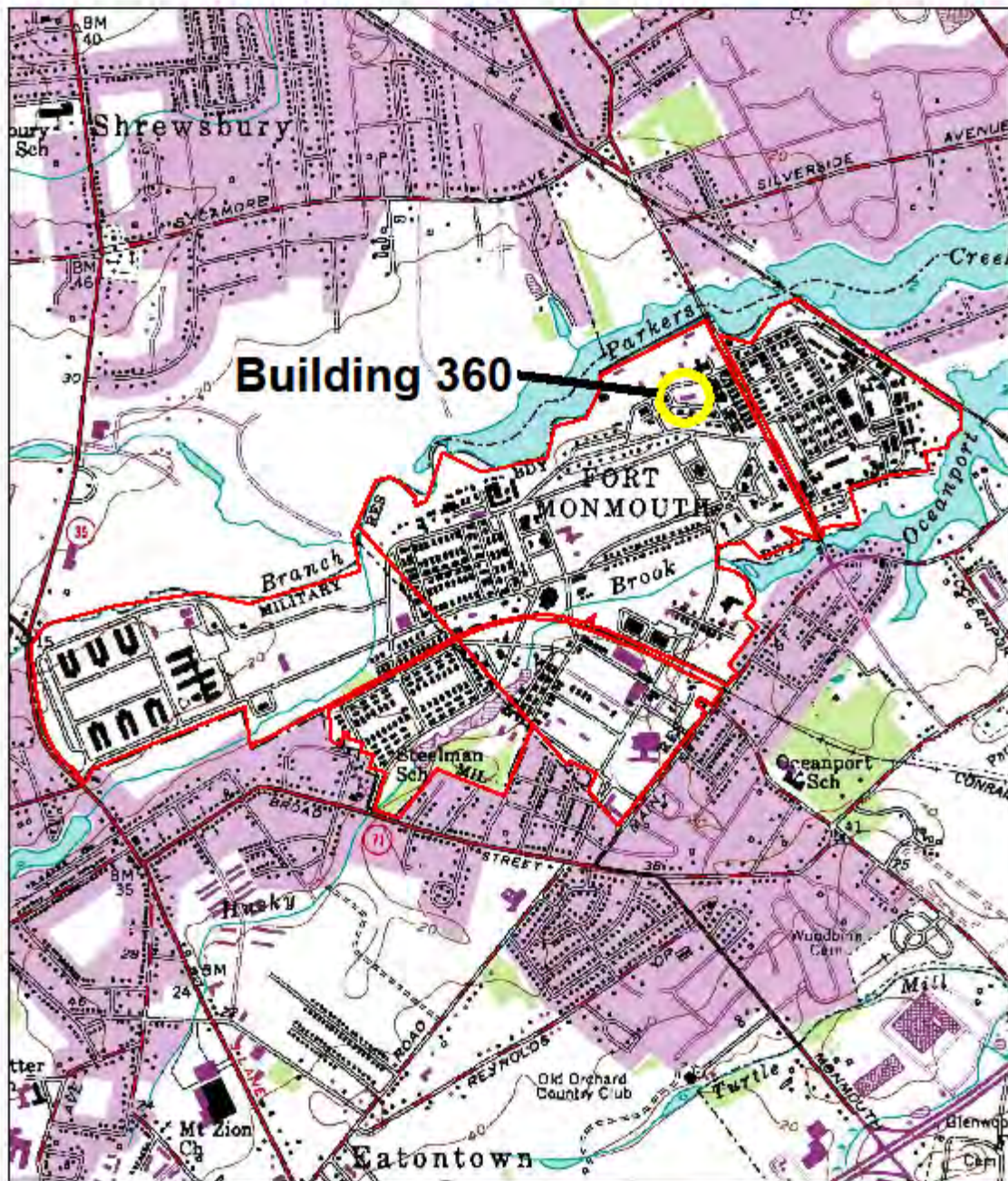


Figure 1
 Location Map
 Building 360, Main Post
 Fort Monmouth, NJ
 Date: 1/2011
 UST Registration # 81533-70
 UST Discharge # NA

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



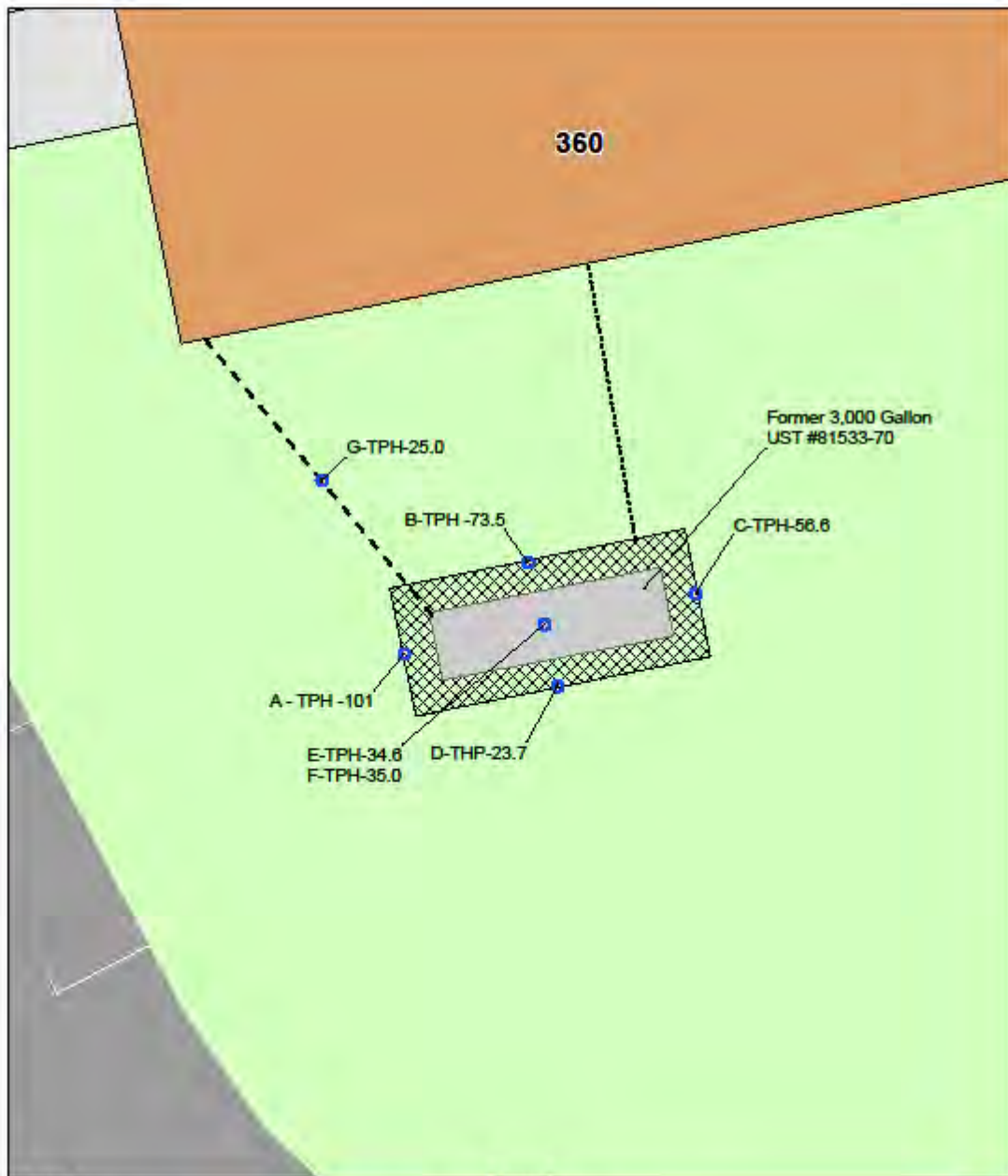
FOUO
 All drawings must be field verified.
 Environmental Division, Directorate of Public Works, Fort Monmouth, New Jersey



Figure 2
Location Map
Building 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



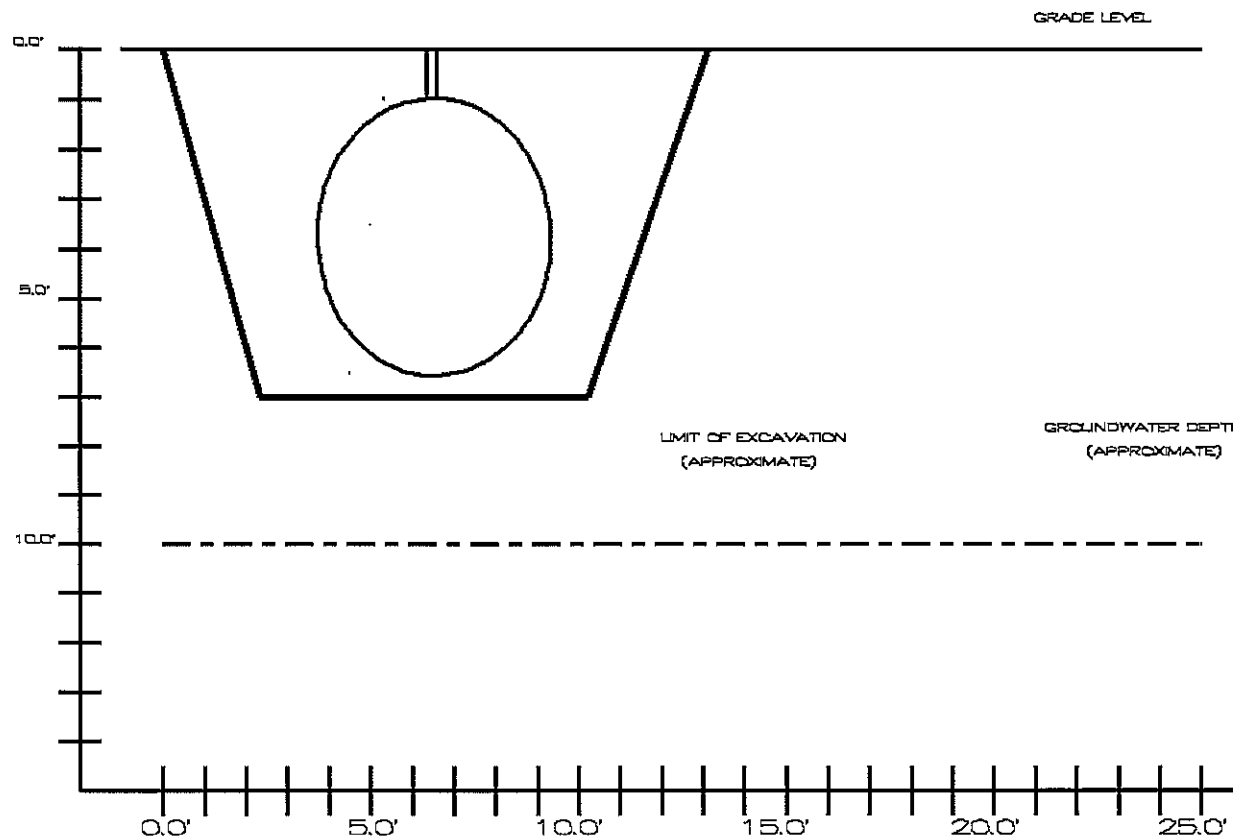
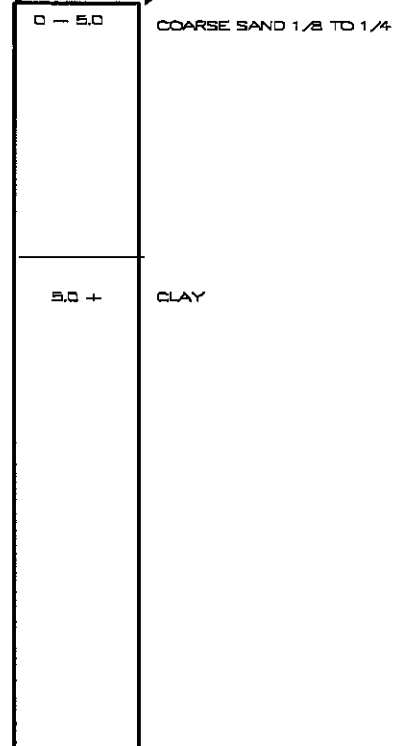
Figure 3

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

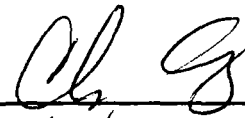
- IV. THE BUREAU OF UNDERGROUND STORAGE TANKS WILL REVIEW THE CLOSURE PLAN FOR COMPLETENESS AND APPROPRIATENESS AS SPECIFIED IN SUBCHAPTER 9 OF THE UST REGULATIONS. PLAN APPROVAL WILL INDICATE THAT THE OWNER OR OPERATOR MAY PROCEED WITH THE CLOSURE. FINAL APPROVAL OF THE CLOSURE IS NOT IMPLIED. ALL APPROPRIATE 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

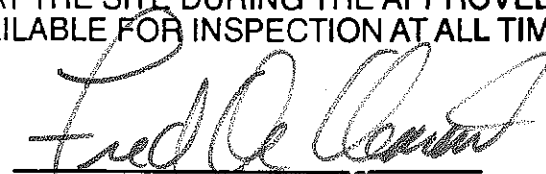
TELEPHONE: 908-532-1475

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.

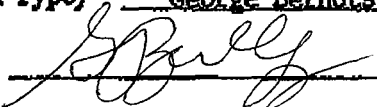


KEVIN F. KRATINA, BUREAU CHIEF
BUREAU OF UNDERGROUND STORAGE TANKS

**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

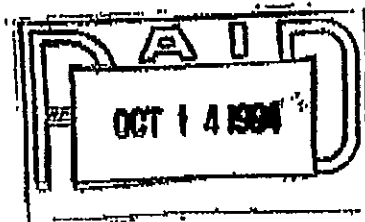
Make of
 Autos

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 Frederick C. [unclear] INC NJSD 0541126164		Main Post FT Monmouth, NJ NJDEPE 51245 Transporter's Phone 908 462-1001	
4. Designated Facility Name and Site Address Lionetti Oil Recovery Co Inc Runyon + Chesapeake A.D. oil [unclear] NJ NJSD 0184044064		5. US EPA ID Number		6. Facility's Phone	
7. US DOT Description (including Proper Shipping Name, Hazard Class and Number)		8. US DOT ID Number		9. Waste No.	
a. Petroleum oil, not class 3 (Petroleum oil)		b. Combustible liquid 4X 1270 PG III 001T 0014216X 922 ✓			
c. [unclear]		d. [unclear]			
10. Addressee's Name and Address Petroleum oil 60 water 40		11. Addressee's Name and Address TP4 Filtration			
12. Special Handling Instructions Not EPA Regulated. Hazardous waste in NJ NJSD Dec 1992 # 55182 24 hr Emergency phone # 201-427-2881		a) B12360 NJDEPE 0081533-70			
13. 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.		14. 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.			
Printed Name Jim SHIREHIO		Signature J.E. Shirehio		Date 10/12/94	
17. Transporter's Acknowledgment of Receipt of Materials Printed Name David S. Smith		Signature David S. Smith		Date 10/12/94	
18. Discrepancy Indication Space		19. 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. 8/93) 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 NJ 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 054126164		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. Facility's Phone (908) 721-0900		F. Transporter's Phone ()			
						G. State Facility's ID			
12. Containers				13. Total Quantity		14. Unit		15. Waste No.	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III				0.01 TIT		00125 G		X 7 2 2	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III				0.01 TIT		00525 G		X 7 2 2	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) combustible liquid UN 1270 PG III				0.01 TIT		00627 G		X 7 2 2	
X Petroleum Oil, N.O.S. Class 3 (Petroleum Oil) Combustible Liquid UN 1270 PG III				0.01 TIT		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 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



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. 774

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 Zn Fe Mg Ca Na K Cl S P B Al Si Mn Co Mg Ca Na K Cl S P B Al Si				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	low zero air
.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.										

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