DEPARTMENT OF THE ARMY



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

April 26, 2016

Ms. Linda Range New Jersey Department of Environmental Protection Bureau of Case Management 401 East State Street PO Box 420/Mail Code 401-05F Trenton, NJ 08625-0028

Subject: No Further Action Request

Site Investigation Report Addendum for Howard Commons Underground

Storage Tanks, Fort Monmouth, New Jersey

Attachments:

- A. Location and Site Layout Drawings of Howard Commons
- B. Summary Table of Howard Commons Underground Storage Tanks
- C. NJDEP Correspondence
- D. UST 3010 Report
- E. Additional UST 3010 and UST 3015 Analytical Results
- F. UST 3015 Report
- G. UST 3027 Report
- H. UST 3035 Documentation
- I. UST 3216 Report
- J. Additional UST 3216 Analytical Results

Dear Ms. Range:

The U.S. Army Fort Monmouth (FTMM) has reviewed existing file information for underground storage tank (UST) sites at Fort Monmouth within Howard Commons at the Charles Wood Area. The purpose of this submittal is to provide comprehensive documentation of the closure status of all USTs identified within this parcel; this information may be useful for future property transfers. In addition, the Army is requesting No Further Action (NFA) determinations for USTs 3010, 3015, 3027, 3035, and 3216.

Howard Commons includes the southeastern portion of the Charles Wood Area, and is bounded: on the north approximately by Wampum Brook; along the east and south by the facility boundary and Pinebrook Road; and on the west by Hope Road. This area is also referred to as Environmental Condition of Property (ECP) Parcel 1 (Pinebrook Housing). The locations of the USTs within Howard Commons are presented in Attachment A.

A summary table of the eight USTs within Howard Commons is provided in Attachment B. All of the USTs identified within Howard Commons have been removed.

Three of the eight former USTs (2603, 3021 and 3050) identified within Howard Commons were previously approved for NFA by NJDEP; documentation of this approval is provided in Attachment C. In these cases, there are supporting investigation reports that were previously submitted to NJDEP that describes the basis for closure. For the sake of brevity, we have not included reports for USTs where NFA has been approved. However, these reports are available within the FTMM environmental records.

The remaining five USTs without NFA determinations are discussed further below. We are submitting additional documentation for these USTs and request, with consideration of this information, NFA determinations for:

- UST 3010: a closure report is provided in Attachment D, summarizing the results of sampling following removal of the tank in 2009, which was previously abandoned in place. Groundwater sampling was also performed at UST 3010 in 2005, as well as soil sampling alongside the abandoned-in-place tank; the results of these analyses are presented in Attachment E.
- UST 3015: a closure report is provided in Attachment F, summarizing the results of sampling following removal of the tank in 2009, which was previously abandoned in place. Additional soil sampling was also performed at UST 3015 in 2005 (Attachment E). There were no indications of a release that would warrant evaluation of groundwater.
- UST 3027: a closure report for the 1994 removal is provided in Attachment G. Elevated soil TPH at this location was limited to the fill port area, and was removed by excavation; therefore evaluation of groundwater was not warranted.
- UST 3035: documentation concerning the removal in 1990 is provided in Attachment H.
 As documented in the NJDEP Standard Reporting Form, soil contamination was not
 encountered, and therefore soil sampling was not performed in accordance with thencurrent requirements. An Army memorandum also provided in Attachment H documents
 that the tanks were cleaned, there were no signs of leakage or corrosion in the tank, and
 no contamination was discovered after the tank was removed.
- UST 3216: a closure report is provided in Attachment I, summarizing the results of sampling following removal of the tank in 2009, which was previously abandoned in place. Groundwater sampling was also performed at UST 3216 in 2006, as well as soil sampling alongside the abandoned-in-place tank; the results of these analyses are presented in Attachment J.

This information supports the conclusion that the USTs identified within Howard Commons have been adequately addressed by previous environmental activities under the FTMM tank removal and assessment program, and we request No Further Action determinations for UST 3010, UST 3015, UST 3027, UST 3035, and UST 3216. The technical Point of Contact (POC) for this matter is Kent Friesen at (732) 383-7201 or by email at kent.friesen@parsons.com. Should you have any questions or require additional information, please contact me by phone at (732) 380-7064 or by email at william.r.colvin18.civ@mail.mil.

Sincerely,

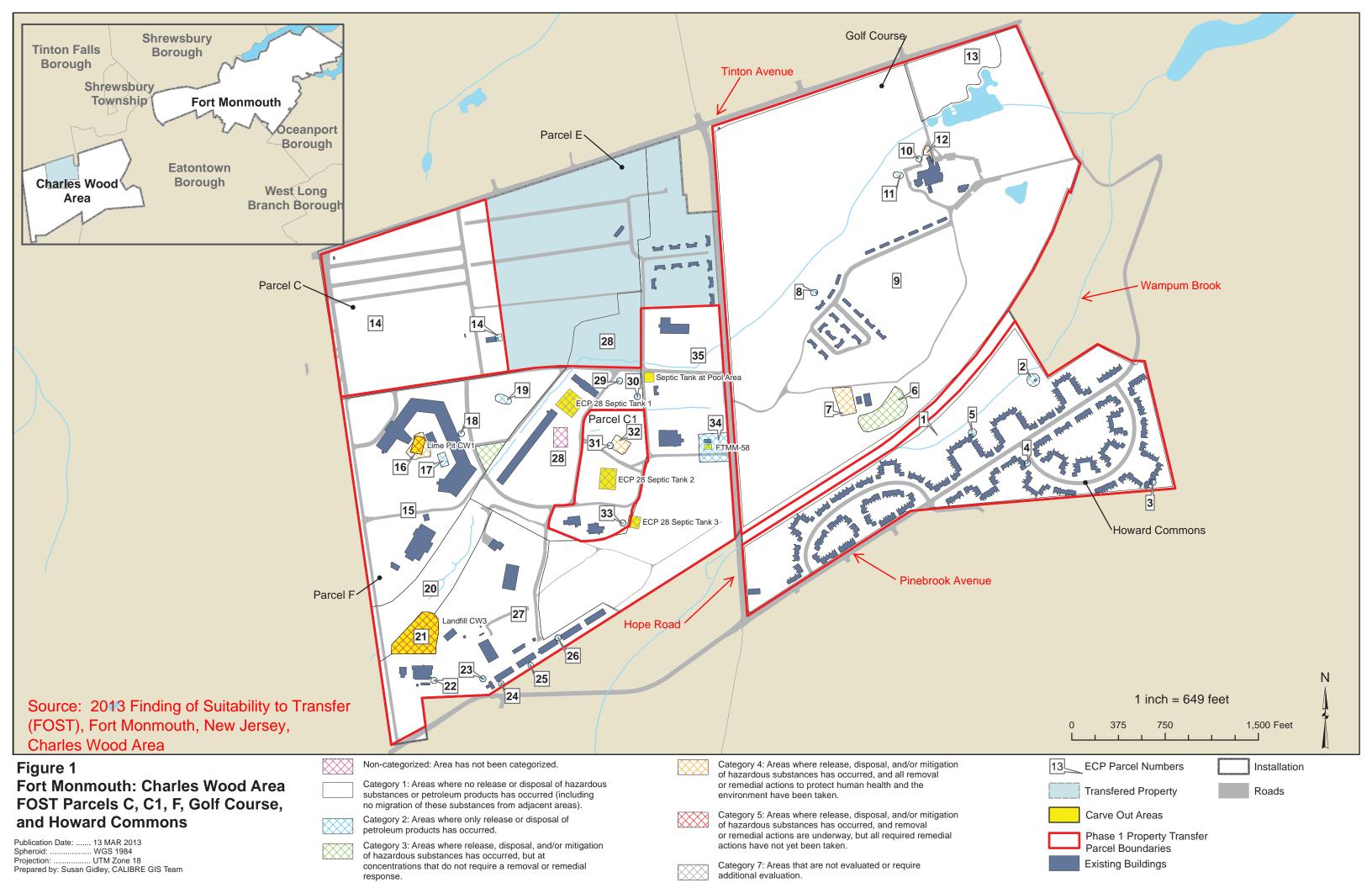
William R. Colvin, PMP, CHMM, PG BRAC Environmental Coordinator

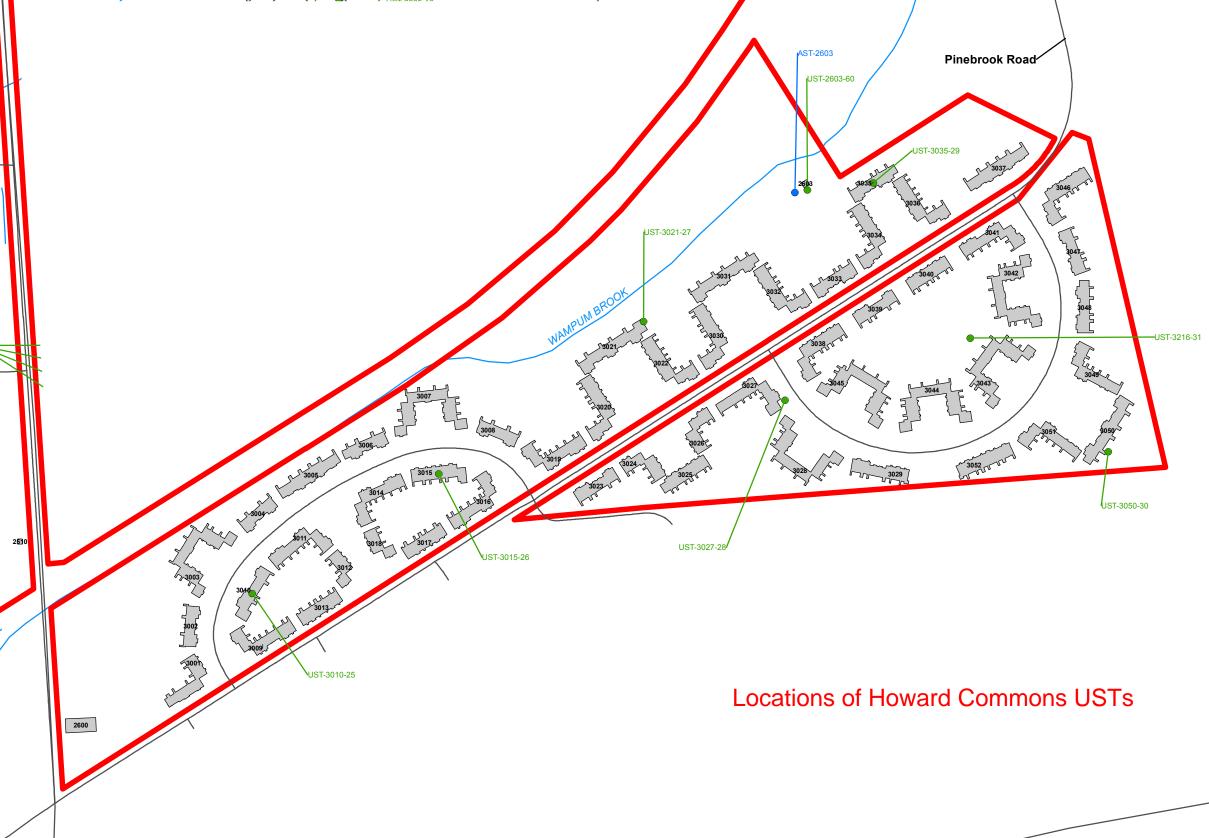
cc: Linda Range, NJDEP (3 hard copies)
Delight Balducci, HQDA ACSIM (CD)
Joseph Pearson, Calibre (CD)
James Moore, USACE (CD)

Jim Kelly, USACE (CD) Cris Grill, Parsons (CD)

ATTACHMENT A

Location and Site Layout Drawings of Howard Commons





ATTACHMENT B

Summary Table of Howard Commons Underground Storage Tanks

Summary Table of Howard Commons Underground Storage Tanks

Site Name	RESIDENTIAL	Registration ID	DICAR	Tank Size and Type	Product	No Further Action (NFA) Approved or Requested Status
2603	NO	81515-60	98-04-16-1603-19	275 gallon steel	DIESEL	NFA approved per 1/10/2003 NJDEP letter
3010	YES	192486-25	09-01-30-1415-32	10,000 gallon steel	#2 FUEL OIL	NFA requested 4/26/2016; supporting information includes the Attachment D report and Attachment E analyses
3015	YES	192486-26		10,000 gallon steel	#2 FUEL OIL	NFA requested 4/26/2016; supporting information includes the Attachment F report and Attachment E analyses
3021	YES	192486-27	89-11-02-1052	5000 gallon steel	#2 FUEL OIL	NFA approved per 10/17/2000 NJDEP letter
3027	YES	192486-28		7500 gallon steel	#2 FUEL OIL	NFA requested 4/26/2016; supporting information includes the Attachment G report
3035	YES	192486-29		5000 gallon steel	#2 FUEL OIL	NFA requested 4/26/2016; supporting information includes the Attachment H documentation
3050	YES	192486-30	92-1-28-1324-37	7500 gallon steel	#2 FUEL OIL	NFA approved per 8/29/2000 NJDEP letter
3216	NO	192486-31		10,000 gallon steel	#2 FUEL OIL	NFA requested 4/26/2016; supporting information includes the Attachment I report and Attachment J analyses

ATTACHMENT C NJDEP Correspondence



State of New Jersey

Christine Todd Whitman Governor

Department of Environmental Protection

Robert C. Shinn, Jr. Commissioner

AUG 2 9 2000

Mr. Dinkerrai Desai
Department of the Army
HEADQUARTERS, U.S. Army Communications-Electronic Command
Fort Monmouth, NJ 07703-5000

Re:

UST Closure Approval/NFA Fort Monmouth Main Post Monmouth County

Dear Mr. Desai:

The NJDEP is in receipt of seventeen (17) UST closure reports dated June 1, 2000. The Army has requested to receive No Further Action approval letters for each of these reports. This letter approves the NFA requests for the following 17 UST located on the Main Post of the Fort Monmouth site:

NJDEP Req. #	Bldg. #	NJDEP Req. #	Bldg. #
009001006	80	0081533—226	707
0090010—17	166	0081533—119	745
0081533—5	207A	0081533—160	1076
0081533—211	207B	0081533—161	1076
008153357	282	0081533—168	1108
0081533—64	290	00192486—1	2000
0081533—68	295	008151562	2700.4
0081533—108	689A	00192486—30	3050
0081533—109	689B	<u> </u>	

The NJDEP has determined that the Army has performed the remedial actions in a manner consistent or in excess of the regulatory requirements, specifically the Technical Requirements For Site Remediation (N.J.A.C. 7:26E et seq.). Soils with contamination in excess of the NJDEP residential cleanup criteria have been excavated and the Army has taken great care to provide documentation which assures us that all sources of contamination have been remediated.

The NJDEP has one comment in that we request that future reports provide ground water flow direction indications on the well location maps.

If you should have any questions or comments, please do not hesitate to contact me at (609) 633-7232 or via E-mail.

lan R. Curtis, Case Manager Bureau of Case Management ICURTIS@DEP.STATE.NJ.US



State of New Jersey

Christine Todd Whitman

Department of Environmental Protection

Robert C. Shinn, Jr.

Commissioner

Mr. Dinkerrai Desai
DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY COMMUNICATIONS-ELECTRONIC COMMAND
FORT MONMOUTH, NJ 07703-5000

OCT 1 7 2000

Re:

UST Closure Approval/NFA Fort Monmouth Main Post Monmouth County

Dear Mr. Desai:

The NJDEP is in receipt of UST closure report dated October 16, 2000. The Army has requested to receive a No Further Action approval letter for this report. This letter approves the NFA request for the following UST located on the Charles Wood area of the Fort Monmouth site:

NJDEP Reg. #	Bldg. #
00192486-27	3021

The NJDEP has determined that the Army has performed the remedial actions in a manner consistent or in excess of the regulatory requirements, specifically the Technical Requirements For Site Remediation (N.J.A.C. 7:26E et seq.). Soils with contamination in excess of the NJDEP residential cleanup criteria have been excavated and the Army has provided documentation that assures us that all sources of contamination have been remediated.

The NJDEP does have some concern that the tank was found to be leaking in November 1989 and it was not fully investigated until October 2000. These concerns are somewhat allayed by the fact that contamination was not expected nor found.

If you should have any questions or comments, please do not hesitate to contact me at (609) 633-7232 or via E-mail.

lan R. Curtis, Case Manager Bureau of Case Management

ICURTIS@DEP.STATE.NJ.US

FTMMTH70IRC.DOC



James E. McGreevey
Governor

Department of Environmental Protection

Bradley M. Campbell Commissioner

Mr. Dinkertai Desai Department of the Army Headquarters, U.S. Army Communications-Electronic Command Fort Monmouth, NJ 07703-5000

Re:

UST Closure Approval/NFA Fort Monmouth Main Post Monmouth County JAN 1 0 2003

Dear Mr. Desai:

The NJDEP is in receipt of sixty-eight (68) underground storage tank (UST) closure reports dated between July 17, 2001 and May 15, 2002. The Army has requested to receive No Further Action (NFA) approval letters for each of these reports. This letter approves the NFA requests for the following 68 UST that are located on the Main Post of the Fort Monmouth site:

Submittal Date	Building No.	NJDEP Reg. #	Residential
07/17/2001	104	90010-75	NO
07/17/2001	699A	81533-112	NO
07/17/2001	800A	81533-127	NO
07/17/2001	875	81533-234	NO
07/17/2001	949	81533-203	NO
07/17/2001	1220A	81533-184	NO
07/17/2001	2000B	192486-38	NO
01/02/2002	257	81533-200	NO
01/02/2002	283C	81533-229	NO
01/02/2002	290B	81533-224	NO
01/02/2002	290B	81533-225	NO
01/02/2002	491	90010-71	NO
01/02/2002	605	81533-85	NO
01/02/2002	678	81533-105	NO
01/02/2002	699	81533-236	NO
01/02/2002	699	81533-238	NO
01/02/2002	699	81533-237	NO
01/02/2002	699	81533-235	NO
01/02/2002	801B	81533-129	NO
01/02/2002	804A	81533-130	NO
01/02/2002	2337	81515-65	NO
01/02/2002	2562A	81515-41	NO
01/02/2002	2707	81515-50	NO
01/02/2002	2707	81515-49	NO
01/02/2002	2707	81515-51	NO
01/02/2002	2707	81515-47	NO
01/02/2002	2707	81515-48	NO

Submittal Date	Building No.	NJDEP Reg. #	Residential
02/13/2002	2044	192486-24	NO
02/13/2002	2044	192486-32	NO
02/13/2002	2044	192486-33	NO
02/26/2002	208B	81533-210	YES
03/05/2002	246	N/A	YES
03/05/2002	261B	N/A	YES
05/15/2002	106	90010-74	NO
05/15/2002	164	90010-15	NO
05/15/2002	173	90010-19	NO
05/15/2002	200	81533-2	NO
05/15/2002	208A	81533-6	YES
05/15/2002	233	81533-21	YES
05/15/2002	237	81533-25	YES
05/15/2002	271	81533-55	YES
05/15/2002	277	90010-24	NO
05/15/2002	296B	81533-217	NO
05/15/2002	296B	81533-223	NO
05/15/2002	296B	81533-221	NO
05/15/2002	296B	81533-220	NO
05/15/2002	296B	81533-222	NO
05/15/2002	296B	81533-218	NO
05/15/2002	296B	81533-216	NO
05/15/2002	296B	81533-215	NO
05/15/2002	296B	81533-214	NO
05/15/2002	296B	81533-213	ŃO
05/15/2002	296B	81533-219	NO
05/15/2002	426	90010-40	NO
05/15/2002	482	90010-54	NO
05/15/2002	600 A	81533-83	NO
05/15/2002	600 B	81533-212	NO
05/15/2002	611	81533-87	NO
05/15/2002	615	81533-89	NO
05/15/2002	618	81533-91	NO
05/15/2002	619	81533-92	NO
05/15/2002	621	81533-94	NO
05/15/2002	634	N/A	NO
05/15/2002	638	N/A	NO
05/15/2002	639-2	N/A	NO
05/15/2002	640	N/A	NO
05/15/2002	641	N/A	NO
05/15/2002	644	N/A	NO
05/15/2002	664	. N/A	NO
05/15/2002	666	N/A	NO
05/15/2002	686	81533-107	NO
05/15/2002	697	81533-194	NO
05/15/2002	697	81533-195	NO

:

7

Submittal Date	Building No.	NJDEP Reg. #	Residential
05/15/2002	697	81533-196	NO
05/15/2002	876B	81533-139	NO
05/15/2002	886	81533-140	NO
05/15/2002	905	81533-145	NO
05/15/2002	1102	81533-162	NO
05/15/2002	1104	81533-164	NO
05/15/2002	2067	192486-37	NO
05/15/2002	2534	81515-24	NO
05/15/2002	2603	81515-60	NO
05/15/2002	2700 2,6	81515-61	NO

The NJDEP has determined that the Army has performed the remedial actions in a manner consistent with the regulatory requirements, specifically the Technical Requirements For Site Remediation (N.J.A.C. 7:26E et seq.). Soils with contamination in excess of the NJDEP residential cleanup criteria have been excavated and the Army has taken great care to provide documentation that assures us that all sources of contamination have been remediated.

If you should have any questions or comments, please do not hesitate to contact me at (609) 633-7232 or via E-mail.

Sincerely,

Ian R. Curtis, Case Manager Bureau of Case Management ICURTIS@DEP.STATE.NJ.US

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ATTACHMENT D

UST 3010 Report

UNDERGROUND STORAGE TANK CLOSURE AND REMEDIAL INVESTIGATION REPORT

MAIN POST WEST – BLDG. 3010 NJDEP UST REGISTRATION NO.: 192486-25 RELEASE NO.: 09-01-30-1415-32

JUNE 2011

PREPARED FOR:

U.S. ARMY GARRISON, FORT MONMOUTH, NJ DIRECTORATE OF PUBLIC WORKS BUILDING 173 FORT MONMOUTH, NJ 07703

PREPARED BY:

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

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Appendix B Waste Manifest

Appendix C UST Disposal Certificate
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EXECUTIVE SUMMARY

On January 30, 2009, one underground storage tank (UST) was closed by removal in accordance with the Directorate of Public Works (DPW) UST Management Plan for the U.S. Army Garrison, Fort Monmouth, New Jersey. The UST was located next to Building 3010 in the Pine Brook Housing area of Fort Monmouth. UST No. 192486-25 was a 10,000-gallon, single-walled steel tank that had been previously abandoned in place. The fill port and supply and return lines were present in the excavation. During the removal of the previously abandoned tank, potentially impacted soils were encountered, NJDEP was notified and a discharge number of 09-01-30-1415-32 was assigned.

The site assessment was performed by TECOM-Vinnell Services (TVS) personnel in accordance with the New Jersey Department of Environmental Protection (NJDEP) Technical Requirements for Site Remediation (TRSR) and the NJDEP Field Sampling Procedures Manual (FSPM). Soils surrounding the tanks were screened visually and with a calibrated hand held Mini-Rae Photo-Ionization air monitoring instrument for evidence of contamination. A small area of petroleum impacted soil was observed in the area of the UST. A grab sample was collected and the visibly impacted soils were removed and taken to the ID 27 soil storage pad for subsequent disposal. Following removal, the UST was inspected for holes. No holes or evidence of impacted soils were observed after the removal of the tank from the ground. After removing the UST and associated piping, post-excavation soil samples were collected. Samples 3010-A through 3010-E were collected from five (5) locations along the sidewalls and bottom of the excavation. On March 30, 2009 two samples were collected along the remote fill line. All samples were analyzed for total petroleum hydrocarbons (TPH). Groundwater was encountered at approximately 5.5 feet below ground surface grade in the excavation.

All sampling was performed by a NJDEP Certified Subsurface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (FSPM August 2005). Sampling frequency and parameters analyzed complied with the NJDEP document *Technical Requirements for Site Remediation* (TRSR) 7:26E-3.9 which was the applicable regulation at the date of the closure.

The post-excavation soil samples collected from the UST excavation associated with former UST No. 192486-25 contained TPH concentrations less than the NJDEP health based standard of 4,800 milligrams per kilogram (mg/kg) for total organic contaminants (N.J.A.C. 7:26E). None of the samples collected for post remedial confirmation were in excess of the additional analytical threshold of 1,000 ppm. The soil analytical data confirmed that no release had occurred from the excavated UST.

Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and crushed stone. The excavation site was then restored to its original condition with four inches of top soil and grass seed.

Based on the post-excavation soil sampling results, soils present are less than the NJDEP health based standard for total organic compounds as diesel fuel/#2-fuel oil.

No further action is proposed in regard to the closure and site assessment of USTs No. 192486-25 at Building 3010.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No 192486-25, was closed in the area of Bldg. 3010 located in Pine Brook Housing at U.S. Army Garrison, Fort Monmouth, New Jersey on February 9, 2009. Refer to the site location map included as Figure 1. This report presents the results of the implementation of the DPW's UST Management Plan, March, 1996. UST No. 192486-25 was a 10,000-gallon #2 home heating oil tank used for a fuel supply to a boiler plant for the several residential units.

Decommissioning activities for the USTs complied with all applicable federal, state and local laws and ordinances in effect at the date of decommissioning. These laws included, but were not limited to: 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 US Army employee. During the removal of the previously abandoned tank, a potential discharge was observed and NJDEP was notified of the release. The release number 09-01-30-1415-32 was assigned. A sample of the visibly impacted soil was collected and submitted for analysis. TPHC analysis from the laboratory revealed concentrations of total organic compounds as #2-heating oil to be greater than 33,000 milligram/kilogram (mg/kg).

This UST Closure and Remedial Investigation Report (RIR) has been prepared by TVS to assist the US 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 and revisions dated May 19, 2003).

This RIR was prepared using information required by the Technical Requirements for Site Remediation (TRSR). Section 1 of this UST Closure and RIR 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 Section 3 of this report.

1.2 SITE DESCRIPTION

Building 3010 is located in the Pine Brook Housing area of Fort Monmouth, as shown on Figure 1. The UST was located to the west of Building 3010. The fill port and appurtenant piping were encountered in the excavation.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of Bldg. 3010. 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 Pine Brook Housing 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 semiconsolidated 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 (Zapecza, 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. For a visual representation refer to Figure 2

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 see Fig. 3), 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).

Hydrogeology

The water table aquifer in the Pine Brook Housing 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 (black ooze) 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 These soils contain iron sulfide minerals (predominantly as the sulfuric material. 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.

The area of Bldg. 3010 is located approximately 700 feet south-southeast of Wampum Brook, the nearest water body. Based on the Pine Brook Housing topography, the groundwater flow in the area of Bldg. 3010 is anticipated to be to the northwest. The wells in this area are not considered to be tidally influenced.

1.3 HEALTH AND SAFETY

Work site health and safety hazards were minimized during all decommissioning activities. All areas that posed a vapor hazard were monitored by a qualified individual utilizing a calibrated photo-ionization detector (PID) 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 (PELs).

1.4 Removal of Underground Storage TankS

1.4.1 General Procedures

- All underground utilities were marked out by the respective shops and/or utility contractor prior to excavation activities.
- All activities were carried out with 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. No impacted soils were encountered during the tank excavations. These soils were used to backfill the excavation upon clearance.
- 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 certified Subsurface Evaluator was present during all closure activities.

1.4.2 Underground Storage Tank Excavations

During decommissioning activities, surficial soil was removed to expose the USTs. The tank was completely emptied of all residual liquids prior to removal from the ground. The contents of the tanks were dispersed throughout the post and were used for off-road diesel engines and in above ground storage tanks (ASTs) associated with portable generators.

After the UST was removed from the excavation, it was staged on the ground, labeled and examined for holes. No holes in the tank were observed during the inspection by the Subsurface Evaluator. Soils surrounding the UST were screened visually and with an Organic Vapor Monitor (OVM) for evidence of petroleum contamination. A small heavily stained area was observed. The area was over excavated and re-sampled. After removal, the tank was transported for storage at the Bldg. 108 pad for subsequent cutting and disposal.

1.5 UNDERGROUND STORAGE TANK DECOMMISSIONING AND DISPOSAL

In 1989, the tank contents were transferred to other USTs where #2-home heating oil was used. The tank was purged to remove any potentially combustible vapors; the top of the tank was removed to allow free access to the void. The UST was cleaned first with rubber squeegees and adsorbent material broomed onto the sidewalls and bottom. The adsorbent materials were 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. Clean bank run sands were placed into the tank void and the overburden was replaced and the filled tank was again covered.

Upon location of the tank, the overburden was removed and segregated. During the removal process, an area of petroleum impacted soil was remediated. Soil samples were collected and the area of potentially impacted soils were removed and placed onto the ID 27 soil pile. One seven yard dump truck of petroleum impacted soils was moved off-site to the staging area for subsequent recycling. The tank was then removed from the site and taken to the staging area where it was cut.

The steel tank was cut as to be placed into a 7 cubic yard dump truck and shipped off site for recycling. Refer to Appendix C for UST disposal certificate.

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 closure activities included in Appendix D.

2.0 REMEDIAL INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Remedial Investigation was managed and carried out 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 (August 2005,). Sampling frequency and parameters analyzed complied with the NJDEP document *TRSR* which was the applicable regulation at the date of the closure. All records of the Remedial Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in closure and remedial investigation activities.

• Ft. Monmouth Directorate of Public Works-Environmental Division

Contact Person: Joe Fallon Phone Number: (732) 532-2692

 Subsurface Evaluator: Charles Appleby/Frank Accorsi Employer: US Army, CECOM/TECOM-Vinnell Services

Phone Number: (732) 532-2692(732) 532-5241 NJDEP License No.: 9974/ No.: 0010042 (TVS) NJDEP License No.: US252302

NJDEP License No.: 9974

Analytical Laboratory: Fort Monmouth Environmental Testing Laboratory

Contact Person: Jackie Hamer 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. Clean overburden soils were stockpiled for later reuse. A small area of petroleum impacted soil was observed. This area was sampled and excavated. NJDEP was notified of the release by US ARMY personnel.

2.3 SOIL SAMPLING

On January 30, 2009, post-excavation soil samples 3010-A through 3010-E were collected from a total of five (5) locations along the sidewalls, the bottom and the piping run of the UST excavation. On March 30, 2009 two soil samples were collected along the remote fill line. Refer to Soil Sampling Location map included as Figure 4. All samples were analyzed for Total Petroleum Hydrocarbons (TPH) in accordance with the requirements of the *TRSR*.

The site assessment was performed by TVS personnel in accordance with the NJDEP TRSR and the NJDEP FSPM. A summary of sampling activities including parameters analyzed is provided on Table 1. The post-excavation soil samples were collected using stainless steel trowels. After collection, the soil samples were immediately placed on ice in a cooler and delivered to Fort Monmouth Environmental Testing Laboratory (FMETL) for analysis.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

Grab samples of visibly stained soils were collected and after the collection the area was over excavated. The ensuing post-excavation soil sample results were compared to the NJDEP health based standard of 4,800 mg/kg for total organic contaminants (N.J.A.C. 7:26D and revisions dated September 8, 2008). A summary of the analytical results and comparison to the NJDEP soil cleanup standard is provided on Table 2. The soil analytical data package, including associated quality control data, is provided in Appendix E.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at UST No. 192486-25 were below all applicable NJDEP soil cleanup standards for total organic contaminants.

No further action is proposed in regard to the closure and site assessment of UST 1924886-25 at Building 3010.

TABLES

TABLE 1

SUMMARY OF LABORATORY ANALYSIS FT. MONMOUTH, BUILDING 3010, UST No.192486-25 January 30, 2009

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE DATE	SAMPLE MATRIX	ANALYTICAL PARAMETER	ANALYTICAL METHOD
		TATE OF THE	THE WEST COME.		
3010-1	9002601	1/28/09	Soil	TPH	OQA-QAM-25
3010-A NE Wall	9002901	1/30/09	Soil	ТРН	OQA-QAM-25
3010-B SW Wall	9002902	1/30/09	Soil	ТРН	OQA-QAM-25
3010-C NW Wall	9002903	1/30/09	Soil	ТРН	OQA-QAM-25
3010-D SE Wall	9002904	-1/30/09	Soil	TPH	OQA-QAM-25
3010-E Piping	9002905	1/30/09	Soil	TPH	OQA-QAM-25
3010-F Remote fill	9013201	3/30/09	Soil	ТРН	OQA-QAM-25
3010-G Remote Fill	9013302	3/30/09	Soil	ТРН	OQA-QAM-25

ABBREVIATIONS:

TPH = Total Petroleum Hydrocarbons, Method NJDEP OQA-QAM-25 VOA = Volatile Organic Analysis, EPA SW-846 Method 8260

TABLE 2

SUMMARY OF LABORATORY ANALYTICAL RESULTS

FT. MONMOUTH, BUILDING 3010, UST No.192486-26 January 30, 2009

TOTAL PETROLEUM HYDROCARBONS (results in mg/kg)

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE LOCATION	SAMPLE DEPTH (in feet)	MATRIX	TPH RESULTS
3010-1	9002601	grab	6.0 - 6.5'	Soil	33323.10
3010-A	9002901	NE Wall	5.0 - 5.5	Soil	ND
3010-B	9002902	SW Wall	5.0 - 5.5	Soil	ND
3010-C	9002903	NW Wall	5.0 - 5.5	Soil	ND
3010-D	9002904	SE Wall	5.0 - 5.5	Soil	ND
3010-E	9002905	Piping	5.0 - 5.5	Soil	ND
3010-F	9013201	Remote fill	1.0 – 1.5	Soil	25.56
3010-G	9013202	Remote Fill +15'	1.0 -1.5'	Soil	ND

ABBREVIATIONS:

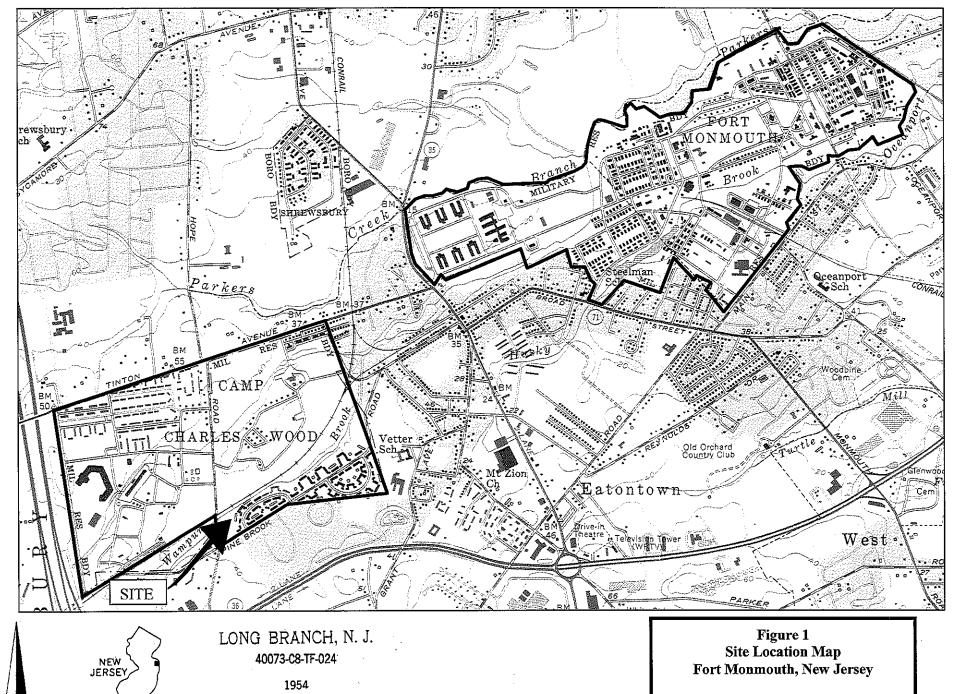
mg/kg = Milligrams Per Kilogram = parts per million

ND = Compound Not Detected

Notes:

Gray shading indicates exceedance of NJDEP health based standard of 4,800 ppm total organic contaminants

FIGURES



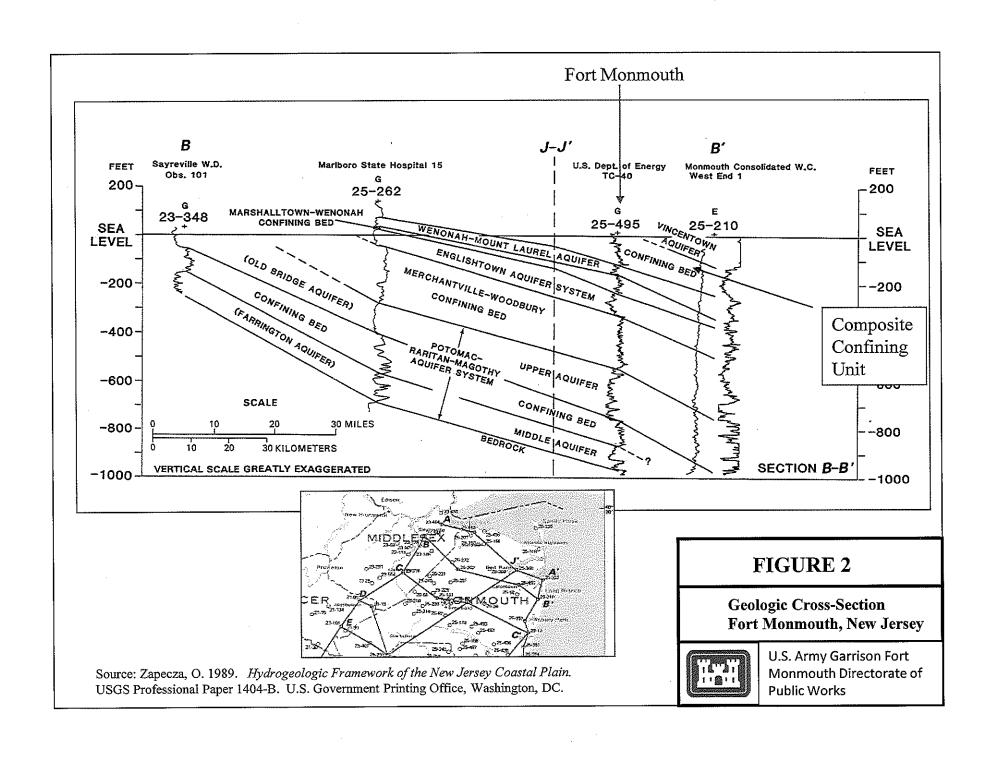
QUADRANGLE LOCATION

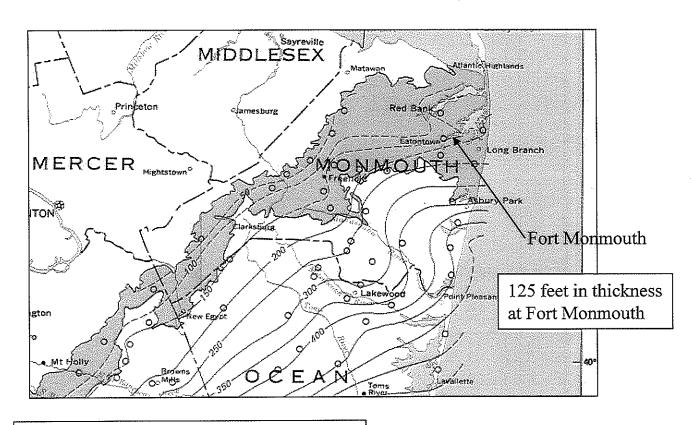
PHOTOREVISED 1981 DMA 6164 I SE-SERIES V822

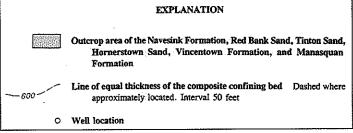
Mapped, edited and published by the Geological Survey



U.S. Army Garrison Fort Monmouth Directorate of Public Works







Source: Zapecza, O. 1989. Hydrogeologic Framework of the New Jersey Coastal Plain. USGS Professional Paper 1404-B. U.S. Government Printing Office, Washington, DC.

FIGURE 3

Outcrop and Thickness of Composite Confining Unit Fort Monmouth, New Jersey



U.S. Army Garrison Fort Monmouth Directorate of Public Works

APPENDIX A CERTIFICATIONS



Bldg. 3015

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

State of New Jersey DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES CN 928

TRENTON, NEW JERSEY 94625 ATTN: BUST Program (609) 984-3156

<u>.</u>	for the:
Installation Abandon Remo	ve/Sale-Transfer/Substantial Modification
Circle Only One	- Use One Form Per Activity
(More than one tank	can be listed per tank activity)
Answer questions 1 through 5 and others as applicat	ble.
Company name and address: (as it	U.S. Ormy
appears on registration questionnaire)	DEH Bldg # 167
	DEH Bldg # 167 AHn: SELFM-EH
and the second s	Fort Moninouth NJ 07703
2. Facility name and location:	U.S. army Fort Monmouth
(if different from above)	Charles Wood East
•	
·	:
3. Contact person for this activity:	Mr. Dinkerrai Dusai
Telephone Numbe	r. (201) 532-1475
	:
4. The Irlandification number of the effected tent as	It appears In Question Number 12 on the Registration
Blogs. 3	25/26 + 31 010/, 3015 + 3216
5 Beginteetles Standard 1915	192486
5. Registration Number (If known): UST -	

(OVER)

STANDARD REPORTING FORM

6.	For TRANSFER OF OWNERSHIP:
	New Company Name
	New Facility Name
	Address
	New owner/operator (print)
	Signature
7.	For ABANDONMENT or REMOVAL:
	a. Describe the proposed procedure in detail on an attached sheet.
	b. Specify the product last stored in the tank: # 2 Nome. Reating Out
	a. Describe the proposed procedure in detail on an attached sheet. b. Specify the product last stored in the tank: C. Date abandoned or removed November 1989 for all three U.S.T.S. d. Is Site Assessment Compliance Statement being completed? (YES) or NO Form MUST be
8.	For SUBSTANTIAL MODIFICATIONS: completed and returned within 90 days of tank closure. (per 40 CFR 280.72)
	 Describe the reason for the modification and, in detail, the proposed procedure to be used on an attached sheet.
	b. Specify the product presently stored in the tank:
٠.	c. Specify the product to be stored in the tank:
9.	For NEW OR REPLACEMENT INSTALLATIONS:
	a. Attach the specifications as required by the attached instructions.
	b. Specify the product (s) to be stored in the tank:
10 7	TE: All appropriate and applicable permits, licenses and certificates from any local, state and/or federal agency must be obtained separately from this notification as required to the above stated activity. CERTIFICATION
	*This registration form shall be signed by the highest ranking individual at the facility with overall responsibility for that illity. (7:148-2.3 (a) 1). ***
the	certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that are are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines door imprisionment."
Sig	inature:
Na	me (print or type):
Tit	Deputy Director Director

Directorate of Engineering and Housing

US Army Fort Monmouth Charles Wood East Registration # 0192486 Tank #'s 25,26,& 31 POC: Dinkerrai Desai (201)532-1475

Abandonment Procedure:

The three underground storage tanks were abandoned in place due to being partially buried underneath the buildings foundation.

All remaining product inside the tanks was removed for disposal by L & L Oil Service of Aberdeen, New Jersey. L & L is a licensed hazardous waste transporter and TSDF. (USEPA ID # NJD011427895).

The top of each tank was excavated and cut open across the entire length of the tank. The soil excavated from the top of the tanks was visually inspected and analyzed by using a HNU Model PI-101, photoionizer. No contamination was found.

The inside of each tank was hand cleaned utilizing a biodegradable detergent. The detergent residue was removed by the Waste Oil Company for proper disposal.

After the tanks were clean, a visual inspection was made inside each tank for signs of leakage. No corrosion was found inside any of the tanks.

After the inspection was complete, the tanks were backfilled with sand and the area was regraded with the excavated soil.



STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION Bureau () Underground Storage Tanks CN-029, Trenton, NJ 08625

Auth	* * * * * * * * * * * * * * * * * * *
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	· ·
UST NO	· .

SITE ASSESSMENT COMPLIANCE STATEMENT

Supplement to the New Jersey Standard Reporting Form (Complete for ALL regulated UST abandonments or removals)

Within ninety (90) days of completing the UST closure of any State or Federally-regulated tank, the owner or operator must submit this completed form to the NJDEP Bureau of Underground Storage Tanks. If the facility is located in one of the counties listed on the back, a copy of this form must also be sent to the Health Agency indicated.

The owner or operator of any Federally-regulated tank must also comply with the following:

40 CFR Part 280.72 Assessing the site at closure or change-in-service

"(a) Before permanent closure or a change-in-service is completed, owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to ground water, and other factors appropriate for identifying the presence of a Tonk #15 U.S. army Fort Munmouth release."

UBT + 0192480 25,26,+31

Check off the following items as appropriate for the site.

The UST facility is only regulated by State law, therefore a site assessment is not mandatory.

The UST facility is regulated by Federal law and a site assessment was conducted.

The results of the site assessment indicate:

There was NO release from the UST system.

There was a release from the UST system and it was reported to the DEP Environmental Hotline (609-292-7172).

The results of the site assessment are not to be submitted to the DEP or Health Agency unless requested to do so. The results are to be available for inspection at the UST facility.

Questions can be directed to the Bureau at (609) 984-3156.

*** This registration form shall be signed by the highest ranking facility (7:148-2.3 (a) 1). ***	Individual at the facility with overall responsibility for that
"I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment.	JAMES OTT . Deputy Director Uir, Engineering & Housing
SACS-2,1/89	(Title)

APPENDIX B WASTE MANIFEST

No fuel oil was shipped off-site for disposal as a result of the closure of this underground storage tank (UST). The tank had been previously abandoned in place and at that time the contents were pump out and distributed to above ground storage tanks and off-road diesel vehicles.

- 561L1

Soil Dosposon Disposon

Need Soil Perond

Alexandra Aprond

Alexan

APPENDIX C

UST DISPOSAL CERTIFICATE
Rough

JOHN BLEWETT INC. 246 HERBERTSVILLE RD., HOWELL, NJ 07731

(732) 938-5331

AUTO WRECKER . SCRAP RECYCLING . USED AUTO PARTS

1	DATE							
WEIGHT		PRICE	TOTAL					
	#1 STEEL							
	#2 STEEL	10 mm						
	D.M.B							
	CAST IRON							
	COPPER							
	COPPER							
	COPPER							
	BRASS							
	ALUM							
	RADS							
	BATT							
	LITE IRON							
	AL CANS							
	CARS							
· · · · · · · · · · · · · · · · · · ·								
	<u> </u>		<u> </u>					

I am the owner of said vehicle(s) and I release it to John Blewett, Inc.

Signature of Owner:

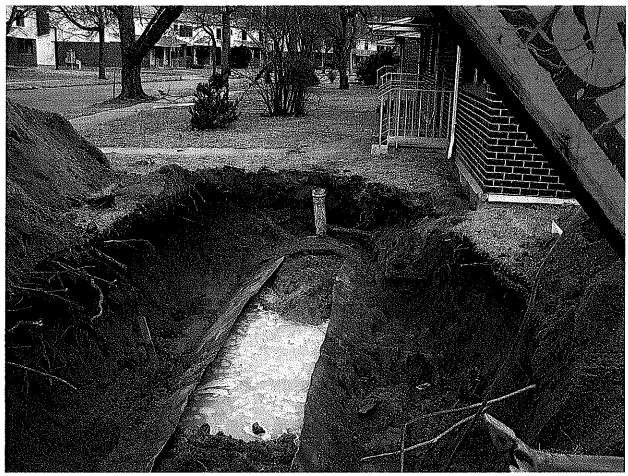
APPENDIX D PHOTO DOCUMENTATION



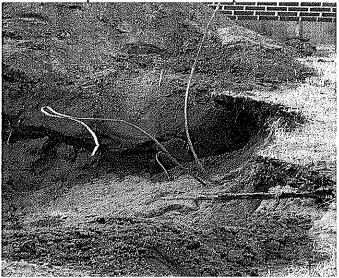
PULLING LINES BACK TO ALLOW FOR ACCESS TO TANK



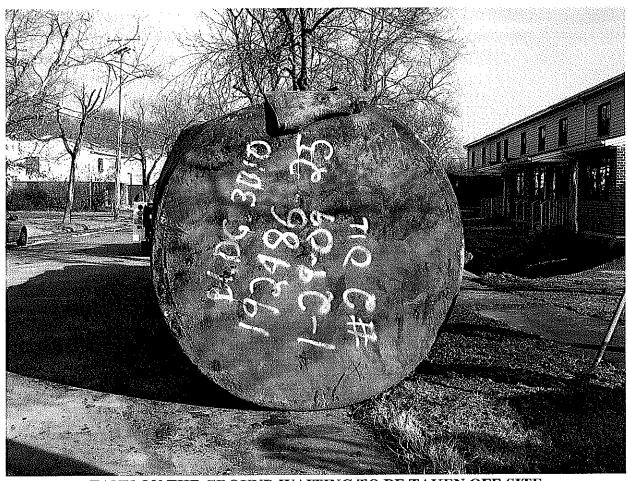
REMOVING SAND FROM TANK



Top of sand filled tank exposed



Fill and return lines to tank



TANK ON THE GROUND WAITING TO BE TAKEN OFF-SITE

APPENDIX E SOIL ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY
DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263

WET-CHÈM - METALS - ORGÀNICS - FIELD SAMPLING CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: 90-59762

Pinebrook/Bldg. 3010

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
3010-1	9002601	Soil	28-Jan-09 11:45	01/28/09

ANALYSIS:

FORT MONMOUTH ENVIRONMENTAL LAB TPHC, % SOLIDS

> Augustino touna 2/56 acquetine Hamer/Date QA/QC Supervisor

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Conformance/Non-Conformance	6-7
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Laboratory Deliverables Checklist	27
Laboratory Authentication Statement	28

CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (732)532-4359 Fax (732)532-6263 EMail:jacqueline.hamer@us.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: CHUC	K APP.	LEBY	Project No:	09-596	72		Analysis Parameters							Comments:	
Phone #: X			Location: <i>BLD4</i> , 3010										2		
()DERA ()OMA (Location: BLDG. 3010 (PINEBRODK) HRMS DR.			7						116			
Samplers Name / Cor	mpany: /	FRANK ACCE	RSI /7	TVS	Sample								11	9	
LIMS/Work Order#		ole Location	Date	Time	Туре	bottles	7						Ú	0	Remarks / Preservation Method
90026 01	3010-	1	1-28-09	1145	SOIL	1	X					101-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	6-6.5	340	
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Frankliso	121 /	28-09 1330	J. C.	Myll	M										
Relinquished by (signatu	re):	Date/Time:	Received by	(signature):		Reline	quished	by (sig	gnature)):	Date/	Time:	Recei	ved by	(signature):
															-
Report Type: ()Full, (2							Rema	rks:							
Turnaround time: () Star	ndard 3 wks,)ASAP Verba	dHrs.											

SAMPLE RECEIPT FORM

Date Received:	1-8	18-09	Work Order	ID#: <u>/</u> /	<u> 10098</u>		
Site/Proj. Name	11	ly 2010	Coøler Temp	(°Ç):	NA		
Received By:	V.	Centura	Sign:	M	yww -		
(Print name)		Check the app	ronriate hov	/			
1 Did the comple		•	IODITALE DOX		√ no □ n/a		
1. Did the sample			•	_ /~	□ no		
-		n good condition?	المناطنة ما المسم		□ no		
		tody filled out correct			· 🗀		
		tody signed in the ap		∠ yes	_		
	-	with the chain of cust	-	yes			
		tainers/preservatives	-		∐ no		
		unt of sample supplie	eur //	•	□ no □ n/a		
	-	sent in VOA vials?	•	⊔ yes □ yes.	•		
9. Were samples				•			
10. Were analyze	-11111111111111111111111111111111111111	diately tests perform	within 15 minutes i	yesi	١١/٥ تـــــ ١١/٥		
Fill out the following table for each sample bottle							
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Lims ID	рН	Preservative	Sample ID	рН	Preservative		
Lims ID	рН	Preservative	Sample ID	рН	Preservative		
Lims ID	рН	Preservative	Sample ID	pH	Preservative		
Lims ID	pH	Preservative	Sample ID	pH	Preservative		
Lims ID	рН	Preservative	Sample ID	рН	Preservative		
Lims ID	pH	Preservative	Sample ID	pH	Preservative		
Lims ID	рН	Preservative	Sample ID	pH	Preservative		
Lims ID	pH	Preservative	Sample ID	pH	Preservative		
Lims ID	pH	Preservative	Sample ID	pH	Preservative		
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Lims ID	pH	Preservative	Sample ID	pH	Preservative		
Lims ID	pH	Preservative	Sample ID	pH	Preservative		
Lims ID	pH	Preservative	Sample ID	pH	Preservative		
	pH	Preservative	Sample ID	pH	Preservative		
Lims ID Comments:	pH	Preservative	Sample ID	pH	Preservative		
	pH	Preservative	Sample ID	pH	Preservative		
	pH	Preservative	Sample ID	pH	Preservative		

METHOD SUMMARY

Method Summary

NJDEP Method OQA-QAM-025 Rev. 6 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

CONFORMANCE/ NONCONFORMANCE SUMMARY

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

		Indicate Yes, No, N/A
1.	Method Detection Limits Provided	yes
2.	Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank	No
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range) Sample CONC. 75× Spike CONC.	<u> 00</u>
4.	Duplicate Results Summary Meet Criteria Sample Conce 75X Spike Conc	
5.	IR Spectra submitted for standards, blanks and samples	NA
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted	yes
7.	Analysis holding time met (If not met, list number of days exceeded for each sample)	Yes
Addit	ional comments:	
Labor	ratory Manager: January Que Comer Date: 2/5/09	-

TPHC

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

Client:

U.S. Army

DPW. SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Analysis:

OQA-QAM-025

Matrix:

Soil

Inst. ID:

GC TPHC INST. #1

Column Type: RTX-5, 0.32mm ID, 30 m

Injection Volum 1 uL

Blank Conc.: 0.00

Project #:

Location:

ECP:

Work Order:

Date Received:

Date Extracted: Extraction Method:

Extraction Method:

Analysis Complete: Analyst:

28-Jan-09

09-59672

Bldg. 3010

29-Jan-09 Shake

Shake 29-Jan-09

Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Qualifiers
MB01290901	MB01290901	1.00	15.00	100.00	7	100	0.00	
LCS01290901	LCS01290901	1.00	15.00	100.00	7	100	1100.94	
9002601	3010-1	1.00	15.58	82.95	7	116	34669.11	
9002601	3010-1	5.00	15.58	82.95	41	580	33323.10	<u>-</u>

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Concentration from dilution

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

The following Laboratory Deliverables Checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete data packages will be returned or held without review until the data package is completed.

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

1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.	$\sqrt{}$
2.	Table of Contents submitted.	V
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.	
4.	Document paginated and legible.	
5.	Chain of Custody submitted.	-V
6.	Samples submitted to lab within 48 hours of sample collection.	
7.	Methodology Summary submitted.	
8.	Laboratory Chronicle and Holding Time Check submitted.	<u></u>
9.	Results submitted on a dry weight basis.	<u></u>
10.	Method Detection Limits submitted.	<u> </u>
11,	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.	<u>/</u>

Laboratory Certification # 13461

*Refer to NJAC 7:26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP Methods for further guidance.

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.

Jacqueline Hamer QA/QC Supervisor

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263 WET-CHEM - METALS - ORGANICS - FIELD SAMPLING CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT

Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION

Fort Monmouth, New Jersey PROJECT: 90-59762

Pinebrook/Bldg. 3010

~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~							
Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received			
3010-A, NE Wall	9002901	Soil	30-Jan-09 13:45	01/30/09			
3010-B, SW Wall	9002902	Soil	30-Jan-09 13:20	01/30/09			
3010-C, NW Wall	9002903	Soil	30-Jan-09 13:00	01/30/09			
3010-D, SE Wall	9002904	Soil	30-Jan-09 14:15	01/30/09			
3010-E, Piping	9002905	Soil	30-Jan-09 14:50	01/30/09			
3010-Duplicate	9002906	Soil	30-Jan-09 14:15	01/30/09			

ANALYSIS:

FORT MONMOUTH ENVIRONMENTAL LAB TPHC, % SOLIDS

Jacqueline Hamer/Date

OA/OC Supervisor

The enclosed report relates only to the items tested. The report may not be reproduced, except in full, without written approval of the U.S. Army Fort Monmouth Directorate of Public Works.

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Laboratory Deliverables Checklist	36
Laboratory Authentication Statement	37

CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703 Tel (732)532-4359 Fax (732)532-6263 EMail:appleby@mail1.monmouth.army.mil

Chain of Custody Record

	NJDEP Certificat	ion #13461		762	- 2/5/2	Pa.	4							·
Customer: CHUC	A PPLEBY	ion #13461 Project No:	09-59	632	rk			Analy	ysis Pa	ramet	ers			Comments:
Phone #: $\chi 220$	/ ///	Location: £	3204. 30	10		4						Į,	4	
()DERA ()OMA ((x)Other:	HEZMS	OK.									7	2,	
Samplers Name / Con	mpany ; FRANK A	CCORSI	1705	Sample	#	Ηd						E10.	/LL/20	
Lab Sample LD.	Sample Location	Date	Time	Туре	bottles	<u> </u>						14	эđ	Remarks / Preservation Method
90009 01	3018-A, NE WALL	1-30-09	1345	SOIL	ſ	Χ						D	5-5.3	/CE
(A)	5010-B, SW WALL		1320			X							5-5,5	
13,	30/0-C, NOW WALL	-	1300			Х							5.5.5	
	3018-D, SE WALL		1415			X							5-5,5	
05	3010-E, PIPING		1450			X							25-3	
	3010 - DUPLICATE	¥	1415	4	1	X							5.55	
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) · · ·														NAME OF TAXABLE
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Relinquished by (signatu	re): Date/Time:	Received/by	(signature):	LUL.	Relin	quished	by (sign	ature):		Date/T	ime:	Recei	ved by	(signature):
Relinquished by (signatu	17		Relin	elinquished by (signature): Date/Time			ime:	Received by (signature):						
Report Type: ()Full, ()	Reduced, WStandard, OScree	n / non-certifie	i			Rema	rks:**	COM	DNGER	ンナイ	SN	,4	IF	TPH > 1,000 CPM.
Turnaround time: Stan	• •	, ()ASAP Ver					OM	H161	HE51	- M	M.	والمراف		

SAMPLE RECEIPT FORM

Site/Project Name Received By: (print name)	: Bloly Ulnyu	<u>300 </u>	Cooler Temp (deg. C	- L[[]A	•
(print name)	Lengu	1.1):	_ `
	•	S. S.	ignif Ill	Mu	-
1 Did the camples co		Check the appro	priate answer		•
2. Were the chain of c3. Did you sign the ch4. Did all the labels ag5. Were the correct co6. Was a sufficient am7. Were bubbles abser	nain of custody in gree with the chai ontainers and/or p nount of sample so nt from aqueous V	led out correctly and legib the appropriate place? in of custody and in good or preservatives used for the tent for the tests indicated? WOC sample containers?	condition? yes ests indicated? yes	no NA no no no no no no no no NA	A
Sample ID	Hq	Preservative	Sample ID	pН	Preservative
Dallipio ID	F=F	<i>a</i> :	м ,-		
	7			<u> </u>	
					<u></u> <u></u>
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<i>y</i>	<u> </u>			<u> </u>	
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METHOD SUMMARY

Method Summary

NJDEP Method OQA-QAM-025 Rev. 6 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

CONFORMANCE/ NON-CONFORMANCE SUMMARY

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

			Indicate Yes, No, N/A
1.	Method Detection Limits Provided		yes_
2.	Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank		NO
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range) Sample Conc. > 5 × Spike Conc.	1	<u>No</u>
4.	Duplicate Results Summary Meet Criteria		Yes
5.	IR Spectra submitted for standards, blanks and samples		_NA_
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted		yes
7.	Analysis holding time met (If not met, list number of days exceeded for each sample)		yes
Addi:	tional comments:		
Labo	ratory Manager: Queen by Metalmon Date: 2	1409	

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 3010-UST #192686-25

SOIL SAMPLE GPS POSITIONS & COORDINATES

US STATE PLANE 1983, NJ (NY EAST) 2900, NAD 1983 (CONUS)

(IN US SURVEY FEET)

SAMPLE POINTS

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
3010A NE WALL	532181.395	610284.683
3010B SW WALL	532155.216	610271.424
3010C NW WALL	532168.084	610273.413
3010D SE WALL	532159.259	610278.783
3010E PIPING	532147.777	610278.194

TPHC

000009

Report of Analysis U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Client:

U.S. Army

DPW. SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Project #: Location:

09-59632 Bldg. 3010

ECP:

Work Order:

Analysis:

OQA-QAM-025

Matrix: Inst. ID: Soil

GC TPHC INST. #1

Column Type: RTX-5, 0.32mm lD, 30 m

Injection Volum 1 uL Blank Conc.: 0.00 Date Received:

Date Extracted:

Extraction Method:

Analysis Complete:

Shake 4-Feb-09

30-Jan-09

3-Feb-09

Robert Szot

Analyst:

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Qualifiers
MB01290901	MB01290901	1.00	15.00	100.00	23	333	0.00	
LCS01290901	LCS01290901	1.00	15.00	100.00	23	333	1151.76	
9002901	3010 A NE WALL	1.00	15.74	82.09	27	387	0.00	
9002902	3010 B SW WALL	1.00	15.85	80.16	28	394	0.00	
9002903	3010 C NW WALL	1.00	15.39	79.97	28	406	0.00	!
9002904	3010 D SE WALL	1.00	15.58	91.55	25	351	0.00	
9002905	3010 E PIPING	1.00	15.14	89.04	26	371	0.00	
9002906	3010 DUPLICATE	1.00	15.26	90.74	25	361	0.00	

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Concentration from dilution

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.	
2.	Table of Contents submitted.	<u></u>
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.	
4.	Document paginated and legible.	
5.	Chain of Custody submitted.	
6.	Samples submitted to lab within 48 hours of sample collection.	
7.	Methodology Summary submitted.	~
8.	Laboratory Chronicle and Holding Time Check submitted.	<u> </u>
9.	Results submitted on a dry weight basis.	$\underline{\nu}$
10.	Method Detection Limits submitted.	ν
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.	<u> </u>
	Laboratory Manager or Environmental Consultant's Signature	yro1

Laboratory Certification # 13461

*Refer to NJAC 7:26E -- Appendix A, Section IV - Reduced Data Deliverables -- Non-USEPA/CLP Methods for further guidance.

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.

Jacqueline Hamer QA/QC Supervisor

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory **ENVIRONMENTAL DIVISION** Fort Monmouth, New Jersey

PROJECT: Bldg. 3010

Helms Dr. Pinebrook

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
3010-F, Remote Fill	9013201	Soil	30-March-09 09:40	03/30/09
3010-G, Remote Fill	9013202	Soil	30-March-09 09:50	03/30/09
3010-Duplicate	9013203	Soil	30-March-09 09:40	03/30/09

ANALYSIS: FORT MONMOUTH ENVIRONMENTAL LAB TPHC, % SOLIDS

A/QC Supervisor

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CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail:jacqueline.hamer@us.army.mil
NJDEP Certification #13461

Chain of Custody Record

HUCK APPLEBY Project No: **Analysis Parameters** Customer: Comments: Location: BLDG, 30/0 Phone #: HELMS OR PINEBROOK)DERA ()OMA ()Other:_ Samplers Name / Company: FRANK ACORS / TVS Sample LIMS/Work Order # Remarks / Preservation Method Sample Location Date Type bottles Time UL 3010-F. REMOTE FILL 3-30-09 0940 5014 0950 0 3010-6 REMOTE FILL 1-1.5 0 13010 - DUPLICATE 0940 Relinquished by (signature): Received by (signature); Relinquished by (signature): Date/Time: Date/Time: Received by (signature): 3-30-09 1050 Received by (signature): Date/Time: | Received by (signature): Relinquished by (signature): Relinquished by (signature): Date/Time: Remarks: # CONTINGENT BN+15 IF TPH > 1,000 Ppm. Report Type: ()Full, Reduced, ()Standard, ()Screen / non-certified, ()EDD Turnaround time: ()Standard 3 wks, ()Rush Wk., ()ASAP Verbal

000002

SAMPLE RECEIPT FORM

Date Received: _	3-	30-09	Work Order II	η _# . (10132	
	1	Λ	Work Order in		0./4/0 10 1	
Site/Proj. Name:	Bla	y 3010	Cooler Temp	(°C):t	MH/H CE	_
Received By: _	J. (PENGUNA	Sign.	/l	yend	
(Print name)		10.	//		Λ	
		Check the appr	<u>ropriate box</u>		11	
1. Did the sample	s come	e in a cooler?		≥ yes	ØZno □ n/a	
2. Were samples	rec'd ir	n good condition?	ノ	₫ yes	□ no	
		ody filled out correct		∠ yes	□ no	
		ody signed in the ap		Z′yes	□ no	
5. Did the labels a	agree v	vith the chain of cust	ody?	Z′yes	□ no	
6. Were the corre	ct cont	ainers/preservatives	used?	⊴ yes		
7. Was a sufficien	t amou	unt of sample supplie	ed?	⊴ yes		
8. Were air bubble	-		· [_ yes	ΔX^{-} – \cdot	
9. Were samples				Z yeś∕		
10. Were analyze	-imme	diately tests perform	within 15 minutes L	_iyes⁄i	n/a اطرno	
Fill out the fo	llowi	ng table for eac	ch sample bottl	e		
Lims ID	рН	Preservative	Sample ID	рН	Preservativ	e
Lims ID	рН	Preservative	Sample ID	рН	Preservativ	'e
Lims ID	рН	Preservative	Sample ID	рН	Preservativ	'e
Lims ID	рН	Preservative	Sample ID	рН	Preservativ	e_
Lims ID	рН	Preservative	Sample ID	рН	Preservativ	e_
Lims ID	рН	Preservative	Sample ID	рН	Preservativ	'e
Lims ID	рН	Preservative	Sample ID	Н	Preservativ	'e
Lims ID	pH	Preservative	Sample ID	рН	Preservativ	/e
Lims ID	pH	Preservative	Sample ID	рН	Preservativ	'e
Lims ID	pH	Preservative	Sample ID	рН	Preservativ	/e
Lims ID	pH	Preservative	Sample ID	рН	Preservativ	/e
Lims ID	pH	Preservative	Sample ID	pH	Preservativ	/e
Lims ID	pH	Preservative	Sample ID	pH	Preservativ	/e
Lims ID	pH	Preservative	Sample ID	pH	Preservativ	/e
Lims ID	pH	Preservative	Sample ID	pH	Preservativ	7 e
Lims ID	pH	Preservative	Sample ID	pH	Preservativ	'e
Lims ID Comments:	pH	Preservative	Sample ID	pH	Preservativ	/e
	pH	Preservative	Sample ID	pH	Preservativ	'e
	pH	Preservative	Sample ID	pH	Preservativ	7 e

GPS POINTS

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 3010, UST No. 192486-25

GPS POSITIONS & COORDINATES

US STATE PLANE 1983, NJ (NY EAST) 2900, NAD 1983 (CONUS)

(IN US SURVEY FEET)

SAMPLE POINTS

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
3010F REMOTE FILL	532166.734	610250.255
3010G REMOTE FILL PLUS 15 FT.	532161.399	610264.843

METHOD SUMMARY

Methodology Summary

NJDEP Method OQA-QAM-025 2/08 Rev. 6 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml auto-sampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 90132

Site: Pinebrook

Bldg. 3010

	Date	Hold Time
Date Sampled	03/30/09	NA
Receipt/Refrigeration	03/30/09	NA
·		
Extraction		
1. TPHC	03/31/09	14 days
Analyses		
1. TPHC	04/03/09	40 days

CONFORMANCE/NON-CONFORMANCE SUMMARY

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

Indicate Yes, No, N/A
<u>Yes</u>
<u> No</u>
<u> yes</u>
<u> </u>
44
Yes
165

TPHC

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

Client:

U.S. Army

DPW. SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Analysis:

OQA-QAM-025

Matrix:

Soil

inst, iD: GC TPHC INST. #1

Column Type: RTX-5, 0.32mm ID, 30 m

Injection Volum 1 uL Blank Conc.: 0.00 Project #:

Location:

ECP:

Work Order:

Date Received:

Date Extracted:

30-Mar-09 31-Mar-09

Bldg. 3010

Extraction Method:

Shake 3-Apr-09

Analysis Complete: Analyst:

Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Qualifiers
MB03310901	MB03310901	1.00	15.00	100.00	7	100	0.00	
LCS03310901	LCS03310901	1.00	15.00	100.00	7	100	1078.05	
9013201	3010-F REMOTE FILL	1.00	16.07	91.71	7	102	25.56	1
9013202	3010-G REMOTE FILL	1.00	15.53	91.97	7	105	0.00	
9013203	3010 DUPLICATE	1.00	15.45	89.02	8	109	117.83	
			1					· · · · ·

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Concentration from dilution

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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The following Laboratory Deliverables Checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete data packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package <u>and</u> in the main body of the report.

1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.	
2.	Table of Contents submitted.	<u> </u>
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.	<u> </u>
4.	Document paginated and legible.	<u></u>
5.	Chain of Custody submitted.	<u> </u>
6.	Samples submitted to lab within 48 hours of sample collection.	
7.	Methodology Summary submitted.	$\underline{\nu}$
8.	Laboratory Chronicle and Holding Time Check submitted.	$\underline{\hspace{1cm}}^{\hspace{1cm} \nu}$
9.	Results submitted on a dry weight basis.	V
10.	Method Detection Limits submitted.	<u> </u>
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.	U
	Our Head	A. 04

Laboratory Manager or Environmental Consultant's Signature \(\)
Date: \(\(\) \(\) \(\) \(\)

Laboratory Certification # 13461

*Refer to NJAC 7:26E – Appendix A, Section IV – Reduced Data Deliverables – Non-USEPA/CLP Methods for further guidance.

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.

Aacqueline Hamer QA/QC Supervisor

ATTACHMENT E

Additional UST 3010 and UST 3015 Analytical Results

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263

WET-CHÈM - METALS - ORGÀNICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: 05-173883

Charles Wood/Bldg. 3010 Helms Drive

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
3010-B1, NE End	5050601	Soil	04-Oct-05 10:50	10/06/05
3010-B2, NE End + 5 ft	5050602	Soil	04-Oct-05 11:10	10/06/05
3010-B3, NE End + 10 ft	5050603	Soil	04-Oct-05 13:30	10/06/05
3010-B4, NE End + 15 ft	5050604	Soil	04-Oct-05 15:10	10/06/05
3010-B5, NE End + 20 ft	5050605	Soil	05-Oct-05 09:30	10/06/05
3010-B6, SW End	5050606	Soil	05-Oct-05 10:40	10/06/05
3010-B7, Piping	5050607	Soil	05-Oct-05 11:20	10/06/05
3010 Groundwater	5050608	Aqueous	05-Oct-05 13:40	10/06/05
Trip Blank	5050613	Aqueous	05-Oct-05	10/06/05
Trip Blank	5050614	Methanol	05-Oct-05	10/06/05

ANALYSIS: FORT MONMOUTH ENVIRONMENTAL LAB VOA+15, BN+15, TPHC, % SOLIDS

> Daniel Wrigkt/Date Laboratory Director

123-27-05

The enclosed report relates only to the items tested. The report may not be reproduced, except in full, without written approval of the U.S, Army Fort Monmouth Directorate of Public Works.

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CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail:wrightd@mail1.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: JOE	Project No: 05-173883				Analysis Parameters								Comments:			
Phone: X 26223 Location: CHARLES							ಒಂದಿ		*					\mathcal{L}	000000000000000000000000000000000000000	
()DERA ()OMA (X)Other: 8404.3010, HE					LMS DR.			VO+15*	1000 BN-15	5/			Delt (Pr)	#		
Samplers Name / Co	mpany: FRANK ACCOR	S[/T	TVS		Sam	ple	#	1 42	10	46	51+01			11/4	# 401	
LIMS/Work Order#		Da		Time	T_{y_j}	ре	bottles	\ <u>`</u>	1	8	72			7	13	Remarks / Preservation Method
50506 01	3010-BI, NE END	10-4	1-05	1050	50	ĵΖ	2	×	X					7-7.5	4323	ICE
02	3010- 82 " +5FT.			1140				χ	X					•	4324	
	3010-B3, " " + 10FT;			1330				X	Х						4325	
09	3010-84, " "+15FT	*		15/0				X	χ						4326	
	3010-85, ·· · - 20FT	10.3	-05	0930				X	χ					7-7.5	4327	
	3010-B6, 5W END			1040				X	χ					2-7.5	4328	
	3010-B7, PIPING			1120	1		*	X	×					2.53	4330	·
1 18	3010 - GROUNDWATER			1340	A	Ç,	3			X	X,					-
1 125	3015-B1, SW END	<u> </u>		1420	50.	11_	2	X	X					7-7.5	4331	
10	3015-B2, 5FT.			1455				X	メ					7-7.5	4332	
	3015-B3, "10 FT.			1515				X	X					7-7.5	4333	To add the control of
00 12	3015-DUPLICATE			1515	V			X	X					7-7,5	4334	21014
23	TRIP BLANK	4			A(Ç	Y				Х				4333	
14	Trip Blank	_1			Me	th.			Х					7	4335	5
Relinquished by (signature): Date/Time: Received by signature): Relinquished by (signature): Date/Time: Received by (signature):							(sígnature):									
Relinquished by (signature): Date/Time:			Received by (signature);			Relinquished by (signature):				Date/Time: Received by			ved by	(signature):		
. , ,	Reduced, ()Standard, ()Screed dard 3 wks, ()Rush							Rema	rks: * M, 0	CON W H	TING 16H	EWT 237,	vo n	11N	; 0	VE.

US ARMY - FT. MONMOUTH, NJ

BUILDING 3010 - UST #25 SOIL SAMPLE GPS POSITIONS & COORDINATES

US STATE PLANE 1983, NJ (NY EAST) 2900, NAD 1983 (CONUS)

(IN US SURVEY FEET)

SAMPLE POINTS

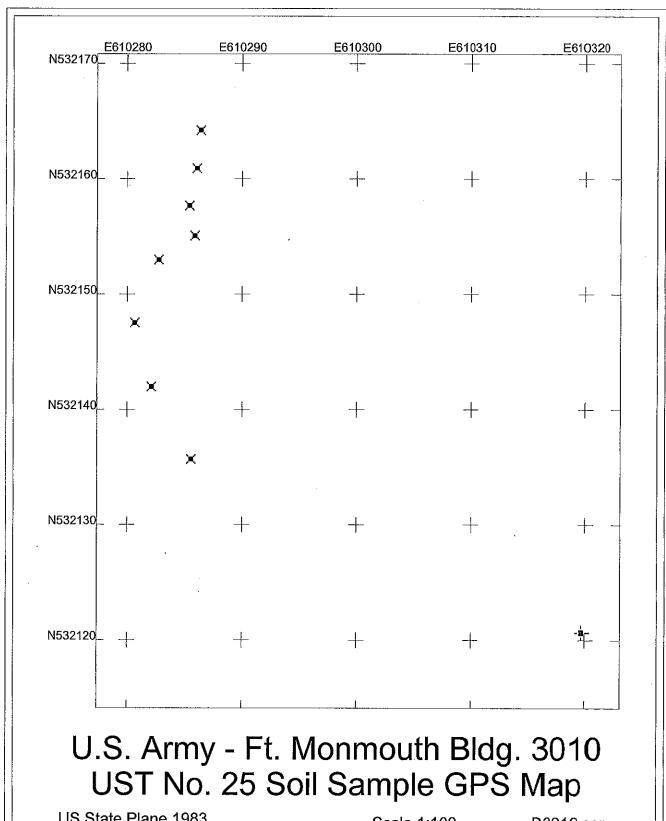
POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
3010B1 NE END UST	532164.26	610286.348
3010B2 NE END PLUS 5 FT.	532160.954	610285.998
3010B3 NE END PLUS 10 FT.	532157.708	610285.359
3010B4 NE END PLUS 15 FT.	532153.021	610282.697
3010B5 NE END PLUS 20 FT.	532147.567	610280.607
3010B6 SW END	532142.01	610282.052
3010B7 PIPING	532135.727	610285.514
3010 GROUNDWATER	532155.107	610285.84

REFERENCE POINT

POSITION/DESCRIPTION
BLDG 3010 SOUTH CORNER
MECHANICAL ROOM

Y COORDINATE (NORTHING) 532120.654

X COORDINATE (EASTING) 610319.678



US State Plane 1983 New Jersey 2900 NAD 1983 (Conus)





B3010.cor 10/26/2005 GPS Pathfinder Trimble

METHOD SUMMARY

Method Summary

EPA Method 624 Gas Chromatographic Determination of Volatiles in Water

A 5-ml volume of sample is added to 5-ml aliquot of water. Surrogates and internal standards are added and the sample is placed on a purge and trap concentrator. The sample is purged and desorbed into a GC/MS system. Volatiles are then identified and quantitated.

EPA SW-846 Method 8260 Gas Chromatographic Determination of Volatiles in Soil

A 5-gram volume of soil sample is added to a 5-ml aliquot of water. Surrogates and internal standards are added and the sample is placed on a purge and trap concentrator. The sample as purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

EPA SW-846 Method 8270 Gas Chromatographic Determination of Semi-volatiles in Soil

Surrogates are added to a 10-gram soil sample that has been dried with sodium sulfate. The sample is then extracted using a soxtherm extractor. The extract is concentrated to 1 ml. Internal standards are added and the sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

NJDEP Method OQA-QAM-025 10/97 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 50506

Site: Charles Wood

Bldg. 3010 Helms Drive

		Date	Hold Time	
Date Sampled		10/04,05/05	NA	
Receipt/Refrigeration		10/06/05	NA	
Extraction				
1. 2.	Base Neutrals TPHC	10/11/05 10/06/05	14 days 14 days	
Ana	Analyses			
1. 2. 3. 4.	Volatile Organics (Aqueous) Volatile Organics (Soil) Base Neutrals TPHC	10/11,17/05 10/17/05 10/12/05 10/11/05	14 days 14 days 40 days 40 days	

CONFORMANCE/ NONCONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

		Indicate Yes, No, N/A
1.	Chromatograms labeled/Compounds identified (Field samples and method blanks)	<u>Jes</u>
2.	Retention times for chromatograms provided	<u>jes</u>
3.	GC/MS Tune Specifications	
-	a. BFB Meet Criteriab. DFTPP Meet Criteria	<u>yes</u>
4.	GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series	<u>yes</u>
5.	GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series	<u>Yes</u>
6.	GC/MS Calibration requirements	
	a. Calibration Check Compounds Meet Criteriab. System Performance Check Compounds Meet Criteria	yes yes
7.	Blank Contamination – If yes, List compounds and concentrations in each blank:	<u>NO</u>
	a. VOA Fraction	
	b. B/N Fractionc. Acid Fraction	
8.	Surrogate Recoveries Meet Criteria	<u> NO _</u>
	If not met, list those compounds and their recoveries, which fall outside the acceptable range:	
	a. VOA Fraction TB Dil. DCE 66%	4
	b. B/N Fraction TPL 490/0 groundwater	
	c. Acid Fraction NA	
	If not met, were the calculations checked and the results qualified as "estimated"?	<u>lles</u>
9.	Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range)	_ho_
	a. VOA Fraction Various See Attached b. B/N Fraction Various See Attached	
	c. Acid Fraction NA	•

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (cont.)

		Indicate Yes, No, N/A
10.	Internal Standard Area/Retention Time Shift Meet Criteria (If not met, list those compounds, which fall outside the acceptable range)	yes
	a. VOA Fraction	
	b. B/N Fraction	
	c. Acid Fraction NA	
11.	Extraction Holding Time Met	yes
	If not met, list the number of days exceeded for each sample:	
12.	Analysis Holding Time Met	yes
	If not met, list the number of days exceeded for each sample:	
Ada	litional Comments:	
Lab	oratory Manager:	-

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

			Yes, No, N/A
1.	Method Detection Limits Provided		yes
2.	Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank		_b'o_
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)		<u> </u>
4.	Duplicate Results Summary Meet Criteria		<u> 4es</u>
5.	IR Spectra submitted for standards, blanks and samples		NA
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted		yes
7.	Analysis holding time met (If not met, list number of days exceeded for each sample)		yes
Addi:	tional comments:		
Labo	ratory Manager: Date:	10-77-05	· ·

VOLATILE ORGANICS (AQUEOUS)

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEP CERTIFICATION # 13461

Definition of Qualifiers

- U: The compound was analyzed for but not detected.
- B: Indicates that the compound was found in the associated method blank as well as in the sample.
- J: Indicates an estimated value. This flag is used:
 - (1) When the mass spec and retention time data indicate the presence of a compound however the result is less than the MDL but greater than zero.
 - (2) When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D: This flag is used to identify all compounds (target or TIC) that required a dilution.
- E: Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N: This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory **NJDEP Certification #13461**

Data File Operator

Date Acquired

VB020487.D

Skelton

11 Oct 2005 1:45 pm

Sample Name

MB 11Oct2005 MB 11Oct2005

Sample Multiplier

Field ID

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RL	Qualifie
107028	Acrolein			not detected	10	1.57 ug/L	10.00 ug/L	
107131	Acrylonitrile			not detected	50	2.47 ug/L	10.00 ug/L	
75650	tert-Butyl alcohol			not detected	100	8.54 ug/L	20.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.30 ug/L	. 2.00 ug/L	
108203	Di-isopropyl ether			not detected	20000	0.37 ug/L	2.00 ug/L	
75718	Dichlorodifluoromethane			not detected	nle	0.46 ug/L	2.00 ug/L	
74-87-3	Chloromethane			not detected	30	0.30 ug/L	2.00 ug/L	
75-01-4	Vinyl Chloride			not detected	5	0.20 ug/L	2.00 ug/L	
74-83-9	Bromomethane			not detected	10	0.25 ug/L	2.00 ug/L	
75-00-3	Chloroethane			not detected	100	0.27 ug/L	2.00 ug/L	
75-69-4	Trichlorofluoromethane		,	not detected	nle	0.26 ug/L	2.00 ug/L	
75-35-4	1.1-Dichloroethene			not detected	2	0.27 ug/L	2.00 ug/L	
67-64-1	Acetone			not detected	700	2.00 ug/L	2.00 ug/L	
75-15-0	Carbon Disulfide			not detected	800	0.16 ug/L	2.00 ug/L	
75-09-2	Methylene Chloride			not detected	3	0.55 ug/L	2.00 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.25 ug/L	2.00 ug/L	
75-34-3	1.1-Dichloroethane		-	not detected	50	0.32 ug/L	· 2.00 ug/L	
108-05-4	Vinyl Acctate			not detected	7000	0.20 ug/L	2.00 ug/L	
78-93-3	2-Butanone		 	not detected	300	0.90 ug/L	2.00 ug/L	
156-59-2	cis-1.2-Dichloroethene			not detected	70	· 0.28 ug/L	2.00 ug/L.	
67-66-3	Chloroform	·		not detected	6	0.38 ug/L	2.00 ug/L	
71-55-6	1.1.1-Trichloroethane			not detected	30	0.27 ug/L	2.00 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.20 ug/L	2.00 ug/L	
71-43-2	Benzene			not detected	1	0.20 ug/L	2.00 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.22 ug/L	2.00 ug/L	
79-01-6	Trichloroethene			not detected	1	0.28 ug/L	2.00 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.33 ug/L	2.00 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.25 ug/L	2.00 ug/L	
110-75-8	2-Chloroethyl vinyl ether	-		not detected	100	0.25 ug/L	2.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene		1	not detected	nle	0.18 ug/L	2.00 ug/L	
108-10-1	4-Melhyl-2-Pentanone			not detected	400	0.38 ug/L	2.00 ug/L	
108-88-3	Toluene			not detected	1000	0.25 ug/L	2.00 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.14 ug/L	2.00 ug/L	
79-00-5	1.1.2-Trichloroethane			not detected	3	0.25 ug/L	2.00 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.26 ug/L	2.00 ug/L	
591-78-6	2-Hexanone			not detected	100	0.29 ug/L	2.00 ug/L	
124-48-1	Dibromochloromethane			not detected	10	0.24 ug/L	2.00 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.30 ug/L	2.00 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.28 ug/L	2.00 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	0.63 ug/L	4.00 ug/L	
95-47-6	o-Xylene			not detected	nle	0.24 ug/L	2.00 ug/L	
100-42-5	Styrene			not detected	100	0.34 ug/L	2.00 ug/L	
75-25-2	Bromoform			not detected	4	0.24 ug/L	2.00 ug/L	
79-34-5	1.1.2.2-Tetrachloroethane			not detected	1	0.24 ug/L	2.00 ug/L	
541-73-1	1.3-Dichlorobenzene			not detected	600	0.24 ug/L	2.00 ug/L	
106-46-7	1.4-Dichlorobenzene			not detected	75	0.25 ug/L	2.00 ug/L	
95-50-1	1.2-Dichlorobenzene			not detected	600	0.27 ug/L	2.00 ug/L	

^{*}Results between MDL and RL are estimated values

Qualifiers

 $\mathbf{B} = \mathbf{Compound}$ found in related blank

E = Value above linear range

 $\mathbf{D} = Value$ from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

^{*}Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9-6.9 (c).

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID:

MB 11Oct2005 NJDEP#: 13461 Lab Name: **FMETL** Location: B.3010 SDG No.: CharlesW Case No.: 50506 Project: 05-173883 Lab Sample ID: MB 11Oct2005 WATER Matrix: (soil/water) Lab File ID: VB020487.D (g/ml) ML Sample wt/vol: 5.0 Date Received: 10/6/2005 Level: (low/med) LOW Date Analyzed: 10/11/2005 % Moisture: not dec. Dilution Factor: 1.0 GC Column: RTX502. ID: 0.25 Soil Aliquot Volume: (uL) (uL) Soil Extract Volume: CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L Number TICs found: RT EST. CONC. Q COMPOUND NAME CAS'NO.

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VB020518.D

Operator Date Acquired Skelton

17 Oct 2005 3:06 pm

Sample Name

Field ID

MB 17Oct2005 MB 17Oct2005

Sample Multiplier 1

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RL	Qualifier
107028	Acrolein			not detected	10	1.57 ug/L	10.00 ug/L	
107131	Acrylonitrile			not detected	50	2.47 ug/L	10.00 ug/L	
75650	tert-Butyl alcohol			not detected	100	8.54 ug/L	20.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.30 ug/L	2.00 ug/L	
108203	Di-isopropyl ether			not detected	20000	0.37 ug/L	2.00 ug/L	
75718	Dichlorodifluoromethane			not detected	nte	0.46 ug/L	2.00 ug/L	
74-87-3	Chleromethane			not detected	30	0.30 ug/L	2.00 ug/L	, ,
75-01-4	Vinyl Chloride	<u> </u>		not detected	5	0.20 ug/L	2.00 ug/L	
74-83-9	Bromomethane			not detected	10	0.25 ug/L	2.00 ug/L	
75-00-3	Chloroethane			not detected	100	0.27 ug/L	2.00 ug/L	
75-69-4	Trichtorofluoromethane		-	not detected	nle	0.26 ug/L	2.00 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0.27 ug/L	2.00 ug/L	
67-64-1	Acetone			not detected	700	2.00 ug/L	2.00 ug/L	
75-15-0	Carbon Disulfide			not detected	800	0.16 ug/L	2.00 ug/L	
75-09-2	Methylene Chloride			not detected	3	0.55 ug/L	2.00 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.25 ug/L	2.00 ug/L	
75-34-3	1.1-Dichloroethane			not detected	50	0.32 ug/L	2.00 ug/L	
108-05-4	Vinyl Acetate			not detected	7000	0.20 ug/L	2.00 ug/L	
78-93-3	2-Butanone			not detected	300	0.90 ug/L	2.00 ug/L	
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.28 ug/L	2.00 ug/L	
67-66-3	Chloroform		-	not detected	6	0.38 ug/L	2.00 ug/L	
71-55-6	1,1,1-Trichloroethane			not detected	30	0.27 ug/L	2.00 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.20 ug/L	2.00 ug/L	
71-43-2	Benzene			not detected	1	0.20 ug/L	2.00 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.22 ug/L	2.00 ug/L	
79-01-6	Trichloroethene			not detected	1	0.28 ug/L	2.00 ug/L	
78-87-5	1.2-Dichleropropane			not detected	i	0.33 ug/L	2.00 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.25 ug/L	2.00 ug/L	
110-75-8	2-Chloroethyl vinyl ether		-	not detected	100	0.25 ug/L	2.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.18 ug/L	2.00 ug/L	
108-10-1	4-Mcthyl-2-Pentanone			not detected	400	0.38 ug/L	2.00 ug/L	
108-88-3	Toluene			not detected	1000	0.25 ug/L	2.00 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.14 ug/L	2.00 ug/L	
79-00-5	1.1.2-Trichloroethane			not detected	3	0.25 ug/L	2.00 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.26 ug/L	2.00 ug/L	
591-78-6	2-Hexanone			not detected	100	0.29 ug/L	2.00 ug/L	
124-48-1	Dibromochloromethane			not detected	10	0.24 ug/L	2.00 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.30 ug/L	2.00 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.28 ug/L	2.00 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	0.63 ug/L	4.00 ug/L	
95-47-6	o-Xylene			not detected	nle	0.24 ug/L	2.00 ug/L	
100-42-5	Styrene			not detected	100	0.34 ug/L	2.00 ug/L	
75-25-2	Bromoform			not detected	4	0.24 ug/L	2.00 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.24 ug/L	2.00 ug/L	[
541-73-1	1.3-Dichlorobenzene			not detected	600	0.24 ug/L	2.00 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.25 ug/L	2.00 ug/L	
95-50-1	1,4-Dichlorobenzene			not detected	600	0.27 ug/L	2.00 ug/L	

^{*}Results between MDL and RL are estimated values

Qualifiers

B = Compound found in related blank

E = Value above linear range D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

^{*}Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9-6.9 (c).

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIEL	_D ID
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Lab Name:	FMETL			NJDEP#	: 13461		IVID	700120	,03
Project:	05-1738	83 Cas	se No.: 5050	6 Locati	on: B.30	10 SD	G No.:	Charles	SW_
Matrix: (soil/v	water)	WATER	_	L	ab Sampl	e ID: N	ИВ 17 0 с	t2005	
Sample wt/vo	ol:	5.0	(g/ml) ML	L	ab File ID	: \(\frac{1}{2}\)	/B02051	8.D	
Level: (low/n	ned)	LOW	-	D	ate Rece	ived: 1	0/6/2005	5	
% Moisture:	not dec.			D	ate Analy	zed: 1	0/17/200)5	
GC Column:	RTX50	0.2. ID: <u>0.</u> 2	25 (mm)	D	ilution Fa	ctor: 1	.0		
Soil Extract V	/olume:		_ (uL)	S	oil Aliquo	t Volum	ie:		(uL)
Number TICs	s found:	0		CONCENTRA (ug/L or ug/Kg					
CAS NO.		COMPOU	ND NAME		RT	EST	. CONC.		Q

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory **NJDEP Certification #13461**

Data File Operator

Date Acquired

VB020500.D

Skelton

11 Oct 2005 10:42 pm

Sample Name

5050608

Field ID

3010-Groundwater

Sample Multiplier

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RL	Qualifier
107028	Acrolein	11,17		not detected	10	1.57 ug/L	10.00 ug/L	
107131	Acrylonitrile			not- detected	50	2.47 ug/L	10.00 ug/L	
75650	tert-Butyl alcohol			not detected	100	8.54 ug/L	20.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.30 ug/L	2.00 ug/L	
108203	Di-isopropyl ether			not detected	20000	0.37 ug/L	2.00 ug/L	
75718	Dichlorodifluoromethane			not detected	nle	0.46 ug/L	2.00 ug/L	
74-87-3	Chloromethane			not detected	30	0.30 ug/L	2.00 ug/L	
75-01-4	Vinyl Chloride			not detected	5	0.20 ug/L	2.00 ug/L	Ĭ
74-83-9	Bromomethane			not detected	10	0.25 ug/L	2.00 ug/L	
75-00-3	Chloroethane			not detected	100	0.27 ug/L	2.00 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.26 ug/L	2.00 ug/L	
75-35-4	1.1-Dichloroethene			not detected	2	0.27 ug/L	2.00 ug/L	
67-64-1	Acetone		,	not detected	700	2.00 ug/L	2.00 ug/L	
75-15-0	Carbon Disulfide			not detected	800	0.16 ug/L	2.00 ug/L	
75-09-2	Methylene Chloride			not detected	3	0.55 ug/L	2.00 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.25 ug/L	2.00 ug/L	
75-34-3	1,1-Dichloroethane			not detected	50	0.32 ug/L	2.00 ug/L	
108-05-4	Vinyl Acetate			not detected	7000	0.20 ug/L	2.00 ug/L	
78-93-3	2-Butanone			not detected	300	0.90 ug/L	2.00 ug/L	
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.28 ug/L	2.00 ug/L	
67-66-3	Chloroform			not detected	6	0.38 ug/L	2.00 ug/L	
71-55-6	1,1,1-Trichloroethane			not detected	30	0.27 ug/L	2.00 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.20 ug/L	2.00 ug/L	
71-43-2	Benzene			not detected	1	0.20 ug/L	2.00 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.22 ug/L	2.00 ug/L	
79-01-6	Trichloroethene			not detected	1	0.28 ug/L	2.00 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.33 ug/L	2.00 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.25 ug/L	2.00 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	100	0.25 ug/L	2.00 ug/L	
10061-01-5	cis-1.3-Dichloropropene			not detected	nle	0.18 ug/L	2.00 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.38 ug/L	2.00 ug/L	
108-88-3	Toluene			not detected	1000	0.25 ug/L	2.00 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.14 ug/L	2.00 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.25 ug/L	2.00 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.26 ug/L	2.00 ug/L	
591-78-6	2-Hexanone			not detected	100	0.29 ug/L	2.00 ug/L	
124-48-1	Dibromochloromethane			not detected	10	0.24 ug/L	2.00 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.30 ug/L	2.00 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.28 ug/L	2.00 ug/L	
1330-20-7	m+p-Xylenes			not detected	nte	0.63 ug/L	4.00 ug/L	
95-47-6	o-Xylene			not detected	nle	0.24 ug/L	2.00 ug/L	
100-42-5	Styrene			not detected	100	0.34 ug/L	2.00 ug/L	
75-25-2	Bromoform			not detected	4	0.24 ug/L	2.00 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.24 ug/L	2.00 ug/L	
541-73-1	1,3-Dichlorobenzene			not_detected	600	0.24 ug/L	2.00 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.25 ug/L	2.00 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.27 ug/L	2.00 ug/L	

^{*}Results between MDL and RL are estimated values

Qualifiers

B = Compound found in related blank

E = Value above linear range D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

^{*}Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9-6.9 (c).

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD	ID
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Lab Name:	FMETL			NJDEF	r#: 13461		30	710-GV	
Project:	05-1738	383 Cas	e No.: 505	06 Loca	tion: B.30	10 SE	G No.:	Charle	•sW_
Matrix: (soil/v	vater)	WATER	_		Lab Sampl	e ID:	5050608	3	
Sample wt/vo	ol:	5.0	(g/ml) ML		Lab File ID	: '	VB02050	0.D	_
Level: (low/n	ned)	LOW	_		Date Rece	ived:	10/6/200	15	_
% Moisture: r	not dec.		<u>.</u>		Date Analy	zed:	10/11/20	05	_
GC Column:	RTX50	02. ID: 0.2	25 (mm)		Dilution Fa	ctor:	1.0		_
Soil Extract V	/olume:		_ (uL)		Soil Aliquot	Volun	ne:		_ (uL)
Number TICs	s found:	0	-	CONCENTF (ug/L or ug/h					
CAS NO.		COMPOU	ND NAME		RT	EST	r. CONC) .	Q

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory **NJDEP Certification #13461**

Data File

VB020501.D

Operator Date Acquired Skelton

11 Oct 2005 11:23 pm

Sample Name

Field ID

Trip Blank

Sample Multiplier

		D. M.	D	Result	Regulatory Level (ug/l)*	MDL	RL	Oualifier
CAS#	Compound Name	R.T.	Response	not detected	10	1.57 ug/L	10.00 ug/L	T
107028	Acrolein			not detected	50	2.47 ug/L	10.00 ug/L	†
107131	Acrylonitrile			not detected	100	8.54 ug/L	20.00 ug/L	†
75650	tert-Butyl alcohol	-		not detected	70	0.30 ug/L	2.00 ug/L	1
1634044	Methyl-tert-Butyl ether			not detected	20000	0.37 ug/L	2.00 ug/L	
108203	Di-isopropyl ether			not detected	nie	0.46 ug/L	2.00 ug/L	+
75718	Dichlorodifluoromethane			not detected	30	0.30 ug/L	2.00 ug/L	
74-87-3	Chloromethane				5	0.30 ug/L	2.00 ug/L	
75-01-4	Vinyl Chloride			not detected		0.25 ug/L	2.00 ug/L	
74-83-9	Bromomethane			not detected	10	0.23 ug/L 0.27 ug/L	2.00 ug/L	
75-00-3	Chloroethane			not detected	100	,	2.00 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nle	0.26 ug/L		+
75-35-4	1,1-Dichloroethene			not detected	2	0.27 ug/L	2.00 ug/L	┼
67-64-1	Acetone			not detected	700	2.00 ug/L	2.00 ug/L	
75-15-0	Carbon Disulfide			not detected	800	0.16 ug/L	2.00 ug/L	+
75-09-2	Methylene Chloride	11.67	2333092	151.02 ug/L	3	0.55 ug/L	2.00 ug/L	E
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.25 ug/L	2.00 ug/L	
75-34-3	1,1-Dichloroethane			not detected	50	0.32 ug/L	2.00 ug/L	
108-05-4	Vinyl Acctate			not detected	7000	0.20 ug/L	2.00 ug/L	<u> </u>
78-93-3	2-Butanone			not detected	300	0.90 ug/L	2.00 ug/L	
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.28 ug/L	2.00 ug/L	
67-66-3	Chloroform	16.68	23788	0.72 ug/L	. 6	0.38 ug/L	2.00 ug/L	↓
71-55-6	1,1,1-Trichloroethane			not detected	30	0.27 ug/L	2.00 ug/L	
56-23-5	Carbon Tetrachloride			not detected	2	0.20 ug/L	2.00 ug/L	ļ
71-43-2	Benzene			not detected	1	0.20 ug/L	2.00 ug/L_	
107-06-2	1,2-Dichloroethane			not detected	2	0.22 ug/L	2.00 ug/L	ļ
79-01-6	Trichloroethene			not detected	1	0.28 ug/L	2.00 ug/L	<u> </u>
78-87-5	1,2-Dichloropropane			not detected	_1	0.33 ug/L	2.00 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.25 ug/L	2.00 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	100	0.25 ug/L	2.00 ug/L	<u> </u>
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	0.18 ug/L	2.00 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.38 ug/L	2.00 ug/L	
108-88-3	Toluene			not detected	1000	0.25 ug/L	2.00 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0.14 ug/L	2.00 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.25 ug/L	2.00 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.26 ug/L	2.00 ug/L	
591-78-6	2-Hexanone			not detected	100	0.29 ug/L	2.00 ug/L	
124-48-1	Dibromochloromethane			not detected	10	0.24 ug/L	2.00 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.30 ug/L	2.00 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.28 ug/L	2.00 ug/L	
1330-20-7	m+p-Xylenes		· · · · · · · · · · · · · · · · · · ·	not detected	nle	0.63 ug/L	4.00 ug/L	
				not detected	nle	0.24 ug/L	2.00 ug/L	
95-47-6	o-Xylene			not detected	100	0.34 ug/L	2.00 ug/L	
100-42-5	Styrene			not detected	4	0.24 ug/L	2.00 ug/L	
75-25-2	Bromoform			not detected	1 1	0.24 ug/L	2.00 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane	·		not detected	600	0.24 ug/L	2.00 ug/L	<u> </u>
541-73-1	1,3-Dichlorobenzene			not detected	75	0.25 ug/L	2.00 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	600	0.23 ug/L 0.27 ug/L	2.00 ug/L	
95-50-1	1,2-Dichlorobenzene		and MDY and PL ar		000	U.Z.I UELD	2.00 191	

^{*}Results between MDL and RL are estimated values

Qualifiers

B = Compound found in related blank

E = Value above linear range D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

^{*}Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9-6.9 (c).

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory **NJDEP Certification #13461**

Data File

VB020528.D

Operator Date Acquired Skelton

17 Oct 2005 10:00 pm

Sample Name

Field ID

Trip Blank

Regulatory

Sample N

Aultiplier 1

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RĽ	Qualifie
	Acrolein	'	. [not detected	10	15.70 ug/L	100.00 ug/L	
	Acrylonitrile			not detected	50	24.70 ug/L	100.00 ug/L	
	tert-Butyl alcohol			not detected	100	85.40 ug/L	200.00 ug/L	
	Methyl-tert-Butyl ether			not detected	70	3.00 ug/L	20.00 ug/L	
	Di-isopropyl ether			not detected	20000	3.70 ug/L	20.00 ug/L	
	Dichlorodifluoromethane			not detected	nle	4.60 ug/L	20.00 ug/L	
	Chloromethane			not detected	30	3.00 ug/L	20.00 ug/L	
	Vinyl Chloride			not detected	5	2.00 ug/L	20.00 ug/L	
	Bromomethane			not detected	10	2.50 ug/L	20.00 ug/L	1
	Chloroethane			not detected	100	2.70 ug/L	20.00 ug/L	1
	Trichlorofluoromethane			not detected	nle	2.60 ug/L	20.00 ug/L	
				not detected	2	2.70 ug/L	20.00 ug/L	
	1,1-Dichloroethene			not detected	700	20.00 ug/L	20.00 ug/L	
	Acetone			not detected	800	1.60 ug/L	20.00 ug/L	
	Carbon Disulfide	11.67	659666	303.99 ug/L	3	5.50 ug/L	20.00 ug/L	D
	Methylene Chloride	11.67	658666	not detected	100	2.50 ug/L	20.00 ug/L	1 P
	rans-1,2-Dichloroethene					3.20 ug/L	20.00 ug/L	<u> </u>
	1,1-Dichloroethane			not detected	50	2.00 ug/L	20.00 ug/L	
	Vinyl Acetate			not detected	7000		20.00 ug/L	}
	2-Butanone			not detected	300	9.00 ug/L		
	cis-1,2-Dichloroethene			not detected	70	2.80 ug/L	20.00 ug/L	-
67-66-3	Chloroform	,		not detected	6	3.80 ug/L	20.00 ug/L	<u> </u>
71-55-6	1,1,1-Trichloroethane			not detected	30	2.70 ug/L	20.00 ug/L	ļ
56-23-5	Carbon Tetrachloride			not detected	2	2.00 ug/L	20.00 ug/L	
71-43-2	Benzene			not detected	1 1	2.00 ug/L	20.00 ug/L	ļ
107-06-2	1,2-Dichloroethanc			not detected	2	2.20 ug/L	20.00 ug/L	
79-01-6	Frichloroethene			not detected	1	2.80 ug/L_	20.00 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	3.30 ug/L	20.00 ug/L	
75-27-4	Bromodichloromethane		-	not detected	. 1	2.50 ug/L	20.00 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	100	2.50 ug/L	20.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nle	1.80 ug/L	20.00 ug/L	ļ
108-10-1	4-Methyl-2-Pentanone			not detected	400	3.80 ug/L	20.00 ug/L	
108-88-3	Foluene			not detected	1000	2.50 ug/L	20.00 ug/L	
10061-02-6	rans-1,3-Dichloropropene			not detected	nle	1.40 ug/L	20.00 ug/L	
	1,1,2-Trichloroethane			not detected	3	2.50 ug/L	20.00 ug/L	
	l'etrachloroethene			not detected	1	2.60 ug/L	20.00 ug/L	
	2-Hexanone			not detected	100	2.90 ug/L	20.00 ug/L	
	Dibromochloromethane			not detected	10	2.40 ug/L	20.00 ug/L	
	Chlorobenzene			not detected	50	3.00 ug/L	20.00 ug/L	
	Ethylbenzene Ethylbenzene			not detected	700	2.80 ug/L	20.00 ug/L	
	m+p-Xylenes			not detected	nle	6.30 ug/L	40.00 ug/L	
	n+p-xylenes o-Xylene			not detected	nle	2.40 ug/L	20.00 ug/L	
	Styrene			not detected	100	3.40 ug/L	20.00 ug/L	
				not detected	4	2.40 ug/L	20.00 ug/L	
	Bromoform		 -	not detected	1 1	2.40 ug/L	20.00 ug/L	
	1,1,2,2-Tetrachloroethane			not detected	600	2.40 ug/L	20.00 ug/L	
	1,3-Dichlorobenzene					2.50 ug/L	20.00 ug/L	
	1,4-Dichlorobenzene			not detected	75	2.70 ug/L	20.00 ug/L	
95-50-1	1,2-Dichlorobenzene		en MDL and RL are e	not detected	600	Z.ju ug/L	ZU.UU UB/L	l

*Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9-6.9 (c).

Qualifiers

B = Compound found in related blank

E = Value above linear range D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

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			(())	, ,, ,,,,,,				Tuin Di	anie i
Lab Name:	FMETL			NJDEP	#: _1	3461		Trip BI	alik
Project:	05-1738	383	Case No.: <u>505</u> 6	06 Loca	ion:	B.301	o se	G No.: Cha	ırlesW_
Matrix: (soil/	water)	WATER	3		Lab S	Sample	ID:	5050613	
Sample wt/vo	ol:	5.0	(g/ml) <u>ML</u>		Lab F	File ID:		VB020501.D	
Level: (low/r	ned)	LOW			Date	Receiv	/ed:	10/6/2005	
% Moisture:	not dec.		<u>-</u>	1	Date	Anaiyz	ed:	10/11/2005	
GC Column:	RTX5	02. ID:	<u>0.25</u> (mm)	1	Diluti	on Fac	tor:	1.0	
Soil Extract \	/olume:		(uL)	;	Soil A	Aliquot	Volun	ne:	(uL)
Number TICs	s found:	0		CONCENTR (ug/L or ug/k					
CAS NO.		COMP	OUND NAME		ı	RT	ES	r. CONC.	Q

VOLATILE ORGANICS (SOIL)

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

MB 17Oct2005

NJDEP#: 13461 **FMETL** Lab Name: Location: B.3010 SDG No.: CharlesW 05-173883 Case No.: 50506 Project: Lab Sample ID: MB 17Oct2005 Matrix: (soil/water) SOIL Lab File ID: VB020518.D (g/ml) G Sample wt/vol: 10.0 Date Received: 10/6/2005 MED Level: (low/med) Date Analyzed: 10/17/2005 % Moisture: not dec. GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0 (uL) Soil Aliquot Volume: 125 Soil Extract Volume: 25000 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/KG	Q
107028	Acrolein	1000	U
107131	Acrylonitrile	1000	U
75650	tert-Butyl alcohol	1000	U
1634044	Methyl-tert-Butyl ether	100	U
108203	Di-isopropyl ether	100	U
75718	Dichlorodifluoromethane	100	U
74-87-3	Chloromethane	100	U _
75-01-4	Vinyl Chloride	100	
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-69-4	Trichlorofluoromethane	100	U_
75-35-4	1,1-Dichloroethene	100	U_
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U_
75-09-2	Methylene Chloride	100	U
156-60-5	trans-1,2-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U _
108-05-4	Vinyl Acetate	100	U
78-93-3	2-Butanone	100	U
156-59-2	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U_
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	100	U
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

MB 17Oct2005

Lab Name:	FMETL			NJDEP#: 13461	_	
Project:	05-1738	383	Case No.: 50506	Location: B.3010 S	DG No.: Charles	<u>W</u>
Matrix: (soil/v	water)	SOIL		Lab Sample ID:	MB 17Oct2005	
Sample wt/vo	ol:	10.0	(g/ml) <u>G</u>	_ Lab File ID:	VB020518.D	
Level: (low/r	ned)	MED		Date Received:	10/6/2005	
% Moisture:	not dec.	0		Date Analyzed:	10/17/2005	
GC Column:	RTX5	02. ID:	0.25 (mm)	Dilution Factor:	1.0	
Soil Extract \	/olume:	25000	(uL)	Soil Aliquot Volu	me: 125	(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/KG	Q	
1330-20-7	m+p-Xylenes	200	U	
95-47-6	o-Xylene	100	U_	
100-42-5	Styrene	100	U_	
75-25-2	Bromoform	100	U	
79-34-5	1,1,2,2-Tetrachloroethane	100	U_	
541-73-1	1,3-Dichlorobenzene	100	_U	
106-46-7	1,4-Dichlorobenzene	100	U	
95-50-1	1,2-Dichlorobenzene	100	U	

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID:

MB 17Oct2005 NJDEP#: 13461 Lab Name: **FMETL** Location: B.3010 SDG No.: CharlesW 05-173883 Case No.: 50506 Project: Lab Sample ID: MB 17Oct2005 Matrix: (soil/water) SOIL VB020518.D Lab File ID: 10.0 (g/ml) G Sample wt/vol: Date Received: 10/6/2005 MED Level: (low/med) Date Analyzed: 10/17/2005 0 % Moisture: not dec. Dilution Factor: 1.0 RTX502. ID: 0.25 GC Column: Soil Aliquot Volume: 125 (uL) (uL) Soil Extract Volume: 25000 **CONCENTRATION UNITS:** (ug/L or ug/Kg) UG/KG Number TICs found: 0 RT EST. CONC. Q COMPOUND NAME CAS NO.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

3010-B3

NJDEP#: 13461 **FMETL** Lab Name: Location: B.3010 SDG No.: CharlesW Case No.: 50506 05-173883 Project: Lab Sample ID: 5050603 SOIL Matrix: (soil/water) VB020521.D Lab File ID: (g/ml) <u>G</u> 11.6 Sample wt/vol: Date Received: 10/6/2005 MED Level: (low/med) Date Analyzed: 10/17/2005 % Moisture: not dec. 16.62 Dilution Factor: 1.0 GC Column: RTX502. ID: 0.25 (mm) (uL) Soil Aliquot Volume: 125 Soil Extract Volume: 25000 (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/KG	Q
107028	Acrolein	1000	U
107131	Acrylonitrile	1000	· U
75650	tert-Butyl alcohol	1000	U
1634044	Methyl-tert-Butyl ether	100	U
108203	Di-isopropyl ether	100	U
75718	Dichlorodifluoromethane	100	U
74-87-3	Chloromethane	100	U
75-01 - 4	Vinyl Chloride	100	U
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	100	U
75-69-4	Trichlorofluoromethane	100	U
75-35-4	1,1-Dichloroethene	_100	U
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	100	U
156-60-5	trans-1,2-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	100	U
78-93-3	2-Butanone	100	U
156-59-2	cis-1,2-Dichloroethene	100	U_
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	100	U
71-43-2	Benzene	100	U _
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	100	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	100	U
124-48-1	Dibromochloromethane	100	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

3010-B3

Lab Name:	FMETL			NJDEP#: 13461		
Project:	05-1738	383	Case No.: 50506	Location: B.3010	SDG No.: Charles	W
Matrix: (soil/	water)	SOIL		Lab Sample ID:	5050603	
Sample wt/v	ol:	11.6	(g/ml) G	Lab File ID:	VB020521.D	
Level: (low/r	ned)	MED		Date Received:	10/6/2005	
% Moisture:	not dec.	16.62		Date Analyzed:	10/17/2005	
GC Column:	RTX5	02. ID:	0.25 (mm)	Dilution Factor:	1.0	
Soil Extract	Volume:	25000	(uL)	Soil Aliquot Volu	ıme: <u>125</u>	(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/KG	Q
1330-20-7	m+p-Xylenes	210	Ū
95-47-6	o-Xylene	100	U
100-42-5	Styrene	100	U
75-25-2	Bromoform	100	U
79-34-5	1,1,2,2-Tetrachloroethane	100	U
541-73-1	1,3-Dichlorobenzene	100	U ·
106-46-7	1,4-Dichlorobenzene	100	U
95-50-1	1,2-Dichlorobenzene	100	U_

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

3010-B3 NJDEP#: 13461 Lab Name: **FMETL** Location: B.3010 SDG No.: CharlesW Case No.: 50506 Project: 05-173883 Lab Sample ID: 5050603 SOIL Matrix: (soil/water) VB020521.D Lab File ID: 11.6 (g/ml) G Sample wt/vol: Date Received: 10/6/2005 MED Level: (low/med) Date Analyzed: 10/17/2005 % Moisture: not dec. 16.62 Dilution Factor: 1.0 RTX502. ID: 0.25 GC Column: (uL) Soil Aliquot Volume: 125 Soil Extract Volume: 25000 (uL) **CONCENTRATION UNITS:** UG/KG (ug/L or ug/Kg) Number TICs found: Q RT EST. CONC. COMPOUND NAME CAS NO.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

Trip Blank

NJDEP#: 13461 **FMETL** Lab Name: Location: B.3010 SDG No.: CharlesW 05-173883 Case No.: 50506 Project: Lab Sample ID: 5050614 Matrix: (soil/water) SOIL Lab File ID: VB020519.D (g/ml) G Sample wt/vol: 10.0 Date Received: 10/6/2005 MED Level: (low/med) Date Analyzed: 10/17/2005 % Moisture: not dec. GC Column: <u>RTX502.</u> ID: <u>0.25</u> (mm) Dilution Factor: 1.0 Soil Aliquot Volume: 125 (uL) (uL) Soil Extract Volume: 25000

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/KG	Q
107028	Acrolein	1000	U
107131	Acrylonitrile	1000	U
75650	tert-Butyl alcohol	1000	U
1634044	Methyl-tert-Butyl ether	100	U
108203	Di-isopropyl ether	100	Ų
75718	Dichlorodifluoromethane	100	U
74-87-3	Chloromethane	100	Ü
75-01-4	Vinyl Chloride	100	<u>U</u>
74-83-9	Bromomethane	100	U
75-00-3	Chloroethane	· _ 100	U
75-69-4	Trichlorofluoromethane	100	U.
75-35-4	1,1-Dichloroethene	100	U_
67-64-1	Acetone	100	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	100	U
156-60-5	trans-1,2-Dichloroethene	100	U
75-34-3	1,1-Dichloroethane	100	U_
108-05-4	Vinyl Acetate	100	U_
78-93-3	2-Butanone	100	U
156-59-2	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
71-55-6	1,1,1-Trichloroethane	100_	U
56-23-5	Carbon Tetrachloride	100	U_
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	100	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	100	U
10061-01-5	cis-1,3-Dichloropropene	100	U_
108-10-1	4-Methyl-2-Pentanone	100	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	100	U
79-00-5	1,1,2-Trichloroethane	100	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	100	U
124-48-1	Dibromochloromethane	100	U_
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	100	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

Trip Blank

Lab Name:	FMETL				NJDEP#:	13461		
Project:	05-1738	183	Case No.:	50506	Location	n: <u>B.3010</u> S	SDG No.: CharlesV	<u>V_</u>
Matrix: (soil/v	vater)	SOIL			La	b Sample ID:	5050614	
Sample wt/vo	ol:	10.0	(g/ml)	G	La	b File ID:	VB020519.D	
Level: (low/n	ned)	MED			Da	te Received:	10/6/2005	
% Moisture:	not dec.	0	. <u> </u>		Da	te Analyzed:	10/17/2005	
GC Column:	RTX5	02. ID:	<u>0.25</u> (m	nm)	Dil	ution Factor:	1.0	
Soil Extract \	/olume:	25000	(uL)		So	il Aliquot Volu	ume: 125	(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/KG		Q
1330-20-7	m+p-Xylenes			200	U
95-47-6	o-Xylene			100	U
100-42-5	Styrene			100_	U
75-25-2	Bromoform			100	U
79-34-5	1,1,2,2-Tetrachl	oroethane		100	U
541-73-1	1,3-Dichloroben			100	U
106-46-7	1.4-Dichloroben			100	U
95-50-1	1,2-Dichloroben			100	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name:	FMETL			NJDEP:	#: 13461			р ыа	ik
Project:	05-1738	383	Case No.: 5050	D6 Locat	tion: B.301	0 SD	G No.:	Charl	esW
Matrix: (soil/v	vater)	SOIL		···	Lab Sample	e ID: 3	5050614	<u>. </u>	
Sample wt/vo	ol:	10.0	(g/ml) <u>G</u>		Lab File ID:	_	VB0205	19.D	
Level: (low/n	ned)	MED		ŀ	Date Recei	ved: _	10/6/200	5	_
% Moisture:	not dec.	0		l	Date Analyz	zed: _	10/17/20	05	
GC Column:	RTX50	02. ID:	0.25 (mm)	l	Dilution Fac	etor:	1.0		_
Soil Extract V	/olume:	25000	(uL)		Soil Aliquot	Volum	ne: <u>125</u>	<u>.</u>	_ (uL)
Number TICs	s found:	0		CONCENTR (ug/L or ug/k		ITS: /KG			
CAS NO.		COMI	POUND NAME		RT	EST	г. conc).	Q

BASE NEUTRALS

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name

BN08183.D

Sample Name

MB-101105-02

Operator

B.Patel

Misc Info

MB-101105-02

Date Acquired

12-Oct-05

Sample Multiplier 1

					Regulatory Level				
CAS#	Name	R.T.	Response	Result	(ug/L)*	MDL	RL		Qualifiers
110-86-1	Pyridine			not detected	NLE	1.13	10.00	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.60	10.00	ug/L	
62-53-3	Aniline			not detected	NLE	2.38	10.00	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0.71	10.00	ug/L	
541-73-1	1,3-Dichlorobenzene	l		not detected	600	1.02	10.00	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.99	10.00	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.66	10.00	ug/L	<u></u> .
95-50-1	1,2-Dichlorobenzene			not detected	600	0.96	10.00	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	0.88	10.00	ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0.76	10.00	ug/L	
67-72-1	Hexachloroethane			not detected	10	0.96	10.00	ug/L	
98-95-3	Nitrobenzene			not detected	10	0.86	10.00	ug/L	
78-59-1	Isophorone			not detected	100	0.76	10.00	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.79	10.00	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.89	10.00	ug/L	
91-20-3	Naphthalene			not detected	NLE	0.76	10.00	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	1.37	10.00	ug/L	
87-68-3	Hexachlorobutadiene			not detected	11	0.99	10.00	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.01	10.00	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	0.92	10.00	ug/L	
91-58-7	2-Chloronaphthalene		ļ	not detected	NLE	0.72	10.00	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.77	10.00	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	0.78	10.00	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.67	10.00	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.71	10.00		
99-09-2	3-Nitroaniline	.		not detected	NLE	1.18	10.00		
83-32-9	Acenaphthene			not detected	400	0.73	10.00	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.69	10.00		
121-14-2	2,4-Dinitrotoluene			not detected	10	0.81	10.00		
84-66-2	Diethylphthalate			not detected	5000	0.96	10.00		
86-73-7	Fluorene			not detected	300	0.71	10.00		
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.73	10.00		
100-01-6	4-Nitroaniline			not detected	NLE	1.11	10.00		
86-30-6	n-Nitrosodiphenylamine			not detected	20	0.62	10.00		
103-33-3	Azobenzene			not detected	NLE	0.72	10.00		
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.92	10.00		<u> </u>
.118-74-1	Hexachlorobenzene			not detected	10	0.95	10.00		
85-01-8	Phenanthrene			not detected	NLE	0.81	10.00		
120-12-7	Anthracene	_		not detected	2000	0.76	10.00		
84-74-2	Di-n-butylphthalate			not detected	900	0.92	10.00		
206-44-0	Fluoranthene			not detected	300	0.82	10.00	ug/L	

Page 1 of 2

Semi-Volatile Analysis Report Page 2

Data File Name

BN08183.D

Sample Name

MB-101105-02

Operator

B.Patel

Misc Info

MB-101105-02

Date Acquired

12-Oct-05

Sample Multiplier

Regulatory	
Level	
(ug/L)*	

					Level				
CAS#	Name	R.T. Response		Result	(ug/L)*	MDL	RL		Qualifiers
92-87-5	Benzidine			not detected	50	0.98	10.00	ug/L	
129-00-0	Pyrene			not detected	200	0.79	10.00	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	0.86	10.00	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	0.82	10.00	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.31	10.00	ug/L	
218-01-9	Chrysene			not detected	20	0.77	10.00	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.28	10.00	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.02	10.00	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	0.98	10.00	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	0.92	10.00	ug/Ĺ	
50-32-8	Benzo[a]pyrene			not detected	20	0.71	10.00	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.76	10.00	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.76	10.00	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.80	10.00	ug/L	·

^{*} Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

MDL= Method Detection Limit

NLE= No Limit Established

R.T.=Retention Time

RL= Reporting Limit. The values between the MDL and RL are considered estimated.

Page 2 of 2

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MB-101105-02

Lab Name:	FMETL				Lab Co	de <u>13</u>	461		2	** *-	
Project:	Charles W Ca		Case No.: 5050	6	Location: Bldg.30 SI			SD	OG No.:		
Matrix: (soil/v	vater)	WATE	R		1	Lab Sa	ımple I	ID: <u>N</u>	MB-101105-0	02	
Sample wt/vo	ol:	1000	(g/ml) ML	**	<u>.</u>	Lab Fil	e ID:	E	3N08183.D		
Level: (low/n	ned)	LOW			1	Date R	eceive	ed: <u>1</u>	0/6/2005		
% Moisture:			decanted: (Y/N)	N	<u> </u>	Date E	xtracte	ed: 1	10/11/2005		
Concentrated	d Extract	Volume	: <u>1000</u> (uL)		1	Date A	nalyze	d: <u>1</u>	0/12/2005		
Injection Volu	ıme: <u>1.</u>	<u>0</u> (ul	-)		I	Dilution	n Facto	or: <u>1</u>	1.0		
GPC Cleanu	p: (Y/N)	N	pH:	_							
Number TICs	s found:	0			CONCEI			JNIT: JG/L	S:		
CAS NUME	BER	COM	POUND NAME			R	Г	EST	CONC.	Q	

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name

BN08186.D

Sample Name

5050608

Operator

Date Acquired

B.Patel 12-Oct-05 Misc Info

3010-Ground Water

Sample Multiplier 1

Regulatory Level

CAS#	Name	R.T.	Response	Result	Level (ug/L)*	MDL	RL	Qualifiers
110-86-1	Pyridine	T. 1	Response	not detected	NLE	1.13	10.00 ug/L	Quantities
62-75-9	N-nitroso-dimethylamine	-		not detected	20	0.60	10.00 ug/L	
62-53-3	Aniline			not detected	NLE	2.38	10.00 ug/L	
111-44-4	bis(2-Chloroethyl)ether	1 1		not detected	10	0.71	10.00 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.02	10.00 ug/L	
106-46-7	1,4-Dichlorobenzene	1		not detected	75	0.99	10.00 ug/L	
100-40-7	Benzyl alcohol	+		not detected	NLE	0.66	10.00 ug/L	
95-50-1	1,2-Dichlorobenzene	+ +		not detected	600	0.96	10.00 ug/L	
		 		not detected	300	0.88	10.00 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether	1		not detected	20	0.76	10.00 ug/L	
621-64-7	n-Nitroso-di-n-propylamine				10	0.96	10.00 ug/L	
67-72-1	Hexachloroethane	- 		not detected	10	0.86	10.00 ug/L	
98-95-3	Nitrobenzene			not detected	100	0.86	10.00 ug/L	
78-59-1	Isophorone	+		not detected		0.79	10.00 ug/L	
111-91-1	bis(2-Chloroethoxy)methane	- 		not detected	NLE			
120-82-1	1,2,4-Trichlorobenzene	1		not detected	9	0.89	10.00 ug/L	
91-20-3	Naphthalene			not detected	NLE	0.76	10.00 ug/L	
106-47-8	4-Chloroaniline	-		not detected	NLE	1.37	10.00 ug/L	
87-68-3	Hexachlorobutadiene		·	not detected	1	0.99	10.00 ug/L	<u> </u>
91-57-6	2-Methylnaphthalene			not detected	NLE	1.01	10.00 ug/L	
77-47-4	Hexachlorocyclopentadiene	 		not detected	50	0.92	10.00 ug/L	
91-58-7	2-Chloronaphthalene	_	•	not detected	NLE	0.72	10.00 ug/L	<u> </u>
88-74-4	2-Nitroaniline	1		not detected	NLE	0.77	10.00 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	0.78	10.00 ug/L	
208-96-8	Acenaphthylene	_		not detected	NLE	0.67	10.00 ug/L	<u> </u>
606-20-2	2,6-Dinitrotoluene	<u> </u>		not detected	NLE	0.71	10.00 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	1.18	10.00 ug/L	
83-32-9	Acenaphthene	-		not detected	400	0.73	10.00 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.69	10.00 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.81	10.00 ug/L	
84-66-2	Diethylphthalate	19.63	97679	3.59 ug/L	5000	0.96	10.00 ug/L	
86-73-7	Fluorene			not detected	300	0.71	10.00 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.73	10.00 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.11	10.00 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	0.62	10.00 ug/L	
103-33-3	Azobenzene			not detected	NLE	0.72	10.00 ug/L	
101-55-3	4-Bromophenyl-phenylether	1		not detected	NLE	0.92	10.00 ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.95	10.00 ug/L	<u> </u>
85-01-8	Phenanthrene			not detected	NLE	0.81	10.00 ug/L	
120-12-7	Anthracene			not detected	2000	0.76	10.00 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	0.92	10.00 ug/L	
206-44-0	Fluoranthene			not detected	300	0.82	10.00 ug/L	

Semi-Volatile Analysis Report Page 2

Data File Name

Date Acquired

Operator

BN08186.D

B.Patel

12-Oct-05

Sample Name

5050608

Misc Info

3010-Ground Water

Sample Multiplier

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL	RL	Qualifiers
92-87-5	Benzidine			not detected	50	0.98	10.00 ug	/L
129-00-0	Pyrene			not detected	200	0.79	10.00 ug	/L
85-68-7	Butylbenzylphthalate			not detected	100	0.86	10.00 ug	
56-55-3	Benzo[a]anthracene			not detected	10	0.82	10.00 ug	/L
91-94-1	3,3'-Dichlorobenzidine			not detected	60	1.31	10.00 սբ	几
218-01-9	Chrysene			not detected	20	0.77	10.00 ug	/L
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1.28	10.00 ug	/L
117-84-0	Di-n-octylphthalate			not detected	100	1.02	10.00 ug	/L
205-99-2	Benzo[b]fluoranthene			not detected	10	0.98	10.00 ug	/L
207-08-9	Benzo[k]fluoranthene			not detected	2	0.92	10.00 ug	/L
50-32-8	Benzo[a]pyrene			not detected	20	0.71	10.00 սջ	/L
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.76	10.00 ug	/L
53-70-3	Dibenz[a,h]anthracene			not detected	20	0.76	10.00 ug	/L
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.80	10.00 սջ	/L

^{*} Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

MDL= Method Detection Limit

NLE= No Limit Established

R.T.=Retention Time

RL= Reporting Limit. The values between the MDL and RL are considered estimated.

Page 2 of 2

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab Name:	FMETL			_ Lab Co	de <u>13461</u>	-	010-Grour	id Wate
Project:	Charles	W Case No	.: 50506	Loca	tion: Bldg.3	30 SI	DG No.:	
Matrix: (soil/	water)	WATER		1	Lab Sample	ıD:	5050608	
Sample wt/v	ol:	1000 (g/m	ıl) <u>ML</u>		Lab File ID:		BN08186.D	
Level: (low/r	ned)	LOW			Date Recei	ved:	10/6/2005	
% Moisture:		decanted:	(Y/N)	N	Date Extrac	ted:	10/11/2005	
Concentrate	d Extract	Volume: 1000	(uL)		Date Analyz	zed:	10/12/2005	
Injection Vol	ume: 1.	0 (uL)			Dilution Fac	tor:	1.0	
GPC Cleanu	p: (Y/N)	N pH:						
				CONCE	NTRATION	UNI	TS:	
Number TIC	s found:	0		(ug/L or	ug/Kg)	UG/	<u>L</u>	
CAS NUMI	3ER	COMPOUND N	AME		RT	ES	ST. CONC.	Q

TPHC

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

Client:

U.S. Army

Project #:

50506

DPW. SELFM-PW-EV

Location:

Charles Wood

Bldg. 173

Ft. Monmouth, NJ 07703

UST Reg. #:

Analysis:

OQA-QAM-025

Date Received:

06-Oct-05

Matrix:

06-Oct-05

Inst. ID. :

Soil

Date Extracted:

GC TPHC INST. #1

Extraction Method: Analysis Complete:

Shake 11-Oct-05

Column Type:

RTX-5, 0.32mm ID, 30M

Analyst:

B.Patel

Injection Volume:

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL	TPHC Result (mg/kg)
5050601	3010-B1	1.00	15.00	86.20	74	387	ND
5050602	3010-B2	1.00	15.02	79.04	81	421	ND
5050603	3010-B3	1.00	15.03	83.38	77	399	1731.09
5050604	3010-B4	1.00	15.05	83.40	77	398	ND
5050605	3010-B5	1.00	15.03	88.12	73	378	ND
5050606	3010-В6	1.00	15.00	91.63	70	364	ND
5050607	3010-В7	1.00	15.00	94.80	68	352	ND
5050609	3015-B1	1.00	15.01	83.84	77	397	ND
5050610	3015-B2	1.00	15.00	84.77	76	393	ND
5050611	3015-B3	1.00	15.02	83.38	77	399	ND
5050612	3015-Duplicate	1.00	15.06	84.99	75	391	ND
METHOD BLANK	MB-100605-01	1.00	15.00	100.00	64	333	ND .

ND = Not Detected

MDL = Method Detection Limit

RL = Reporting Limits

Note: The TPHC result between the MDL and RL are considered an estimated value

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

The following Laboratory Deliverables Checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete data packages will be returned or held without review until the data package is completed.

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

1	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.	V
2.	Table of Contents submitted.	
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.	_
4	Document paginated and legible.	
5.	Chain of Custody submitted.	<u>/</u>
6.	Samples submitted to lab within 48 hours of sample collection.	
7.	Methodology Summary submitted.	
8.	Laboratory Chronicle and Holding Time Check submitted.	
9.	Results submitted on a dry weight basis.	
10.	Method Detection Limits submitted.	
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.	/

Laboratory Manager or Environmental Consultant's Signature Date: 10/21/45

Laboratory Certification # 13461

*Refer to NJAC 7:26E – Appendix A, Section IV – Reduced Data Deliverables – Non-USEPA/CLP Methods for further guidance.

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.

Daniel K. Wright—Laboratory Manager

ATTACHMENT F

UST 3015 Report

U.S. Army Garrison

Fort Monmouth, New Jersey

Underground Storage Tank Report

Pine Brook Housing - Bldg. 3015

NJDEP UST Registration No. 192486-26

June 2011

UNDERGROUND STORAGE TANK CLOSURE AND REMEDIAL INVESTIGATION REPORT

MAIN POST WEST – BLDG. 3015 NJDEP UST REGISTRATION NO.: 192486-26

JUNE 2011

PREPARED FOR:

U.S. ARMY GARRISON, FORT MONMOUTH, NJ
DIRECTORATE OF PUBLIC WORKS
BUILDING 173
FORT MONMOUTH, NJ 07703

PREPARED BY:

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

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Appendix C UST Disposal Certificate Appendix D Photo Documentation

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EXECUTIVE SUMMARY

On February 9, 2009, one regulated underground storage tank (UST) was closed by removal in accordance with the Directorate of Public Works (DPW) UST Management Plan for the U.S. Army Garrison, Fort Monmouth, New Jersey. The UST was located next to Building 3015 in the Pine Brook Housing area of Fort Monmouth. UST No. 192486-26 was a 10,000-gallon, single-walled steel tank that had been previously abandoned in place in November 1989. The fill port and supply and return lines were not present in the excavation.

The site assessment was performed by TECOM-Vinnell Services (TVS) personnel in accordance with the New Jersey Department of Environmental Protection (NJDEP) *Technical Requirements for Site Remediation* (TRSR) and the NJDEP *Field Sampling Procedures Manual*. Soils surrounding the tanks were screened visually and with a calibrated hand held Mini-Rae Photo-Ionization air monitoring instrument for evidence of contamination. Following removal, the UST was inspected for holes. No holes or evidence of impacted soils were observed after the removal of the tank from the ground. After removing the UST and associated piping, post-excavation soil samples were collected. Samples 3015-A through 3015-H were collected from of eight (8) locations along the sidewalls, remote fill piping run and bottom of the excavation. All samples were analyzed for total petroleum hydrocarbons (TPH). Groundwater was encountered at approximately 5.5 feet below ground surface grade in the excavation.

All sampling was performed by a NJDEP Certified Subsurface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (August 2005). Sampling frequency and parameters analyzed complied with the NJDEP document *Technical Requirements for Site Remediation*, 7:26E-3.9 which was the applicable regulation at the date of the closure.

The post-excavation soil samples collected from the UST excavation associated with former UST No. 192486-26 contained TPH concentrations below the NJDEP health based criterion of 4,800 milligrams per kilogram (mg/kg) for total organic contaminants (N.J.A.C. 7:26E). None of the samples collected for post remedial confirmation were in excess of the additional analytical threshold of 1,000 ppm. The soil analytical data confirmed that no release had occurred from the excavated UST.

Based on the post-excavation soil sampling results, soils present is less than the NJDEP Residential Direct Contact Soil Clean up Standard (RDCSCS) for total organic compounds as diesel fuel/#2-home heating oil.

No further action is proposed in regard to the closure and site assessment of USTs No. 192486-26 at Building 3015.

1.0UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No 192486-26, was closed in the area of Bldg. 3015 located in Pine Brook Housing at U.S. Army Garrison, Fort Monmouth, New Jersey on February 9, 2009. Refer to the site location map included as Figure 1. This report presents the results of the implementation of the DPW's UST Management Plan, March, 1996. UST No. 192486-26 was a 10,000-gallon #2 home heating oil tank used for a fuel supply to a boiler plant for the several residential units.

Decommissioning activities for the USTs complied with all applicable federal, state and local laws and ordinances in effect at the date of decommissioning. These laws included, but were not limited to: 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 US Army employee.

This UST Closure and Remedial Investigation Report (RIR) has been prepared by TVS to assist the US Army Garrison, Fort Monmouth's Directorate of Public Works (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 and revisions dated May 19, 2003).

This RIR was prepared using information required by the Technical Requirements for Site Remediation (TRSR). Section 1 of this UST Closure and RIR 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 Section 3 of this report.

1.2 SITE DESCRIPTION

Building 3015 is located in the Pine Brook Housing area of Fort Monmouth, as shown on Figure 1. The UST was located to the east of Building 3015. The fill port and appurtenant piping were not encountered in the excavation. These items were removed when the tank was abandoned in place in 1989.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of Bldg. 3015. 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 Pine Brook Housing 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 semiconsolidated 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 (Zapecza, 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).

Hydrogeology

The water table aquifer in the Pine Brook Housing 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.

The area of Bldg. 3015 is located approximately 700 feet south-southeast of Wampum Brook, the nearest water body. Based on the Pine Brook Housing topography, the groundwater flow in the area of Bldg. 3015 is anticipated to be to the northwest.

1.3 HEALTH AND SAFETY

Work site health and safety hazards were minimized during all decommissioning activities. All areas that posed a vapor hazard were monitored by a qualified individual utilizing a calibrated photo-ionization detector (PID) 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 (PELs).

1.4 REMOVAL OF UNDERGROUND STORAGE TANKS

1.4.1 General Procedures

- All underground utilities were marked out by the respective shops and/or utility contractor prior to excavation activities.
- All activities were carried out with 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. No impacted soils were encountered during the tank excavations. These soils were used to backfill the excavation upon clearance.
- 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 certified Subsurface Evaluator was present during all closure activities.

1.4.2 Underground Storage Tank Excavations

During decommissioning activities, surficial soil was removed to expose the USTs. The tank was previously abandoned in place, the contents were removed, and the interior of the tank was filled with clean fill and the tank hull was backfilled.

After the UST was removed from the excavation, it was staged on polyethylene sheeting, labeled and examined for holes. No holes in the tank were observed during the inspection by the Subsurface Evaluator. Soils surrounding the UST were screened visually and with an Organic Vapor Monitor (OVM) for evidence of petroleum contamination. No soil staining and an odor of fuel were observed. After removal, the tank was transported for storage at the Bldg. 108 pad for subsequent cutting and disposal.

1.5 UNDERGROUND STORAGE TANK DECOMMISSIONING AND DISPOSAL

Subsequent to disposal and prior to cutting, the UST was cleaned first with rubber squeegees and adsorbent material broomed onto the sidewalls and bottom. The top of the tank had been cut open during the decommissioning to allow for the tank interior to be clean and filled with certified clean fill. The adsorbent materials and residual fill were 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 steel tank was cut as to be placed into a 7 cubic yard dump truck and shipped off site to be recycled. Refer to Appendix C for UST disposal certificate.

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 closure activities included in Appendix D.

2.0 REMEDIAL INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Remedial Investigation was managed and carried out by U.S. Army Fort Monmouth DPW personnel. All analyses were performed and reported by Fort Monmouth Environmental Testing Laboratory (FMETL), 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 (FSPM, August 2005,). Sampling frequency and parameters analyzed complied with the NJDEP document *Technical Requirements for Site Remediation*, 7:26E-3.9 (December 17, 2002 and revisions dated February 3, 2003) which was the applicable regulation at the date of the closure. All records of the Remedial Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in closure and remedial investigation activities.

• Ft. Monmouth Directorate of Public Works-Environmental Division

Contact Person: Joe Fallon Phone Number: (732) 532-2692

Subsurface Evaluator: Charles Appleby

Employer: US Army, CECOM Phone Number: (732) 532-6254 NJDEP License No.: 9974

• Analytical Laboratory: Fort Monmouth Environmental Testing Laboratory

Contact Person: Jackie Hamer 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. No impacted soils were encountered during the tank removal procedures. Clean overburden soils were stockpiled for later reuse.

2.3 SOIL SAMPLING

On February 9, 2009, post-excavation soil samples 3015-A through 3015-H were collected from of eight (8) locations along the sidewalls, piping run and bottom of the excavation. All samples were analyzed for total petroleum hydrocarbons (TPH). Location map included as Figure 3. All samples were analyzed for Total Petroleum Hydrocarbons (TPH) in accordance with the requirements of Technical Requirements for Site Remediation.

The site assessment was performed by TVS 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 post-excavation soil samples were collected using stainless steel trowels. After collection, the soil samples were immediately placed on ice in a cooler and delivered to Fort Monmouth Environmental Testing Laboratory (FMETL) for analysis.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

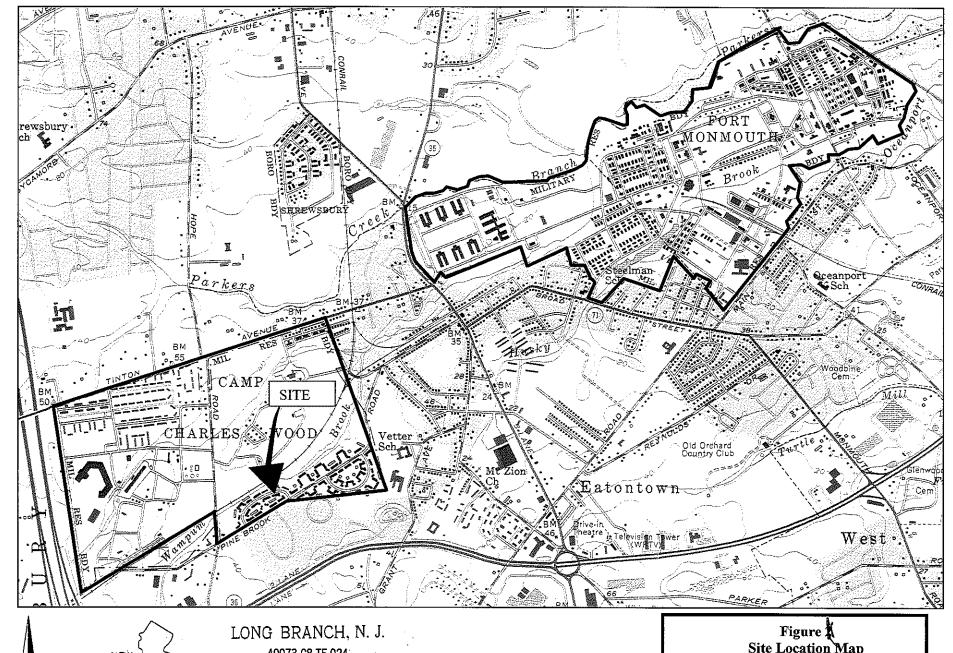
The post-excavation soil sample results were compared to the NJDEP health based criterion of 4,800 mg/kg for total organic contaminants (N.J.A.C. 7:26D and revisions dated September 8, 2008). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided on Table2. The soil analytical data package, including associated quality control data, is provided in Appendix E.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at UST No. 192486-26 were below all applicable NJDEP soil cleanup criteria for total organic contaminants and volatile organic compounds.

No further action is proposed in regard to the closure and site assessment of UST 1924886-26 at Building 3015.

FIGURES





40073-C8-TF-024

1954 PHOTOREVISED 1981 DMA 6164 I SE-SERIES V822

Mapped, edited and published by the Geological Survey

Site Location Map Fort Monmouth, New Jersey



U.S. Army Garrison Fort Monmouth Department of Public Works

APPENDIX A CERTIFICATIONS

Fort Monmouth UST Status Summary Report

UST REGISTRATION INFORMATION SUMMARY

LOCATION:

3015

NJDEP REG ID:

192486 - 26

RESIDENTIAL?

YES

UST CONSTRUCTION INFORMATION SUMMARY

SIZE (GALLONS): 10000

CONSTRUCTION:

STEEL

PRODUCT:

#2 FUEL OIL

YEAR INSTALLED: 1975

UST REMOVAL/INVESTIGATION SUMMARY

REMOVAL DATE: 2/9/2009

REMOVAL CONTRACTOR: TVS INC

SRF SEND DATE: YES

TMS: NONE

DICAR NO.

LEAK DETECT:

REMEDIATION

9 February 2009 abandoned UST was removed from ground. Post excavation

COMMENTS:

samples were collected.

REGISTRATION

COMMENTS:

Tank was abandoned in-place in November 1989. No contamination observed. Residential UST with no DICAR and no contamination; no Closure Report required. SRF and Site Assessment sent to NJDEPE 6/19/90--Removed as per

CMD.

SAS DONE:

NO

CONSULTANT:

MWs NEEDED:

MONITORING WELLS: 0

SUB-SURFACE

C. Appleby

EVALUATOR:

CURRENT UST STATUS

UST STATUS: REMOVED CLEAN SITE SAS CONT. CASE STATUS:

Case Open

SUBMITTAL DATE:

APPROVAL DATE:



Bldg. 3015

	For State	Use Only
'n		
	Date Rec'd.	
į	Auth	
1	Routing	·
I	UST NO.	

State of New Jersey DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

TRENTON, NEW JERSEY 96625 ATTN: BUST Program (609) 984-3156

	for the:
Installation (Abandon) Remov	ve/Sale-Transfer/Substantial Modification
Circle Only One	— Use One Form Per Activity
(More than one tank	can be listed per tank activity)
Answer questions 1 through 5 and others as applicab	ile.
Company name and address: (as it	U.S. Ormy
appears on registration questionnaire)	DEH Bldg. # 167
	DEH BIDG # 167 AHN: SELFM-EH
Company of the Compan	Fort Monmouth NJ 07703
2. Facility name and location:	U.S. army Fort Monmouth
(if different from above)	Charles Wood East
	į
•	:
3. Contact person for this activity:	Mr. Dinkerryi Ousai
	(201) 532-1475
4. The identification number of the affected tank as it	appears in Question Number 12 on the Registration
Blys. 30	25, 26 + 31 010 , 3015 + 32/6
5. Registration Number (if known): UST - OI	92486
o. negistration Number (if known): UST -	

(OVER)

STANDARD REPORTING FORM

6.	Fo	or TRANSFER OF OWNERSHIP:
	N	ew Company Name
	N	ew Facility Name
	A	ddress
	Ń	ew owner/operator (print)
	. S	gnature
7.	Fo	or ABANDONMENT or REMOVAL:
	8.	Describe the proposed procedure in detail on an attached sheet.
	b.	Specify the product last stored in the tank: # 2 Wome. Heating Oil
	c.	Specify the product last stored in the tank: # 2 Home. Heating Oil Date abandoned or removed November 1989 for all three U.S.T.S Is Site Assessment Compliance Statement being completed? (YES) or NO Form MUST be
8.	Fo	completed and returned within 90 days of tank closure. (per SUBSTANTIAL MODIFICATIONS: 40 CFR 280.72)
	8.	Describe the reason for the modification and, in detail, the proposed procedure to be used on an attached sheet.
	b.	Specify the product presently stored in the tank:
٠.	C.	Specify the product to be stored in the tank:
9.	Fo	NEW OR REPLACEMENT INSTALLATIONS:
	a.	Attach the specifications as required by the attached instructions.
,	b .	Specify the product (s) to be stored in the tank:
NO:	Œ:	All appropriate and applicable permits, licenses and certificates from any local, state and/or federal agency must be obtained separately from this notification as required to the above stated activity. CERTIFICATION
		is registration form shall be signed by the highest ranking individual at the facility with overall responsibility for that . (7:148-2.3 (a) 1). ***
the	970 B	ly under penalty of law that the information provided in this document is true, accurate and complete. I am aware that tree significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines in imprisionment."
Siç	nati	ure:
Na	me I	(print or type):
Tit	e: _	Deputy Director Dir, Engineering & Housing Date: 6/19/90

Directorate of Engineering and Housing

US Army Fort Monmouth Charles Wood East Registration # 0192486 Tank #'s 25,26,& 31 POC: Dinkerrai Desai (201)532-1475

Abandonment Procedure:

The three underground storage tanks were abandoned in place due to being partially buried underneath the buildings foundation.

All remaining product inside the tanks was removed for disposal by L & L 0il Service of Aberdeen, New Jersey. L & L is a licensed hazardous waste transporter and TSDF. (USEPA ID # NJD011427895).

The top of each tank was excavated and cut open across the entire length of the tank. The soil excavated from the top of the tanks was visually inspected and analyzed by using a HNU Model P1-101, photoionizer. No contamination was found.

The inside of each tank was hand cleaned utilizing a biodegradable detergent. The detergent residue was removed by the Waste Oil Company for proper disposal.

After the tanks were clean, a visual inspection was made inside each tank for signs of leakage. No corrosion was found inside any of the tanks.

After the inspection was complete, the tanks were backfilled with sand and the area was regraded with the excavated soil.



'n

DEPARTMENT OF ENVIRONMENTAL PROTECTION Bureau Underground Storage Tanks CN-029, Trenton, NJ 08625

Auth_ Routing	1 1 1 1 1 1 1 1 1 1 1 1
Routing	
UST NO.	

SITE ASSESSMENT COMPLIANCE STATEMENT

Supplement to the New Jersey Standard Reporting Form (Complete for ALL regulated UST abandonments or removals)

Within ninety (90) days of completing the UST closure of any State or Federally-regulated tank, the owner or operator must submit this completed form to the NJDEP Bureau of Underground Storage Tanks. If the facility is located in one of the counties listed on the back, a copy of this form must also be sent to the Health Agency indicated.

The owner or operator of any Federally-regulated tank must also comply with the following:

40 CFR Part 280.72 Assessing the site at closure or change-in-service

"(a) Before permanent closure or a change-in-service is completed, owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to ground water, and other factors appropriate for identifying the presence of a release."

US. Ormy Fort Manmouth

PACILITY Charles Wood East UBT 10192480 25,26,+31

Check off the following items as appropriate for the site.

The UST facility is only regulated by State law, therefore a site assessment is not mandatory.

The UST facility is regulated by Federal law and a site assessment was conducted.

The results of the site assessment indicate:

There was NO release from the UST system.

There was a release from the UST system and it was reported to the DEP Environmental Hotline (609-292-7172).

NOTE: The results of the site assessment are not to be submitted to the DEP or Health Agency unless requested to do so. The results are to be available for inspection at the UST facility.

Questions can be directed to the Bureau at (609) 984-3156.

*** This registration form shall be signed by the highest ranking facility (7:148-2.3 (a) 1). ***	Individual at the facility with overell responsibility for that
"I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that	Omes Off Date 6 1/9:90
there are significant civil and criminal penalties for submitting talse. Inaccurate or incomplete information, including fines and/or imprisonment.	JAMES OTT . Deputy Director Dir, Engineering & Housing
SACS-2,1/89	(Title)

APPENDIX B WASTE MANIFEST

No fuel oil was shipped off-site for disposal as a result of the closure of this underground storage tank (UST). The tank was previously abandoned in place and at that time the tank contents were transferred to ASTs and off-road diesel fueled vehicles.

APPENDIX C UST DISPOSAL CERTIFICATE

BLDG. 3015, 10,000 GAL. STEEL 732-747-7784 732-747-7779 Red Bank Recycling Auto Wreckers, Inc. 64 Central Avenue, Red Bank, New Jersey 07701 **AMOUNT** CWT TOTA LIGHT IRON NO 1 STEEL NO. 2 STEEL D. M. B. CAST IRON COPPER BRASS ALUMINUM **RADIATORS** BATTERIES I am the owner of said vehicle(s) and I release it to Red Bank Recycling Auto Wreckers, Inc. Signature of Owner

DIRECTORATE OF PUBLIC WORKS FORT MONMOUTH, NEW JERSEY 07703

Environmental Branch

February 10, 2009

SUBJECT: PWS-007, UST Removal

Contractor: TVS Inc.

RE: Backfilling of excavation,

BUILDING: 3015

CTSC Inc.

Field Supervisor, PWS-007

ATTN: Harold Hornung

Building 166

Fort Monmouth, New Jersey 07703-5000

Dear Mr. Hornung:

The above referenced area has been assessed as described in the NJDEP Regulations. A discharge was not observed. Field observations indicate the petroleum contaminated soils were not encountered and post excavation samples have been taken with regard to the UST (not the piping) in accordance with the NJDEP requirements. Results have not been received. The contractor may proceed with the backfilling of the UST excavation to the ground surface. Stone will be used to backfill to 1 ft above the groundwater table extending 6 feet from the building foundation. The turf restoration of the site will be done later in the spring. Since the foundation has partially collapsed into the excavation, additional stabilization activities are required. Once the UST excavation is backfilled, the piping must be excavated and assessed as per the Tech Regs. The possible remote fill at the curb needs to be excavated and confirmed if it exists.

Regards,

Mr. Charles Appleby

Subsurface Evaluator NJDEP #9974 Environmental Protection Specialist

Directorate of Public Works

CC: UST file copy

US ARMY, SELFM-PW-EV DAILY UST SUBSURFACE REMOVAL LOG

BLDG.#: 3015 DATE: 2-10-09	REG.#:	192486	26 TOD: 10:50
SSE: Famk Areasi TVS.		NJDEP CERT.	· · · · · · · · · · · · · · · · · · ·
REMOVAL CONTRAC		Inc. PWS-00)7
CLOSURE SUPERVISOR: FRANK Account		NJDEP C	ERT.#:
WEATHER: Cll	overans	~ 30°F	<u> </u>

ACTIVITY	YES/
THE TECHNICIAN (CLOSURE CERT.) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	425
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	225.
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E.G. 29CFR)	9 2 1
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	
A DISCHARGE WAS REPORTED BT THE DPW TO THE NJDEP (1-877-927-6337), CASE# No Discharge observed.	Na
CASE# NO DUCKING OSTAGE.	,,,,
PHOTOS HAVE UST#, BLDG. #, DATE, TIME, NAME OF SSE AND DESCR. WRITTEN ON BACK	Nie
GROUNDWATER WAS ENCOUNTERED AT 3.5 FEET BG, A SHEEN (WAS WAS NOT) DBSERVED ON GW	
IF OVA WAS USED: WAS IT CAL. AND FOUND TO BE OPERATIONAL (cal. data on COC)	No
IF SAMPLES WERE TAKEN: COC, SCALED SITE MAP (VERT. SOIL HORIZONS AND PLOT PLAN)	<i>عرس</i>
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NUDEP FSPM, 2005 August	NA
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7:26E-3.6 et seq.	NA
ALL PETROL. CONT. SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	NO
THE DPW SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1" ABOVE GROUNDWATER) AND A BACKFILL AUTH. LTR. IS ATTACHED	913
ALL ENVIRONMENTAL SAMPLE POINTS WERE GPS AND LOGGED	NA
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	425
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY: (CIRCLE EACH)	
SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, HAZ. WASTE MANIFEST, DAILY UST CLOSURE LOG, SCALED SITE MAP (SAMPLING), <u>SRF-SLOSURE</u> , CHAIN OF CUSTODY, SOIL ANALYTICAL RESULTS, CLEAN FILL TICKETS(IN YDS ³), PHOTOGRAPHS (UST, EXCAVATION, SAMPLING POINTS)	
Emore Re: Building Danage.	

CHECK ALL BOXES, LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N.J.A.C. 7:14B-9.2(b)3 and 7:26 et seq.. I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines And/or imprisonment.

information, including lines and of imprisonment.	
Subsurface Evaluator (print Name): Charles Apole Date: 2-10-09	•
SIGNATURE:	

Appleby, Charles M Mr CIV USA AMC

From:

Appleby, Charles M Mr CIV USA AMC Tuesday, February 10, 2009 11:42 AM

Sent: To:

Fallon, Joseph M Mr CIV USA IMCOM; Folk, Barbara Mrs CIV USA IMCOM

Cc:

Cordts, William R CIV USA IMCOM; Alexoudis, John CIV USA IMCOM; Accorsi, Frank Mr CTR USA; Hornung, Harold CTR USA; Syvarth, Howard M CTR USA; Appleby, Charles M Mr

CIV USA AMC; Fang, John C CIV USA IMCOM

Subject:

UST Bldg. 3015, removed 2-9-09 building damaged, no discharge observed

Attachments:

ust 3015 backfill ltr 2-9-09.pdf



ust 3015 backfill ltr 2-9-09.p...

Barbara / Joe

John Fang and I went to the site and John concluded that the structure needs to be shimmed between the sill plate and brick façade as well as the walls if accessible. The footing separated from the building and resulted in a gap of several inches between the sill plate and wall. Some of the Brickwork fell off the building.

Groundwater is at approx. 3.5 feet and the excavation is about 6.5 ft deep. No sewer, gas or water utilities were observed to be damaged.

The excavation will be backfilled with stone to 1 ft. above the water table and no less than 6 feet from the perimeter of the footing. The stone will be tamped town to compact. Soil will be used for the remainder.

The gaps will be shimmed and filled. DPW facilities should inspect the area to make sure it is secured as required for rodents etc.. (CC: John A. and Bill C)

Attached is the approved backfill ltr.

Chuck Appleby
Environmental Protection Specialist
IMNE-MON-PWE
173 Riverside Avenue
Fort Monmouth, NJ 07703
Ph. (732) 532-2692 FAX (732) 532-6263
Cell (732) 575-7028
Charles.Appleby@us.army.mil
ONLY PRINT WHEN YOU NEED TO AND RECYCLE

APPENDIX D PHOTO DOCUMENTATION



Removed and labeled steel USTs



Groundwater in the excavation after the UST has been removed, note remote fill line in rear right of photograph

APPENDIX E SOIL ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263 WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION

Fort Monmouth, New Jersey PROJECT: 90-59762

Pinebrook/Bldg. 3015

		TO CAMPANATE	9, 2, 2, 2, 2	
Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
3015-A, North Wall	9004301	Soil	09-Feb-09 13:00	02/09/09
3015-B, South Wall	9004302	Soil	09-Feb-09 13:20	02/09/09
3015-C, East Wall	9004303	Soil	09-Feb-09 13:50	02/09/09
3015-D, West Wall	9004304	Soil	09-Feb-09 14:15	02/09/09
3015-E, Piping	9004305	Soil	09-Feb-09 14:35	02/09/09
3015-Duplicate	9004306	Soil	09-Feb-09 14:35	02/09/09
3015-F, Piping +15 ft	9005001	Soil	12-Feb-09 08:20	02/12/09
3015-G, Remote Fill +15 ft	9005002 '	Soil	12-Feb-09 08:50	02/12/09
3015-H, Remote Fill +30 ft	9005003	Soil	12-Feb-09 09:05	02/12/09
3015-Duplicate	9005004	Soil	12-Feb-09 08:20	02/12/09

ANALYSIS:

FORT MONMOUTH ENVIRONMENTAL LAB TPHC, % SOLIDS

Visue and Intermed 2/18/09
Viacquelline Hamer/Date
QA/QC Supervisor

The enclosed report relates only to the items tested. The report may not be reproduced, except in full, without written approval of the U.S. Army Fort Monmouth Directorate of Public Works.

CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

NJDEP Certification #13461

Tel (732)532-4359 Fax (732)532-6263 EMail:jacqueline.hamer@us.army.mil

Chain of Custody Record

CHUCK APPLEBY Project No: 09- 59762 Customer: **Analysis Parameters** Comments: Location: 8406 3015 HE2M5 DE Phone #: (FINEBROOK))DERA ()OMA (x)Other: Samplers Name / Company: FRANK ACCORS/ Sample LIMS/Work Order # Sample Location Date Type bottles Remarks / Preservation Method Time 1-9-09 1300 5012 3015-A , NORTH WALL 0 4-4.5 GW@ 4.5 FT AT 3015-B. SOUTH WALL 1320 3015-C. EAST WALL × X 3015-D WEST WALL 3015-E. PIPING × 1. (03015- DUFLICATE Relinquished by (signature): Date/Time: Received by (signature): Relinquished by (signature): Date/Time: Received by (signature): Received by (signature): Relinquished by (signature): Date/Time: Relinquished by (signature): Date/Time: | Received by (signature): Report Type: ()Full, ()Reduced, ()Standard, ()Screen / non-certified, ()EDD Remarks: # CONTINGENT BN+25 IF TPH 71,000 PM ON HIGHEST, MINI ONE Turnaround time: () Standard 3 wks, () Rush _ Wk., () ASAP Verbal

000002

SAMPLE RECEIPT FORM

Date Received:	2-	909	Work Order I	D#:	20043
Site/Proj. Name:			Cooler-Temp	(°C);	400
Received By: _	- J	Sergy M	Sign:	M	ym
(Print name)		Chack the ann	rongiato boy		/1
		Check the app	ropriate Dox	- Vol	/ no □ n/a
1. Did the sample				yes	
		n good condition?		~	□ no
		ody filled out correct		"	□ no
		ody signed in the ap		'/	_
		with the chain of cust		yes	_
		ainers/preservatives		⊿ yes ⊒ yes	
		ant of sample supplie	eα? · I	•	□ no □-11/a
		sent in VOA vials?	. !	yes yes	
9. Were samples	receive	ed on ice?	اسر آ Le minutoc و منطونین	•	
10. Were analyze	-ımme	diately tests perform	Mitulu 12 Hillinges r	⊥ yesi	۱۱/۵ الروا ا
Fill out the fo	llowi	ng table for eac	ch sample bottle	е	
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Lims ID	рН	Preservative	Sample ID	рН	Preservative
Lims ID	рН	Preservative	Sample ID	pН	Preservative
Lims ID	рН	Preservative	Sample ID	рН	Preservative
Lims ID	рН	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	рН	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
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Lims ID	pH	Preservative	Sample ID	pH	Preservative
	pH	Preservative	Sample ID	pH	Preservative
Lims ID Comments:	pH	Preservative	Sample ID	pH	Preservative
	pH	Preservative	Sample ID	рН	Preservative



print legibly

Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail:jacqueline.hamer@us.army.mil
NJDEP Certification #13461

Chain of Custody Record

new coc. XI \$12/19/2008

Customer: CHC	CK APPLEBY	Project No: (09-59	762				Anal	ysis P	aram	eters			Comments:
Phone #: \\ \\ \\ \\ \\ \(\)	092	Location: ${\cal B}$	3015 H	IEZMS	DE.							Z	P	
()DERA ()OMA	-/	(PINEB											7	
Samplers Name / Co	mpany: FRANK ACC	ORSI /T	V5	Sample	#	1						0	10	
LIMS/Work Order#	Sample Location	Date	Time	Туре	bottles	1						1	0.ED	Remarks / Preservation Method
90050 01	3015-F. PIPING+15FF 3015-6, REMOTE FILL 3015-6, REMOTE FILL 3016H, + 30 FT.	2-12-09	0820	SOIL	l	×						0	35-4	ICE
City.	3015-6, REMOTE FILL		0850			>						0	2-2.2	
<u> </u>	30 LEH, + 30 FT.		0905			×						0	35-4	2-2.5
04	3015-DUPHCHTE	y	0820	1	1	×							3,5-4	T
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Relinquished by (signate	ture): Date/Time:	Received by	(signature):		Relin	nquishe	l by (si	gnature):	Date	/Time:	Rece	ived by	/ (signature):
1 / //	Reduced, ()Standard, ()Scr undard 3 wks, ()RushWk., (Rem	arks:			·				
				***	1	• /								

SAMPLE RECEIPT FORM

Date Received:	2-1	12-09	Work Order I	D#:	10050	
Site/Proj. Name	BI	1043015	Cooler Temp	(°C):	4.00	
Received By: \(\) (Print name)	J. L	LENGUITA	Sigh: pol	<i>!</i>	The state of the s	
(Time name)		Check the app	ropriate box	//	/]	
1. Did the sample	es com			☑ yes	¹☐ no □ n/a	
		n good condition?		🛮 yes	□ no	
3. Was the chain	of cust	ody filled out correct	ly and legibly?	🛮 уев	′□ no	
4. Was the chain	of cust	ody signed in the ap	propriate place?	☑ yes	□ no	
		with the chain of cust		☑ yes	¹□ no	
6. Were the corre	ct conf	tainers/preservatives	used?	☑ yes	□ no	
7. Was a sufficier	nt amou	unt of sample supplie	ed?	•	□ no	
		sent in VOA vials?		□ yes	□ no □ n/a	
9. Were samples	receive	ed on ice?		•	□ no	
10. Were analyze	-imme	diately tests perform	within 15 minutes [□ yesl	□ no □ n/a	
		ng table for eac				
Lims ID	рН	Preservative	Sample ID	pН	Preservative	<u> </u>
Lims ID	рН	Preservative	Sample ID	рН	Preservative	2
Lims ID	pН	Preservative	Sample ID	pH	Preservative	<u>}</u>
Lims ID	рН	Preservative	Sample ID	pH	Preservative	<u> </u>
Lims ID	pН	Preservative	Sample ID	pH	Preservative	2
Lims ID	pH	Preservative	Sample ID	pH	Preservative	2
Lims ID	pH	Preservative	Sample ID	pH	Preservative	
Lims ID	pH	Preservative	Sample ID	pH	Preservative	
Lims ID	pH	Preservative	Sample ID	pH	Preservative	-
Lims ID	pH	Preservative	Sample ID	pH	Preservative	<u>-</u>
Lims ID	pH	Preservative	Sample ID	pH	Preservative	3
Lims ID	pH	Preservative	Sample ID	pH	Preservative	-
Lims ID	pH	Preservative	Sample ID	pH	Preservative	-
Lims ID	pH	Preservative	Sample ID	pH	Preservative	2
Lims ID	pH	Preservative	Sample ID	pH	Preservative	2
Lims ID	pH	Preservative	Sample ID	pH	Preservative	2
Lims ID Comments:	pH	Preservative	Sample ID	pH	Preservative	
	pH	Preservative	Sample ID	pH	Preservative	

GPS COORDINATES

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 3015 - UST #192486-26

SOIL SAMPLE GPS POSITIONS & COORDINATES

US STATE PLANE 1983, NJ (NY EAST) 2900, NAD 1983 (CONUS)

(IN US SURVEY FEET)

SAMPLE POINTS

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
3015A NORTH WALL	532626.035	610990.125
3015B SOUTH WALL	532615.034	610991.392
3015C EAST WALL	532620.396	611000.58
3015D WEST WALL	532618.794	610968.578
3015E PIPING	532615.417	610995.321
3015F PIPING PLUS 15 FT	532606.478	610998.637
3015G REMOTE FILL PLUS 15 FT	532629.712	610967.103
3015H REMOTE FILL PLUS 30 FT	532644.992	610966.411

METHOD SUMMARY

Method Summary

NJDEP Method OQA-QAM-025 Rev. 6 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

FIELD DUPLICATE IDENTIFICATION

Field Duplicate Identification

Sample ID	Lab ID	Field Duplicate
3015-E, Piping	9004305	9004306
3015-F, Piping +15 ft	9005001	9005004

CONFORMANCE/ NONCONFORMANCE SUMMARY

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

	Indicate Yes, No, N/A
Method Detection Limits Provided	405
Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank	<u>_No</u>
Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)	400
Duplicate Results Summary Meet Criteria	yes
IR Spectra submitted for standards, blanks and samples	Na
Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted	yes
Analysis holding time met (If not met, list number of days exceeded for each sample)	Yes
nal comments:	•

TPHC

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

Client:

U.S. Army

DPW. SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Analysis: Matrix:

OQA-QAM-025

Inst. ID:

GC TPHC INST. #1

Column Type: RTX-5, 0.32mm ID, 30 m

Injection Volum 1 uL Blank Conc.: 0.00

Soil

Project #:

09-59762 Location: Bldg. 3015

ECP:

Work Order:

Date Received:

9-Feb-09 Date Extracted: 10-Feb-09

Extraction Method:

Shake 10-Feb-09

Analysis Complete: Analyst:

Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Qualifiers
MB02100901	MB02100901	1.00	15.00	100.00	23	333	0.00	
LCS02100901	LCS02100901	1:00	15.00	100.00	23	333	1256.75	
9004301	3015-A NORTH WALL	1.00	15.64	78.71	28	406	71.95	J
9004302	3015-B SOUTH WALL	1.00	17.64	77.87	25	364	0.00	
9004303	3015-C EAST WALL	1.00	16.26	82.10	26	375	0.00	
9004304	3015-D WEST WALL	1.00	15.78	82.28	27	385	0.00	
9004305	3015-E PIPING	1.00	16.27	77.71	28	395	27.79	J
9004306	3015 DUPLICATE	1.00	15.75	74.35	30	427	30.06	J

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Concentration from dilution

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

Client:

U.S. Army

DPW. SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Analysis:

OQA-QAM-025

Matrix:

Soil

Inst. ID: GC TPHC INST. #1

Column Type: RTX-5, 0.32mm ID, 30 m Injection Volum 1 uL

Blank Conc.: 0.00

Project #:

09-59762 Bldg. 3015

Location: ECP:

Work Order:

Date Received:

12-Feb-09 13-Feb-09

Date Extracted: **Extraction Method:**

Shake

Analysis Complete:

17-Feb-09

Analyst:

Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Qualifiers
MB02130901	MB02130901	1.00	15.00	100.00	23	333	0.00	
LCS02130901	LCS02130901	1.00	15.00	100.00	23	333	882.57	
9005001	3015-F PIPING	1.00	16.46	78.26	27	388	40.90	J
9005002	3015-G REMOTE PIPING	1.00	15.36	78.44	29	415	34.37	J
9005003	3015-H REMOTE PIPING	1.00	15.85	83.43	26	378	308.02	J
9005004	3015 DUPLICATE	1.00	15.94	78.82	28	398	1418.60	

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Concentration from dilution

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

The following Laboratory Deliverables Checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete data packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package <u>and</u> in the main body of the report.

1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.	_1/
2.	Table of Contents submitted.	<u>~~</u>
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.	
4.	Document paginated and legible.	
5.	Chain of Custody submitted.	<u> </u>
6.	Samples submitted to lab within 48 hours of sample collection.	<u> </u>
7.	Methodology Summary submitted.	_ <i>U</i> _
8.	Laboratory Chronicle and Holding Time Check submitted.	
9.	Results submitted on a dry weight basis.	
10.	Method Detection Limits submitted.	_
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.	<u> </u>
	Laboratory Manager or Environmental Consultant's Signature Consultan	Mel
	Laboratory Certification # 13461	

*Refer to NJAC 7:26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP

Methods for further guidance.

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.

Jacqueline Hamer QA/QC Supervisor

ATTACHMENT G

UST 3027 Report

United States Army

Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Building 3027 Charles Wood Area

NJDEP UST Registration No. 192486-28 NJDEP Closure Approval No. C-93-3675

February 1996



UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 3027

CHARLES WOOD AREA
NJDEP UST REGISTRATION NO. 192486-28
NJDEP CLOSURE APPROVAL NO. C-93-3675

FEBRUARY 1996

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

PREPARED FOR:

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

PREPARED BY:

SMITH ENVIRONMENTAL TECHNOLOGIES CORPORATION
BROMLEY CORPORATE CENTER
THREE TERRI LANE
BURLINGTON, NEW JERSEY 08061



3027.DOC

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EXECUTIVE SUMMARY

UST Closure

On April 4, 1994, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) Closure Approval No. C-93-3675 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 192486-28, was located immediately adjacent to Building 3027 in the Charles Wood area of U.S. Army, Fort Monmouth. UST No. 192486-28 was a 7,500-gallon No. 2 fuel oil UST. The UST fill port was located approximately 23 feet northeast 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 instruments for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes were noted in the UST and no visual evidence of potentially contaminated soils was observed surrounding the tank.

On April 5, 1994, following the removal of the UST, post-excavation soil samples C, D, E, F, G, and H were collected from six (6) locations along the sidewalls of the excavation, immediately above groundwater. Groundwater was present at approximately 5 feet below ground surface (bgs). Post-excavation soil samples A, B, and DUP B were also collected from the base of the piping portion of the excavation at a depth of 2.0 feet bgs. This piping area, which was designated as Area A, extended approximately 20 feet from the UST to Building 3027. Five samples were collected from the second piping portion of the excavation, adjacent to the former fill port. Samples J, L, and M were collected from the sidewalls of the piping portion of the excavation, at a depth of 1.5 feet bgs. Samples I, and K were collected from the base of the piping portion of the excavation, at a depth of 2.0 feet bgs. This former fill port and piping area, which was designated as Area B, extended approximately 23 feet from the fill port to the UST. All samples were analyzed for total petroleum hydrocarbons (TPHC).

On April 7, 1994, following removal of approximately 8 cubic yards of potentially contaminated soils from Area A, post-excavation soil samples O, P, and Q were collected from three (3) locations along the base of the expanded portions of the excavation, at a depth of 4.0 feet bgs. The samples were analyzed for TPHC.

On April 21, 1994, 1.5 cubic yards of potentially contaminated soils were removed from Area B, and three (3) post-excavation soil samples (R, S, and T) were collected from the sidewalls of the

expanded portions of the fill port excavation area, at a depth of 2.5 feet bgs. Sample U was also collected from the base of the excavation at a depth of 3.0 feet bgs. The samples were analyzed for TPHC.

Findings

The samples collected from below the former UST on April 5, 1994, at Building 3027 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 C, D, E, F, G, and H, contained TPHC concentrations ranging from 7.22 mg/kg to 55.0 mg/kg.

The samples collected from below the area designated as Area A, on April 5, 1994 contained TPHC concentrations below the NJDEP soil cleanup criteria of 10,000 mg/kg. Samples B, and DUP B each contained a TPHC concentration of 15.4 mg/kg. Sample A contained a TPHC concentration of 920.0 mg/kg.

On April 7, 1994, following removal of potentially contaminated soils from the area surrounding sample location A, three additional samples (O, P, and Q) were collected. Samples O, P, and Q contained TPHC concentrations ranging from 15.2 mg/kg to 310.0 mg/kg.

One sample (sample M), which was collected from Area B on April 5, 1994, contained an elevated TPHC concentration of 13,300 mg/kg. This exceeded the NJDEP soil cleanup criteria of 10,000 mg/kg. All other samples collected from Area B on April 5, 1994 contained TPHC concentrations below the NJDEP soil cleanup criteria. Samples I, J, and L contained levels of TPHC ranging in concentration from 15.4 mg/kg to 125.0 mg/kg. Sample K contained a TPHC concentration of 1,260.0 mg/kg.

On April 21, 1994, following removal of potentially contaminated soils from the area surrounding sample locations K, and M, four additional samples (R, S, T, and U) were collected. Sample R contained a TPHC concentration of 81.3 mg/kg. Sample U, which was collected from the exact location as the previous sample K, contained a TPHC concentration of 493.0 mg/kg. Sample S, which was collected directly below the location of previous sample M, contained a non-detectable concentration of TPHC. Sample T also contained a non-detectable concentration 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 analyses conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements*.

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 remain in the former location of the UST associated piping.

Based on the soil sampling results, which indicated decreasing TPHC concentrations with depth, and the 5-foot depth to the water table, groundwater impacts were not anticipated and a groundwater investigation was deemed unnecessary.

No further action is proposed in regard to the closure and site assessment of UST No. 192486-28 at Building 3027.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 192486-28, was closed at Building 3027 at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on April 4, 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 22, 1993. The plan was approved on September 7, 1993 and assigned TMS No. C-93-3675. The UST was a steel 7,500-gallon tank containing No. 2 fuel oil.

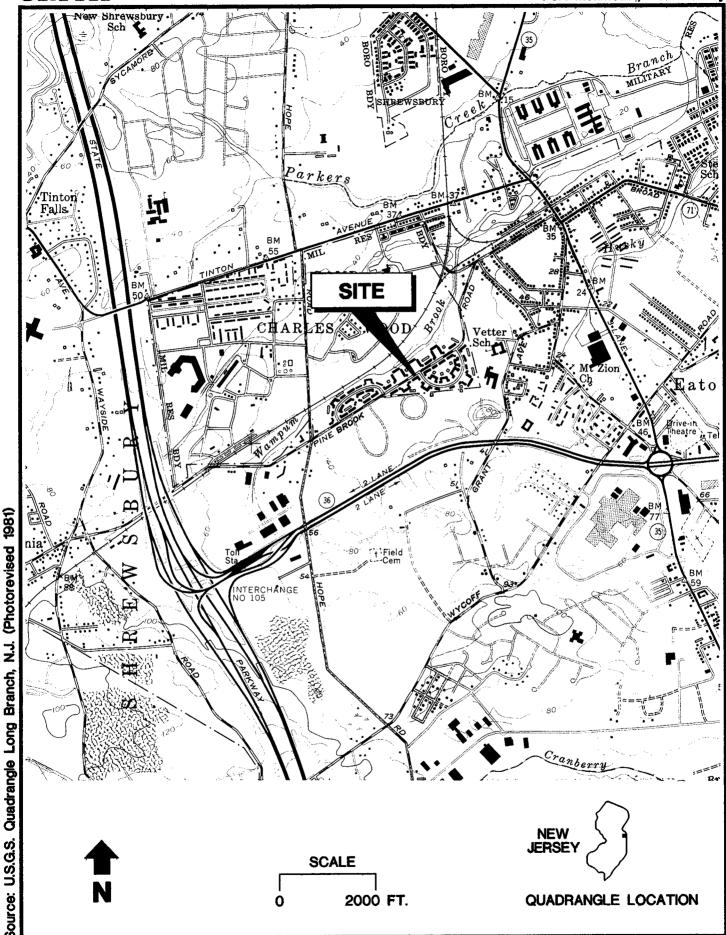
Decommissioning activities for UST No. 192486-28 complied with all applicable Federal, State and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to: N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 & 1910.120. All permits including but not limited to the NJDEP-approved Decommissioning/Closure Plan were posted onsite for inspection. Cleaning Up The Environment Inc. (CUTE), the contractor that conducted the decommissioning activities, is registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 192486-28 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. 192486-28 are included in Appendices A and B, respectively.

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

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

This report was prepared using information required at the time of closure. Section 1 of this UST Closure and Site Investigation Report provides a summary of the UST decommissioning activities. Section 2 of this report describes the site investigation activities. Conclusions and recommendations, including the results of the soil sampling investigation, are presented in the final section of this report.

U.S. Army
Department of Public Works
Fort Monmouth, New Jersey



Project No. 09-5004-07

Figure 1 **Site Location Map**

1.2 SITE DESCRIPTION

Building 3027 is located in the southeastern portion of the Charles Wood area of Fort Monmouth, as shown on Figure 1. UST No. 192486-28 was located east of Building 3027. Appurtenant piping ran approximately 23 feet southwest from the fill port area to the UST and approximately 20 feet southwest from the UST to Building 3027. The fill port area was located adjacent to the curb along Mitchell Drive for easy access. 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 3027. 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 Charles Wood area.

Regional Geology

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

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

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

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Charles Wood 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-

U.S. Army
Department of Public Works
Fort Monmouth, New Jersey 30³¹ 30³³ PINE BROOK ROAD SITE 30₄₅ 3026 Corporation (088) 3028 3025 3029 Technologies Environmental Smith **SCALE** Ó 100' Project No. 09-5004-07 Figure 2 **Building 3027**

Site Map

coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

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

Over the last 80 years, the natural topography of Fort Monmouth has been altered by excavation and filling activities by the military. Topographic elevations for the Charles Wood area range from 20 feet above mean seal level (MSL) to 71 feet above MSL.

Hydrogeology

The water table aquifer in the Charles Wood 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.

Six well records for monitor wells installed at locations within the Charles Wood area in February 1981 were used for reference. The wells were completed to total depths ranging from 20 to 25 feet below ground surface (bgs). Water was encountered at depths ranging from 5 to 12 feet bgs.

The lithologic descriptions for these borings described deposits that were primarily fine to coarse, glauconitic sands, with traces of gravel, silt, and clay. These sediments are part of the Hornerstown Marl, from the Tertiary Period (Paleocene Series, approximately 58 to 66 Ma). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce from 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

Shallow groundwater is locally influenced within the Charles Wood area by the following factors:

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

Due to the fluvial nature of the overburden deposits (i.e., sand and clay lenses), shallow groundwater flow direction is best determined on a case-by-case basis.

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

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

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. A total of 7,544 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 manifests (manifest Nos. NJA-1603174 and NJA-1603175).

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 corrosion 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 noted.

Soil screening was also performed along the UST's piping and fill port areas. No contamination was noted anywhere along the piping lengths or fill port area.

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 elevated TPHC results, approximately 8 cubic yards of potentially contaminated soils were excavated from Area A on April 7, 1994. On April 21, 1994 approximately 1.5 cubic yards of soil were removed from Area B based on TPHC results. All potentially contaminated soils were stockpiled separately from other excavated material and were placed on and covered with polyethylene sheets. Potentially contaminated soils were transported to the Charles Wood ID 27 Soil Staging Area (Building 2624) prior to ultimate disposal at Soil Remediation of Philadelphia. Soils that did not exhibit signs of contamination 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 he NJDEP-BUST document Interim Closure Requirements for Underground Storage Tank Systems (September 1990 and revisions dated November 1, 1991) which was the applicable regulation at the date of the closure. All records of the Site Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in Closure and Site Investigation Activities.

• Closure Contractor: Cleaning Up The Environment Inc. (CUTE)

Contact Person: Nancy Williams Phone Number: (201)427-2881

NJDEP Company Certification No.: 0200128

Subsurface Evaluator: Charles M. 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. Soils were removed from Area A and Area B until no evidence of contamination remained.

2.3 SOIL SAMPLING

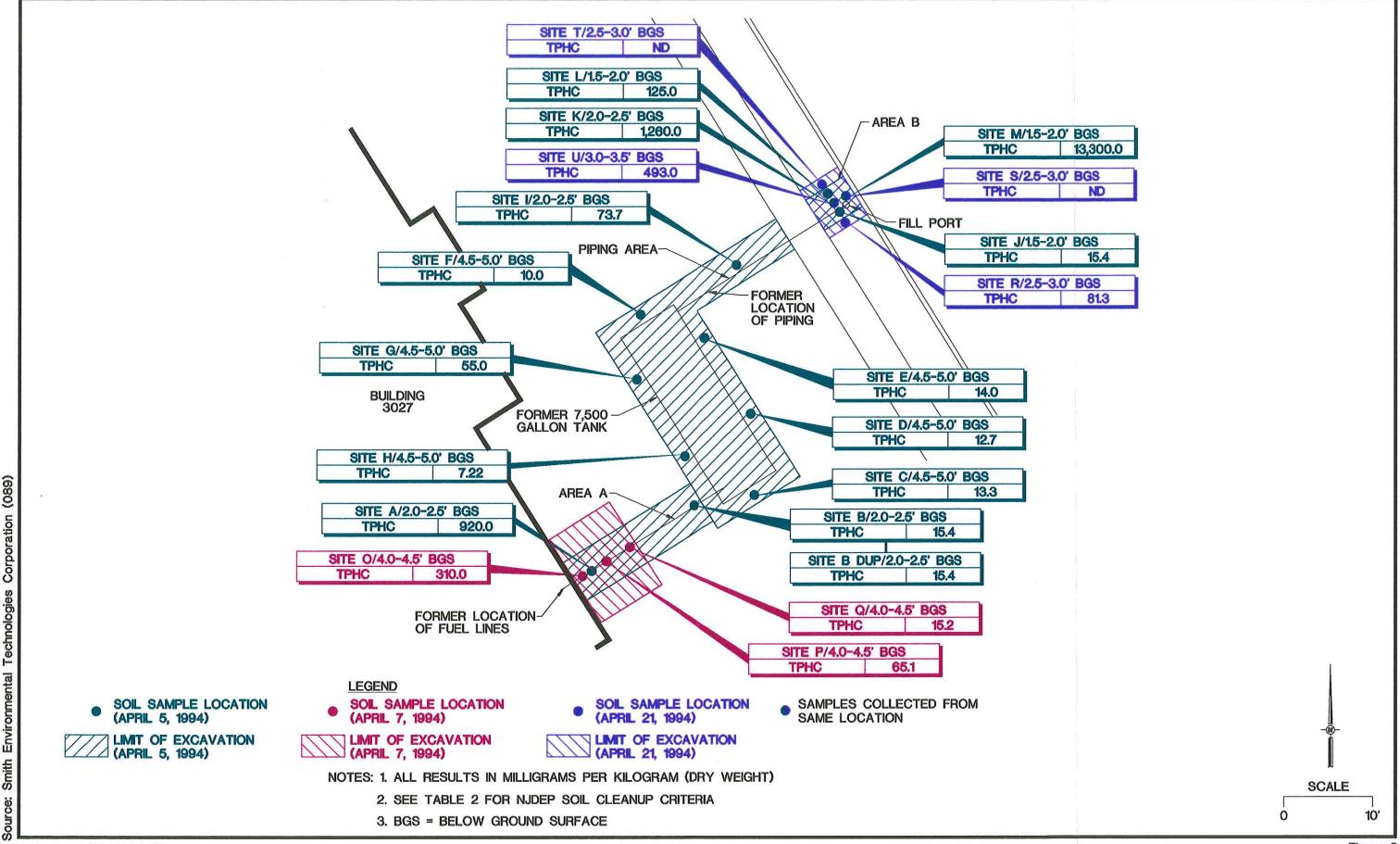
On April 5, 1994 post-excavation soil samples C, D, E, F, G, and H were collected from six (6) locations along the sidewalls of the UST excavation, immediately above groundwater. Groundwater was present at approximately 5 feet below ground surface (bgs). Refer to soil sampling location map in Figure 3. On April 5, 1994, three (3) post-excavation soil samples (A, B, and DUP B) were also collected immediately below the former location of piping, at a depth of 2.0 feet below ground surface (bgs). This piping area, which was designated as Area A, extended approximately 20 feet from the UST to Building 3027. Additionally, five (5) samples (I, J, K, L, and M) were collected along the base and sidewalls of the former fill port and piping area, which extended approximately 23 feet from the fill port to the UST. Samples J, L, and M were collected from the sidewalls of this piping portion of the excavation, at a depth of 1.5 feet bgs. Samples I, and K were collected from the base of the piping portion of the excavation, at a depth of 2.0 feet bgs. This former fill port and piping area was designated as Area B. Refer to soil sampling location map on Figure 3. All samples were analyzed for TPHC.

On April 7, 1994, soils from sampling location Area A were excavated due to elevated TPHC results. Following removal of approximately 8 cubic yards of potentially contaminated soils, post-excavation soil samples (O, P, and Q) were collected from three (3) locations along the base of the expanded portions of the excavation, at a depth of 4.0 feet bgs. The samples were analyzed for TPHC. Refer to soil sampling location map on Figure 3.

On April 21, 1994 soils from sampling location Area B were excavated due to elevated TPHC results. Following removal of approximately 1.5 cubic yards of potentially contaminated soils, four (4) post-excavation soil samples were collected form the base and sidewalls of the expanded portions of the excavation. Three (3) post-excavation soil samples (R, S, and T) were collected from the sidewalls of the expanded portions of the fill port excavation area, at a depth of 2.5 feet bgs. Sample U was also collected from the base of the excavation at a depth of 3.0 feet bgs. The samples were analyzed for TPHC. Refer to soil sample location map in Figure 3.

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 been 986.0 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.





Project No. 09-5004-07

Figure 3 **Building 3027 Soil Sampling Results**

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 fourteen (14) locations on April 5, 1994, from a total of three (3) locations on April 7, 1994, and from a total of four (4) locations on April 21, 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.

The samples collected from below the former UST on April 5, 1994, at Building 3027 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 C, D, E, F, G, and H, contained TPHC concentrations ranging from 7.22 mg/kg to 55.0 mg/kg.

The samples collected from below the area designated as Area A, on April 5, 1994 contained TPHC concentrations below the NJDEP soil cleanup criteria of 10,000 mg/kg. Samples B, and DUP B each contained a TPHC concentration of 15.4 mg/kg. Sample A contained a TPHC concentration of 920.0 mg/kg.

On April 7, 1994, following removal of potentially contaminated soils from the area surrounding sample location A, three additional samples (O, P, and Q) were collected. Samples O, P, and Q contained TPHC concentrations ranging from 15.2 mg/kg to 310.0 mg/kg.

One sample (sample M), which was collected from Area B on April 5, 1994, contained an elevated TPHC concentration of 13,300 mg/kg. This exceeded the NJDEP soil cleanup criteria of 10,000 mg/kg. All other samples collected from Area B on April 5, 1994 contained TPHC concentrations below the NJDEP soil cleanup criteria. Samples I, J, and L contained levels of TPHC ranging in concentration from 15.4 mg/kg to 125.0 mg/kg. Sample K contained a TPHC concentration of 1,260.0 mg/kg.

On April 21, 1994, following removal of potentially contaminated soils from the area surrounding sample locations K, and M, four additional samples (R, S, T, and U) were collected. Sample R contained a TPHC concentration of 81.3 mg/kg. Sample U, which was collected from the exact location as the previous sample K, contained a TPHC concentration of 493.0 mg/kg. Sample S, which was collected directly below the location of previous sample M, contained a non-detectable concentration of TPHC. Sample T also contained a non-detectable concentration of TPHC.

TABLE 1
SUMMARY OF SAMPLING ACTIVITIES
BUILDING 3027, CHARLES WOOD
FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Matrix	Sample Type	Analytical Parameters (and USEPA Methods) *	Sampling Method	
Δ	04-05-94	Soil	Post-Excavation	ТРНС	Polystyrene Scoop	
A B	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
C	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
D	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
E	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
F	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
G	04-05-94	Soil	Post-Excavation	TPHĊ	Polystyrene Scoop	
Н	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
I	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
J	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
K	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
L	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
M	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
DUP B	04-05-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
0	04-07-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
P	04-07-94	Soil	Post-Excavation	ТРНС	Polystyrene Scoop	
	04-07-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
Q R	04-21-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
S	04-21-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
T	04-21-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
Ü	04-21-94	Soil	Post-Excavation	TPHC	Polystyrene Scoop	
O	0.21					

*Note: TPHC

Total Petroleum Hydrocarbons (Method 418.1 / soil and aqueous)

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all final post-excavation soil samples collected from the UST closure excavation at Building 3027 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 remain in the former location of the UST or associated piping.

Based on the soil sampling results, which indicated decreasing TPHC concentrations with depth, and the 5-foot depth to the water table, groundwater impacts were not anticipated and a groundwater investigation was deemed unnecessary.

No further action is proposed in regard to the closure and site assessment of UST No. 192486-28 at Building 3027.

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS BUILDING 3027 FT. MONMOUTH, NEW JERSEY

PAGE 1 OF 2

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'	1438.1	04-05-94	04-06-94	Total Solid	·		96 %		
				TPHC	20.0	yes	920.0	10,000	
B/2.0-2.5'	1438.2	04-05-94	04-06-94	Total Solid			94 %		
,,,				TPHC	3.3	yes	15.4	10,000	
C/4.5-5.0'	1438.3	04-05-94	04-06-94	Total Solid			89 %		
07.10 070				TPHC	3.3	yes	13.3	10,000	
D/4.5-5.0'	1438.4	04-05-94	04-06-94	Total Solid			93 %		***
2, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				TPHC	3.3	yes	12.7	10,000	
E/4.5-5.0'	1438.5	04-05-94	04-06-94	Total Solid		· 	94 %		
_, .,= -,=				TPHC	3.3	yes	14.0	10,000	
F/4.5-5.0 ¹	1438.6	04-05-94	04-06-94	Total Solid			92 %		
				TPHC	3.3	yes	10.0	10,000	
G/4.5-5.0'	1438.7	04-05-94	04-06-94	Total Solid			92 %		
				TPHC	3.3	yes	55.0	10,000	
H/4.5-5.0'	1438.8	04-05-94	04-06-94	Total Solid			91 %		
				TPHC	3.3	yes	7.22	10,000	
I/2.0-2.5'	1438.9	04-05-94	04-06-94	Total Solid			91 %		
				TPHC	3.3	yes	73.7	10,000	
J/1,5-2.0'	1438.10	04-05-94	04-06-94	Total Solid			94 %		
				TPHC	3.3	yes	15.4	10,000	
K/2.0-2.5'	1438.11	04-05-94	04-06-94	Total Solid			92 %		
				TPHC	20.0	yes	1,260.0	10,000	
L/1.5-2.0'	1438.12	04-05-94	04-06-94	Total Solid		77.	95 %		
				TPHC	3.3	yes	125.0	10,000	
M/1.5-2.0'	1438.13	04-05-94	04-06-94	Total Solid		. ==	96 %		
				TPHC	140.0	yes	13,300.0	10,000	
DUP B/2.0-2.5'	1438.14	04-05-94	04-06-94	Total Solid			94 %		
				TPHC	3.3	yes	15.4	10,000	

TABLE 2 POST-EXCAVATION SOIL SAMPLING RESULTS **BUILDING 3027** FT. MONMOUTH, NEW JERSEY

PAGE 2 OF 2

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
		04.07.04	04-08-94	Total Solid			85 %		
O/4.0-4.5'	1441.1	04-07-94	04-06-94	TPHC	9.9	yes	310.0	10,000	
D/4 0 4 51	1441.2	04-07-94	04-08-94	Total Solid			86 %		
P/4.0-4.5'	1441.2	04-07-24	0.007	TPHC	5.0	yes	65.1	10,000	
0/4 0 4 51	1441.3	04-07-94	04-08-94	Total Solid			87 %		
Q/4.0 - 4.5'	1441.5	04-07-24	••••	TPHC	5.0	yes	15.2	10,000	
D 10 5 2 01	1454.1	04-21-94	04-22-94	Total Solid			94 %		
R/2.5-3.0'	1454.1	04-21 71	V	TPHC	3.3	yes	81.3	10,000	
G/0 5 0 0l	1454.2	04-21-94	04-22-94	Total Solid			94 %	p.4	
S/2.5-3.0 ¹	1434.2	04-21-74	0.227	TPHC	3.3	yes	ND	10,000	
m (a. c. a. a)	1454.3	04-21-94	04-22-94	Total Solid			94 %		
T/2.5-3.0'	1434.3	04-21-74	0.227.	TPHC	3.3	yes	ND	10,000	
TT/0 0 0 51	1454 4	04-21-94	04-22-94	Total Solid			93 %		
U/3.0-3.5'	1454.4	04-21-74	0,22,	TPHC	5.0	yes	493.0	10,000	

Notes:

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

Smith Environmental Technologies Corporation (Project No. 09-5004-07)

soil3027.doc

APPENDIX A NJDEP BUST CLOSURE APPROVAL

UNDERGROUND STORAGE TANK SYSTEM

OSURE 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-93-3675

0192486

US Army BLDG. 3027 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 7,500 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

TELEP908NE32-1475

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.

> KÉVIN F. KRATINA, BUREAU CHIEF BUREAU OF UNDERGROUND STORAGE TANKS

APPENDIX B
CERTIFICATIONS

UST-014 2/91



-1.411.	
UST	
Date Rec	db
TMS #	
Staff	

FOR STATE HISE ONLY

State of New Jersey Department of Environmental Protection and Energy

Division of Responsible Party Site Remediation CN 029

Trenton, NI 08625-0029 Tel. # 609-984-3156

Scott A. Weiner -Commissioner

Fax. # 609-292-5604

Karl J. Delaney Director

UNDERGROUND STORAGE TANK SITE ASSESSMENT SUMMARY

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

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

INSTRUCTIONS:

- · Please print legibly or type.
- · Fill in all applicable blanks. This form will require various attachments in order to complete the Summary. The technical guidance document, Interim Closure Requirements for UST's, explains the regulatory (and technical) requirements for closure and the Scope of Work, Investigation and Corrective Action Requirements for Discharges from Uncerground Storage Tanks and Piping Systems explains the regulatory (and technical)

	Date of Submission
B-ldq. 3027	0192486-28 FACILITY REGISTRATION #
FACILITY NAME AND ADDRESS	
U.S. Army, Fort Monmouth, New Jersey Directorate of Engineering and Housing Fort Monmouth, New Jersey 07703 Telephone No. (908) 532-6224	Building 167 County Monmouth
OWNER'S NAME AND ADDRESS, if different from above	

11.	DIS	CH	ARGE REPORTING REQUIREM	ENTS		,				
	A.	W. (N	as contamination found?\ ote: All discharges must be rep	es X orted to	_No the Enviro	If Yes, Case Inmental Act	No tion Hotline (6	609) 292-7172	?)	
	В.	Tì	ne substance(s) discharged was	(were) _	N/A	<u></u>				
	·c.	н	ave any vapor hazards been miti	ated?	Yes	No	(,N/A			
111.	DE	ECO	MMISSIONING OF TANK SYSTI	EMS				C-93-367		
	Gi de de loc to sa	uida cor cation diff	ite assessment requirements ince Document, InterIm Clomentation of the methods in missioning used. Please incluent of all tanks and piping runs a erentiate the status of all tanks site map can be used to docury annotated.	ure a used a de a <u>sit</u> t the fac	nd the remap whe	esults obtained shows the beginning to	ained for e he locations of the tank cl	ach of the of all samples osure operations	steps of sand boring on and annotation and annotations of the sand annotations	tank s, the otated . The
IV.	S	ITE	ASSESSMENT REQUIREMENT	s						
	A	. I	Excavated Soil		*					
· .		,	Any evidence of contamination waste or Non-Hazardous Waste or non-Hazardous Wastequirements for handling contaguidance documents for closure and disposal location.	te. Pies	120 1110100			arlar avolais	ed in the ted	chnical
·	E	В.	Scaled Site Diagrams				tallauriaa iata	.metion*		•
			1. Scaled site diagrams must b	e attaci	ned which	include the	following with	illiatori.		
		<i>y</i>	 a. North arrow and scale b. The locations of the group c. Location and depth of each of a scale d. All major surface and surface was a cross-sectional view in the Locations of surface was 	ich soll i b-surfar bundarid dergrou ndicatin ter bodi	sample att ce structu es nd storage g depth of les	res and utilities tank systemities tank, stratiq	ms including	appurtenant poation of wat	piping er table	
		C.	Soil samples and borings (che	ck appro	opriate ans	swer)				
			Were soil samples taken from	om the e	excavation	as prescribe	ed? <u>X`</u> Ye:	No No	N/A	XNA
			Were soil borings taken at	the tan	k system (closure site	as prescribe	d? Yes	NO	-1-1
			3. Attach the analytical result a. Customer sample number b. The depth of the soil sacc. Soil boring logs d. Method detection limit a OA/OC Information as its content of the same conten	s in table per (key imple of the m	ular form a ed to the s ethod use	and include t site map)	the following	information al	bout each sa	ımple:

	D.	Ground Water Monitoring
		Number of ground water monitoring wells installed
		Attach the analytical results of the ground water samples in tabular form. Include the following information for each sample from each well:
		Site diagram number for each well installed Depth of ground water surface
		c. Depth of screened interval
		d. Method detection limit of the method used
		e. Well logs
		f. Well permit numbers
		g. QA/QC Information as required
/ .	s	DIL CONTAMINATION
	Α.	Was soil contamination found?Yes X_No
		ff "Yes", please answer Question B-E
		ff "No", please answer Question B
		the state of the s
	В.	The highest soil contamination still remaining in the ground has been determined to be: 1. N/A ppb total BTEX, N/A ppb total non-targeted VOC 1. N/A ppb total non-targeted B/N
		1. N/A ppb total B/N, N/A ppb total non-targeted B/N
		2. N/A ppb total B/N, N/A ppb total ribin-targeted b/N 3. 493.0 ppm TPHC (for each patroleum substance)
		3. 493.0 ppm TPHC 4. N/A ppb (for non-petroleum substance)
		4. <u>N/A</u>
	С	. Remediation of free product contaminated soils
•		1. All free product contaminated soil on the property boundaries and above the water table are believed to
		have been removed from the subsurface Yes X No 2. Free product contaminated soils are suspected to exist below the water table Yes X No
		 Free product contaminated soils are suspected to exist off the property boundaries. Yes X No
	. [). Was the vertical and horizontal extent of contamination determined?YesNo _X_N/A
	E	. Does soil contamination intersect ground water?YesNoX_N/A
VI.	C	GROUND WATER CONTAMINATION N/A
	,	A. Was ground water contamination found?YesNo
•	•	If "Yes", please answer Questions B-G.
		if "No", please answer only Question B.
•		
	I	3. The highest ground water contamination at any 1 sampling location and at any 1 sampling event to date has been determined to be:
		1ppb total BTEX,ppb total non-targeted VOC 2ppb total B/N,ppb total non-targeted B/N 3ppb total MTBE,ppb total TBA (for non-petroleum substance)
		1ppo total B I EAppo total non-targeted B/N
		2ppo total b/N,pob total TBA
		3ppo total MTBC,(for non-petroleum substance)
		4
		3ppb total MTBE,
		6. Separate priests protest in a series of the series of t
		C. Result(s) of well search
		 A well search (including a review of manual well records) indicates that private, municipal or commercial wells do exist within the distances specified in the Scope of WorkYesNoN/A
		2. The number of these wells identified is

	D.	Proximity of w	ells and contaminant p	lume		•
•		potential pa	ath(s) of the contamina acts of pumping, subs	int plume(s) is surface structures, etc	earch which may be in t feet below grade (cons on the direction(s) of hing begins at a depth of	ideration has been given contaminant migration).
					any well in the potential This well is located	
	•	plume (as		feet from t	cial or municipal well in he source. This well is _	
	E.	A plan for sepa	arate phase product rec	overy has been includ	ledYesNo	N/A
		A ground wate		on submitted which inc	ludes the ground water el	levations for each well.
	G.	Delineation of	contamination	•	•	
			d water contaminantYesNo	s have been delines	ated to MCLs or lower	values at the property
		2. The plumeYes _		ue off the property at i	concentrations greater th	an MCLs.
		3. Off property	y access (circle one):	is being sought	has been approved	has been denied .
VII.	SIŢE	ASSESSMEN	T CERTIFICATION	[preparer of site ass	sessment plan - N.J.A.C	i. 7:148-8.3(b) &9.5(a)3}
	respo	insible for the c		ition of the site assess	ater Consultant" (as definement plan as specified in certification number.	
	and am c	complete an aware that t	d was obtained by	procedures in co it penalties for sui	ovided in this docum mpliance with N.J.A bmitting false, inacc	.C. 7:14B-8 and 9.1
•	NAMI	E (Print or Type) <u>Charles M. A</u>	ppleby S	SIGNATURE) <u> </u>
•	СОМ	PANY NAME_	U.S. Fort Monmo (Preparer of Site	uth Assessment Plan)	DATE/ <u>/</u> //	71/73
		TIFYING	NIDED		CERTIFICATION	
	ORG	ANIZATION	NJDEP		NUMBER	2056

VIII.	TANK DECOMMISSIONING CERTIFI closure plan - N.J.A.C. 7:148-9.5(2)4]	CATION [person performing tank decommissioning portion of						
	compliance with NJA.C. 7:14B-92	at tank decommissioning activities were performed in 2(b)3. I am aware that there are significant penalties for applete information, including fines and/or imprisonment."						
	NAME (Print or Type)	SIGNATURE						
	COMPANY NAME (Performer of Tank Dec	DATE						
	(Performer of Tank Dec							
X.	CERTIFICATIONS BY THE RESPONSIBLE	E PARTY(IES) OF THE FACILITY						
	A. The following certification shall responsibility for that facility	be signed by the highest ranking individual with overall [N.J.A.C. 7:148-2.3(c)11].						
	accurate, and complete. I am aw	that the information provided in this document is true, are that there are significant penalties for submitting false, wion, including fines and/or imprisonment."						
	NAME (Print or Type) James Ott	, , , , , , , , , , , , , , , , , , , ,						
	COMPANY NAME U.S. Army, Fo	rt Monmouth DATE 2/14/96						
	B. The following certification shall be all N.J.A.C. 7:148-2.3(C)2I]:	gned as follows [according to the requirements of						
	 For a partnership or sole proprietors For a municipality, State, Federal or elected official. 	cutive officer of at least the level of vice president. hip, by a general partner or the proprietor, respectively; or other public agency by either the principal executive officer or ranking						
	4. In cases where the highest ranking corporate partnership, governmental officer or official at the facility as required in A above is the same person as the official required to certify in B, only the certification in A need to be made. In all other cases, the certifications of A and B shall be made.							
	information submitted in this appoint inquiry of those individuals immediate that the submitted information is significant penalties for submitted fines and/or imprisonment."	that I have personally examined and am familiar with the olication and all attached documents, and that based on my ediately responsible for obtaining the information, I believe s true, accurate, and complete. I am aware that there are ing false, inaccurate, a light modern information, including						
	NAME (Print or Type)	SIGNATURE						
	COMPANY NAME	DATE						

APPENDIX C

WASTE MANIFEST



Las 1.1

State of New Jersey Department of Environmental Protection and Energy Hazardous Waste Regulation Program Manifest Section CN 028, Trenton, NJ 08628-0028 Ignad for use on elite (12-plich) typewriter 1

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Designs	aled Facility Name and Site Address	10.	US EPA ID Numb	ar ·	イン	Children Chi.	Francisco Carter
	ti Oil Recovery Co.,		•		F. Tra	nsporter's Phone (CARROLLER CONTROLLER
Runyon	& Cheesequake Rds.				G. EIR	te Facility's ID	
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State of New Jersey
Department of Environmental Protection and Energy
Hazardous Waste Regulation Program
Manifest Section
CN 028, Trenton, NJ 08625-0028

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STAVOLA ASPHALT CO.-TIN. FALLS

Stavola Asphalt Co., Inc. **ASPHALT PLANTS**

Old Bergen Mill Rd. Milistone, NJ (908) 446-7700

Hamilton Rd. Tinton Falls, NJ (908) 542-2328

Yellowbrook Rd. Farmingdale, NJ (908) 938-2801

B346002

B12, 3027

RECEIVED & ACCEPTED BY:

TOMER'S SIGNATURE

EXECUTIVE OFFICE HAMILTON ROAD TINTON FALLS, NJ 908 / 642-2328

ASPHALT CRUSHED STONE SAND GRAVEL

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

THIS COMPANY WILL NOT BE RESPON-SIBLE FOR DAMAGE CAUSED BY VEHICLES DELIVERING MATERIALS OFF PUBLIC ROADS. EXPLANATION OF DELIVERY CODES

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MAZZA & SONS, INC.

70565

Hecycling Division 3230 Shafto Road • Tinton Falls, NJ 07753 (908) 922-9292

Recycling Material Receipt Form

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APPENDIX D UST DISPOSAL CERTIFICATE

	MAZZA & SONS, INC. Metal Recyclers Auto and Truck 3230 Shafto Rd. Tinton Falls, NJ (908) 922-9292	B12, 3027 UST 00192486-28	<u>.</u>
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APPENDIX E SOIL ANALYTICAL DATA PACKAGE

Report of Analysis

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

Client: U.S. Army

DEH, SELFM-DP-EV

Bldg. 167

Ft. Monmouth, NJ 07703

Lab. ID #: 1438.1-.14

Sample Rec'd: 04/05/94

Analysis Start: 04/06/94

Analysis Comp: 04/06/94

Analysis: 418.1 (TPH)

Matrix:

Soil

S. Hubbard Analyst: Ext. Meth: Sonc.

NJDEPE UST Req.#:

192486-28

Closure #:

C-93-3675

NJDEPE Case #:

Location #: 3027

Lab ID.	Description	%Solid	Result (mg/K	
1438.1	Site A, 2'-2.5' OVA= ND *	96	920.	20.
1438.2	Site B, 2'-2.5' OVA= ND	94	15.4	3.3
1438.3	Site C, 5'-5.5' OVA= ND	89	13.3	3.3
1438.4	Site D, 5'-5.5' OVA= ND	93	12.7	3.3
1438.5	Site E, 5'-5.5' OVA= ND	94	14.0	3.3
1438.6	Site F, 5'-5.5' OVA= ND	92	10.0	3.3
1438.7	Site G, 5'-5.5' OVA= ND	92	55.0	3.3
1438.8	Site H, 5'-5.5' OVA= ND	91	7.22	3.3
1438.9	Site I, 2'-2.5' OVA= ND	91	73.7	3.3
1438.10	Site J, WALL OF FILL OVA = ND	94	15.4	3.3
1438.11	Site K, PIT BOTTOM FILL, OVA=ND *	92	1260.	20.
1438.12	Site L, N. WALL OF FILL, OVA=ND	95	125.	3.3
M. Bl.	Method Blank	100	ND	3.3

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

1438.4Dup.=123%, 1438.4Spike= 90%, 1438.4Spike Dup.=100%, RPD=4.95

Brian K. McKee

Laboratory Director

page 1 of 2

Report of Analysis

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

Client: U.S. Army

Lab. ID #: 1438.1-.14

DEH, SELFM-DP-EV

Sample Rec'd: 04/05/94

Bldg. 167

Analysis Start: 04/06/94

Ft. Monmouth, NJ 07703

Analysis Comp: 04/06/94

Analysis: 418.1 (TPH)

NJDEPE UST Reg.#: 192486-28

Matrix: Soil Closure #:

C-93-3675

Analyst: S. Hubbard Ext. Meth: Sonc.

NJDEPE Case #:

Location #: 3027

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Lab ID.	Description	%Solid	Result (mg/F	MDL (g)
1438.13	Site M, E. WALL OF FILL,OVA=ND *	96	13300.	140
1438.14	Site N, DUPLICATE, OVA= ND	94	15.4	3.3
		,		
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	_			
	-			
M. Bl.	Method Blank	100	.ND	3.3

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

1438.4Dup.=123%, 1438.4Spike= 90%, 1438.4Spike Dup.=100%, RPD=4.95

Brian K. McKee

Laboratory Director

page 2 of 2

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

Client: U.S. Army

DEH, SELFM-DPW-EV

Bldg. 167

Ft. Monmouth, NJ 07703

Lab. ID #: 1438.1-.14

Sample Rec'd: 04/05/94

Analysis Start: 04/06/94

Analysis Comp: 04/06/94

Analysis: Munsel

Lab ID#	Soil Color	
1438.1	2.5Y 4/3 Olive Brown	
1438.2	2.5Y 6/6 Olive Yellow	
1438.3	2.5Y 5/6 Light Olive Brown	
1438.4	2.5Y 5/6 Light Olive Brown	
1438.5	2.5Y 5/6 Light Olive Brown	
1438.6	2.5Y 5/6 Light Olive Brown	
1438.7	2.5Y 4/4 Olive Brown	
1438.8	2.5Y 5/6 Light Olive Brown	
1438.9	2.5Y 5/6 Light Olive Brown	
1438.10	2.5Y 5/6 Light Olive Brown	<u></u>
1438.11	2.5Y 5/6 Light Olive Brown	
1438.12	2.5Y 5/6 Light Olive Brown	
1438.13	2.5Y 2.5/1 Black	
1438.14	2.5Y 5/4 Light Olive Brown	
		
<u></u>		

Brian K. McKee Laboratory Director



SAI-ENV COC form O1

			P.O. #:	PWS	-007	, 							Chain o	1 10101 2: 101010	* 5
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Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

Page 1 of 2 Pages Rev. A Date: 02 Apr. 93



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Chain of Custody

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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	. <u>/</u>	
		,
2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)		<u> </u>
		/
3. IR Spectra submitted for standards, blanks, & samples		
4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.		4/19
5. Extraction holding time met. (If not met, list number of days exceeded for each sampl	e) —	
	-	
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6. Analysis holding time met. (If not met, list number of days exceeded for each sample	.) —	<u> </u>
	- -	
Comments:	- -	
	-	

Laboratory Authentication Statement

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

Brian K. McKee

Laboratory Manager

Report of Analysis

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

Client: U.S. Army

Lab. ID #: 1441.1-.3

DEH, SELFM-DP-EV

Sample Rec'd: 04/07/94

Bldg. 167

Analysis Start: 04/08/94

Ft. Monmouth, NJ 07703

Analysis Comp: 04/08/94

Analysis: 418.1 (TPH)

NJDEPE UST Reg.#: 192486-28

Matrix: S

Soil

Closure #: C-93-3675.2

Analyst: S. Hubbard

Ext. Meth: Sonc.

NJDEPE Case #:
Location #: 3027

				
Lab ID.	Description	%Solid	Result (mg/K	MDL (g)
1441.1	Site O, 4'-4.5' hNu= ND	. 85	310.	9.9
1441.2	Site P, 4'-4.5' hNu= ND	86	65.1	5.0
1441.3	Site Q, 4'-4.5' hNu= ND	87	15.2	5.0
		-		
M. Bl.	Method Blank	100	ND	3.3

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

1441.3Dup.= 84%, 1441.3Spike=152%, 1441.3Spike Dup.=155%, RPD=1.5

Brian K. McKee

Laboratory Director

page 1 of 1

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

Client: U.S. Army

DEH, SELFM-DP-EV

Bldg. 167

Ft. Monmouth, NJ 07703

Lab. ID #: 1441.1-.3

Sample Rec'd: 04/07/94 Analysis Start: 04/08/94

Analysis Comp: 04/08/94

Analysis: Munsel

Soil Color
10YR 5/8 Yellowish Brown
10YR 5/8 Yellowish Brown
10YR 5/8 Yellowish Brown

Brian K. McKee Laboratory Director



			L		+WS-	00/											
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Chain of Custody

FT. MONMOUTH OFFICE
E-SYSTEMS INC. • P.O. BOX 369 BUILDING 1209 • FT. MONMOUTH, NEW JERSEY 07703-5000 • (201) 5-14-0995

April 8, 1994 paro Sarch [Nullard 210 MV 163 41741 1441.3 6 MV 1441.3 Dup 5 MV 1441.3 Spk 74 MV 1441.3 Spk 75 MV 75 MV

PHC Conformance/Non-conformance Summary Report	No 1	<u>Ces</u>
1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank	$\frac{1}{2}$	
		/
2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)		<u></u>
3. IR Spectra submitted for standards, blanks, & samples		
4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.		<u> N/</u> 4
5. Extraction holding time met. (If not met, list number of days exceeded for each sampl	e)	
		/
6. Analysis holding time met. (If not met, list number of days exceeded for each sample	.)	<u> </u>
	• • .	
Comments:	- -	
	-	

Laboratory Authentication Statement

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Brian K. McKee Laboratory Manager

Report of Analysis

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

Client: U.S. Army

Lab. ID #: 1454.1-.4

DEH, SELFM-DP-EV

Sample Rec'd: 04/21/94

Bldg. 167

Analysis Start: 04/22/94

Ft. Monmouth, NJ 07703

Analysis Comp: 04/22/94

Analysis: 418.1 (TPH)

Matrix: Soil

NJDEPE UST Reg.#: 192486-28 Closure #: 93-3675

- ||

NJDEPE Case #:

Analyst: S. Hubbard Ext. Meth: Sonc.

Location #: Bldg. 3027

Lab ID.	Description		%Solid	Result (mg/	MDL Kg)
1454.1	Site R	OVA= ND	94	81.3	3.3
1454.2	Site S	OVA= ND	94	ND	3.3
1454.3	Site T	OVA= ND	94	ND	3.3
1454.4	Site U	OVA= ND	93	493.	5.0
				·	
M. Bl.	Method Blank		100	.ND	3.3

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

* = Silica Gel Added, NA = Not Applicable

1453.2dup=NA, 1453.2spike= 96% 1453.2spike dup= 96% RPD= 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-DP-EV

Bldg. 167

Ft. Monmouth, NJ 07703

Lab. ID #: 1454.1-.4

Sample Rec'd: 04/21/94

Analysis Start: 04/22/94

Analysis Comp: 04/22/94

Analysis: Munsel

Lab ID#	Soil Color
1454.1	10YR 5/6 Yellowish Brown
1454.2	10YR 5/6 Yellowish Brown
1454.3	10YR 5/6 Yellowish Brown
1454.4	10YR 4/6 Dark Yellowish Brown
•	

Brian K. McKee Laboratory Director

	SEM-AIR INC. An E-SYSTEMS Company
1373	An E-SYSTEMS Company

				P.O.	11 :	PWS-	007								1		.Uhain	COP 1	nas com	4
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C. APP	oleby Di	W- EV	Bld. 3027.						/ / /, /- / / *						/ NX		L			
<u> </u>			USF# 192486-28													Prese	-vation			
Phone: /:	4662		Clasure C-43-3675					<u> </u>							Method					
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Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody. ATTACH																				
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Chain of Custody

FT. MONMOUTH OFFICE
E SYSTEMS, INC • P. O. BOX 369, BUILDING 1200 • FT. GOTHMOTHE, NEW JERSEY 07703 5000 • (201) 5 FT 0995

April 22, 1994 15,5 Open Willed

BLANK OMV 40.75 101mv RAMM 81.5 205 MV 163 410 MV 1453.1 ND 1453.2 ND DUP 1453.2 ND DUP 1453.2 6/ Spk 1453.2 6/ Spk 1453.3 ND 1454.1 57

1454.4 230 MV

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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	<u> </u>	
2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)		<u> </u>
 IR Spectra submitted for standards, blanks, & samples Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted. Extraction holding time met. (If not met, list number of days exceeded for each sample 		<u> </u>
6. Analysis holding time met. (If not met, list number of days exceeded for each sample)		_
Comments:		

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Brian K. McKee Laboratory Manager

ATTACHMENT H UST 3035 Documentation

Fort Monmouth UST Status Summary Report

UST REGISTRATION INFORMATION SUMMARY

LOCATION: 3035 **NJDEP REG ID:** 192486 - 29

RESIDENTIAL? YES

UST CONSTRUCTION INFORMATION SUMMARY

SIZE (GALLONS): 5000 CONSTRUCTION: STEEL

PRODUCT: #2 FUEL OIL YEAR INSTALLED:

UST REMOVAL/INVESTIGATION SUMMARY

REMOVAL DATE: 11/1/1989 REMOVAL CONTRACTOR:

SRF SEND DATE: YES TMS:

DICAR NO. LEAK DETECT:

REMEDIATION No contamination observed. Residential UST with no contamination; no Closure

COMMENTS: Report required.

REGISTRATION SRF/SACS submitted to NJDEP on 6/19/90.

COMMENTS:

SAS DONE: YES CONSULTANT:

MWs NEEDED: MONITORING WELLS: 0

SUB-SURFACE D. Desai

EVALUATOR:

CURRENT UST STATUS

UST STATUS: Removed; Report Submitted/Not Nec. **CASE STATUS:** Case Closed

SUBMITTAL DATE: APPROVAL DATE:

FINALIZED: No



Bldg 3035

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

State of New Jersey DEPARTMENT OF ENVIRONMENTAL PROTECTION DIVISION OF WATER RESOURCES

CN 029
TRENTON, NEW JERSEY 08625
ATTN: BUST Program
(609) 984-3156

	STANI	DARD REPORTING FORM for the:						
	Installation/Abandon/Remove Sale-Transfer/Substantial Modification							
	Circle Only O	ne — Use One Form Per Activity						
	(More than one ta	ank can be listed per tank activity)						
A n:	swer questions 1 through 5 and others as appli	cable.						
1.	Company name and address: (as it	U.S. Grmy OEH Bldg. # 167 Attn: SELFM-EH						
	appears on registration questionnaire)	DEH Bldg. # 167						
		AHn: SELFM-EH						
		Fort Monmouth NT 07703						
2.	Facility name and location: (if different from above)	U.S. army Fort Monmouth Charles Wood East						
3.	Contact person for this activity:	Mr. DinKarrai Dasci						
	Telephone Num	ber: (201) 532-1475						
4.	The identification number of the affected tank a Questionnaire: Tank No. 20	as It appears in Question Number 12 on the Registration						
5.	Registration Number (if known): UST -	9 Bldg. 3035 0192486						
	l l							

(OVER)

	r TRANSFER OF OWNERSHIP:
N	ew Company Name
N	ew Facility Name
Ad	ddress
Ne	ew owner/operator (print)
Si	gnature
Fo	r ABANDONMENT or REMOVAL:
a.	Describe the proposed procedure in detail on an attached sheet.
b.	Specify the product last stored in the tank: # 2 Prome Pleating Oil Date abandoned or removed November 1989
c.	Is Site Assessment Compliance Statement being completed? (YES) or NO Form MUST be
	completed and returned within 90 days of tank closure. (per SUBSTANTIAL MODIFICATIONS:
8.	Describe the reason for the modification and, in detail, the proposed procedure to be used on an attached sheet.
b.	Specify the product presently stored in the tank:
c.	Specify the product to be stored in the tank:
For	NEW OR REPLACEMENT INSTALLATIONS:
8.	Attach the specifications as required by the attached instructions.
b.	Specify the product (s) to be stored in the tank:
Œ:	All appropriate and applicable permits, licenses and certificates from any local, state and/or federal agency must be obtained separately from this notification as required by the above stated activity. CERTIFICATION
* Thi ility.	s registration form shall be signed by the highest ranking individual at the facility with overall responsibility for that (7:14B-2.3 (a) 1). ***
re al	y under penalty of law that the information provided in this document is true. accurate and complete. I am aware that e significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including lines imprisionment."
natu	re: Xmus (Ut)
me (į	print or type):
e:	JAMES OTT Deputy Director Dir, Engineering & Housing Date:
	Ne Signa b. C. For a. b. For a. b. This certification of the control of the certification of

Directorate of Engineering and Housing

US Army Fort Monmouth Charles Wood East Registration # 0192486 Tank # 29 POC: Dinkerrai Desai (201)532-1475.

Removal Procedure:

All remaining product inside the tank was removed for disposal by L & L 0il Service of Aberdeen, New Jersey. L & L 0il is a licensed hazardous waste transporter and TSDF. (USEPA ID # NJD011427895).

The top of the tank was excavated and cut open across the entire length of the tank. The soil from the top of the tank was visually inspected and analyzed by using a HNU Model P1-101, photoionizer. No contamination was found.

The inside of the tank was hand cleaned utilizing a biodegradable detergent. The detergent residue was removed by the Waste Oil Company for proper disposal.

After the tank was clean, a visual inspection was made inside the tank for signs of leakage. No corrosion was found inside the tank.

The tank was then removed from the ground and sent out to be recycled. No contamination was discovered at the site upon removing the tank.

The site was backfilled with the excavated soil to close out the project.



DEPARTMENT OF ENVIRONMENTAL PROTECTION Bureau Underground Storage Tanks CN 29, Trenton, NJ 08625

Auth Routing	
UST NO.	

SITE ABBESSHENT COMPLIANCE STATEMENT

Supplement to the New Jersey Standard Reporting Form (Complete for ALL regulated UST abandonments or removals)

Within ninety (90) days of completing the UST closure of any State or Federally-regulated tank, the owner or operator must submit this completed form to the NJDEP Bureau of Underground Storage Tanks. If the facility is located in one of the counties listed on the back, a copy of this form must also be sent to the Health Agency indicated.

The owner or operator of any Federally-regulated tank must also comply with the following:

40 CFR Part 280.72 Assessing the site at closure or change-in-service

"(a) Before permanent closure or a change-in-service is completed, owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to ground water, and other factors appropriate for identifying the presence of a release."

Ormy Fort Manmouth

releas	se." U.S. Ormy Fort Manmouth
PACIL	Charles Wood Fost DBT 10192486
Check	off the following items as appropriate for the site.
V	The UST facility is only regulated by State law, therefore a site assessment is not mandatory.
	The UST facility is regulated by Federal law and a site assessment was conducted.
The re	esults of the site assessment indicate:

There was NO release from the UST system.

There was a release from the UST system and it was reported to the DEP Environmental Hotline (609-292-7172).

NOTE: The results of the site assessment are not to be submitted to the DEP or Health Agency unless requested to do so. The results are to be available for inspection at the UST facility.

Questions can be directed to the Bureau at (609) 984-3156.

*** This registration form shall be signed by the highest ranking individual at the facility with overall responsibility for that						
"I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment. SACS-2,1/89	JAMES OTT Deputy firectors and Dir, Engineering & Housing					
	(Title)					

ATTACHMENT I

UST 3216 Report

U.S. Army Garrison

Fort Monmouth, New Jersey

Underground Storage Tank Report

Pine Brook Housing - Bldg. 3216

NJDEP UST Registration No. 192486-11

June 2011

UNDERGROUND STORAGE TANK CLOSURE AND REMEDIAL INVESTIGATION REPORT

PINE BROOK HOUSING – BLDG. 3216 NJDEP UST REGISTRATION NO.: 192486-11

JUNE 2011

PROJECT NO.: 05-41615

PREPARED FOR:

U.S. ARMY GARRISON, FORT MONMOUTH, NJ DIRECTORATE OF PUBLIC WORKS BUILDING 173 FORT MONMOUTH, NJ 07703

PREPARED BY:

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

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1.0	UND	DERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES	1
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	1.4	Removal of Underground Storage Tank	4
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EXECUTIVE SUMMARY

On March 19, 2009, one regulated underground storage tank (UST) was closed by removal in accordance with the Directorate of Public Works (DPW) UST Management Plan for the U.S. Army Garrison, Fort Monmouth, New Jersey. The UST was located next to Building 3216 in the Pine Brook Housing area of Fort Monmouth. UST No. 192486-11 was a 10,000-gallon, single-walled steel tank that had been previously abandoned in place. The fill port and supply and return lines were not present in the excavation.

The site assessment was performed by TECOM-Vinnell Services (TVS) personnel in accordance with the New Jersey Department of Environmental Protection (NJDEP) *Technical Requirements for Site Remediation* (TRSR) and the NJDEP *Field Sampling Procedures Manual (FSPM)*. Soils surrounding the tanks were screened visually and with a calibrated hand held Mini-Rae Photo-Ionization air monitoring instrument for evidence of contamination. Following removal, the UST was inspected for holes. No holes or evidence of impacted soils were observed after the removal of the tank from the ground. After removing the UST and associated piping, post-excavation soil samples were collected. Samples 3216-A through 33216-F were collected from six (6) locations along the sidewalls and bottom of the excavation. All samples were analyzed for total petroleum hydrocarbons (TPH). Groundwater was encountered at approximately 5.5 feet below ground surface grade in the excavation.

All sampling was performed by a NJDEP Certified Subsurface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (FSPM August 2005). Sampling frequency and parameters analyzed complied with the NJDEP document *Technical Requirements for Site Remediation* (TRSR) 7:26E-3.9 which was the applicable regulation at the date of the closure.

The post-excavation soil samples collected from the UST excavation associated with former UST No. 192486-25 contained TPH concentrations less than the NJDEP health based criterion of 4,800 milligrams per kilogram (mg/kg) for total organic contaminants (N.J.A.C. 7:26E). None of the samples collected for post remedial confirmation were in excess of the additional analytical threshold of 1,000 ppm. The soil analytical data confirmed that no release had occurred from the excavated UST.

Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and crushed stone. The excavation site was then restored to its original condition with four inches of top soil and grass seed.

Based on the post-excavation soil sampling results, soils present are less than the NJDEP health based criteria for total organic compounds and there are no Volatile organic compounds (VOCs) that were detected greater than NJDEP Residential Direct Contact Soil Cleanup Criteria. (RDCSCC)No further action is proposed in regard to the closure and site assessment of USTs No. 192486-25 at Building 3216.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One regulated underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No 192486-25, was closed in the area of Bldg. 3216 located in Pine Brook Housing at U.S. Army Garrison, Fort Monmouth, New Jersey on February 9, 2009. Refer to the site location map included as Figure 1. This report presents the results of the implementation of the DPW's UST Management Plan, March, 1996. UST No. 192486-25 was a 10,000-gallon #2 home heating oil tank used for a fuel supply to a boiler plant for the several residential units. Prior to the ultimate removal of the UST, the tank was drained of its contents and abandoned in place. During the abandonment procedures, no releases or sign or release were noted. Once emptied of its contents, the top of the tank was removed and the tank void was filled with bank run sands. Upon completion, the overburden was returned to the excavation. For additional information regarding the tank abandonment process, refer to Appendix A of this document.

Decommissioning activities for the USTs complied with all applicable federal, state and local laws and ordinances in effect at the date of decommissioning. These laws included, but were not limited to: 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 US Army employee

This UST Closure and Remedial Investigation Report (RIR) has been prepared by TVS to assist the US 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 and revisions dated May 19, 2003).

This RIR was prepared using information required by the Technical Requirements for Site Remediation (TRSR). Section 1 of this UST Closure and RIR 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 Section 3 of this report.

1.2 SITE DESCRIPTION

Building 3216 is located in the Pine Brook Housing area of Fort Monmouth, as shown on Figure 1. The UST was located to the south of Building 3216. The fill port and appurtenant piping were not encountered in the excavation.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of Bldg. 3216. 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 Pine Brook Housing 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 (Zapecza, 1984). See Figure 2 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). 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, See Fig. 3), 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).

Hydrogeology

The water table aquifer in the Pine Brook Housing 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 (black ooze) 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.

The area of Bldg. 3216 is located approximately 700 feet south-southeast and upgradient of Wampum Brook, the nearest water body. Based on the Pine Brook Housing topography, the groundwater flow in the area of Bldg. 3216 is anticipated to be to the northwest. The wells in this area are not considered to be tidally influenced.

1.3 HEALTH AND SAFETY

Work site health and safety hazards were minimized during all decommissioning activities. All areas that posed a vapor hazard were monitored by a qualified individual utilizing a calibrated photo-ionization detector (PID) 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 (PELs).

1.4 REMOVAL OF UNDERGROUND STORAGE TANKS

1.4.1 General Procedures

- All underground utilities were marked out by the respective shops and/or utility contractor prior to excavation activities.
- All activities were carried out with 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. No impacted soils were encountered during the tank excavations. These soils were used to backfill the excavation upon clearance.
- 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 certified Subsurface Evaluator was present during all closure activities.

1.4.2 Underground Storage Tank Excavations

During decommissioning activities, surficial soil was removed to expose the UST. The tank was completely emptied of all residual materials prior to removal from the ground. Prior to abandonment, the fuel oil contents of the tank was dispersed throughout the post and were used for off-road diesel engines and in above ground storage tanks (ASTs) associated with portable generators.

After the UST was removed from the excavation, it was staged on the ground, labeled and examined for holes. No holes in the tank were observed during the inspection by the Subsurface Evaluator. Soils surrounding the UST were screened visually and with an Organic Vapor Monitor (OVM) for evidence of petroleum contamination. No soil staining and an odor of fuel were observed. After removal, the tank was transported for storage at the Bldg. 108 pad for subsequent cutting and disposal.

1.5 UNDERGROUND STORAGE TANK DECOMMISSIONING AND DISPOSAL

The top of the tank was removed to allow for access during the abandonment process. The tank was filled with sand and left in place. The sand was removed from the tank and taken to the ID 27 storage area for subsequent disposal. The UST was then cleaned with rubber squeegees and the remaining material broomed from the sidewalls and bottom. The materials were 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 steel tank was cut into manageable pieces and placed into a 7 cubic yard dump truck and shipped off site to be recycled. Refer to Appendix C for UST disposal certificate. The tank contents were sampled and used as clean back fill materials in the excavation. See Table 2 for results.

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 closure activities included in Appendix D.

2.0 REMEDIAL INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Remedial Investigation was managed and carried out 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 (August 2005,). Sampling frequency and parameters analyzed complied with the NJDEP document *TRSR* which was the applicable regulation at the date of the closure. All records of the Remedial Investigation activities are maintained by the Fort Monmouth DPW Environmental Office.

The following Parties participated in closure and remedial investigation activities.

• Ft. Monmouth Directorate of Public Works-Environmental Division

Contact Person: Joe Fallon, CHMM Phone Number: (732) 532-2692

Subsurface Evaluator: Charles Appleby

Employer: US Army, CECOM Phone Number: (732) 532-6254 NJDEP License No.: 9974 Analytical Laboratory: Fort Monmouth Environmental Testing Laboratory

Contact Person: Jackie Hamer 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. No impacted soils were encountered during the tank removal procedures. Clean overburden soils were stockpiled for later reuse.

2.3 SOIL SAMPLING

On March 23, 2009, post-excavation soil samples 3216-A through 3216-F were collected from six (6) locations along the sidewalls, the bottom and the piping run of the UST excavation. Refer to Soil Sampling Location map included as Figure 4. All samples were analyzed for Total Petroleum Hydrocarbons (TPH) in accordance with the requirements of the TRSR.

The site assessment was performed by TVS personnel in accordance with the *TRSR* and the NJDEP FSPM. A summary of sampling activities including parameters analyzed is provided on Table 1. The post-excavation soil samples were collected using stainless steel trowels. After collection, the soil samples were immediately placed on ice in a cooler and delivered to Fort Monmouth Environmental Testing Laboratory (FMETL) for analysis.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

The post-excavation soil sample results were compared to the NJDEP health based criterion of 4,800 mg/kg for total organic contaminants (N.J.A.C. 7:26D and revisions dated September 8, 2008). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided on Table 2. The soil analytical data package, including associated quality control data, is provided in Appendix E.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at UST No. 192486-11 were below all applicable NJDEP soil cleanup criteria for total organic contaminants.

No further action is proposed in regard to the closure and site assessment of UST 192486-11 at Building 3216

TABLES

TABLE 1

SUMMARY OF LABORATORY ANALYSIS

FT. MONMOUTH, BUILDING 3216, UST No.192486-25 January 30, 2009, March 9, 2009

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE DATE	SAMPLE MATRIX	ANALYTICAL PARAMETER	ANALYTICAL METHOD
3216-SS1	9011301	3/19/09	Soil	TPH	OQA-QAM-25
3216-SS2	9011302	3/19/09	Soil	TPH	OQA-QAM-25
3216-A, North Wall	9011501	03/23/09	Soil	ТРН	OQA-QAM-25
3216-B South Wall	9011502	03/23/09	Soil	ТРН	OQA-QAM-25
3216-C East Wall	9011503	03/23/09	Soil	ТРН	OQA-QAM-25
3216-D West Wall	9011504	03/23/09	Soil	ТРН	OQA-QAM-25
3216-E Piping	9011505	.03/23/09	Soil	ТРН	OQA-QAM-25
3216-F, Bottom	1150690	3/23/09	Soil	ТРН	OQA-QAM-25

ABBREVIATIONS:

TPH = Total Petroleum Hydrocarbons, Method NJDEP OQA-QAM-25

VOA = Volatile Organic Analysis, EPA SW-846 Method 8260

TABLE 2

SUMMARY OF LABORATORY ANALYTICAL RESULTS

FT. MONMOUTH, BUILDING 3216, UST No.192486-26 January 30, 2009, March 19, 2009

TOTAL PETROLEUM HYDROCARBONS (results in mg/kg)

SAMPLE ID	LABORATORY SAMPLE ID	SAMPLE LOCATION	SAMPLE DEPTH (in feet)	MATRIX	TPH RESULTS
3216-SS1	9011301	Tank fill	N/a	Soil	ND
3216-SS2	9011302	Tank fill	N/a	Soil	ND
3216-A	9011501	North Wall	5.0 - 5.5	Soil	ND
3216-B	9011502	South Wall	5.0 - 5.5	Soil	ND
3216-C	9011503	East Wall	5.0 - 5.5	Soil	ND
3216-D	9011504	West Wall	5.0 - 5.5	Soil	ND
3216-E	9011505	Piping	5.0 - 5.5	Soil	ND
3216-F	9011506	Bottom	5.0 – 5.5	Soil	ND

ABBREVIATIONS:

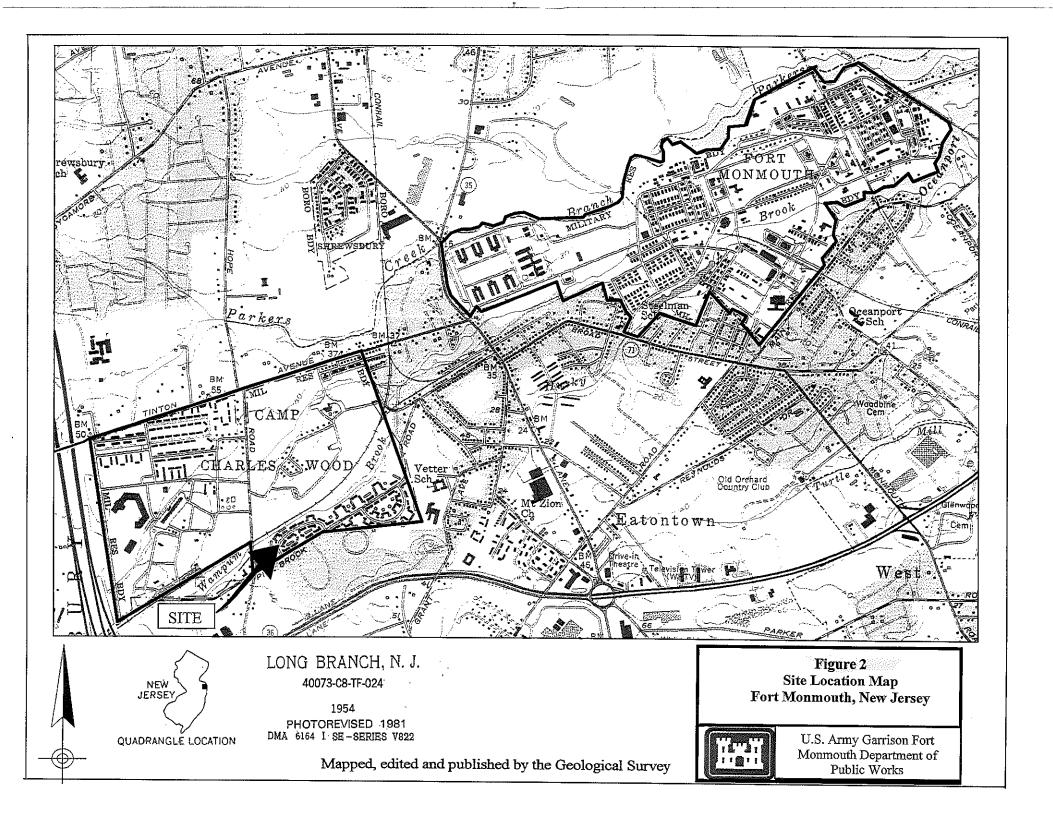
mg/kg = Milligrams Per Kilogram = parts per million

ND = Compound Not Detected

Notes:

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

FIGURES



APPENDIX A CERTIFICATIONS

APPENDIX B WASTE MANIFEST

No fuel oil was shipped off-site for disposal as a result of the closure of this underground storage tank (UST). The tank had been previously abandoned in place and at that time the contents were pump out and distributed to above ground storage tanks and off-road diesel vehicles.

APPENDIX C UST DISPOSAL CERTIFICATE

UST 3216

732-747-7784 732-747-7779

Red Bank Recycling Auto Wreckers, Inc. 64 Central Avenue, Red Bank, New Jersey 07701

		AMOUNT	CWT	TOTAL	
	LIGHT IRON		<i></i>	1	
SECTION AND ADDRESS OF	NO 1 STEEL	7-7-14	1,00 <u> </u>		
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	D. M. B.	<u> </u>		1	
	CAST IRON				
	COPPER				
	BRASS		1./		
	ALUMINUM	k'_	1/2	1/1/	
	RADIATORS		100	1/ ()	
	BATTERIES				
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	CARS / /	1	<u> </u>	<u> </u>	
		111			

I am the owner of said vehicle(s) and I release it to Red Bank Recycling Auto Wreckers, Inc.

Signature of Owner

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Fort Mon.

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Centralized Disbursing Office RED BANK RECYCLING AND AUTO WRECKERS INC. 64 CENTRAL AVENUE, P.O. BOX 2126 RED BANK, NJ 07701

Centralized Disbursing Office

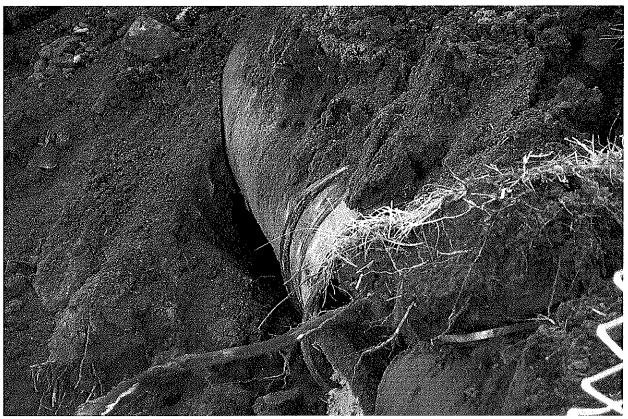
1/30/2009

**223.20

DOLLARS

16218

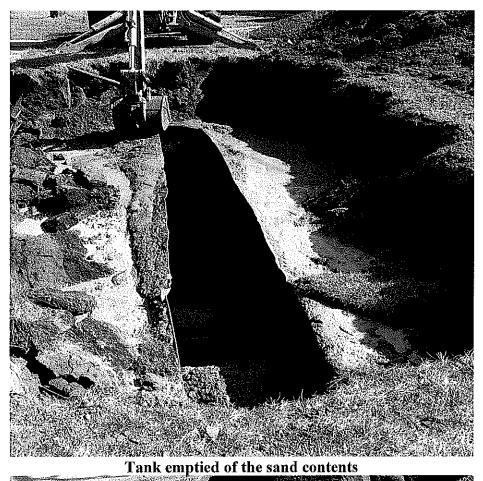
APPENDIX D PHOTO DOCUMENTATION

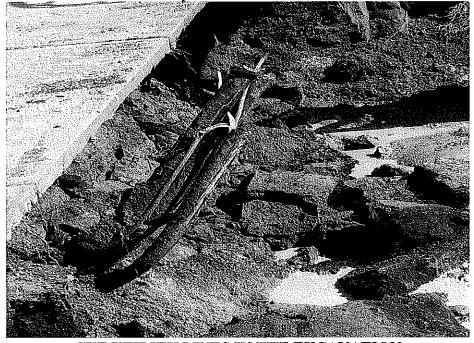


Transite water pipe exposed in the west end of excavation



Top of abandoned tank





CUT UTILITY LINES IN THE EXCAVATION



TANK REMOVED FROM GROUND



TANK BEING LOADED FOR OFF SITE TRANSPORT

APPENDIX E SOIL ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION

Fort Monmouth, New Jersey PROJECT: 90-59762

Pinebrook/Bldg. 3216

Field Sample Location	Laboratory	Matrix	Date and Time	Date Received
1	Sample ID#		of Collection	
3216-SS1	9011301	Soil	19-March-09 15:00	03/19/09
3216-SS2	9011302	Soil	19-March-09 15:10	03/19/09

ANALYSIS: FORT MONMOUTH ENVIRONMENTAL LAB TPHC, % SOLIDS

Jacqueline Hamer/Date
QA/QC Supervisor

The enclosed report relates only to the items tested. The report may not be reproduced, except in full, without written approval of the U.S. Army Fort Monmouth Directorate of Public Works.

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CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (732)532-4359 Fax (732)532-6263 EMail:jacqueline.hamer@us.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: CHO	ICK APPLESY	Project No:						Ana	lysis 1	Param	eters			Comments:
Phone #: \$\frac{1}{2}\langle	04%	Location: \mathcal{B}	104:32	16 =		N.								
()DERA ()OMA ((⅓Other:	MITCHE	TL DR.			1								
Samplers Name / Cor	mpany: FRANK AC	corsi		Sample	#	M								
LIMS/Work Order#	Sample Location	Date	Time	Туре	bottles	7								Remarks / Preservation Method
40113 01	3216-551	3-19-09	1500	501L	L	Χ								10F
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			1				***							
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Report Type: ()Full, () Turnaround time: ()Stan	Reduced, ()Standard, ()Screduced, ()MAYS dard 3 wks, (X)Rush 2 Wk., (en / non-certifi)ASAP Verbal	ed, (_)EDD lHrs.			Remai	·ks: ¥	C0^	TING	€₩7	BN	+15	1F	TPH > 1,000 PPM

SAMPLE RECEIPT FORM

Date Received:	.3-	19-09	Work Order	D#: _ <i>l</i>	20113			
Site/Proj. Name:	Blo	ly 3216	Cooler Temp	(°C):	1CE			
Received By: _ (Print name)	~\c\c\c\c\c\c\c\c\c\c\c\c\c\c\c\c\c\c\c	<u>Cleryura</u>	Sign:	<u> L</u> l	MIN			
(rime name)		Check the app	ropriate*box		. /			
1. Did the sample	es com		Opinate Box	□ ves	no 🗆 n/a			
•		n good condition?	4	☑ ves	'\			
•		tody filled out correct	lv and legibly?	ves	· 🗖			
		tody signed in the ap		yes	_ no			
		with the chain of cust		□ yes	/			
	_	tainers/preservatives		□ yes	.□ no			
7. Was a sufficien	it amoi	unt of sample supplie	ed?	yes	□ no			
8. Were air bubble	es pres	sent in VOA vials?		□ yes	□ no □ n/a			
9. Were samples	receive	ed on ice?		🛮 yes	□ no			
10. Were analyze-	-imme	diately tests perform	within 15 minutes l	⊒ yesl	□ no □ n/a			
10. Were analyze-immediately tests perform within 15 minutes yes no								
Lims ID	рН	Preservative	Sample ID	рН	Preservative			
Lims ID	рН	Preservative	Sample ID	рН	Preservative			
Lims ID	рН	Preservative	Sample ID	рН	Preservative			
Lims ID	рН	Preservative	Sample ID	рН	Preservative			
Lims ID	рН	Preservative	Sample ID	рН	Preservative			
Lims ID	pH	Preservative	Sample ID	рН	Preservative			
Lims ID	pН	Preservative	Sample ID	рН	Preservative			
Lims ID	pH	Preservative	Sample ID	рН	Preservative			
Lims ID	pH	Preservative	Sample ID	рН	Preservative			
Lims ID	pH	Preservative	Sample ID	рН	Preservative			
Lims ID	pH	Preservative	Sample ID	pH	Preservative			
Lims ID	pH	Preservative	Sample ID	pH	Preservative			
Lims ID	pH	Preservative	Sample ID	pH	Preservative			
Lims ID	pH	Preservative	Sample ID	pH	Preservative			
Lims ID	pH	Preservative	Sample ID	pH	Preservative			
Comments:	pH	Preservative	Sample ID	рН	Preservative			

METHOD SUMMARY

Methodology Summary

NJDEP Method OQA-QAM-025 2/08 Rev. 6 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml auto-sampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 90113

Site: Pinebrook

Bldg. 3216

	Date	Hold Time
Date Sampled	03/19/09	NA
Receipt/Refrigeration	03/19/09	NA
Extraction		
1. TPHC	03/20/09	14 days
Analyses		
1. TPHC	03/20/09	40 days

CONFORMANCE/NON-CONFORMANCE SUMMARY

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

		Indicate Yes, No, N/A
1.	Method Detection Limits Provided	<u> 400</u>
2.	Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank	<u> NO</u>
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)	_(jec>
4.	Duplicate Results Summary Meet Criteria	yes
5.	IR Spectra submitted for standards, blanks and samples	
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted	yes_
7.	Analysis holding time met (If not met, list number of days exceeded for each sample)	yes
Addit	ional comments:	
Laboi	ratory Manager: Auguston Date: 47pg	

TPHC

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

Client:

U.S. Army

DPW. SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Analysis:

OQA-QAM-025

Matrix:

Soil

GC TPHC INST. #1 Inst. ID:

Column Type: RTX-5, 0.32mm ID, 30 m

Injection Volum 1 uL Blank Conc.: 0.00 Project #:

Location:

Bldg. 3216

ECP:

Work Order:

Date Received:

Date Extracted:

19-Mar-09 20-Mar-09 Shake

Extraction Method: Analysis Complete:

20-Mar-09

Analyst:

Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Qualifiers
MB03200901	MB03200901	1.00	15.00	100.00	23	333	0.00	
LCS03200901	LCS03200901	1.00	15.00	100.00	23	333	1235.27	
9011301	3216-551	1.00	16.27	89.12	24	345	0.00	
9011302	3216-552	1.00	15.98	87.38	25	358	0.00	

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Concentration from dilution

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

The following Laboratory Deliverables Checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete data packages will be returned or held without review until the data package is completed.

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

1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.	
2.	Table of Contents submitted.	$_{\mathcal{U}}$
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.	<u> </u>
4.	Document paginated and legible.	
5.	Chain of Custody submitted.	<u></u>
6.	Samples submitted to lab within 48 hours of sample collection.	
7.	Methodology Summary submitted.	$\overline{}$
8.	Laboratory Chronicle and Holding Time Check submitted.	<u></u>
9.	Results submitted on a dry weight basis.	<u></u>
10.	Method Detection Limits submitted.	
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.	<u></u>
	Laboratory Manager or Environmental Consultant's Signature Musica Information Date: 17/09	9
	Laboratory Certification # 13461	

*Refer to NJAC 7:26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP

Methods for further guidance.

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.

Jacqueline Hamer QA/QC Supervisor

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263 WET-CHEM - METALS - ORGANICS - FIELD SAMPLING CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION

Fort Monmouth, New Jersey PROJECT: 90-59762

Pinebrook/Bldg. 3216

Field Sample Location	Laboratory	Matrix	Date and Time	Date Received						
•	Sample ID#		of Collection							
3216-A, North Wall	9011501	Soil	23-March-09 09:30	03/23/09						
3216-B, South Wall	9011502	Soil	23-March-09 09:48	03/23/09						
3216-C, East Wall	9011503	Soil	23-March-09 10:13	03/23/09						
3216-D, West Wall	9011504	Soil	23-March-09 10:30	03/23/09						
3216-E, Piping	9011505	Soil	23-March-09 11:00	03/23/09						
3216-F, Bottom	9011506	Soil	23-March-09 10:00	03/23/09						
3216-Duplicate	9011507	Soil	23-March-09 09:30	03/23/09						

ANALYSIS: FORT MONMOUTH ENVIRONMENTAL LAB TPHC, % SOLIDS

Jacqueline Hamer/Date

QA/QC Supervisor

The enclosed report relates only to the items tested. The report may not be reproduced, except in full, without written approval of the U.S. Army Fort Monmouth Directorate of Public Works.

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Tahanatany Anthantiantian Statement	41

CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail:jacqueline.hamer@us.army.mil
NJDEP Certification #13461

Chain of Custody Record

	CK APPLEBY	Project No:						Anal	ysis I	aram	eters			Comments:
Phone #:	2692	Location: \mathcal{B}	LDG. 32	16,		*						1		}
()DERA ()OMA	(x)Other:	MITCHELL I		•	AREA							Ø,	8	
Samplers Name / Co	mpany: FRANK ACC	CORSI /	TVS	Sample	#	1						01	1110	
LIMS/Work Order#	Sample Location	Date	Time	Туре	bottles	<u> </u>						4	3	Remarks / Preservation Method
40115 01	3216-4, NORTH WALL	3-23-09	0930	3012		X						3	3,5-4	/ CE
US .	3216-B. SOUTH WALL		0948			×					•		3.5-4	· · · · · · · · · · · · · · · · · · ·
43,	3216-C, EAST WALL		1013			Xi						2	3:5-4	
. \ 04	3216-D, WEST WALL		<i>i03</i> 0			χ						3	3:5-4	
<u>US</u> ,	3216-E, PIPING		1100			×						3	3-3,5	
	3216-F, BOTTOM		1000			X						0	10,5-11	
	3216- DUPLICATE	*	0930	4	1	Х							3.5-4	····
	·													
		, , ,												V76
														1,14,14,14,14,14,14,14,14,14,14,14,14,14
Relinquished by (signat	ure): Date/Time: 3-23-09 1310	Received by	(signature):	NI ,	Relin	quished	by (sig	gnature)):	Date/	Time:	Recei	ived by	(signature):
Relinquished by (signat		Received by	(signature):		Relin			gnature			Time:	1	·	(signature):
)Reduced, ()Standard, ()Scre Day's ndard 3 wks, (⊗)Rush <u>2</u> WK., (rks:* PM.	CON7	ING	<u>a</u> vt	BN	+15	AWA	27515 IF THY >1,000

SAMPLE RECEIPT FORM

Date Received:	36	409	Work Order	ID#:	9015
Site/Proj. Name:	BIC	ly 3216	Cooler Temp	(°C):	MA
Received By: \(\frac{1}{2} \)	J. V.	ENGUNA	Sign:	fll	year
(Print name)		Chock the ann	ropriato boy		/)
1 Did the sements		Check the app	<u>горгіасе вох</u>		no □ n/a
1. Did the sample				□ yeş ☑ ves	_
2. Were samples		ody filled out correct	thy and logibly?		no
		ody filled out correct ody signed in the ap		/ yes	
		with the chain of cus		ves	
	_	tainers/preservatives		Ves	=
		unt of sample supplie		ves	-
8. Were air bubbl				•	□ po ☑ n/a
9. Were samples	-			•	no
_		diately tests perform	within 15 minutes		
	*******	į	,	•	•
Fill out the fo	llowi	ng table for eac	ch sample bottl	e	
Lims ID	рН	Preservative	Sample ID	рН	Preservative
Lims ID	рН	Preservative	Sample ID	рH	Preservative
Lims ID	рH	Preservative	Sample ID	pН	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	рН	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	рН	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID	pH	Preservative	Sample ID	рН	Preservative
Lims ID	pH	Preservative	Sample ID	pH	Preservative
Lims ID Comments:	pH	Preservative	Sample ID	рН	Preservative
	pH	Preservative	Sample ID	рН	Preservative

GPS POINTS

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 3216, UST No. 192486-31

GPS POSITIONS & COORDINATES

US STATE PLANE 1983, NJ (NY EAST) 2900, NAD 1983 (CONUS)

(IN US SURVEY FEET)

SAMPLE POINTS

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
3216A NORTH WALL	532947.685	612535.167
3216B SOUTH WALL	532930.85	612549.608
3216C EAST WALL	532951.36	612556.746
3216D WEST WALL	532932.568	612528.622
3216E PIPING	532949.172	612537.757
3216F BOTTOM	532941.258	612543.177

METHOD SUMMARY

Methodology Summary

NJDEP Method OQA-QAM-025 2/08 Rev. 6 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml auto-sampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 90115

Site: Pinebrook

Bldg. 3216

	Date	Hold Time
Date Sampled	03/23/09	. NA
Receipt/Refrigeration	03/23/09	NA
Extraction		
1. TPHC	03/23/09	14 days
Analona		
Analyses		
1. TPHC	03/24/09	40 days

CONFORMANCE/NON-CONFORMANCE SUMMARY

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

		Yes, No, N/A
1.	Method Detection Limits Provided	yes
2.	Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank	<u></u>
3.	Matrix Spike Results Summary Meet Criteria	yes
	(If not met, list the sample and corresponding recovery which falls outside the acceptable range)	•
4.	Duplicate Results Summary Meet Criteria	yes
5.	IR Spectra submitted for standards, blanks and samples	<u>NA</u>
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted	yes
7.	Analysis holding time met (If not met, list number of days exceeded for each sample)	<u> 4es</u>
Addit	tional comments:	
Labor	ratory Manager: Augustum Date: 4609	

TPHC

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

Client:

U.S. Army

DPW. SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Analysis:

OQA-QAM-025

Matrix:

Soil

Inst. ID:

GC TPHC INST. #1 Column Type: RTX-5, 0.32mm ID, 30 m

Injection Volum 1 uL Blank Conc.: 0.00 Project #:

Location:

ECP:

Work Order:

Date Received:

Date Extracted:

23-Mar-09 23-Mar-09

Bldg. 3216

Extraction Method: Analysis Complete:

Shake 24-Mar-09

Analyst:

Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Qualifiers
MB03230901	MB03230901	1.00	15.10	100.00	23	331	0.00	
LCS03230901	LCS03230901	1.00	15.10	100.00	23	331	1276.47	
9011501	3216-A NORTH WALL	1.00	17.66	77.94	25	363	0.00	
9011502	3216-B SOUTH WALL	1.00	16.37	86.77	25	352	0.00	
9011503	3216-C EAST WALL	1.00	16.28	82.57	26	372	0.00	
9011504	3216-D WEST WALL	1.00	15.86	85.35	26	369	0.00	
9011505	3216-E PIPING	1.00	17.16	79.65	26	366	0.00	
9011506	3126-F BOTTOM	1.00	17.19	83.26	24	349	0.00	
9011507	3216 DUPLICATE	1.00	16.98	77.56	27	380	0.00	

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Concentration from dilution

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

The following Laboratory Deliverables Checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete data packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package <u>and</u> in the main body of the report.

1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.	کسیا
2.	Table of Contents submitted.	<u> </u>
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.	
4.	Document paginated and legible.	<u>レ</u>
5.	Chain of Custody submitted.	
6.	Samples submitted to lab within 48 hours of sample collection.	
7.	Methodology Summary submitted.	
8.	Laboratory Chronicle and Holding Time Check submitted.	$\underline{\mathcal{U}}$
9.	Results submitted on a dry weight basis.	
10.	Method Detection Limits submitted.	<u> </u>
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.	$\underline{\nu}$

Laboratory Manager or Environmental Consultant's Signature Date: (1/0,1/0%)

Laboratory Certification # 13461

*Refer to NJAC 7:26E – Appendix A, Section IV – Reduced Data Deliverables – Non-USEPA/CLP Methods for further guidance.

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.

Jacqueline Hamer QA/QC Supervisor

ATTACHMENT J Additional UST 3216 Analytical Results

FORT MONMOUTH ENVIRONMENTAL **TESTING LABORATORY**

DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-4359 FAX: (732) 532-6263

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory **ENVIRONMENTAL DIVISION** Fort Monmouth, New Jersey PROJECT: BLDG. 3216

Bldg. 3216

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
3216E 5.5-6.0'	6004101	Soil	23-Jan-06 09:39	01/23/06
3216C 5.5-6.0°	6004102	Soil	23-Jan-06 10:45	01/23/06
Duplicate	6004103	Soil	23-Jan-06 10:45	01/23/06
3216W 5.5-6.0'	6004104	Soil	23-Jan-06 11:34	01/23/06
3216C GW	6004105	Aqueous	23-Jan-06 11:46	01/23/06
Trip Blank	6004106	Aqueous	23-Jan-06	01/23/06
Trip Blank	6004107	Methanol	23-Jan-06	01/23/06

ANALYSIS:

FORT MONMOUTH ENVIRONMENTAL LAB VOA+15, BN+15, TPHC, % SOLIDS

ENCLOSURE: CHAIN OF CUSTODY RESULTS

> Daniel Wright/Date Laboratory Director

3-6-06

The enclosed report relates only to the items tested. The report may not be reproduced, except in full, without written approval of the U.S. Army Fort Monmouth Directorate of Public Works.

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Total Petroleum Hydrocarbons Result Summary Calibration Summary Surrogate Results Summary MS/MSD Results Summary Raw Sample Data	60 61 62-68 69 70-71 72-81
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CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail:wrightd@mail1.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: Pobn McCarthy	Project No: 06-34	1880			Anal	ysis P	arame	eters			Comments:
Phone: X 2 (0 2 2 4/	Location: Bldg 3	216			1						
()DERA ()OMA ()Other:	(Former UST)) +	9							
Samplers Name / Company: George Bo	40UTVS		# 1	10+10	BN+15						
LIMS/Work Order # Sample Location	Date Time	Туре в	ottles	Z	8						Remarks / Preservation Method
40041 6 3216E 5,56,0	123/106 0939	Soil	2 X								4440
63 3216 C 5,5-60	1045		2 X								4441
65 DapE	1045		2 X								4442
04 3216W 5,5-6,0	1134		2 X						,		4443
15 3216C -GW	1146	AQ	4	X	X						
GO TRIP		AQ	2	X							
TR;p	-	Meth		-	<u> </u>						4439
					<u> </u>					,	
					<u> </u>						
				<u> </u>							
			<u>. </u>		<u> </u>						
Relinquished by (signature): Date/Time:	Received by (signature):		Relinquish	ed by (sig	znature)	:	Date/	Time:	Receiv	ed by	(signature):
Leonge Boyce 12365 1530	J. allys	w			•						
Relinquished by (signature): Date/Time:	Received by (signature):		Relinquish	ed by (sig	gnature)	:	Date/	Time:	Receiv	ed by	(signature):
Report Type: ()Full, ()Reduced, ()Standard, ()Scre	en / non-certified, (_)EDD		Ren	narks: V	10+	10 0	A 23	%	>10	00,	PPH TPH
Turnaround time: (Standard 3 wks, ()Rush Days, ()ASAP Verbal Hrs.											

SAMPLE RECEIPT FORM

Date Received:		<u> 33-06 </u>	Work Order I	D#: <u>_</u>	10041
Site/Proj. Name:	B/0	<u>ly3210/LBT</u>	Cooler Temp	(°C):	20
Received By: \(\) (Print name)]1V2	WAUTA	Sign:	<u> </u>	MINA
(Time hame)		Check the app	ropriate box	ار	/
1. Did the sample	s come		•	🛮 yeş	′_ no □ n/a
2. Were samples				□ yes	∕□ no
3. Was the chain	of cust	ody filled out correct	iy and legibly?	☑ yes	🔲 no
4. Was the chain	of cust	ody signed in the ap	propriate place?	☑ yes	□ no
5. Did the labels a	agree v	with the chain of cust	tody?	☑ yes	
6. Were the corre	ct cont	tainers/preservatives	used?	☑ yes	□ no
		unt of sample supplie	ed?	•	no _
8. Were air bubble	es pres	sent in VOA vials?		□ yes	⊿ no □ n/a 🕟
9. Were samples			,		□ no
10. Were analyze	-imme	diately tests perform	within 15 minutes [⊒ yesl	nold n/a
Fill out the fo	llowi	ng table for eac	ch sample bottle	е	
	T				I Programme and the second
Lims ID	рН	Preservative	Sample ID	pH_	Preservative
Lims ID (000-11 4-5	pH 12	Preservative #C/	Sample ID	pH_	Preservative
Lims ID (000-11 4-5	pH ユユ	Preservative #C/	Sample ID	pH_	Preservative
Lims ID (000-11 4-5	pH // 2	Preservative HCL	Sample ID	pH	Preservative
Lims ID (000-11 4-5	pH イユ	Preservative #C/	Sample ID	pH	Preservative
Lims ID _/ (000-11 4-5	pH 1/2	Preservative HCA	Sample ID	pH	Preservative
Lims ID (000-11 4-5	pH 12	Preservative #CV	Sample ID	pH	Preservative
Lims ID _/	pH ンユ	Preservative HCA	Sample ID	pH	Preservative
Lims ID (000-11 4-5	pH ンユ	Preservative ##	Sample ID	рН	Preservative
Lims ID (000-41 44-5	pH /_2	Preservative #CV	Sample ID	рН	Preservative
Lims ID,	pH / ノン	Preservative	Sample ID	рН	Preservative
Lims ID (000-41 4-5	pH ンユ	Preservative #CJ	Sample ID	рН	Preservative
Lims ID (000-41 4-5	pH / ノン	Preservative	Sample ID	рН	Preservative
Lims ID, (000-41 4-5	pH ンユ	Preservative	Sample ID	рн	Preservative
Lims ID (000-41 44-5	pH //2	Preservative	Sample ID	pH	Preservative
(000-11 /45	pH /_2	Preservative	Sample ID	pH	Preservative
Lims ID (000-41 4-5	pH /	Preservative	Sample ID	pH	Preservative
(000-11 /45	pH //2	Preservative	Sample ID	pH	Preservative
(000-11 /45	pH //	Preservative	Sample ID	pH	Preservative

Former UST 3216 Sample Location GPS Positions

US State Plane 1983 New Jersey (NY East) 2900 NAD 1983 (Conus) Geoid 96 (Conus)

(In US Survey Feet)

Position	Northing (Y Coord.)	Easting (X Coord.)
3216E	532990.614	612518.246
3216C	532986.742	612513.523
3216W	532983.784	612509.004

METHOD SUMMARY

Methodology Summary

EPA Method 624 Gas Chromatographic Determination of Volatiles in Water

Surrogates and internal standards are added to a 5-ml aliquot of sample. The sample is then purged and desorbed into a GC/MS system. The organic compounds are separated by the gas chromatograph and detected using the mass spectrometer. Volatiles are identified and quantitated.

EPA SW-846 Method 8260 Gas Chromatographic Determination of Volatiles in Methanol

A 10-gram volume of soil is combined with 25-ml of Methanol and surrogates in the field. Internal standards are added and the sample is placed on a purge and trap concentrator. The sample as purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

EPA Method 625 Gas Chromatographic Determination of Semi-volatiles in Water

Surrogates are added to a measured volume of sample, usually 1 liter, at a specified pH. The sample is serially extracted with Methylene Chloride using a separatory funnel. The extract is concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

NJDEP Method OQA-QAM-025 10/97 Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1-ml auto-sampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for Petroleum Hydrocarbons covering a range of C8-C42, including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak. The final concentration of Total Petroleum Hydrocarbons is calculated using percent moisture, sample weight and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 60041

Site: UST

Bldg. 3216

		Date	Hold Time				
Da	ate Sampled	01/23/06	NA				
Re	eceipt/Refrigeration	01/23/06	NA ·				
Ex	tractions						
1. 2.	BN TPHC	01/27/06 01/26/06	7 days 14 days				
Ar	Analyses						
1. 2. 3.	VOA BN TPHC	02/03/06 01/30/06 01/30/06	14 days 40 days 40 days				

CONFORMANCE/ NONCONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

			Indicate Yes, No, N/A
1.	Chromatograms labeled/	Compounds identified	
••	(Field samples and n		<u> yes</u>
2.	Retention times for chron	natograms provided	<u>yes</u>
3.	GC/MS Tune Specificati	ons	
	a. BF	B Meet Criteria	yes
	b. DI	FTPP Meet Criteria	<u> </u>
4.	GC/MS Tuning Frequence	cy – Performed every 24 hours for 600	
	series and 12 hours for 80	000 series	<u>405</u>
5.		tial Calibration performed before sample	
		ralibration performed within 24 hours of series and 12 hours for 8000 series	405
			70-
6.	GC/MS Calibration requi	irements	
	a. Ca	libration Check Compounds Meet Criteria	<u>yes</u>
	b. Sy	stem Performance Check Compounds Meet Criteria	<u> Yes</u>
7.	Blank Contamination – If	f yes, List compounds and concentrations in each blank:	NO_
	a. VO	OA Fraction	
	b. B/1	N Fractionid Fraction	
	c. Ac	id Fraction	
8.	Surrogate Recoveries Me	et Criteria	<u>yes</u>
	If not met, list those outside the acceptable	compounds and their recoveries, which fall e range:	
	a. VC	OA Fraction	
	b. B/1	N Fraction	
	c. Ac	id Fraction	
	If not met, were the cas "estimated"?	calculations checked and the results qualified	
9.	Matrix Spike/Matrix Spik	te Duplicate Recoveries Meet Criteria	LIC)
		pounds and their recoveries, which fall	
	a. VC	DA Fraction Various high sec. See Jam	
		V Fraction 1 ON YES 100 SEPTE 1 STORY	
		id Fraction NAD	

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (cont.)

		Indicate Yes, No, N/A
10.	Internal Standard Area/Retention Time Shift Meet Criteria (If not met, list those compounds, which fall outside the acceptable range)	<u>yes</u>
	a. VOA Fraction	
		
	b. B/N Fraction	_
11.	Extraction Holding Time Met	<u>ues</u>
	If not met, list the number of days exceeded for each sample:	\
12.	Analysis Holding Time Met	yes
	If not met, list the number of days exceeded for each sample:	,
Add	litional Comments:	_
Labo	oratory Manager: Date:	

TPHC CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

	•	Yes, No, N/A
1.	Method Detection Limits Provided	yes
2.	Method Blank Contamination – If yes, list the sample and corresponding concentrations in each blank	
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery where the sample reco	nich <u>UCS</u>
1.	Duplicate Results Summary Meet Criteria	yes_
5.	IR Spectra submitted for standards, blanks and samples	
ó.	Chromatograms submitted for standards, blanks and samp if GC fingerprinting was conducted	les <u>YeS</u>
7.	Analysis holding time met (If not met, list number of days exceeded for each sample)	<u>yes</u>
Addi	tional comments:	·
_abo	ratory Manager: Date;	

VOLATILE ORGANICS (AQUEOUS)

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEP CERTIFICATION # 13461

Definition of Qualifiers

- U: The compound was analyzed for but not detected.
- B: Indicates that the compound was found in the associated method blank as well as in the sample.
- J: Indicates an estimated value. This flag is used:
 - (1) When the mass spec and retention time data indicate the presence of a compound however the result is less than the MDL but greater than zero.
 - (2) When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D: This flag is used to identify all compounds (target or TIC) that required a dilution.
- E: Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N: This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VB021618.D

Operator Date Acquired Skelton

3 Feb 2006 4:05 pm

Sample Name

MB 03Feb2006

MB 03Feb2006 Field ID

Sample Multiplier

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/t)*	MDL	RL	Qualifier
107028	Acrolein			not detected	5	2.01 ug/L	5.00 ug/L	
107131	Acrylonitrile			not detected	5	1.23 ug/L	5.00 ug/L	
75650	tert-Butyl alcohol	•		not detected	100	5.70 ug/L	10.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.21 ug/L	2.00 ug/L	T
108203	Di-isopropyl ether			not detected	20000	0.26 ug/L	2.00 ug/L	
75718	Dichlorodifluoromethane			not detected	1000	0.20 ug/L	2.00 ug/L	
74-87-3	Chloromethane			not detected	nle	0.24 ug/L	2.00 ug/L	1
75-01-4	Vinyl Chloride			not detected	1	0.23 ug/L	2.00 ug/L	
74-83-9	Bromomethane			not detected	. 10	0.26 ug/L	2.00 ug/L	1
75-00-3	Chloroethane			not detected	nle	0.29 ug/L	2.00 ug/L	
75-69-4	Trichlorofluoromethane			not detected	2000	0.23 ug/L	2.00 ug/L	
75-35-4	1.1-Dichloroethene			not detected	1	0.19 ug/L	2.00 ug/L	
67-64-1	Acetone			not detected	6000	0.36 ug/L	2.00 ug/L	1
75-15-0	Carbon Disulfide			not detected	700	0.24 ug/L	2.00 ug/L	1
75-09-2	Methylene Chloride			not detected	3	0.21 ug/L	2.00 ug/L	1
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.24 ug/L	2.00 ug/L	
75-34-3	1.1-Dichloroethane			not detected	50	0.24 ug/L	2.00 ug/L	
108-05-4	Vinyl Acetate			not detected	7000	0.20 ug/L	2.00 ug/L	t
78-93-3	2-Butanone			not detected	300	0.26 ug/L	2.00 ug/L	1
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.20 ug/L	2.00 ug/L	+
67-66-3				not detected	70	0.20 ug/L	2.00 ug/L	†
71-55-6	Chloroform			not detected		0.22 ug/L	2.00 ug/L	
	1,1,1-Trichloroethane				30	0.20 ug/L 0.24 ug/L	2.00 ug/L	+
56-23-5	Carbon Tetrachloride			not detected				
71-43-2	Benzene			not detected	1	0.24 ug/L	2.00 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.23 ug/L	2.00 ug/L	┼──
79-01-6	Trichloroethene			not detected	1	0.26 ug/L	2.00 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.24 ug/L	2.00 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.22 ug/L	2.00 ug/L	+
110-75-8	2-Chloroethyl vinyl ether			not detected	n!e	0.23 ug/L	2.00 ug/L	ļ
10061-01-5	cis-1,3-Dichloropropene			not_detected	1	0.22 ug/L	2.00 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	nle	0.35 ug/L	2.00 ug/L	
108-88-3	Toluene			not detected	1000	0.26 ug/L	2.00 ug/L	ļ
10061-02-6	trans-1,3-Dichloropropene	•		not detected	1	0.25 ug/L	2.00 ug/L	+
79-00-5	I,1,2-Trichloroethane			not detected	3	0.28 ug/L	2.00 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.20 ug/L	2.00 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.43 ug/L	2.00 ug/L	
124-48-1	Dibromochloromethane			not detected	1	0.22 ug/L	2.00 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.28 ug/L	2.00 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.27 ug/L	2.00 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	0.43 ug/L	4.00 ug/L	
95-47-6	о-Хујеле			not detected	nle	0.21 ug/L	2.00 ug/L	
100-42-5	Styrene			not detected	100	0.21 ug/L	2.00 ug/L	
75-25-2	Bromoform			not detected	4	0.27 ug/L	2.00 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.45 ug/L	2.00 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.36 ug/L	2.00 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.35 ug/L	2.00 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.45 ug/L	2.00 ug/L	

^{*}Results between MDL and RL are estimated values

Qualifiers

 ${f B}={f Compound}$ found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

^{*}Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9C 07Nov2005

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIEL	D ID
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34

4

15

5

J

J

Lab Name:	FMETL			NJDEP	#: 13461		MB 03Feb	2006
Project:	06-3488		ase No.: 60041		ion: 3216	 SE	DG No.: UST	·····
Matrix: (soil/v	water)	WATER			_ab Sample	— ∍ ID:	MB 03Feb200)6
Sample wt/vo	ol:	5.0	(g/ml) ML		_ab File ID:		VB021618.D	
Level: (low/n	ned)	LOW		I	Date Recei	ved:	1/23/2006	
% Moisture:	not dec.			i	Date Analyzed: 2/3/2006			
GC Column:	RTX5	02. ID: 0	.25 (mm)	I	Dilution Factor: 1.0			
Soil Extract Volume: (uL)				Soil Aliquot Volume:				(uL)
Number TICs	s found:	4		CONCENTR ug/L or ug/K				
CAS NO		COMPO	IND NAME		RT	FS ⁻	T. CONC.	0

unknown unknown

unknown

unknown

3.

4.

12.51

20.58

24.39

25.77

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VB021620.D

Operator Date Acquired Skelton 3 Feb 2006 5:22 pm Sample Name

6004106 Trip Blank

Field ID Sample Multiplier

r 1

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RL	Qualifiers
107028	Acroleîn			not detected	5	2.01 ug/L	5.00 ug/L	•
107131	Acrylonitrile			not detected	5	1.23 ug/L	5.00 ug/L	
75650	tert-Butyl alcohol			not detected	100	5.70 ug/L	10.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.21 ug/L	2.00 ug/L	
108203	Di-isopropyl ether			not detected	20000	0.26 ug/L	2.00 ug/L	
75718	Dichlorodifluoromethane			not detected	1000	0.20 ug/L	2.00 ug/L	
74-87-3	Chloromethane			not detected	nle	0.24 ug/L	2.00 ug/L	
75-01-4	Vinyl Chloride			not detected	1	0.23 ug/L	2.00 ug/L	
74-83-9	Bromomethane			not detected	10	0.26 ug/L	2.00 ug/L	
75-00-3	Chloroethane			not detected	nie	0.29 ug/L	2.00 ug/L	
75-69-4	Trichlorofluoromethane			not detected	2000	0.23 ug/L	2.00 ug/L	
75-35-4	1,1-Dichloroethene			not detected	1	0.19 ug/L	2.00 ug/L	
67-64-1	Acetone			not detected	6000	0.36 ug/L	2.00 ug/L	
75-15-0	Carbon Disulfide			not detected	700	0.24 ug/L	2.00 ug/L	
75-09-2	Methylene Chloride			not detected	3	0.21 ug/L	2.00 ug/L	1
156-60-5	trans-1,2-Dichloroethene		,	not detected	100	0.24 ug/L	2.00 ug/L	
75-34-3	1,1-Dichloroethane			not detected	50	0.24 ug/L	2.00 ug/L	
108-05-4	Vinyl Acetate			not detected	7000	0.20 ug/L	2.00 ug/L	
78-93-3	2-Butanone			not detected	300	0.26 ug/L	2.00 ug/L	1
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.20 ug/L	2.00 ug/L	
67-66-3	Chloroform			not detected	70	0.22 ug/L	2.00 ug/L	
71-55-6	1,1,1-Trichloroethane			not detected	30	0.20 ug/L	2.00 ug/L	
56-23-5	Carbon Tetrachloride] ""	not detected	1	0.24 ug/L	2.00 ug/L	†
71-43-2	Benzene			not detected	1 1	0.24 ug/L	2.00 ug/L	1
107-06-2	1,2-Dichloroethane			not detected	2	0.23 ug/L	2.00 ug/L	
79-01-6	Trichloroethene			not detected	1 1	0.26 ug/L	2.00 ug/L	
78-87-5	1,2-Dichloropropane		1"	not detected	1	0.24 ug/L	2.00 ug/L	<u> </u>
75-27-4	Bromodichioromethane			not detected		0.22 ug/L	2.00 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.23 ug/L	2.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	1	0.22 ug/L	2.00 ug/L	
108-10-I	4-Methyl-2-Pentanone			not detected	nle	0.35 ug/L	2.00 ug/L	
108-88-3	Toluene Toluene			not detected	1000	0.26 ug/L	2.00 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	1	0.25 ug/L	2.00 ug/L	
79-00-5	1.1.2-Trichloroethane			not detected	3	0.28 ug/L	2.00 ug/L	
127-18-4	Tetrachloroethene			not detected	1 1	0.20 ug/L	2.00 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.43 ug/L	2.00 ug/L	
124-48-1	Dibromochloromethane			not detected	1	0.43 ug/L	2.00 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.22 dg/L 0.28 ug/L	2.00 ug/L	
100-41-4	Ethylbenzene		 	not detected	700	0.28 ug/L 0.27 ug/L	2.00 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	0.43 ug/L	4.00 ug/L	
95-47-6	o-Xvlene			not detected	nle nie	0.43 ug/L 0.21 ug/L	2.00 ug/L	
100-42-5	Styrene			not detected	100	0.21 ug/L	2.00 ug/L 2.00 ug/L	
75-25-2	Bromoform			not detected	4	0.21 ug/L 0.27 ug/L	2.00 ug/L 2.00 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane		-	not detected	1	0.45 ug/L	2.00 ug/L 2.00 ug/L	
541-73-1	1,3-Dichlorobenzene						···	
106-46-7	1,4-Dichlorobenzene			not detected	600	0.36 ug/L	2.00 ug/L	
95-50-1				not detected	75	0.35 ug/L	2.00 ug/L	
プン・ブリー I	1,2-Dichlorobenzene			not detected	600	0.45 ug/L	2.00 ug/L	<u> </u>

^{*}Results between MDL and RL are estimated values

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

^{*}Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9C 07Nov2005

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD	ID:	
	Trin	

Lab Name:	FMETL			NJDEP:	#: <u>13461</u>	Trip	<u>' </u>		
Project:	06-3488	30 Ca	se No.: <u>600</u> 4	1 Local	Location: 3216 SDG No.: UST				
Matrix: (soil/	water)	WATER	_	1	Lab Sample	D: e	3004106		
Sample wt/v	ol:	5.0	(g/ml) ML		Lab File ID:	1	VB021620.D		
Level: (low/r	ned)	LOW		1	Date Recei	ved: _	1/23/2006		
% Moisture:	not dec.			` I	Date Analyzed: 2/3/2006				
GC Column:	RTX5	25 (mm)	ļ	Dilution Factor: 1.0					
Soil Extract Volume: (uL)			(uL)	;	Soil Aliquot Volume:			(uL)	
				CONCENTR		• .			
Number TIC	s found:	0	AANMANA	(-9	.3/				
CAS NO.		COMPOL	JND NAME		RT	EST	CONC.	Q	

Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

Date Acquired

VB021619.D

Operator

Skelton 3 Feb 2006 4:46 pm Sample Name Field ID

6004105 3216C-GW

Sample Multiplier

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	5	2.01 ug/L	5.00 ug/L	
107131	Acrylonitrile			not detected	5	1.23 ug/L	5.00 ug/L	
75650	tert-Butyl alcohól			not detected	100	5.70 ug/L	10.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.21 ug/L	2.00 ug/L	
108203	Di-isopropyl ether			not detected	20000	0.26 ug/L	2.00 ug/L	
<i>7</i> 5718	Dichlorodifluoromethane			not detected	1000	0.20 ug/L	2.00 ug/L	
74-87-3	Chloromethane			not detected	nle	0.24 ug/L	2.00 ug/L	
75-01-4	Vinyl Chloride			not detected	1	0.23 ug/L	2.00 ug/L	
74-83-9	Bromomethane			not detected	10	0.26 ug/L	2.00 ug/L	Ĭ
75-00-3	Chloroethane			not detected	nle	0.29 ug/L	2.00 ug/L	
75-69-4	Trichlorofluoromethane			not detected	2000	0.23 ug/L	2.00 ug/L	
75-35-4	1,1-Dichloroethene			not detected	1	0.19 ug/L	2.00 ug/L	
67-64-1	Acetone			not detected	6000	0.36 ug/L	2.00 ug/L	1
75-15-0	Carbon Disulfide			not detected	700	. 0.24 ug/L	2.00 ug/L	
75-09-2	Methylene Chloride			not detected	3	0.21 ug/L	2.00 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.24 ug/L	2.00 ug/L	
75-34-3	1.1-Dichloroethane			not detected	50	0.24 ug/L	2.00 ug/L	
108-05-4	Vinyl Acetate			not detected	7000	0.20 ug/L	2.00 ug/L	
78-93-3	2-Butanone			not detected	300	0.26 ug/L	2.00 ug/L	
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.20 ug/L	2.00 ug/L	
67-66-3	Chloroform			not detected	70	0.22 ug/L	2.00 ug/L	†
71-55-6	1.1.1-Trichloroethane			not detected	30	0.20 ug/L	2.00 ug/L	
56-23-5	Carbon Tetrachloride			not detected		0.24 ug/L	2.00 ug/L	1
71-43-2	Benzene			not detected		0.24 ug/L	2.00 ug/L	
107-06-2	1.2-Dichloroethane			not detected	2	0.23 ug/L	2.00 ug/L	
79-01-6	Trichloroethene			not detected	1	0.26 ug/L	2.00 ug/L	
78-87-5	1,2-Dichloropropane			not detected	i	0.24 ug/L	2.00 ug/L	
75-27-4	Bromodichloromethane			not detected	1 1	0.22 ug/L	2.00 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.22 ug/L	2.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	1	0.23 ug/L	2.00 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	nie	0.35 ug/L	2.00 ug/L	
108-88-3	Toluene			not detected	1000	0.26 ug/L	2.00 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	1	0.25 ug/L	2.00 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.23 ug/L 0.28 ug/L	2.00 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.20 ug/L	2.00 ug/L	<u> </u>
591-78-6	2-Hexanone			not detected	1	0.43 ug/L	2.00 ug/L	<u> </u>
124-48-1	Dibromochloromethane			not detected	nle 1	0.43 ug/L 0.22 ug/L	2.00 ug/L	
108-90-7		-		not detected	1		2.00 ug/L	
100-41-4	Chlorobenzene			not detected	50	0.28 ug/L		
1330-20-7	Ethylbenzene				700	0.27 ug/L 0.43 ug/L	2.00 ug/L 4.00 ug/L	
95-47-6	m+p-Xylenes o-Xylene			not detected not detected	nle		2.00 ug/L	
100-42-5		+			tile	0.21 ug/L		
75-25-2	Styrene			not detected	100	0.21 ug/L	2.00 ug/L	
79-34-5	Bromoform			not detected	4	0.27 ug/L	2.00 ug/L	
	1,1,2,2-Tetrachloroethane			not detected	1	0.45 ug/L	2.00 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.36 ug/L	2.00 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.35 ug/L	2.00 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.45 ug/L	2.00 ug/L	1

^{*}Results between MDL and RL are estimated values

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

^{*}Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9C 07Nov2005

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID:
3216C-GW

Lab Name:	FMETL			NJDEF	P#:	13461		32160-	GW
Project:	06-3488	30 Ca	ase No.: <u>600</u>	41 Loca	ation	: <u>3216</u>	S	DG No.: <u>UST</u>	·
Matrix: (soil/\	water)	WATER			Lab	Sample	ID:	6004105	
Sample wt/ve	ol:	5.0	(g/ml) <u>ML</u>	•	Lab	File ID:		VB021619.D	
Level: (low/r	ned)	LOW			Dat	e Receiv	ed:	1/23/2006	
% Moisture:	not dec.				Dat	e Analyz	ed:	2/3/2006	·····
GC Column:	RTX5	02. ID: <u>0</u>	.25 (mm)		Dilu	ıtion Fac	tor:	1.0	
Soil Extract \	/olume:		(uL)		Soi	l Aliquot	Volu	me:	(uL)
				CONCENTE					
Number TICs	s found:	0		(ug/L or ug/l	Ng)	<u>UG</u> /	L		
CAS NO.		COMPO	UND NAME			RT	ES	ST. CONC.	Q

SEMI-VOLATILE ORGANICS

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File Name

BNA11471.D

Sample Name

MB-012706-01

Operator

BPatel

Misc Info

MB-012706-01

Date Acquired 30-Jan-06

Sample Multiplier 1

Regula	itory
Los	al .

					Level (ug/L)*			
CAS#	Name	R.T.	Response	Result	1	MDL	RL	Qualifiers
110-86-1	Pyridine	-		not detected	NLE	1.13	10.00 ug/L	<u> </u>
62-75-9	N-nitroso-dimethylamine			not detected	0.8	0.60	10.00 ug/L	
62-53-3	Aniline			not detected	6	2.38	10.00 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	7	0.71	10.00 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.02	10.00 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.99	10.00 ug/L	
100-51-6	Benzyl alcohol			not detected	2000	0.66	10.00 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.96	10.00 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	0.88	10.00 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	10	0.76	10.00 ug/L	
67-72-1	Hexachloroethane			not detected	7	0.96	10.00 ug/L	
98-95-3	Nitrobenzene			not detected	6	0.86	10.00 ug/L	
78-59-1	Isophorone			not detected	40	0.76	10.00 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			лоt detected	NLE	0.79	10.00 ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.89	10.00 ug/L	
91-20-3	Naphthalene			not detected	300	0.76	10.00 ug/L	
106-47-8	4-Chloroaniline			not detected	30	1.37	10.00 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.99	10.00 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.01	10.00 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	40	0.92	10.00 ug/L	
91-58-7	2-Chloronaphthalene			not detected	600	0.72	10.00 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.77	10.00 ug/L	
131-11-3	Dimethylphthalate			not detected	NLB	0.78	10.00 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.67	10.00 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	10	0.71	10.00 ug/L	
99-09-2	3-Nitroaniline		•	not detected	NLE	1.18	10.00 ug/L	
83-32-9	Acenaphthene			not detected	400	0.73	10.00 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.69	10.00 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.81	10.00 ug/L	
84-66-2	Diethylphthalate			not detected	6000	0.96	10.00 ug/L	
86-73-7	Fluorene			not detected	300	0.71	10.00 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.73	10.00 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.11	10.00 ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	10	0.62	10.00 ug/L	
103-33-3	Azobenzene			not detected	NLE	0.72	10.00 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.92	10.00 ug/L	
118-74-1	Hexachlorobenzene			not detected	0.02	0.95	10.00 ug/L	
85-01-8	Phenanthrene	1		not detected	NLE	0.81	10.00 ug/L	
120-12-7	Anthracene	1 1		not detected	2000	0.76	10.00 ug/L	
84-74-2	Di-n-butylphthalate			not detected	700	0.92	10.00 ug/L	
206-44-0	Fluoranthene	† †		not detected	300	0.82	10.00 ug/L	

Page 1 of 2

Semi-Volatile Analysis Report Page 2

Data File Name

BNA11471.D

Sample Name

MB-012706-01

Operator

BPatel

Misc Info

MB-012706-01

Date Acquired

30-Jan-06

Sample Multiplier

Regulatory

					Level				
CAS#	Name	R.T.	Response	Result	(ug/L)*	MDL	RL		Qualifiers
92-87-5	Benzidine			not detected	20	0.98	10.00	ug/L	
129-00-0	Pyrene			not detected	200	0.79	10.00	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	0.86	10.00	ug/L	
56-55-3	Benzo[a]anthracene			not detected	0.1	0.82	10.00	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	30	1.31	10.00	ug/L	
218-01-9	Chrysene			not detected	5	0.77	10.00	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	3	1.28	10.00	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.02	10.00	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	0.2	0.98	10.00	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	0.5	0.92	10.00	ug/L	
50-32-8	Benzo[a]pyrene			not detected	0.1	0.71	10.00	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	0.2	0.76	10.00	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	0.3	0.76	10.00	ug/L	
191-24-2	Benzo[g,h,i]perylene		J	not detected	NLE	0.80	10.00	ug/L	

^{*} Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E= Value Exceeds Linear Range

D= Value from dilution

MDL= Method Detection Limit

NLE= No Limit Established

R.T.=Retention Time

B= Compound in Related Blank RL= Reporting Limit. The values between the MDL and RL are considered estimated.

Page 2 of 2

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO	١
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Lab Name:	FMETL	,	L	ab Code 13	461	MB-0127	706-01
Project:	06-3488	80 Case No.: 6	30041	Location: 3	3216 S	DG No.:	
Matrix: (soil/	water)	WATER		Lab Sa	ample ID:	MB-012706-0	01
Sample wt/vo	ol:	1000 (g/ml)	ML	Lab Fi	le ID:	BNA11471.D)
Level: (low/r	ned)	LOW		Date F	Received:	1/23/2006	
% Moisture:		decanted: (Y/	/N) <u>N</u>	Date E	extracted:	1/27/2006	
Concentrated	d Extract	Volume: 1000 ((uL)	Date A	nalyzed:	1/30/2006	
Injection Volu	ume: <u>1.</u> (<u>0</u> (uL)		Dilutio	n Factor:	1.0	
GPC Cleanu	p: (Y/ N)	NpH:					
			C(ONCENTRA'	TION UNI	ΓS:	
Number TICs	s found:	0	(u	g/L or ug/Kg)	UG/I		
CAS NUME	3ER	COMPOUND NAM	ΙE	R	T ES	T. CONC.	Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File Name

BNA11476.D

Sample Name

6004105

Operator

BPatel

Misc Info

3216C-GW

Date Acquired

30-Jan-06

Sample Multiplier 1

Regulatory
T?

CAS#	Name	R.T.	Response	Result	Level (ug/L)*	MDL	RL	Qualifiers
110-86-1	Pyridine	1	***************************************	not detected	NLE	1.13	10.00 ug/L	- Quantiers
62-75-9	N-nitroso-dimethylamine			not detected	0.8	0.60	10.00 ug/L	
62-53-3	Aniline			not detected	6	2.38	10.00 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	7	0.71	10.00 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	1.02	10.00 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.99	10.00 ug/L	
100-51-6	Benzyl alcohol			not detected	2000	0.66	10.00 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.96	10.00 ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not detected	300	0.88	10.00 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	10	0.76	10.00 ug/L	
67-72-1	Hexachloroethane			not detected	7	0.96	10.00 ug/L	
98-95-3	Nitrobenzene			not detected	6	0.86	10.00 ug/L	
78-59-1	Isophorone			not detected	40	0.76	10.00 ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.79	10.00 ug/L	
120-82-1	1,2,4-Trichlorobenzene	,		not detected	9	0.89	10.00 ug/L	
91-20-3	Naphthalene			not detected	300	0.76	10.00 ug/L	
106-47-8	4-Chloroaniline			not detected	30	1.37	10.00 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	0.99	10.00 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1.01	10.00 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	40	0.92	10.00 ug/L	
91-58-7	2-Chloronaphthalene			not detected	600	0.72	10.00 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.77	10.00 ug/L	
131-11-3	Dimethylphthalate			not detected	NLE	0.78	10.00 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.67	10.00 ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	10	0.71	10.00 ug/L	, i
99-09-2	3-Nitroaniline			not detected	NLE	1.18	10.00 ug/L	
83-32-9	Acenaphthene			not detected	400	0.73	10.00 ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.69	10.00 ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.81	10.00 ug/L	
84-66-2	Diethylphthalate			not detected	6000	0.96	10.00 ug/L	
86-73-7	Fluorene			not detected	300	0.71	10.00 ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.73	10.00 ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	1.11	10.00 ug/L	
86-30-6	n-Nitrosodiphenylamine	<u> </u>		not detected	10	0.62	10.00 ug/L	
103-33-3	Azobenzene			not detected	NLE	0.72	10.00 ug/L	
101-55-3	4-Bromophenyl-phenylether	$\perp \perp \downarrow$		not detected	NLE	0.92	10.00 ug/L	
118-74-1	Hexachlorobenzene	<u> </u>		not detected	0.02	0.95	10.00 ug/L	
85-01-8	Phenanthrene			not detected	NLE	0.81	10.00 ug/L	
120-12-7	Anthracene			not detected	2000	0.76	10.00 ug/L	
84-74-2	Di-n-butylphthalate			not detected	700	0.92	10.00 ug/L	
206-44-0	Fluoranthene			not detected	300	0.82	10.00 ug/L	

Semi-Volatile Analysis Report Page 2

Data File Name

Operator

BNA11476.D

DIVITATIO

BPatel

Sample Name

6004105

Misc Info

3216C-GW

Date Acquired

30-Jan-06

Sample Multiplier

Regulatory	
Level	

					Level				
CAS#	Name	R.T.	Response	Result	(ug/L)*	MDL	RL		Qualifiers
92-87-5	Benzidine			not detected	20	0.98	10.00	ug/L	
129-00-0	Pyrene			not detected	200	0.79	10.00	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	0.86	10.00	ug/L	
56-55-3	Benzo[a]anthracene			not detected	0.1	0.82	10.00	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	30	1.31	10.00	ug/L	
218-01-9	Chrysene			not detected	5	0.77	10.00	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	3	1.28	10.00	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1.02	10.00	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	0.2	0.98	10.00	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	0.5	0.92	10.00	ug/L	
50-32-8	Benzo[a]pyrene			not detected	0.1	0.71	10.00	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	0.2	0.76	10.00	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	0.3	0.76	10.00	ug/L	
191-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.80	10.00	ug/L	

^{*} Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6 2-Sept-97

Qualifiers

E≔ Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

MDL= Method Detection Limit

NLE= No Limit Established

R.T.=Retention Time

RL= Reporting Limit. The values between the MDL and RL are considered estimated.

Page 2 of 2

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA	SAMPLE	NO.

Lab Name:	FMETL			Lab	Code 13461	3216C-	GW
Project:	06-3488	30 C	Case No.: 60041	L	ocation: 3216	SDG No.:	
Matrix: (soil/	water)	WATER			Lab Sample ID): <u>6004105</u>	
Sample wt/v	ol:	1000	(g/ml) ML		Lab File ID:	BNA11476.D	l <u> </u>
Level: (low/r	med)	LOW			Date Received	l: <u>1/23/2006</u>	· · · · · · · · · · · · · · · · · · ·
% Moisture:		de	ecanted: (Y/N)	N	Date Extracted	l: 1/27/2006	
Concentrate	d Extract	Volume:	1000 (uL)		Date Analyzed	: 1/30/2006	
Injection Vol	ume: 1.0	0(uL)			Dilution Factor	: 1.0	
GPC Cleanu	ıp: (Y/N)	N	_ pH:				
				CON	ICENTRATION UI	NITS:	
Number TIC	s found:	0		(ug/l	or ug/Kg) <u>U(</u>	G/L	
CAS NUME	BER	COMPC	OUND NAME		RT E	ST. CONC.	Q

TPHC

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

Client:

U.S. Army

Project #:

60041

DPW. SELFM-PW-EV

Location: UST Reg. #: Bldg. 3216

Bldg. 173

Ft. Monmouth, NJ 07703

06-34880

Analysis:

OQA-QAM-025

Date Received:

23-Jan-06

Matrix:

26-Jan-06

Soil

Date Extracted:

Inst. ID. :

GC TPHC INST. #1

Extraction Method:

Shake

Column Type:

RTX-5, 0.32mm ID, 30M

Analysis Complete:

30-Jan-06 B.Patel

Injection Volume:

Analyst:

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL	TPHC Result (mg/kg)
6004101	3216E	1.00	15.12	75.90	84	436	ND
6004102	3216C	1.00	15.29	82.66	76	396	ND
6004103	Dupe.	1.00	15.23	79.32	80	414	ND
6004104	3216W	1.00	15.31	74.40	85	439	ND
METHOD BLANK	MB-012606-01	1.00	15.00	100.00	64	333	ND

ND = Not Detected

MDL = Method Detection Limit

RL = Reporting Limits

Note: The TPHC result between the MDL and RL are considered an estimated value

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

The following Laboratory Deliverables Checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete data packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package <u>and</u> in the main body of the report.

1.	Cover Page, Title Page listing Lab Certification #, facility name and address, & date of report submitted.
2.	Table of Contents submitted.
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted.
4.	Document paginated and legible.
5.	Chain of Custody submitted.
3.	Samples submitted to lab within 48 hours of sample collection.
7.	Methodology Summary submitted.
3.	Laboratory Chronicle and Holding Time Check submitted.
9.	Results submitted on a dry weight basis.
10.	Method Detection Limits submitted.
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP.
	Laboratory Manager or Environmental Consultant's Signature
	Laboratory Certification # 13461
	*Refer to NJAC 7:26E – Appendix A, Section IV – Reduced Data Deliverables – Non-USEPA/CLP Methods for further guidance.

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.

Daniel K. Wright Laboratory Manager