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

29 May 2018

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

SUBJECT: Request for Unrestricted Use, No Further Action Approval
UST 482 Site Investigation Report
Fort Monmouth, Monmouth County, Oceanport, New Jersey
PI G000000032

Dear Mr. Joshi:

The U.S. Army Fort Monmouth (FTMM) Team has reviewed and summarized previous investigations conducted at the former Underground Storage Tank (UST) 482 within Parcel 83. This site investigation (SI) report provides an overview of historical information, and the results of recent field investigations between November 2017 and January 2018.

1.0 OBJECTIVES

Groundwater and soil sampling was conducted in 2017 and 2018 to investigate the field observations of possible fuel oil contamination at the UST 482 area (**Attachment A, Reference 2**). Proposed field investigation activities were documented in the *Letter Work Plan Addendum for UST 482 Area* approved by the NJDEP in August 2017 (**Attachment A, Reference 1**).

2.0 SITE DESCRIPTION

UST 482 was a 1,000-gallon steel No. 2 fuel oil UST (Registration ID No. 90010-54) that was removed in August 1994. The former location of UST 482 is shown on **Figure 1**. Staining was observed in soil surrounding the UST and sheen was observed on groundwater in the excavation. NJDEP was contacted and Spill Case No. 94-08-11-1354-43 was assigned. Approximately 80 cubic yards of visually contaminated soil were removed between August and September 1994 and soil sampling was completed after each excavation. Samples were analyzed for Total Petroleum Hydrocarbons (TPH). The limit of excavation is shown on **Figure 2**.

Groundwater sampling was conducted in August 1995 at two monitoring wells and samples were analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). All analytical results were below the NJDEP Ground Water Quality Criteria (GWQC). Seven additional soil locations were sampled and analyzed for TPH and VOCs in 2002. All samples were below the NJDEP soil standards in effect at the time. An NFA determination was approved by the NJDEP for UST 482 in January 2003 (**Attachment A, Reference 5**).

2.1 Site Land Use

Former UST 482 was located near Building 482 within Parcel 83 of the Main Post (MP). UST 482 is surrounded by Building 482 to the west and south, the installation boundary to the north, and grassy areas to the east. Train tracks are located to the north of the UST off the installation. Future land use is designated as open space according to the FTMM Reuse and Redevelopment Plan (EDAW, 2008).

2.2 Site Geology and Hydrogeology

The Hornerstown Formation underlies much of the MP including the UST 482 area and is approximately 25 to 30 feet thick based on other MP soil borings. This formation is distinguished by varying proportions of glauconitic clay, silty clay, and minor sand. The Tinton Formation underlies the Hornerstown Formation and consists of dense fine sand and trace silt, glauconite, and clay.

Soil encountered in borings at UST 482 were primarily dense, moist, green-brown sand with some silt and traces of clayey silt. Deeper soils below approximately six feet (ft) typically consisted of looser, dark gray-green-olive silty sand and clays as well as reddish-brown sandy silt. Nearly all borings had petroleum odors and a few had visibly stained soil. Soil borings logs are provided in **Attachment B**. The depth to groundwater at UST 482 is approximately 3 ft below ground surface (bgs) (**Table 1**). Groundwater is typically encountered in the gray and green sandy silty clay and flows northeast (**Figure 2).**

3.0 PREVIOUS INVESTIGATIONS

UST 482 was removed on 11 August 1994. Although no pitting or holes were observed, staining was noted in the soil surrounding the UST and a sheen was observed on groundwater as reported in the *Underground Storage Tank Closure and Removal Investigation Report* (**Attachment A, Reference 6**). Approximately 50 cubic yards of visually contaminated soil was removed on 11 and 12 August 1994. During the UST removal and soil excavation, remnants of a septic/wastewater system (concrete pit) was discovered. Several rounds of soil excavation and sampling were conducted:

- Post-excavation soil samples A through I were collected on 12 August 1994 from within the excavation and analyzed for TPH (Figure 4 of **Attachment A, Reference 4**). The soil TPH results ranged from 41 milligrams/kilogram (mg/kg) to 1,910 mg/kg.
- On 26 August 1994, an additional 10 cubic yards of soil was removed at three soil sample locations (C, H, and I) that had elevated concentrations of TPH. Post-excavation samples were collected from the new extent of excavation at the three locations, and results ranged from 710 mg/kg to 29,400 mg/kg.
- On 6 September 1994, an additional 20 cubic yards of soil was removed at sample location C. Another post-excavation sample was collected at location C and the TPH concentration was 14,100 mg/kg.
- An additional seven locations were sampled and analyzed for TPH and VOCs on 2 February 2002. VOCs were not detected and TPH concentrations for all post-excavation soil samples ranged from not detected (ND) to 2,689 mg/kg which was below the then current clean-up criteria of 10,000 mg/kg.

Because sheen was observed on groundwater during the UST removal, two monitoring wells 482MW01 and 482MW02) were installed in 1995 downgradient of the tank excavation. Samples were collected in November and December 1995 and analyzed for VOCs and SVOCs. All results were less

than the NJDEP GWQC. Based on the groundwater sampling results and the post-excavation soil results, the UST 482 site was approved for NFA by the NJDEP in a letter dated January 2003 and both monitoring wells were removed and properly abandoned.

Additional soil and groundwater sampling was completed in August 2010 to determine if the former septic/wastewater system impacted soil and groundwater in the vicinity of UST 482. One soil boring (482SB-1) was advanced to approximately 5 feet below grade and soil was sampled within six inches of the groundwater. Boring 482SB-1 was then converted into a temporary well point and a groundwater sample was collected. All samples were analyzed for VOCs plus tentatively identified compounds (TICs), SVOCs plus TICs, metals, pesticides, PCBs, and cyanide. The analytical results as previously reported are provided in **Attachment A, Reference 4** and were generally consistent with the fuel oil investigation results reported below.

NJDEP requested clarification on former UST 482 in 2015 (see **Attachment A, Reference 3)** and commented that the NFA designation in January 2003 was not appropriate for soil TPH concentrations of 29,400 mg/kg as reported in the second bullet above and in **Attachment A, Reference 4**.

4.0 SITE INVESTIGATION RESULTS

During field sampling in April 2016, observations of elevated photoionization detector (PID) readings were noted on the field log for soil boring FTMM-83-SS-12 (also designated as FTMM-83-SB-12). Field personnel also noted a sheen on groundwater and odors consistent with fuel oil. These observations and NJDEP's 2015 comments led to additional soil and groundwater sampling in 2017 and 2018 (**Attachment A, Reference 2**). Boring logs and field notes are provided in **Attachments B and C**. Analytical results were compared to applicable NJDEP criteria in accordance with guidance for No. 2 fuel oil petroleum hydrocarbon mixtures (NJDEP, 2010 and Table 2-1 of NJDEP, 2012).

4.1 Groundwater Results

Two permanent monitor wells were installed to a depth of 13 ft bgs based on the analytical data from two temporary wells. Groundwater samples were analyzed for VOCs plus TICs and SVOCs plus TICs in accordance with NJDEP requirements for No. 2 fuel oil. Recent groundwater analytical results for temporary monitoring wells are shown on **Table 2** and **Figure 3** and for permanent monitoring wells on **Table 3** and **Figure 4** for the following wells:

- Temporary well PAR-83-482-TMW-01 sampled November 2017,
- Temporary well PAR-83-482-TMW-03 sampled November 2017,
- New permanent well PAR-83-482-MW-01 sampled January 2018, and
- New permanent well PAR-83-482-MW-02 sampled January 2018.

4.1.1 Exceedances of NJDEP Comparison Criteria

Exceedances of the NJDEP GWQC occurred at both temporary wells during the 2017 sampling (see **Figure 3** and **Table 2**).

- Temporary well PAR-83-482-TMW-01, located at soil boring PAR-83-482-SB-01:
    - 2-methylnapthalene concentration of 715 µg/L exceeded the NJDEP GWQC of 30 µg/L
    - phenanthrene concentration of 111 µg/L exceeded the NJDEP GWQC of 100 µg/L

    - total SVOC TICs concentration of 1,175.3 µg/L exceeded the NJDEP GWQC of 500 µg/L
- Temporary well PAR-68-TMW-03, located at soil boring PAR-83-482-SB-03:
    - benzo(a)anthracene concentration of 24.7 µg/L exceeded the NJDEP GWQC of 0.1 µg/L
    - benzo(a)pyrene concentration of 27.5 µg/L exceeded the NJDEP GWQC of 0.1 µg/L
    - benzo(b)fluoranthene concentration of 40.9 µg/L exceeded the NJDEP GWQC of 0.2 µg/L
    - benzo(k)fluoranthene concentration of 15.7 µg/L exceeded the NJDEP GWQC of 0.5 µg/L
    - chrysene concentration of 29.2 µg/L exceeded the NJDEP GWQC of 5 µg/L.
    - dibenz(a,h)anthracene concentration of 5.3 µg/L exceeded the NJDEP GWQC of 0.3 µg/L.
    - indeno(1,2,3-cd)pyrene concentration of 21.5 µg/L exceeded the NJDEP GWQC of 0.2 µg/L.
    - total SVOC TICs concentration of 1,700.5 µg/L exceeded the NJDEP GWQC of 500 µg/L.

There were no exceedances of the NJDEP GWQC at either of the two permanent wells during the 2018 sampling (see **Figure 4 and Table 3**).

4.1.2 Significance of Groundwater Results

Multiple SVOCs were detected at concentrations above their GWQC within two temporary wells (PAR-83-482-TMW-01 and PAR-83-482-TMW-03) in November 2017. However, there were no exceedances of the GWQC in the two permanent wells (PAR-83-482-MW-01 and PAR-83-482-MW-02) that were installed at the temporary well locations and subsequently sampled in 2018. In comparison to temporary well results, the results from the permanent wells are much more representative of groundwater conditions because the permanent wells are developed and purged prior to low flow groundwater sampling. Based on this information, additional monitoring or remediation of groundwater is not warranted at former UST 482.

4.2 Soil Results

Four soil borings (PAR-83-482-SB-01 to PAR-83-482-SB-04) were advanced on 13 November 2017 and three soil samples per boring were collected from the former UST 482 tank area. The locations of the soil samples are shown on **Figure 5**. Soil samples were analyzed for total extractable petroleum hydrocarbons (EPH). One sample from PAR-83-482-SB-04 (soil boring) had the highest EPH concentration and so contingency analyses were performed for 2-methylnapthalene and naphthalene (**Table 4**); 2-methylnaphthalene was detected as discussed in Section 4.2.1 below.

4.2.1 Exceedances of NJDEP Comparison Criteria

There were no exceedances of the EPH remedial goal of 5,100 mg/kg or the NJDEP residential direct contact soil remediation standard (RDCSRS) for 2-methylnapthalene and naphthalene. Exceedance of the NJDEP Impact to Groundwater Soil Screening Level (IGW SSL) was identified in one sample collected from one soil boring (PAR-83-482-SB-04) during the 2017 sampling (see **Figure 5** and **Table**

4). The sample was collected from the 3 to 3.5 ft interval and had a 2-methylnaphthalene concentration of 32.2 mg/kg which exceeded the NJDEP IGW SSL of 8 mg/kg. This was the only sample analyzed for the contingency SVOC 2-methylnaphthalene based on the highest associated EPH concentration from all 12 soil samples collected from the UST 482 area.

4.2.2 Significance of Soil Results

There were no exceedances of the EPH remedial goal or RDCSRSs. Concentrations of 2-methylnapthalene exceeded the NJDEP IGW SSL in soil boring PAR-83-482-SB-04. However, there were no 2-methylnapthalene exceedances in the groundwater samples collected from either of the two permanent monitor wells indicating that 2-methylnaphthalene in soil is not impacting groundwater. Based on this information, additional characterization or remediation of soil is not warranted at former UST 482.

5.0 SUMMARY AND RECOMMENDATIONS

The field and analytical results indicate constituents of fuel oil are/were detected in soil and groundwater. However, there were no exceedances of the EPH remedial goal or RDCSRS in soil and no GWQC exceedances in samples collected from the permanent wells. Given the results of the investigation, an Unrestricted Use, NFA determination is requested for former UST 482.

Thank you for reviewing this request; we look forward to your approval and/or comments. Our technical Point of Contact is Kent Friesen at (732) 383-7201; kent.friesen@parsons.com. I can be reached at (732) 380-7064; william.r.colvin18.civ@mail.mil.

Sincerely,

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

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

Attachments:

Figure 1 – UST 482 Site Location
Figure 2 – UST 482 Groundwater Contours – January 15, 2018
Figure 3 – UST 482 Site Layout, Temporary Monitoring Well Groundwater Sampling Locations, and Results
Figure 4 – UST 482 Site Layout, Permanent Monitoring Well Groundwater Sampling Locations, and Results
Figure 5 – UST 482 Soil Sampling Locations and Results

Table 1 - Groundwater Gauging Data and Elevations (January 15, 2018)
Table 2 – Temporary Monitoring Well Ground Water Sampling Results – Comparison to NJDEP Ground Water Quality Criteria
Table 3 – Permanent Monitoring Well Ground Water Sampling Results – Comparison to NJDEP Ground Water Quality Criteria
Table 4 – Soil Sampling Results – Comparison to NJDEP Soil Remediation Standards

Attachment A – Correspondence and Historical Information
Attachment B – Soil Boring Logs and Well Construction Details
Attachment C – Field Notes

REFERENCES CITED:

EDAW, Inc., 2008. *Fort Monmouth Reuse and Redevelopment Plan, Final Plan.* Prepared for Fort Monmouth Economic Revitalization Planning Authority. August 22.

NJDEP. 2010. *Protocol for Addressing Extractable Petroleum Hydrocarbons*. Site Remediation Program. Version 5.0, August 9.

NJDEP. 2012. *New Jersey Administrative Code (NJAC) 7:26E, Technical Requirements for Site Remediation.* Last amended May 7, 2012.

New Jersey Department of Environmental Protection
Site Remediation Program

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

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

Document:

- "Request for Unrestricted Use, No Further Action Approval, UST 482 Site Investigation Report, Fort Monmouth, Monmouth County, Oceanport, New Jersey" (29 May 2018)

PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: William R. Colvin
Representative First Name: William Representative Last Name: Colvin
Title: Fort Monmouth BRAC Environmental Coordinator (BEC)
Phone Number: (732) 380-7064 Ext: Fax:
Mailing Address: P.O. Box 148
City/Town: Oceanport State: NJ Zip Code: 07757
Email Address: william.r.colvin18.civ@mail.mil

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

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

Signature: William R Colvin Date: 29 May 2018

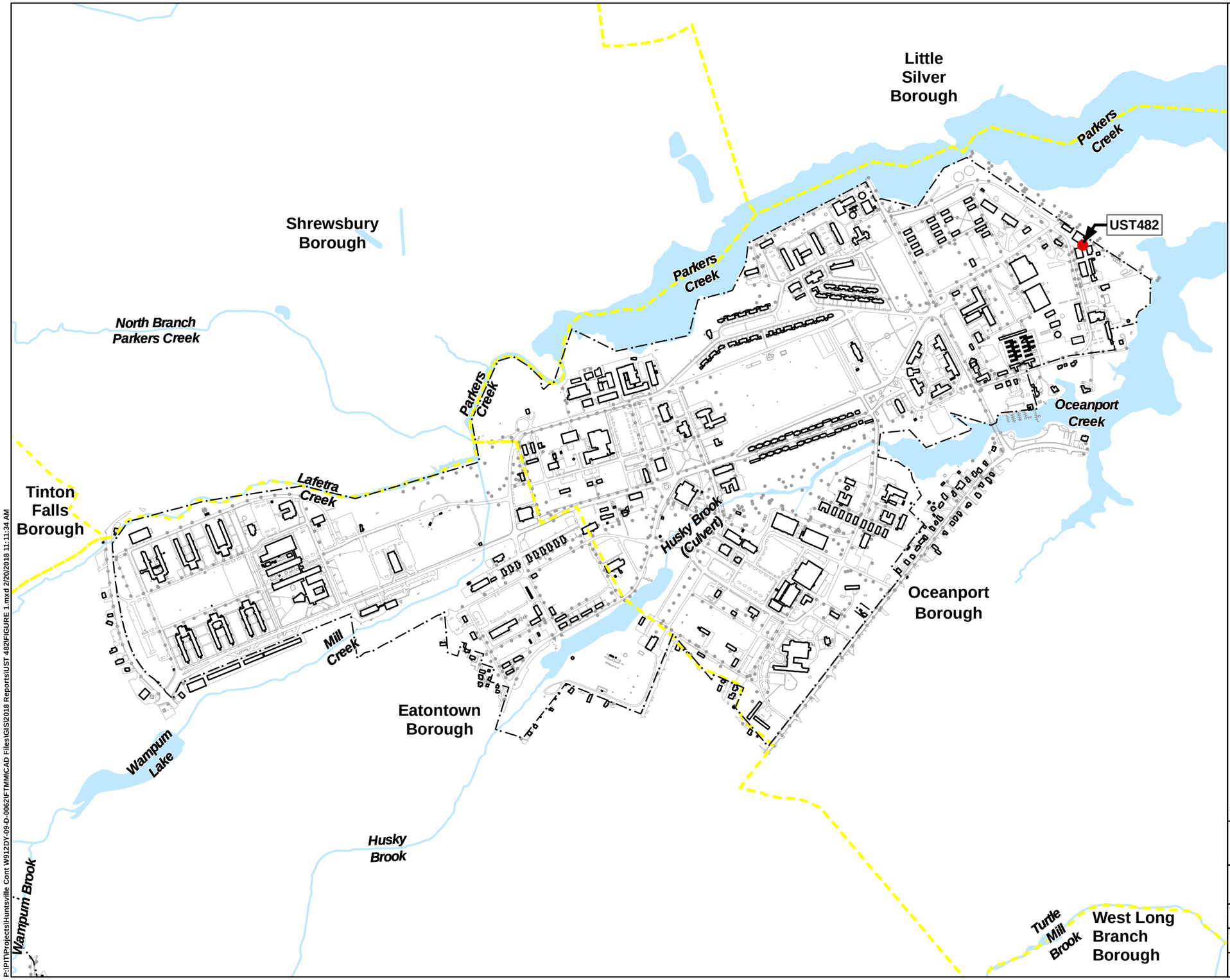
Name/Title: William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator

Completed form should be sent to:

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

Figures

Figure 1 – UST 482 Site Location
Figure 2 – UST 482 Groundwater Contours – January 15, 2018
Figure 3 – UST 482 Site Layout, Temporary Monitoring Well Groundwater Sampling Locations, and Results
Figure 4 – UST 482 Site Layout, Permanent Monitoring Well Groundwater Sampling Locations, and Results
Figure 5 – UST 482 Soil Sampling Locations and Results



LEGEND:

- UHOT Location
- Installation Boundary
- Municipal Boundary
- Surface Water Feature

N

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

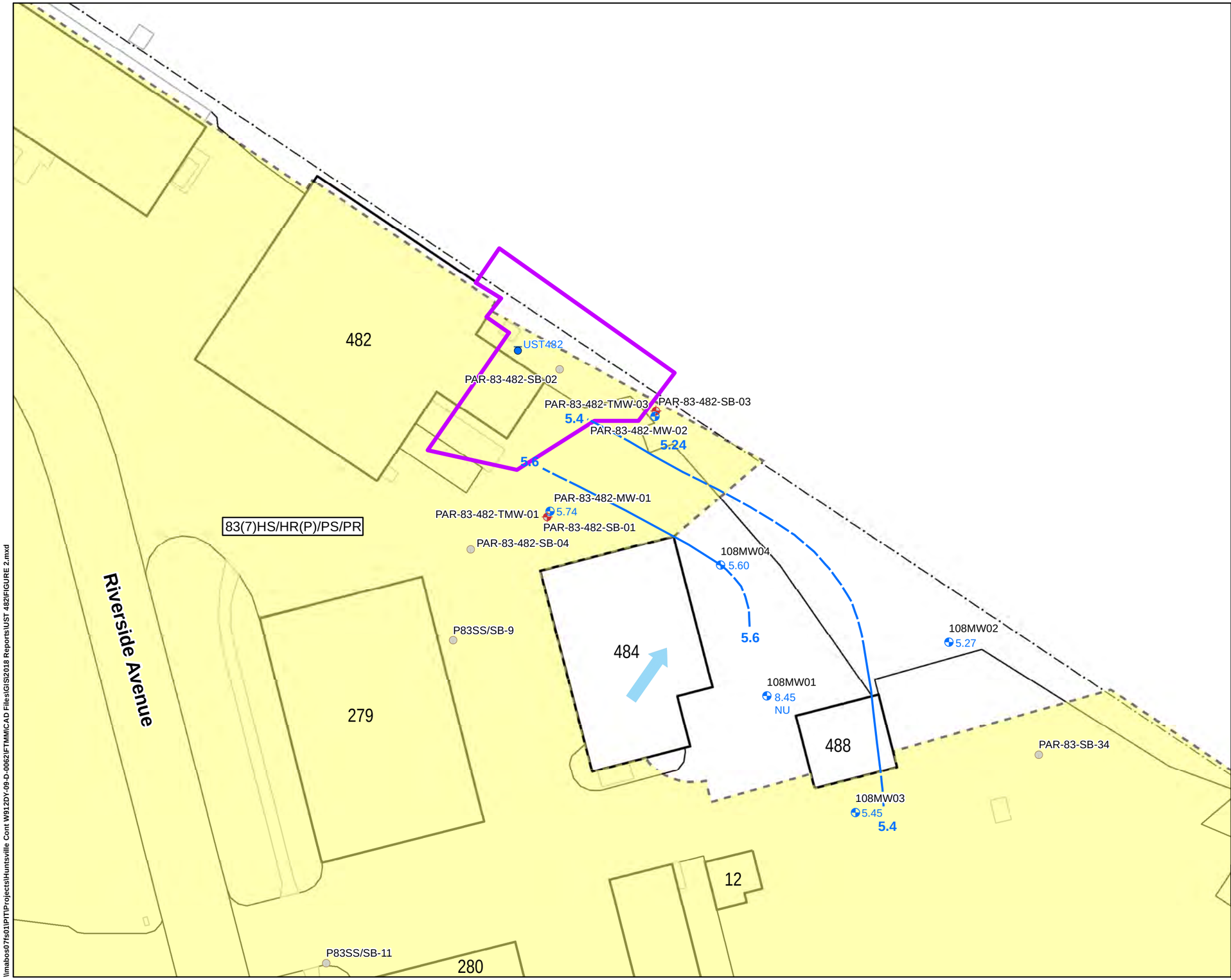
Source: FTMM Supplied CAD, 2013; ESRI Data and Maps, 2011; USGS NHD, 2012.

PARSONS 401 Diamond Drive NW, Huntsville AL	**Fort Monmouth** **New Jersey**

UST482 SITE LOCATION

CREATED BY: RR	REVIEWED BY: JC
DATE: FEB. 2018	FIGURE NUMBER: FIGURE 1
PROJECT NUMBER: 748810-02130	FILE: FIGURE 1.mxd

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\2018 Reports\UST 482\FIGURE 1.mxd 2/20/2018 11:11:34 AM



\\mabos07fs01\PITProjects\Huntsville Cont W912DY-09-D-0062\FTMMICAD Files\GIS\2018 Reports\UST 482\FIGURE 2.mxd

LEGEND:

- Temporary Monitoring Well
- Soil Boring
- Former UST 482 Location
- Shallow Monitoring Well
- Approximate Limit Soil Excavation
- Parcel 83 Boundary
- Surface Water Feature
- Installation Boundary
- Generalized Groundwater Flow
- Potentiometric Surface Elevation
- Inferred Potentiometric Surface Elevation
- 8.57 — Groundwater Elevation Recorded on January 15, 2018 (NAD88) (ft.)
- NA — Unavailable

BRAC Parcel Label Definitions

8(2)PS
- Contaminant Description
  - HS – Hazardous Substance Storage
  - HR – Hazardous Substance Release
  - PS – Petroleum Storage
  - PR – Petroleum Release
  - (P) – Possible Release or Disposal
- Category Number
- Parcel Number

N

1 inch = 40 feet

0 20 40 80 Feet

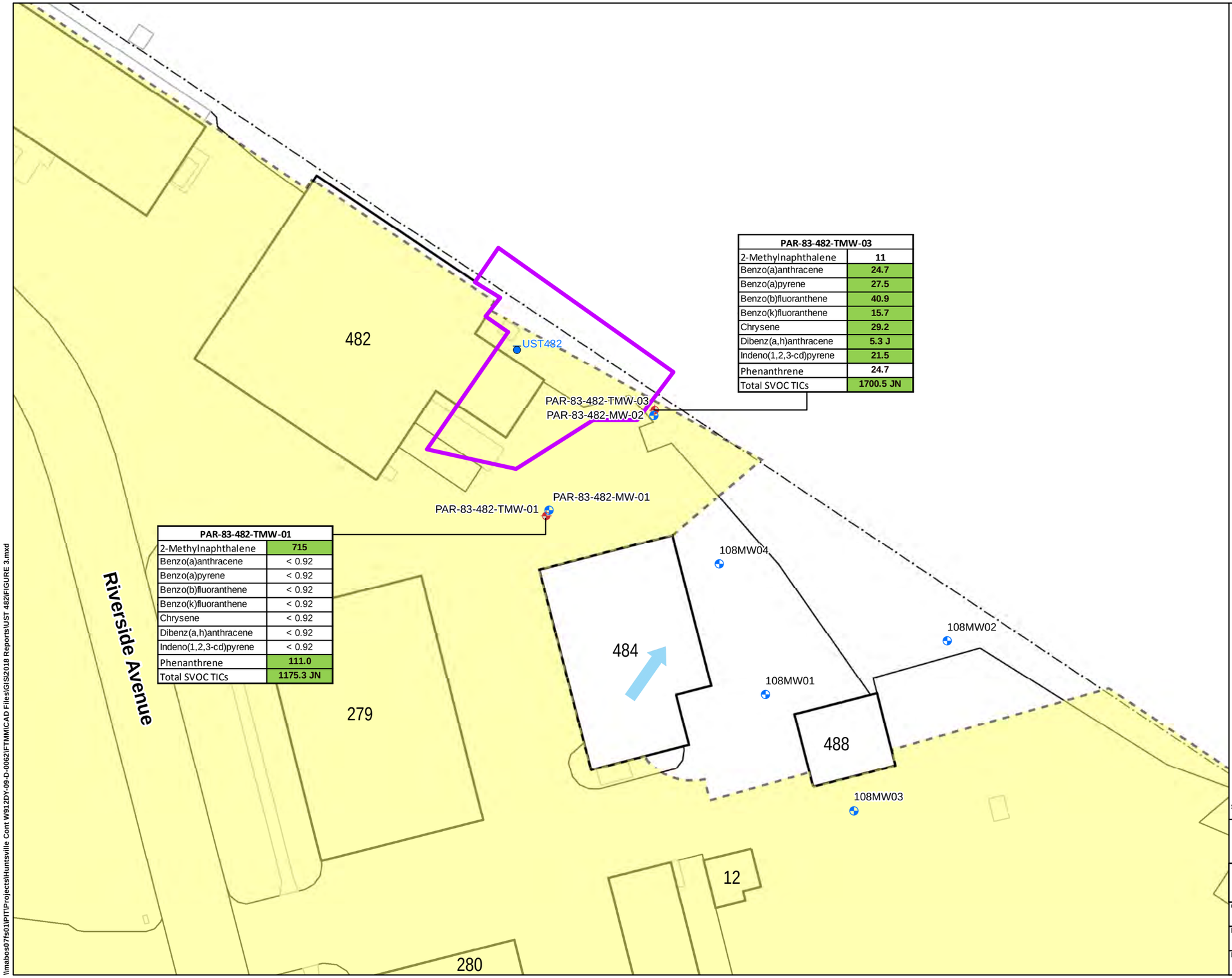
Source: FTMM Supplied CAD; Shaw Environmental 2008.

PARSONS
401 Diamond Drive NW,
Huntsville AL

Fort Monmouth
New Jersey

UST 482 GROUNDWATER CONTOURS - JANUARY 15, 2018

CREATED BY: RR	REVIEWED BY: JC
DATE: MAY. 2018	FIGURE NUMBER: FIGURE 2
PROJECT NUMBER: 748810-01000	FILE: FIGURE 2.mxd



PAR-83-482-TMW-03	
2-Methylnaphthalene	11
Benzo(a)anthracene	24.7
Benzo(a)pyrene	27.5
Benzo(b)fluoranthene	40.9
Benzo(k)fluoranthene	15.7
Chrysene	29.2
Dibenz(a,h)anthracene	5.3 J
Indeno(1,2,3-cd)pyrene	21.5
Phenanthrene	24.7
Total SVOC TICs	1700.5 JN

PAR-83-482-TMW-01	
2-Methylnaphthalene	715
Benzo(a)anthracene	< 0.92
Benzo(a)pyrene	< 0.92
Benzo(b)fluoranthene	< 0.92
Benzo(k)fluoranthene	< 0.92
Chrysene	< 0.92
Dibenz(a,h)anthracene	< 0.92
Indeno(1,2,3-cd)pyrene	< 0.92
Phenanthrene	111.0
Total SVOC TICs	1175.3 JN

LEGEND:

- Temporary Monitoring Well
- Former UST 482 Location
- Shallow Monitoring Well
- Approximate Limit Soil Excavation
- Parcel 83 Boundary
- Surface Water Feature
- Installation Boundary
- Generalized Groundwater Flow Direction

NOTE:
1. Green shading represents a result that is above the NJDEP GWQC.
2. Results are in micrograms per liter (µg/l).

Analyte	NJDEP GWQC
2-Methylnaphthalene	30
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Benzo(b)fluoranthene	0.2
Benzo(k)fluoranthene	0.5
Chrysene	5
Dibenz(a,h)anthracene	0.3
Indeno(1,2,3-cd)pyrene	0.2
Phenanthrene	100
Total SVOC TICs	500

N

1 inch = 40 feet

0 20 40 80 Feet

Source: FTMM Supplied CAD; Shaw Environmental 2008.

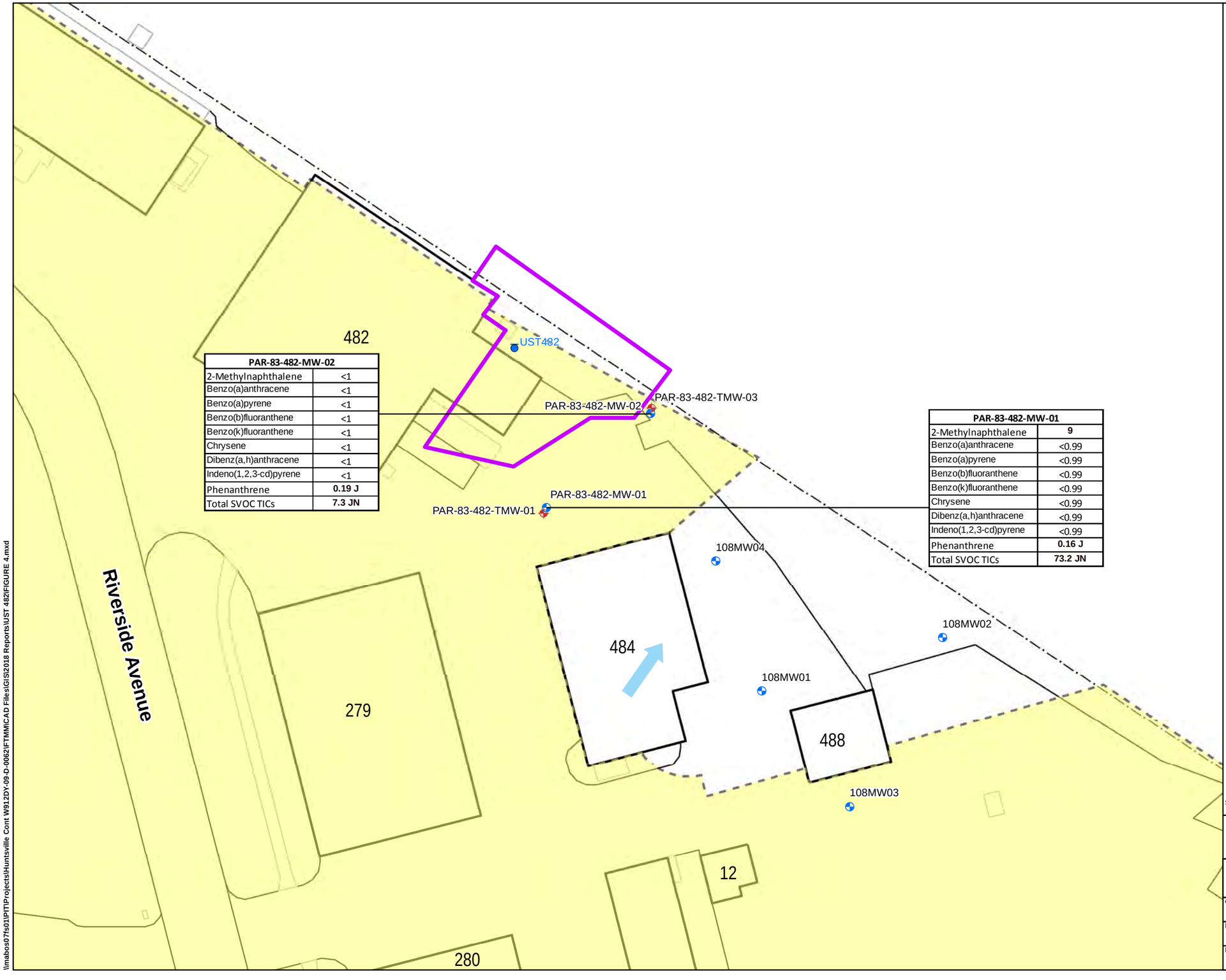
PARSONS
401 Diamond Drive NW,
Huntsville AL

Fort Monmouth
New Jersey

UST 482 SITE LAYOUT, TEMPORARY GROUNDWATER SAMPLING LOCATIONS, AND RESULTS

CREATED BY:	REVIEWED BY:
RR	JC
DATE:	FIGURE NUMBER:
MAY. 2018	FIGURE 3
PROJECT NUMBER:	FILE:
748810-01000	FIGURE 3.mxd

\\nabos07fs01\PITProjects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\2018 Reports\UST 482\FIGURE 3.mxd



PAR-83-482-MW-02	
2-Methylnaphthalene	<1
Benzo(a)anthracene	<1
Benzo(a)pyrene	<1
Benzo(b)fluoranthene	<1
Benzo(k)fluoranthene	<1
Chrysene	<1
Dibenz(a,h)anthracene	<1
Indeno(1,2,3-cd)pyrene	<1
Phenanthrene	**0.19 J**
Total SVOC TICs	**7.3 JN**

PAR-83-482-MW-01	
2-Methylnaphthalene	**9**
Benzo(a)anthracene	<0.99
Benzo(a)pyrene	<0.99
Benzo(b)fluoranthene	<0.99
Benzo(k)fluoranthene	<0.99
Chrysene	<0.99
Dibenz(a,h)anthracene	<0.99
Indeno(1,2,3-cd)pyrene	<0.99
Phenanthrene	**0.16 J**
Total SVOC TICs	**73.2 JN**

LEGEND:

- Temporary Monitoring Well
- Former UST 482 Location
- Shallow Monitoring Well
- Approximate Limit Soil Excavation
- Parcel 83 Boundary
- Surface Water Feature
- Installation Boundary
- Generalized Groundwater Flow Direction

NOTE:
1. Green shading represents a result that is above the NJDEP GWQC.
2. Results are in micrograms per liter (µg/l).

Analyte	NJDEP GWQC
2-Methylnaphthalene	30
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Benzo(b)fluoranthene	0.2
Benzo(k)fluoranthene	0.5
Chrysene	5
Dibenz(a,h)anthracene	0.3
Indeno(1,2,3-cd)pyrene	0.2
Phenanthrene	100
Total SVOC TICs	500

N

1 inch = 40 feet

0 20 40 80 Feet

Source: FTMM Supplied CAD; Shaw Environmental 2008.

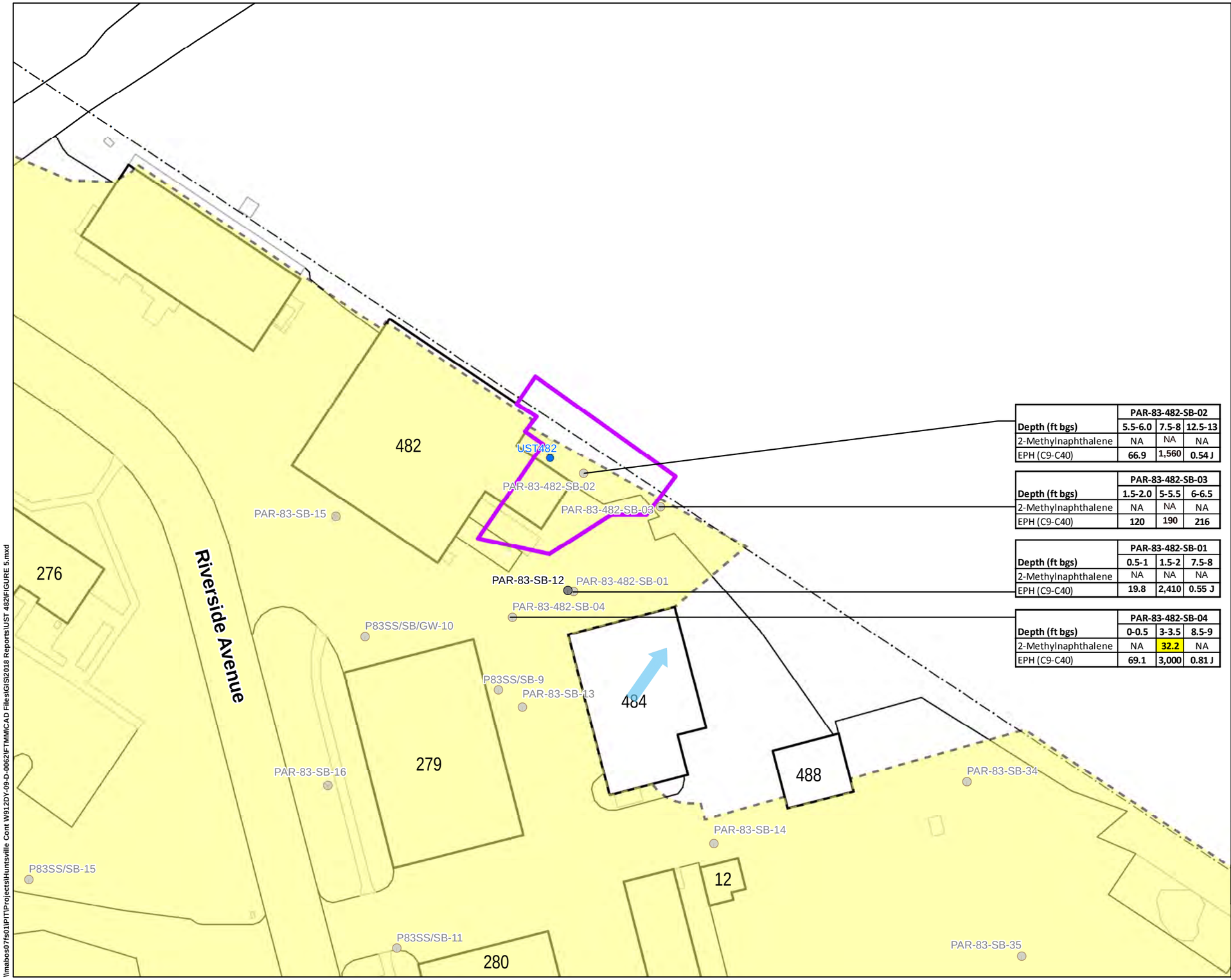
PARSONS
401 Diamond Drive NW, Huntsville AL

Fort Monmouth New Jersey

UST 482 SITE LAYOUT PERMANENT GROUNDWATER SAMPLING LOCATIONS, AND RESULTS

CREATED BY:	REVIEWED BY:
RR	JC
DATE:	FIGURE NUMBER:
MAY. 2018	FIGURE 4
PROJECT NUMBER:	FILE:
748810-01000	FIGURE 4.mxd

\\mabos07fs01\PITIProjects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\2018 Reports\UST 482\FIGURE 4.mxd



	PAR-83-482-SB-02		
Depth (ft bgs)	5.5-6.0	7.5-8	12.5-13
2-Methylnaphthalene	NA	NA	NA
EPH (C9-C40)	**66.9**	**1,560**	**0.54 J**

	PAR-83-482-SB-03		
Depth (ft bgs)	1.5-2.0	5-5.5	6-6.5
2-Methylnaphthalene	NA	NA	NA
EPH (C9-C40)	**120**	**190**	**216**

	PAR-83-482-SB-01		
Depth (ft bgs)	0.5-1	1.5-2	7.5-8
2-Methylnaphthalene	NA	NA	NA
EPH (C9-C40)	**19.8**	**2,410**	**0.55 J**

	PAR-83-482-SB-04		
Depth (ft bgs)	0-0.5	3-3.5	8.5-9
2-Methylnaphthalene	NA	**32.2**	NA
EPH (C9-C40)	**69.1**	**3,000**	**0.81 J**

LEGEND:

- Soil Boring
- Former UST 482 Location
- Approximate Limit Soil Excavation
- Parcel 83 Boundary
- Surface Water Feature
- Installation Boundary
- Generalized Groundwater Flow Direction

NOTE:
1. Green shading represents a result that is above the NJDEP RDCSRS.
2. Yellow shading represents a result that is above the NJDEP IGW SSL.
3. Results are in milligrams per kilogram (mg/kg).

Analyte	NJDEP RDCSRS	NJDEP IGW Soil Screening Level
2-Methylnaphthalene	230	8
EPH (C9-C40)	5,100	NLE

N

1 inch = 50 feet

0 25 50 100 Feet

Source: FTMM Supplied CAD; Shaw Environmental 2008.

PARSONS
401 Diamond Drive NW, Huntsville AL

Fort Monmouth New Jersey

UST 482 SOIL SAMPLING LOCATIONS, AND RESULTS

CREATED BY:	REVIEWED BY:
RR	JC
DATE: MAY. 2018	FIGURE NUMBER: FIGURE 5
PROJECT NUMBER: 748810-01000	FILE: FIGURE 5.mxd

\\mabos07fs01\PITProjects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\2018 Reports\UST 482\FIGURE 5.mxd

Tables

Table 1 - Groundwater Gauging Data and Elevations (January 15, 2018)
Table 2 – Temporary Monitoring Well Ground Water Sampling Results – Comparison to NJDEP Ground Water Quality Criteria
Table 3 – Permanent Monitoring Well Ground Water Sampling Results – Comparison to NJDEP Ground Water Quality Criteria
Table 4 – Soil Sampling Results – Comparison to NJDEP Soil Remediation Standards

Table 1
Groundwater Gauging Data and Elevations (January 15, 2018)
Parcel 83 UST 482
Fort Monmouth, New Jersey

Site	Well Permit #	Y Coord. (North)	X Coord. (East)	Installation Date	Depth	Well Riser Pipe Casing Length	Well Screen Length	Top of PVC Well Casing (elevation)	Slot Size	Flush Mount or Stick-Up Protective Casing (FM or SU)	Protective Casing Elevation	Ground Surface Elevation	Gauge Time	Gauged Depth to Water	Gauged Depth to Bottom	Calculated Groundwater Elevation	Sampling Date
					(ft.)				inches					(ft. TOC)	(ft. TOC)	(ft.)	
PAR-83-482-MW-01	E201713797	541760	623636.9	12/18/2017	12.00	2.00	10.00	8.23	0.01	FM	8.57	8.54	9:37	2.49	11.67	5.74	1/19/2018
PAR-83-482-MW-02	E201713807	541799	623680	12/18/2017	12.00	2.00	10.00	11.45	0.01	SU	12.18	8.50	9:39	6.18	15.28	5.27	1/19/2018
108MW01	29-29739	541684.193	623725.940	6/13/1993	13.00	3.00	10.00	**10.76**	0.01	FM	N/A	N/A	9:54	2.31	9.9	8.45	NS
108MW02	29-29740	541706.213	623800.791	6/14/1993	13.00	3.00	10.00	**9.80**	0.01	SU	N/A	N/A	9:47	4.80	5.4	5.00	NS
108MW03	29-29741	541636.381	623762.373	6/13/1993	13.00	3.00	10.00	**7.07**	0.01	FM	N/A	N/A	9:48	1.62	10.7	5.45	NS
108MW04	29-33762	541737.886	623706.931	8/16/1995	12.00	2.00	10.00	8.40	0.02	FM	N/A	N/A	9:45	2.80	12.15	5.60	NS

Notes:

- The synoptic round of water levels in the wells was collected on January 15, 2018.
- Well information were provided by FTMM for all wells installed before June 2013.
- ft = feet
- TOC = Top of Casing
- Elevation = feet above mean sea level
- N/A = information not available
- NS = Not Sampled
- **Bolded** top of casing elevations represent a mathematical adjustment between earlier NAD systems and the NAD 88 spatial system: the wells were reduced 1.09 feet to reflect the changes in the NAD systems.

TABLE 2
TEMPORARY MONITORING WELL GROUND WATER SAMPLING RESULTS - COMPARISON TO NJDEP GWQC
SITE UST 482
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	PAR-83-482-TMW-01		PAR-83-482-TMW-03	
Sample ID		PAR-83-482-TMW-01-6		PAR-83-482-TMW-03-6	
Sample Date		11/13/2017		11/13/2017	
Sample Round					
Filtered		Total		Total	
Volatile Organic Compounds (µg/l)					
1,1,1,2-Tetrachloroethane	1	< 3.8		< 3.8	
1,1,1-Trichloroethane	30	< 3.8		< 3.8	
1,1,2,2-Tetrachloroethane	1	< 3.8		< 3.8	
1,1,2-Trichloroethane	3	< 3.8		< 3.8	
1,1-Dichloroethane	50	< 3.8		< 3.8	
1,1-Dichloroethene	1	< 3.8		< 3.8	
1,1-Dichloropropene	100	< 3.8		< 3.8	
1,2,3-Trichlorobenzene	100	< 3.8		< 3.8	
1,2,3-Trichloropropane	0.03	< 12.5		< 12.5	
1,2,4-Trichlorobenzene	9	< 3.8		< 3.8	
1,2,4-Trimethylbenzene	100	< 3.8		< 3.8	
1,2-Dibromo-3-chloropropane	0.02	< 12.5		< 12.5	
1,2-Dibromoethane	0.03	< 3.8		< 3.8	
1,2-Dichlorobenzene	600	< 3.8		< 3.8	
1,2-Dichloroethane	2	< 3.8		< 3.8	
1,2-Dichloropropane	1	< 3.8		< 3.8	
1,3,5-Trimethylbenzene	100	< 3.8		< 3.8	
1,3-Dichlorobenzene	600	< 3.8		< 3.8	
1,3-Dichloropropane	100	< 3.8		< 3.8	
1,4-Dichlorobenzene	75	< 3.8		< 3.8	
2,2-Dichloropropane	100	< 3.8		< 3.8	
2-Chlorotoluene	100	< 3.8		< 3.8	
Acetone	6,000	< 18.8		< 18.8	
Benzene	1	< 3.8		< 3.8	
Bromobenzene	100	< 3.8		< 3.8	
Bromochloromethane	100	< 3.8		< 3.8	
Bromodichloromethane	1	< 3.8		< 3.8	
Bromoform	4	< 3.8		< 3.8	
Carbon tetrachloride	1	< 3.8		< 3.8	
Chlorobenzene	50	< 3.8		< 3.8	
Chlorodibromomethane	1	< 3.8		< 3.8	
Chloroethane	5	< 3.8		< 3.8	
Chloroform	70	< 3.8		< 3.8	
Cis-1,2-Dichloroethene	70	< 3.8		< 3.8	
Cis-1,3-Dichloropropene	1	< 3.8		< 3.8	
Cymene	100	< 3.8		< 3.8	
Dichlorodifluoromethane	1,000	< 3.8		< 3.8	
Ethyl benzene	700	< 3.8		< 3.8	
Hexachlorobutadiene	1	< 18.8	UJ	< 18.8	UJ
Isopropylbenzene	700	**21.7**		< 3.8	
Meta/Para Xylene	1,000	< 7.5		< 7.5	
Methyl bromide	10	**2.2**	**J**	< 3.8	
Methyl butyl ketone	300	< 18.8		< 18.8	
Methyl chloride	100	< 3.8		< 3.8	
Methyl ethyl ketone	300	< 18.8		< 18.8	
Methyl isobutyl ketone	100	< 18.8		< 18.8	
Methyl Tertbutyl Ether	70	< 3.8		< 3.8	
Methylene chloride	3	< 3.8		< 3.8	
Naphthalene	300	< 3.8		< 3.8	
n-Butylbenzene	100	**10.4**		< 3.8	
Ortho Xylene	1,000	< 3.8		< 3.8	
p-Chlorotoluene	100	< 3.8		< 3.8	
Propylbenzene	100	**36.2**		< 3.8	
sec-Butylbenzene	100	**13.4**		< 3.8	
Styrene	100	< 3.8		< 3.8	
Tert Butyl Alcohol	100	< 62.5		< 62.5	
tert-Butylbenzene	100	< 3.8		< 3.8	
Tetrachloroethene	1	< 3.8		< 3.8	
Toluene	600	< 3.8		< 3.8	
Total Xylenes	1,000	< 11.3		< 11.3	
Trans-1,2-Dichloroethene	100	< 3.8		< 3.8	
Trans-1,3-Dichloropropene	1	< 3.8		< 3.8	
Trichloroethene	1	< 3.8		< 3.8	
Trichlorofluoromethane	2,000	< 3.8		< 3.8	
Vinyl chloride	1	< 3.8		< 3.8	
TIC VOCs (µg/l)					
Total TICs	500	**373.6**	**JN**	NA	

TABLE 2
TEMPORARY MONITORING WELL GROUND WATER SAMPLING RESULTS - COMPARISON TO NJDEP GWQC
SITE UST 482
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	PAR-83-482-TMW-01		PAR-83-482-TMW-03	
Sample ID		PAR-83-482-TMW-01-6		PAR-83-482-TMW-03-6	
Sample Date		11/13/2017		11/13/2017	
Sample Round					
Filtered		Total		Total	
Semivolatile Organic Compounds (µg/l)					
1,2,4-Trichlorobenzene	9	< 0.92		< 5	
1,2-Dichlorobenzene	600	< 0.92		< 5	
1,2-Diphenylhydrazine	20	< 0.92		< 5	
1,3-Dichlorobenzene	600	< 0.92		< 5	
1,4-Dichlorobenzene	75	< 0.92		< 5	
2,4,5-Trichlorophenol	700	< 2.8		< 15	
2,4,6-Trichlorophenol	20	< 0.92		< 5	
2,4-Dichlorophenol	20	< 0.92		< 5	
2,4-Dimethylphenol	100	< 4.6		< 25	
2,4-Dinitrophenol	40	< 7.3		< 40	
2,4-Dinitrotoluene	10	< 0.92		< 5	
2,6-Dinitrotoluene	10	< 0.92		< 5	
2-Chloronaphthalene	600	< 0.92		< 5	
2-Chlorophenol	40	< 1.8		< 10	
2-Methylnaphthalene	30	**715**		**11**	
2-Methylphenol	100	< 0.92		< 5	
2-Nitroaniline	100	< 0.92		< 5	
2-Nitrophenol	100	< 1.8		< 10	
3,3'-Dichlorobenzidine	30	< 2.8		< 15	
3-Nitroaniline	100	< 1.8		< 10	
4,6-Dinitro-2-methylphenol	1	< 4.6		< 25	
4-Bromophenyl phenyl ether	100	< 0.92		< 5	
4-Chloro-3-methylphenol	100	< 0.92		< 5	
4-Chloroaniline	30	< 0.92		< 5	
4-Chlorophenyl phenyl ether	100	< 0.92		< 5	
4-Nitroaniline	5	< 0.92		< 5	
4-Nitrophenol	100	< 4.6		< 25	
Acenaphthene	400	**40.3**		**5.5**	**J**
Acenaphthylene	100	< 0.92		< 5	
Anthracene	2,000	< 0.92		**6.9**	**J**
Benzidine	20	< 27.5		< 150	
Benzo(a)anthracene	0.1	< 0.92		**24.7**	
Benzo(a)pyrene	0.1	< 0.92		**27.5**	
Benzo(b)fluoranthene	0.2	< 0.92		**40.9**	
Benzo(ghi)perylene	100	< 0.92		**21**	
Benzo(k)fluoranthene	0.5	< 0.92		**15.7**	
Benzyl alcohol	2,000	< 1.8		< 10	
Bis(2-Chloroethoxy)methane	100	< 0.92		< 5	
Bis(2-Chloroethyl)ether	7	< 0.92		< 5	
Bis(2-Chloroisopropyl)ether	300	< 0.92		< 5	
Bis(2-Ethylhexyl)phthalate	3	**2.1**	**J**	< 5	
Butyl benzyl phthalate	100	< 0.92		< 5	
Carbazole	100	< 0.92		**2.7**	**J**
Chrysene	5	< 0.92		**29.2**	
Cresol	NLE	< 0.92		< 5	
Dibenz(a,h)anthracene	0.3	< 0.92		**5.3**	**J**
Dibenzofuran	100	**18**		**4.8**	**J**
Diethyl phthalate	6,000	< 0.92		< 5	
Dimethyl phthalate	100	< 0.92		< 5	
Di-n-butylphthalate	700	< 0.92		**1**	**J**
Di-n-octylphthalate	100	< 0.92		< 5	
Fluoranthene	300	< 0.92		**45.6**	
Fluorene	300	**53.6**		**5.8**	**J**
Hexachlorobenzene	0.02	< 0.92		< 5	
Hexachlorobutadiene	1	< 0.92		< 5	
Hexachlorocyclopentadiene	40	< 1.8		< 10	
Hexachloroethane	7	< 0.92		< 5	
Indeno(1,2,3-cd)pyrene	0.2	< 0.92		**21.5**	
Isophorone	40	< 0.92		< 5	
Naphthalene	300	< 0.92		**4.1**	**J**
Nitrobenzene	6	< 1.8		< 10	
N-Nitrosodimethylamine	0.8	< 1.8		< 10	
N-Nitroso-di-n-propylamine	10	< 0.92		< 5	
N-Nitrosodiphenylamine	10	< 1.8		< 10	
Pentachlorophenol	0.3	< 7.3		< 40	
Phenanthrene	100	**111**		**24.7**	
Phenol	2,000	< 0.92		< 5	
Pyrene	200	**9.9**		**41.6**	
TIC SVOCs (µg/l)					
Total TICs	500	**1175.3**	**JN**	**1700.5**	**JN**

Footnote:

1) All historical data collected prior to 2013 are reported as provided by others.

2) Number of Analyses is the number of detected and non-detected results excluding rejected results. Sample duplicate pairs have not been averaged.

3) NLE = no limit established.

4) ND = not detected in any background sample, no background concentration available.

5) Bold chemical dectection

6) SS = Site Specific action level, see "Specific Chemical Class (or Parameter)" footnote for details.

7) Chemical result qualifiers are assigned by the laboratory and are evaluated and modified (if necessary) during the data validation.

[blank] = detect, i.e. detected chemical result value.

B =Compound detected in the sample at a concentration less than or equal to 5 times (10 times for common lab contaminants) the blank concentration.

R = Rejected, data validation rejected the results.

U = non-detect, i.e. not detected at or above this value.

U-DL = Elevated sample detection limit due to difficult sample matrix.

U-ND = Analyte not detected in sample, but no detection or reporting limit provided.

J = estimated detected value due to a concetration below the reporting limit or due to discrepancies in meeting certain analyte-specific quality control.

E (or ER) = Estimated result.

D = Results from dilution of sample.

J-DL = Elevated sample detection limit due to difficult sample matrix.

JN = Tentatively identified compound, estimated concentration.

UJ=The compound was not detected: however, the results is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

J+ = The result is an estimated quantity, but the result may be biased high.

J- = The result is an estimated quantity, but the result may be biased low.

8) Specific Chemical Classes (or Parameters) comments or notes regarding how data is displayed, compared to Action Levels, or represented in this table.

9) Chemical results greater than or equal to the action level (depending on criteria) are highlighted based on the Criteria that are present.

- Cell Shade values represent a result that is above the NJ Ground Water Quality Criteria ####

NJDEP Interim Specific GWQC values are presented for the NJ GWQS where there is not a Specific Ground Water Quality Criteria. A full list of compounds is available at (http://www.nj.gov/dep/wms/bwqsa/gwqs_interim_criteria_table.htm).

NJDEP Interim Generic GWQC values are presented for the NJ GWQS where there is not a XXXXX or a NJDEP Interim Specific GWQC. Available at (http://www.nj.gov/dep/wms/bwqsa/gwqs_interim_criteria_table.htm).

10) Criteria action level source document and web address.

- The NJ Ground Water Quality Criteria refers to the NJDEP Groundwater Quality Standards - Adopted July 22, 2010

http://www.state.nj.us/dep/wms/bwqsa/docs/njac79C.pdf

TABLE 3
PERMANENT MONITORING WELL GROUND WATER SAMPLING RESULTS - COMPARISON TO NJDEP GWQC
SITE UST 482
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	PAR-83-482-MW-01		PAR-83-482-MW-02	
Sample ID		PAR-83-482-GW-MW-01-7		PAR-83-482-GW-MW-02-10.6	
Sample Date		1/19/2018		1/19/2018	
Filtered		Total		Total	
Volatile Organic Compounds (µg/l)					
1,1,1,2-Tetrachloroethane	1	< 0.75		< 0.75	
1,1,1-Trichloroethane	30	< 0.75		< 0.75	
1,1,2,2-Tetrachloroethane	1	< 0.75		< 0.75	
1,1,2-Trichloroethane	3	< 0.75		< 0.75	
1,1-Dichloroethane	50	< 0.75		< 0.75	
1,1-Dichloroethene	1	< 0.75		< 0.75	
1,1-Dichloropropene	100	< 0.75		< 0.75	
1,2,3-Trichlorobenzene	100	< 0.75		< 0.75	
1,2,3-Trichloropropane	0.03	< 2.5		< 2.5	
1,2,4-Trichlorobenzene	9	< 0.75		< 0.75	
1,2,4-Trimethylbenzene	100	< 0.75		< 0.75	
1,2-Dibromo-3-chloropropane	0.02	< 2.5		< 2.5	
1,2-Dibromoethane	0.03	< 0.75		< 0.75	
1,2-Dichlorobenzene	600	< 0.75		< 0.75	
1,2-Dichloroethane	2	< 0.75		< 0.75	
1,2-Dichloropropane	1	< 0.75		< 0.75	
1,3,5-Trimethylbenzene	100	< 0.75		< 0.75	
1,3-Dichlorobenzene	600	< 0.75		< 0.75	
1,3-Dichloropropane	100	< 0.75		< 0.75	
1,4-Dichlorobenzene	75	< 0.75		< 0.75	
2,2-Dichloropropane	100	< 0.75		< 0.75	
2-Chlorotoluene	100	< 0.75		< 0.75	
Acetone	6,000	**5.6**		< 3.8	
Benzene	1	< 0.75		< 0.75	
Bromobenzene	100	< 0.75		< 0.75	
Bromochloromethane	100	< 0.75		< 0.75	
Bromodichloromethane	1	< 0.75		< 0.75	
Bromoform	4	< 0.75		< 0.75	
Carbon tetrachloride	1	< 0.75		< 0.75	
Chlorobenzene	50	**2.2**		< 0.75	
Chlorodibromomethane	1	< 0.75		< 0.75	
Chloroethane	5	< 0.75		< 0.75	
Chloroform	70	< 0.75		< 0.75	
Cis-1,2-Dichloroethene	70	< 0.75		< 0.75	
Cis-1,3-Dichloropropene	1	< 0.75		< 0.75	
Cymene	100	< 0.75		< 0.75	
Dichlorodifluoromethane	1,000	< 0.75		< 0.75	
Ethyl benzene	700	< 0.75		< 0.75	
Hexachlorobutadiene	1	< 3.8		< 3.8	
Isopropylbenzene	700	**3.4**		< 0.75	
Meta/Para Xylene	1,000	< 1.5		< 1.5	
Methyl bromide	10	< 0.75		< 0.75	
Methyl butyl ketone	300	< 3.8		< 3.8	
Methyl chloride	100	< 0.75		< 0.75	
Methyl ethyl ketone	300	< 3.8		< 3.8	
Methyl isobutyl ketone	100	< 3.8		< 3.8	
Methyl Tertbutyl Ether	70	< 0.75		< 0.75	
Methylene chloride	3	< 0.75		< 0.75	
Naphthalene	300	**0.65**	**J**	< 0.75	
n-Butylbenzene	100	**1.4**		< 0.75	
Ortho Xylene	1,000	< 0.75		< 0.75	
p-Chlorotoluene	100	< 0.75		< 0.75	
Propylbenzene	100	**4.5**		< 0.75	
sec-Butylbenzene	100	**2.4**		< 0.75	
Styrene	100	< 0.75		< 0.75	
Tert Butyl Alcohol	100	< 12.5		< 12.5	
tert-Butylbenzene	100	< 0.75		< 0.75	
Tetrachloroethene	1	< 0.75		< 0.75	
Toluene	600	< 0.75		< 0.75	
Total Xylenes	1,000	< 2.3		< 2.3	
Trans-1,2-Dichloroethene	100	< 0.75		< 0.75	
Trans-1,3-Dichloropropene	1	< 0.75		< 0.75	
Trichloroethene	1	< 0.75		< 0.75	
Trichlorofluoromethane	2,000	< 0.75		< 0.75	
Vinyl chloride	1	< 0.75		< 0.75	
TIC VOCs (µg/l)					
Total TICs	500	**60.4**	**JN**	NA	

TABLE 3
PERMANENT MONITORING WELL GROUND WATER SAMPLING RESULTS - COMPARISON TO NJDEP GWQC
SITE UST 482
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	PAR-83-482-MW-01		PAR-83-482-MW-02	
Sample ID		PAR-83-482-GW-MW-01-7		PAR-83-482-GW-MW-02-10.6	
Sample Date		1/19/2018		1/19/2018	
Filtered		Total		Total	
Semivolatile Organic Compounds (µg/l)					
1,2,4-Trichlorobenzene	9	< 0.99		< 1	
1,2-Dichlorobenzene	600	< 0.99		< 1	
1,2-Diphenylhydrazine	20	< 0.99		< 1	
1,3-Dichlorobenzene	600	< 0.99		< 1	
1,4-Dichlorobenzene	75	**0.19**	**J**	< 1	
2,4,5-Trichlorophenol	700	< 3		< 3.1	
2,4,6-Trichlorophenol	20	< 0.99		< 1	
2,4-Dichlorophenol	20	< 0.99		< 1	
2,4-Dimethylphenol	100	< 4.9		< 5.2	
2,4-Dinitrophenol	40	< 7.9		< 8.3	
2,4-Dinitrotoluene	10	< 0.99		< 1	
2,6-Dinitrotoluene	10	< 0.99		< 1	
2-Chloronaphthalene	600	< 0.99		< 1	
2-Chlorophenol	40	< 2		< 2.1	
2-Methylnaphthalene	30	**9**		< 1	
2-Methylphenol	100	< 0.99		< 1	
2-Nitroaniline	100	< 0.99		< 1	
2-Nitrophenol	100	< 2		< 2.1	
3,3'-Dichlorobenzidine	30	< 3		< 3.1	
3-Nitroaniline	100	< 2		< 2.1	
4,6-Dinitro-2-methylphenol	1	< 4.9		< 5.2	
4-Bromophenyl phenyl ether	100	< 0.99		< 1	
4-Chloro-3-methylphenol	100	< 0.99		< 1	
4-Chloroaniline	30	< 0.99		< 1	
4-Chlorophenyl phenyl ether	100	< 0.99		< 1	
4-Nitroaniline	5	< 0.99		< 1	
4-Nitrophenol	100	< 4.9		< 5.2	
Acenaphthene	400	**0.95**	**J**	< 1	
Acenaphthylene	100	< 0.99		< 1	
Anthracene	2,000	< 0.99		< 1	
Benzidine	20	< 29.6		< 31.1	
Benzo(a)anthracene	0.1	< 0.99		< 1	
Benzo(a)pyrene	0.1	< 0.99		< 1	
Benzo(b)fluoranthene	0.2	< 0.99		< 1	
Benzo(ghi)perylene	100	< 0.99		< 1	
Benzo(k)fluoranthene	0.5	< 0.99		< 1	
Benzyl alcohol	2,000	< 2		< 2.1	
Bis(2-Chloroethoxy)methane	100	< 0.99		< 1	
Bis(2-Chloroethyl)ether	7	< 0.99		< 1	
Bis(2-Chloroisopropyl)ether	300	< 0.99		< 1	
Bis(2-Ethylhexyl)phthalate	3	< 0.99		**0.28**	**J**
Butyl benzyl phthalate	100	< 0.99		**0.18**	**J**
Carbazole	100	< 0.99		< 1	
Chrysene	5	< 0.99		< 1	
Cresol	NLE	< 0.99		< 1	
Dibenz(a,h)anthracene	0.3	< 0.99		< 1	
Dibenzofuran	100	**0.47**	**J**	< 1	
Diethyl phthalate	6,000	< 0.99		< 1	
Dimethyl phthalate	100	< 0.99		< 1	
Di-n-butylphthalate	700	< 0.99		< 1	
Di-n-octylphthalate	100	< 0.99		< 1	
Fluoranthene	300	< 0.99		**0.19**	**J**
Fluorene	300	**1**	**J**	< 1	
Hexachlorobenzene	0.02	< 0.99		< 1	
Hexachlorobutadiene	1	< 0.99		< 1	
Hexachlorocyclopentadiene	40	< 2		< 2.1	
Hexachloroethane	7	< 0.99		< 1	
Indeno(1,2,3-cd)pyrene	0.2	< 0.99		< 1	
Isophorone	40	< 0.99		< 1	
Naphthalene	300	< 0.99		< 1	
Nitrobenzene	6	< 2		< 2.1	
N-Nitrosodimethylamine	0.8	< 2		< 2.1	
N-Nitroso-di-n-propylamine	10	< 0.99		< 1	
N-Nitrosodiphenylamine	10	< 2		< 2.1	
Pentachlorophenol	0.3	< 7.9		< 8.3	
Phenanthrene	100	**0.16**	**J**	**0.19**	**J**
Phenol	2,000	< 0.99		< 1	
Pyrene	200	< 0.99		**0.21**	**J**
TIC SVOCs (µg/l)					
Total TICs	500	**73.2**	**JN**	**7.3**	**JN**

Footnote:

1) All historical data collected prior to 2013 are reported as provided by others.

2) Number of Analyses is the number of detected and non-detected results excluding rejected results. Sample duplicate pairs have not been averaged.

3) NLE = no limit established.

4) ND = not detected in any background sample, no background concentration available.

5) Bold chemical dectection

6) SS = Site Specific action level, see "Specific Chemical Class (or Parameter)" footnote for details.

7) Chemical result qualifiers are assigned by the laboratory and are evaluated and modified (if necessary) during the data validation.

[blank] = detect, i.e. detected chemical result value.

B =Compound detected in the sample at a concentration less than or equal to 5 times (10 times for common lab contaminants) the blank concentration.

R = Rejected, data validation rejected the results.

U = non-detect, i.e. not detected at or above this value.

U-DL = Elevated sample detection limit due to difficult sample matrix.

U-ND = Analyte not detected in sample, but no detection or reporting limit provided.

J = estimated detected value due to a concetration below the reporting limit or due to discrepancies in meeting certain analyte-specific quality control.

E (or ER) = Estimated result.

D = Results from dilution of sample.

J-DL = Elevated sample detection limit due to difficult sample matrix.

JN = Tentatively identified compound, estimated concentration.

UJ=The compound was not detected: however, the results is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

J+ = The result is an estimated quantity, but the result may be biased high.

J- = The result is an estimated quantity, but the result may be biased low.

8) Specific Chemical Classes (or Parameters) comments or notes regarding how data is displayed, compared to Action Levels, or represented in this table.

9) Chemical results greater than or equal to the action level (depending on criteria) are highlighted based on the Criteria that are present.

- Cell Shade values represent a result that is above the NJ Ground Water Quality Criteria ####

NJDEP Interim Specific GWQC values are presented for the NJ GWQS where there is not a Specific Ground Water Quality Criteria. A full list of compounds is available at (http://www.nj.gov/dep/wms/bwqsa/gwqs_interim_criteria_table.htm).

NJDEP Interim Generic GWQC values are presented for the NJ GWQS where there is not a XXXXX or a NJDEP Interim Specific GWQC. Available at (http://www.nj.gov/dep/wms/bwqsa/gwqs_interim_criteria_table.htm).

10) Criteria action level source document and web address.

- The NJ Ground Water Quality Criteria refers to the NJDEP Groundwater Quality Standards - Adopted July 22, 2010

http://www.state.nj.us/dep/wms/bwqsa/docs/njac79C.pdf

TABLE 4
SOIL SAMPLING RESULTS - COMPARISON TO NJDEP SOIL REMEDIATION STANDARDS
SITE PARCEL 83 482 UST
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-83-482-SB-01			PAR-83-482-SB-02			PAR-83-482-SB-03			PAR-83-482-SB-04		
Sample ID				PAR-83-482-SB-01-0.5-1	PAR-83-482-SB-01-1.5-2	PAR-83-482-SB-01-7.5-8	PAR-83-482-SB-02-5.5-6	PAR-83-482-SB-02-7.5-8	PAR-83-482-SB-02-12.5-13	PAR-83-482-SB-03-1.5-2	PAR-83-482-SB-03-5-5.5	PAR-83-482-SB-03-6-6.5	PAR-83-482-SB-04-0-0.5	PAR-83-482-SB-04-3-3.5	PAR-83-482-SB-04-8.5-9
Sample Date				11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017	11/13/2017
Semivolatile Organic Compounds (mg/kg)															
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**32.2**	NA
Naphthalene	6	17	25	< 0.073	**0.092 J**	< 0.082	**0.087 J**	< 0.087	< 0.094	**0.13**	**0.069 J**	**0.024 J**	< 0.08	< 0.079	< 0.081
Extractable/Volatile Petroleum Hydrocarbons (mg/kg)															
EPH (C9-C40)	NLE	NLE	NLE	**19.8**	**2,410**	**0.55 J**	**66.9**	**1,560**	**0.54 J**	**120**	**190**	**216**	**69.1**	**3,000**	**0.81 J**

Footnote:

1) All historical data collected prior to 2013 are reported as provided by others.

2) Number of Analyses is the number of detected and non-detected results excluding rejected results. Sample duplicate pairs have not been averaged.

3) NLE = no limit established.

4) ND = not detected in any background sample, no background concentration available.

5) Bold chemical dectection

6) SS = Site Specific action level, see "Specific Chemical Class (or Parameter)" footnote for details.

7) Chemical result qualifiers are assigned by the laboratory and are evaluated and modified (if necessary) during the data validation.

[blank] = detect, i.e. detected chemical result value.

B =Compound detected in the sample at a concentration less than or equal to 5 times (10 times for common lab contaminants) the blank concentration.

R = Rejected, data validation rejected the results.

U = non-detect, i.e. not detected at or above this value.

U-DL = Elevated sample detection limit due to difficult sample matrix.

U-ND = Analyte not detected in sample, but no detection or reporting limit provided.

J = estimated detected value due to a concetration below the reporting limit or due to discrepancies in meeting certain analyte-specific quality control.

E (or ER) = Estimated result.

D = Results from dilution of sample.

J-DL = Elevated sample detection limit due to difficult sample matrix.

JN = Tentatively identified compound, estimated concentration.

UJ=The compound was not detected: however, the results is estimated because of discrepancies in meeting certain analyte-specific QC criteria.

J+ = The result is an estimated quantity, but the result may be biased high.

J- = The result is an estimated quantity, but the result may be biased low.

8) Specific Chemical Classes (or Parameters) comments or notes regarding how data is displayed, compared to Action Levels, or represented in this table.

a) DELETE THIS NOTE BEFORE GOING FINAL: Refer to the NJDEP Protocol for Addressing Extractable Petroleum Hydrocarbons (Version 5.0, August 9, 2010) and the NJDEP Health Based end Ecological Screening Criteria for Petroleum Hydrocarbons (Version 4.0, August 9, 2010) to determine the category of tank being investigated and the appropriate cleanup standards or screening levels for that category of tank.

9) Chemical results greater than or equal to the action level (depending on criteria) are highlighted based on the Criteria that are present.

- Cell Shade values represent a result that is above the NJ Residential Direct Contact Soil Remediation Standard. ####

  There are no NJDEP soil standards for individual PCB Aroclors, therefore the total PCB NJDEP standards were used for individual Aroclors.

- Cell Shade values represent a result that is above the NJ Non-Residential Direct Contact Soil Remediation Standard. ###

- Cell Shade values represent a result that is above the NJ Impact to GW Soil Screening Level ###

- Cell Shade values represent a result that is above both the NJ Residential, Non-Residential, AND NJ Impact to GW Soil Screening Level Direct Contact Soil Remediation Standard. ###

- Cell Shade values represent a result that is above both the NJ Residential and Non-Residential Direct Contact Soil Remediation Standard. ###

10) Criteria action level source document and web address.

- The NJ Residential Direct Contact Soil Remediation Standard refers to the NJDEP's Sept 18, 2017 Remediation Standards

  http://www.nj.gov/dep/rules/rules/njac7_26d.pdf

- The NJ Non-Residential Direct Contact Soil Remediation Standard refers to the NJDEP's Sept 18, 2017 Remediation Standards

  http://www.nj.gov/dep/rules/rules/njac7_26d.pdf

- The NJ Impact to GW Soil Screening Level criteria refers to the Development of Site Specific Impact to Ground Water Soil Remediation Standards - Nov 2013 revised

  http://www.nj.gov/dep/srp/guidance/rs/partition_equation.pdf

Attachment A
Correspondence and Historical Information

1. New Jersey Department of Environmental Protection (NJDEP). 2017. Email to the Army, RE: *UST 482 Area*. August 29.
2. Department of the Army. 2017. *Letter Work Plan Addendum for UST 482 Area, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. August 4.
3. Department of the Army. 2016. *Response to NJDEP's October 13, 2015 Comments on the July 30, 2015 No Further Action Request, Site Investigation Report, Addendum for the ECP Parcel 83 Underground Storage Tanks, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. July 12.
4. Attachment O from the July 2015 Army Document, *No Further Action Request, Site Investigation Report Addendum for the ECP Parcel 83 Underground Storage Tanks*.
5. New Jersey Department of Environmental Protection (NJDEP). 2003. Letter to the Army, RE: *UST Closure Approval/NFA Fort Monmouth Main Post Monmouth County*. January10.
6. Excerpts from the Underground Storage Tank Closure and Site Investigation Report Building 482, March 2002.

Friesen, Kent

From: Joshi, Ashish <Ashish.Joshi@dep.nj.gov>
Sent: Tuesday, August 29, 2017 3:51 PM
To: Colvin, William R Jr CIV (US); Grill, Cris; Friesen, Kent; Pearson, Joe; Moore, James T CIV USARMY CENAN (US)
Cc: Zervas, Gwen
Subject: UST 482 Area

Mr. Colvin,

The submitted workplan addendum for UST 482 area is acceptable. Further delineation of soil and groundwater in the area adjacent to and south of former UST 482 is acceptable and approved. Please indicate if further soil excavation will be performed in those area where contamination exceeds criteria and if excavation is going to be completed then please indicate if post excavation soil sampling will be conducted. Please provide a table of all soil and ground water data past and present.

Please feel free to contact me if you have any questions. Thank you.

A.J. Joshi
NJ Department of Environmental Protection
Site Remediation Program
Bureau of Field Operations – Northern Office
7 Ridgedale Avenue
Cedar Knolls, NJ 07927

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

4 August 2017

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

SUBJECT: Letter Work Plan Addendum for UST 482 Area
Fort Monmouth, New Jersey
PI G000000032

Dear Mr. Joshi:

The purpose of this Work Plan Addendum is to supplement the environmental investigation of the UST 482 area within Parcel 83. This proposed work was referred to in the response to Comment D1 of the 12 July 2016 Army letter to NJDEP (**Attachment A**).

Historical activities from 1994 through 2011 included removal of: 1) UST 482 (a steel 1000-gallon fuel oil tank; 2) remnants of a "concrete pit" thought to be a septic tank; and 3) at least 80 cubic yards of petroleum-contaminated soil. Elevated concentrations of Total Petroleum Hydrocarbons (TPH) were reported in two of the 14 samples collected from the 1994 excavation at concentrations of 14,100 mg/kg and 29,400 mg/kg. As shown on Figure 4 of **Attachment A,** the soil represented by these 1994 soil sample results was removed by multiple excavation events between 1994 and 2002, and subsequent sample results from 2002 were 368 to 458 mg/kg TPH. The Army's No Further Action (NFA) request was approved by NJDEP in 2003.

Additional sampling of soil and groundwater and analyses for volatile organic compounds (VOCs) plus tentatively identified compound (TICs), semivolatile organic compounds (SVOCs) plus TICs, metals, pesticides, PCBs, and cyanide were performed in 2010 and 2011 to determine if there were impacts to soil or groundwater from the former septic. A summary of the UST removal, septic tank removal, and 2010 and 2011 sampling and analyses are included in the Underground Storage Tank File Review (**Attachment A**).

During the Parcel 83 field sampling activities in April 2016, elevated photoionization detector (PID) readings were noted on the field log for soil boring FTMM-83-SS-12 (also designated as FTMM-83-SB-12; see **Attachment B**). Field personnel also verbally reported sheen on groundwater and odors consistent with fuel oil in this boring; however, the associated soil sample was analyzed for polynuclear aromatic hydrocarbons (PAHs) rather than petroleum constituents in accordance with the Parcel 83 work plan approved by NJDEP on 22 December 2015. Boring

FTMM-83-SB-13 located towards the southwest (and upgradient) of FTMM-83-SB-12 had no field observations of petroleum contamination.

As described in this Work Plan Addendum, additional soil and groundwater sampling are proposed to investigate the field observations of possible fuel oil contamination that were reported during the April 2016 field sampling activities at Parcel 83. Proposed sampling locations are presented in **Figure 1** and a summary of the proposed soil and groundwater sampling and analyses is presented in **Table 1**.

A minimum of four Geoprobe borings (482-SB-01 through 482-SB-04) will be installed as shown on **Figure 1** to assess the field observations encountered in April 2016. Three soil samples will be collected from each boring. An additional four Geoprobe borings will be installed at discretionary locations, if warranted, based on the preliminary data results or field observations of contamination. Boring 482-SB-01 is proposed to be installed immediately adjacent to previous boring FTMM-83-SS-12, where the field observations of petroleum were noted. Groundwater will be sampled by installing temporary wells with the Geoprobe within two of the four initial borings, anticipated to be 482-SB-01 and 482-SB-03, to determine if groundwater concentrations exceed NJDEP Ground Water Quality Criteria (GWQC). If preliminary data results suggest the need for permanent wells, then two to four permanent wells will be added to the field program in a subsequent mobilization.

Each soil sample will be analyzed for extractable petroleum hydrocarbons (EPH). A minimum of 25 percent of the samples with EPH concentrations greater than 1000 mg/kg will also be analyzed for 2-methylnaphthalene and naphthalene. Groundwater will be analyzed for VOCs+TICs and SVOCs+TICs. These soil and groundwater analyses are consistent with the requirements for No. 2 fuel oil in Table 2-1 of the NJAC 7:26E Technical Requirements for Site Remediation. A summary of the soil and groundwater sampling and analyses is presented in **Table 1**.

We look forward to your review of this proposed sampling plan, and approval or additional comments. The technical Point of Contact (POC) for this matter is Kent Friesen at (732) 383-7201 or 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

Attachments:

Figure 1: Proposed Sampling Locations
Table 1: Summary of Proposed Sampling for UST 482 Area
A. Correspondence and Historical Information
B. 2016 Soil Boring Log for FTMM-83-SS-12 (also designated as FTMM-83-SB-12)

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

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

July 12, 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

Re: Response to NJDEP's October 13, 2015 Comments on the July 30, 2015 *No Further Action Request, Site Investigation Report Addendum for the ECP Parcel 83 Underground Storage Tanks, Fort Monmouth, NJ*
PI G000000032

Dear Ms. Range:

The Fort Monmouth team has reviewed the New Jersey Department of Environmental Protection (NJDEP) comments on the subject submittal for underground storage tanks (USTs) at ECP Parcel 83, as documented in your letter dated October 13, 2015. We appreciate this opportunity to work with you on Parcel 83 USTs. Responses to your comments are provided below, for your review and concurrence or further comments.

A. General Comments

A1. COMMENT: *Page 2 of 4 of the submittal indicates certain USTs specifically mentioned in previous NJDEP comments are not included in this submittal as there are no USTs associated with the particular buildings, specifically Buildings 66, 281 or 479. In reviewing this submittal, the UST referenced as near Building 281 appears to have been addressed via remedial activities at UST 108-7; see below for comment regarding same. USTs at (former) Buildings 66 and 479 (and 478) are shown in the 1956 Fuel Storage map, Appendix O, of the '07 ECP, as well as indicated as "high potential UHOTs" in Figure 2 of the July 2014 UHOT Investigation Report. Unless all tanks, former and/or current, have been evaluated in accordance with the applicable regulations and guidance documents, the NJDEP cannot comment as to the potential absence or presence of a petroleum discharge associated with those tanks.*

A1. RESPONSE: As discussed in the Parcel 83 USTs submittal, the Army has conducted a detailed review of available information to assess the presence of USTs within Parcel 83. Since there were no additional indications of USTs at Buildings 66, 478, and 479, the Army is not proposing additional assessment work at these locations. We concur that the UST near Building 281 is UST 108-7 (aka UST 108A) for which a NFA determination was received (NJDEP letter dated October 13, 2015).

A2: COMMENT: *As indicated in the submittal, numerous underground storage tanks (USTs) have previously received a designation of No Further Action (NFA) required. Based upon a review of the referenced submittal, it is also agreed NFA is necessary for the following USTs:*

- *UST 49-76 & UST-49-77; #01-05-24-1004-1; each 5000 g gasoline (Attachment E)*
- *UST 63B aka UST 63-2; 1000 g #2 fuel (Attachment F)*
- *UST 108A aka 108-7; 1000 g #2 fuel (Attachment I)*
- *UST 116B aka UST 116-9; #97-04-10-1409-35; 1000 g #2 fuel; NFAed 10/23/00; ECP Parcel 85; additional sampling performed in May 2010 indicates NFA remains appropriate (Attachment J)*
- *UST 117C aka UST 117-72; #84-04-28-1944-21; 1000 g #2 fuel; ECP Parcel 86 (Attachment K)*
- *USTs 161 – Parcel 87 (Attachment L)*
    - *UST 161-68; 550 g waste oil*
    - *UST 161-14; 1000 g #2 fuel; #93-03-12-2158-30*
- *UST 167-18; 1000 g #2 diesel (Attachment M)*
- *USTs 273 aka 009001-65,66 & 67 (Attachment N)*
    - *UST 273-65; 6000 g diesel*
    - *UST 273-66; 10,000 gasoline*
    - *UST 273-67; 10,000 g gasoline*
    - *Note – the NFA is applicable to the USTs only, not the dispenser/s, which were reported as used with the AST fuel storage system which replaced USTs 273 until subsequent AST closure in 2011*
- *UST 483-55; #97-03-19-1359-16; previously NFAed 10/23/00; additional sampling performed in May 2010 indicates NFA remains appropriate (Attachment P)*

A2: RESPONSE: Agreed. UST 273 had newer (1991) fiberglass tanks and piping with secondary containment, and was fully compliant with the release detection requirements for tanks (N.J.A.C 7:14B-6.5) and piping (7:14B-6.6). Further, the dispenser islands were less than 10 ft from the UST excavation, so any leakage from the dispenser area would likely have been detected in closure soil samples (which were clean). The Army is not proposing additional assessment work at the dispensers.

B. <u>UST 80 aka 80-6 aka FTMM-56 – Parcel 84 (Attachment G)</u>

B1. COMMENT: *UST 80-6 was a #2 fuel tank which was granted an NFA by the Department on August 29, 2000. Ground water contamination at FTMM-56 unrelated to #2 fuel was monitored on a quarterly basis for many years. Submittal of analytical results from the additional round of ground water sampling as per the DEP's July 3, 2014 comment letter are pending.*

B1. RESPONSE: We anticipate a future Army submittal concerning IRP site FTMM-56 (Building 80 Petroleum Release) that will summarize the soil and groundwater results.

C. <u>USTs 108-60 through 64 aka FTMM-57 – Parcel 90</u>

C1. COMMENT: *Attachment H references five USTs which were removed in April of 1993, and lists just over a page with descriptive bullets of documents reported to include remedial activities relative to these USTs, concluding that reported results support site characterization work is complete. The submittal, however, includes no results; comments regarding adequacy of characterization and recommendations as to additional action are therefore not possible at this time.*

C1. RESPONSE: We anticipate a future Army submittal concerning IRP site FTMM-57 (Building 108 UST Gasoline Release) that will summarize the soil and groundwater analytical results.

D. UST 482-54 – Parcel 93 (located within Parcel 83)

D1. COMMENT: *As regarding UST 482-54 (#94-08-11-1345-43), which was NFAed in January of 2003, Attachment O appears to indicate TPH contaminated soils remain at levels of 14,100 ppm and 29,400 ppm. As indicated in the email of October 9, 2015, clarification is requested, as a designation of NFA is not appropriate for contamination at this level.*

D1. RESPONSE: Historical information and recent (April 2016) field observations of elevated photoionization detector (PID) readings in a boring near UST 482-54 indicate that additional characterization of the former UST 482 area is warranted. Field sampling at the UST 482 area will be performed at the same time that additional sampling at Parcel 83 is performed (which will be described under separate cover).

We request your review of these responses regarding USTs at ECP Parcel 83. Additional submittals for FTMM-56 (Building 80), FTMM-57 (Building 108), and UST 482 are forthcoming, as indicated above. Other specific issues concerning known or suspected non-UST contamination of soil or groundwater at Parcel 83 will also be addressed under separate cover as described in the November 2015 (Revision 1) *Environmental Condition of Property Phase II Site Investigation Work Plan Addendum* (the ECP Work Plan Addendum).

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 e-mail at william.r.colvin18.civ@mail.mil.

Sincerely,

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

cc: Linda Range, NJDEP (e-mail and 3 hard copies)
Delight Balducci, HQDA ACSIM (e-mail)
Joseph Pearson, Calibre (e-mail)
James Moore, USACE (e-mail)
Jim Kelly, USACE (e-mail)
Cris Grill, Parsons (e-mail)

Attachment O from the July 2015 Army document entitled No Further Action Request, Site Investigation Report Addendum for the ECP Parcel 83 Underground Storage Tanks (the "Parcel 83 UST submittal").

ATTACHMENT O

UST 482 File Review and Analyses

Contents:

- Bldg. 482 Underground Storage Tank File Review
- Enclosure 1 – Fort Monmouth 2010 Work Order Report
- Enclosure 2 –Analytical Data Reports (10372, 10373, and 11264)

UNDERGROUND STORAGE TANK FILE REVIEW
FORT MONMOUTH BRAC 05 FACILITY
OCEANPORT, NEW JERSEY

Date: *July 21, 2015* Review Performed By: *Kent Friesen, Parsons*

Site ID: ***Bldg. 482*** Registration ID: 90010-54

Recommended Status of Site: ***Case Closed (no change)***

UST Probability (from May 2014 "Addendum 1 ECP UHOT Report"): ***None***

Based on the file review, were there indications of a contaminant release? [X] Yes [ ] No

NJDEP Release No. or DICAR (If applicable): 94-8-11-1345-43

Did NJDEP approve No Further Action (NFA) for this site? [X] Yes [ ] No [ ] Not Applicable

Tank Description: [X] Steel [ ] Fiberglass Size: 1000 gals. Contents: #2 Fuel Oil

[ ] Residential [X] Commercial/Industrial

Tank Removed? [X] Yes [ ] No If "yes," removal date: 8/11/1994

Were closure soil samples taken? [X] Yes [ ] No Analyses: TPH

Comparison criteria: 5,100 mg/kg

Were closure soil sample results less than comparison criteria? ? [ ] Yes [X] No

Brief Narrative

This steel No. 2 fuel oil UST was located adjacent to Building 482. Following tank removal in April 1994, soil samples were collected from the tank excavation and analyzed by the Fort Monmouth Environmental Laboratory for total petroleum hydrocarbons (TPH). The initial soil sample results indicated some residual contamination, and a total of 80 cubic yards of petroleum-contaminated soil was excavated for offsite disposal. The final soil sample results ranged from 41 mg/kg to 2689 mg/kg for TPH, except for two locations that were sampled after soil excavation that contained 14,100 mg/kg to 29,400 mg/kg. Due to these elevated concentrations, additional soil samples were collected from seven additional locations and analyzed for TPH and volatile organic compounds (VOCs). VOCs were not detected in the additional samples, and TPH results from these later samples were less than the then-current remediation criteria of 10,000 mg/kg. Since sheen was observed on groundwater, two monitoring wells were installed downgradient of the tank excavation, and two rounds of groundwater were sampled and analyzed for VOCs and SVOCs. Groundwater results were less than the then-current Ground Water Quality Criteria (GWQC). A UST closure report for tank 482 was prepared in 2002 by Versar (*Underground Storage Tank Closure and Site Investigation Report, Building 482, Main Post-East Area*) and submitted to NJDEP. The site was approved for No Further Action (NFA) by NJDEP in their letter dated January 10, 2003.

Additional sampling of soil and groundwater was completed by FTMM in August 2010 at the former UST 482 site. A Scope of Work and additional field notes describing the sampling activities is presented in Enclosure 1, and the resulting analytical data is presented in Enclosure 2. The concentration of 2-methylnaphthalene in soil sample 482/SB-1 (5.0 to 5.5 ft bgs; collected on August 31, 2010) was 11.35 mg/kg, which exceeded NJDEP's impact to groundwater pathway screening level of 5 mg/kg. There were also multiple Tentatively Identified Compounds (TICs) in this soil sample that were consistent with petroleum hydrocarbon contamination. A temporary well groundwater sample 482/TMP-1 was also

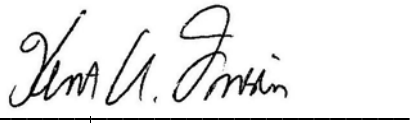
collected on August 31, 2010 that contained no detected VOC target analytes, but multiple VOC TICs (sum estimated concentration of 512 µg/L) that were consistent with petroleum hydrocarbon contamination. The target SVOC analyte 2-methylnaphthalene was detected in this groundwater sample at a concentration of 8 µg/L, which is less than the NJDEP interim ground water quality criterion of 30 µg/L. Multiple SVOC TICs (sum estimated concentration of 184 µg/L) were also detected in this sample that were consistent with petroleum hydrocarbon contamination.

An additional temporary well groundwater sample 482-GW2 was collected on June 25, 2011 for VOCs and total lead analysis; detected constituents included benzene (0.17 µg/L, which is less than the NJDEP GWQS of 1 µg/L), VOC TICs (sum estimated concentration of 602 µg/L), and lead (80.6 µg/L, which exceeds the NJDEP GWQS of 5 µg/L).

Further discussion is warranted regarding the 2010 and 2011 groundwater results. Lead exceeded the NJDEP GWQS, but is not likely a constituent of fuel oil; however, lead is a potential analyte of concern at the adjacent Site 108 gasoline USTs (also known as IRP Site FTMM-57). Further, lead could be attributed to sample turbidity in the temporary well. Therefore, the lead results are not likely attributed to the 482 UST site. 2-Methylnaphthalene is a likely fuel oil constituent that was detected in Site 482 groundwater, but the most recent (2010) data indicates that the concentration of this analyte is less than the interim GWQS of 30 µg/L.

In summary, NFA is warranted for soil and groundwater at Site 482.

Recommendations (if any): Submit for review; however, NFA already approved from NJDEP

Signed: 

Kent A. Friesen, Parsons

ATTACHMENT O, Enclosure 1

UST 482 - Fort Monmouth 2010 Work Order Report

Date Prepared: August 12, 2010

Prepared by: Robert Youhas

Scope of Work for Building 482

Background

On August 11, 1994, one, 1,000-gallon, steel heating oil underground storage tank (UST) was removed from an area approximately 10 feet east of building 482. No pitting or holes were observed on the surface of the UST (#0090010-54). However, staining was observed in soil surrounding the UST and a sheen was observed on groundwater present in the excavation. Approximately 80 cubic yards of visually contaminated soil was removed. Based on the staining observed, the New Jersey Department of Environmental Protection (NJDEP) was notified and case #94-8-11-1345-43 was assigned. During removal of the UST and excavation of visually contaminated soil, remnants of a septic /wastewater system (concrete pit) were discovered. Post-excavation soil samples were collected in the concrete pit area and analyzed for total petroleum hydrocarbons (TPHC) only. The soil samples collected in the concrete pit area were not analyzed for the full, required list of analytical parameters [Priority Pollutants (PP+40) list required for unknown wastewater systems].

Between August 12, 1994 and February 20, 2002, additional excavation events were conducted. TPHC concentrations for all post-excavation soil samples collected on February 20, 2002 were determined to be in compliance with NJDEP soil standards that were in effect at the time.

On August 11, 1995, monitoring wells 482MW01 and 482MW02 were installed in the vicinity of the UST excavation area. Between 1995 and 1998, groundwater samples were collected from monitoring wells 482MW1 and 482MW02 and analyzed for volatile organic compounds (VOCs)+15 and semi-volatile organic compounds (SVOCs)+15. All groundwater analytical results were determined to be in compliance with the NJDEP Ground Water Quality Standards (GWQS).

In March 2002, no further action (NFA) for NJDEP case #94-8-11-1345-43 was requested in a *UST Closure and Site Investigation Report*. On January 10, 2003, NFA was approved by the NJDEP.

Purpose

To determine if the former septic/wastewater system discovered during UST excavation activities impacted soil and groundwater in the vicinity of building 482.

Scope of Work

Advance three soil borings (482SB-1, 482SB-2, 483SB-3) to the groundwater table (approximately 5 feet below grade). Scan the soil column collected in each acetate sleeve with a photoionzation detector (PID). Collect a single soil sample within six inches of the groundwater table (soil-water interface) from each soil boring. If elevated PID readings are encountered at a shallower depth, collect a soil sample at that location, in addition to the soil sample collected within six inches of the groundwater table. Submit soil samples to Fort Monmouth laboratory for PP+40 analysis.

Convert soil boring 482SB-1 into a temporary well point and collect a groundwater sample. Submit groundwater sample to Fort Monmouth laboratory for PP+40 analysis.

Results

BN +15
TAL Metals
VOA +15
Acid extractable +10

Recommendations

{Solid 2 - 8 oz Jars
Methanol
Trip}

1 - Liter
4 - 1 liter amber
1 500 + acids (Metals)
3 vial
Trip
Field Blank

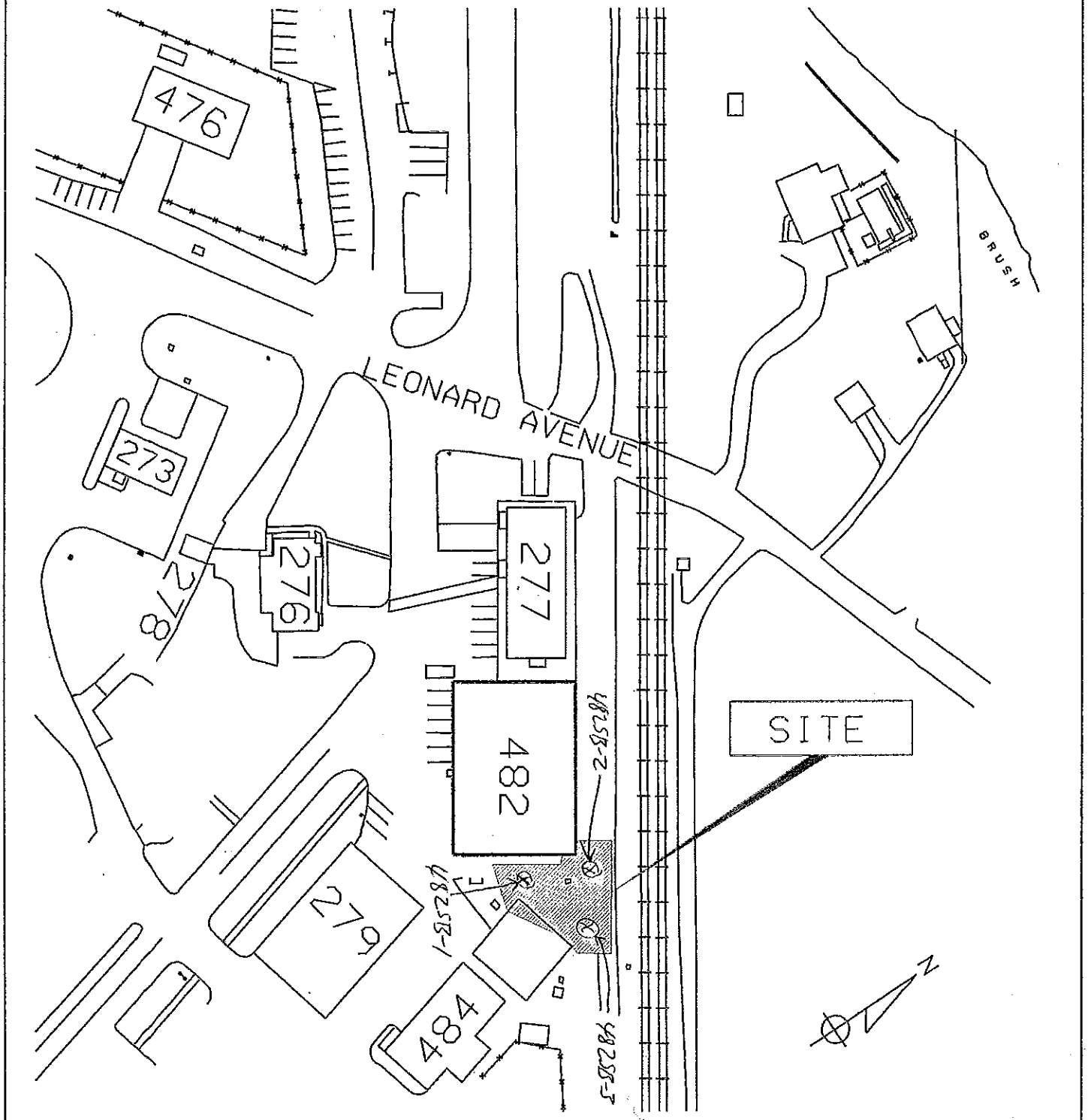


FIGURE 2
SITE MAP
BUILDING 482
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
ENGINEERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

SCALE: 1" = 100'

DATE: AUGUST 1994

9.18.98 484/482 Friday

Collect post excavation soil samples from the edge of 484 Excavation (484-12 and 484-13) see diagram on pages 20-21.

Collect post excavation soil samples from the bottom of the former septic tank (concrete) (482a-septic and 482b-septic) See diagram on pgs 20-21.

Collect post excavation soil samples from within the 482 Excavation (482-9 through 482-15) see diagram on pgs 20-21.

See next page for all COC info for these sampling points, etc.

2:00 leave site for Bristol office — D.H.

9.18.98 484/482 Friday

COC INFO

	TIME	vol #	# Jars	H-Nu
484-12 (6')		075	3	
484-13 (6')		076	3	
→ Highest TPH results gets full scan				
482a-septic (7')		077	3	
482b-septic (7')		078	3	
→ Full scan on everything				
482-9 (6')		—	1	
482-10 (6')		—	1	
482-11 (7')		—	1	
482-12 (7')		—	1	
482-13 (6')		079	2	
482-14 (6')		080	2	
482-15 (6')		081	2	

Note: 482-15 is a duplicate of sample 482-14

TPH results over 1,000 ppm gets volatile scan

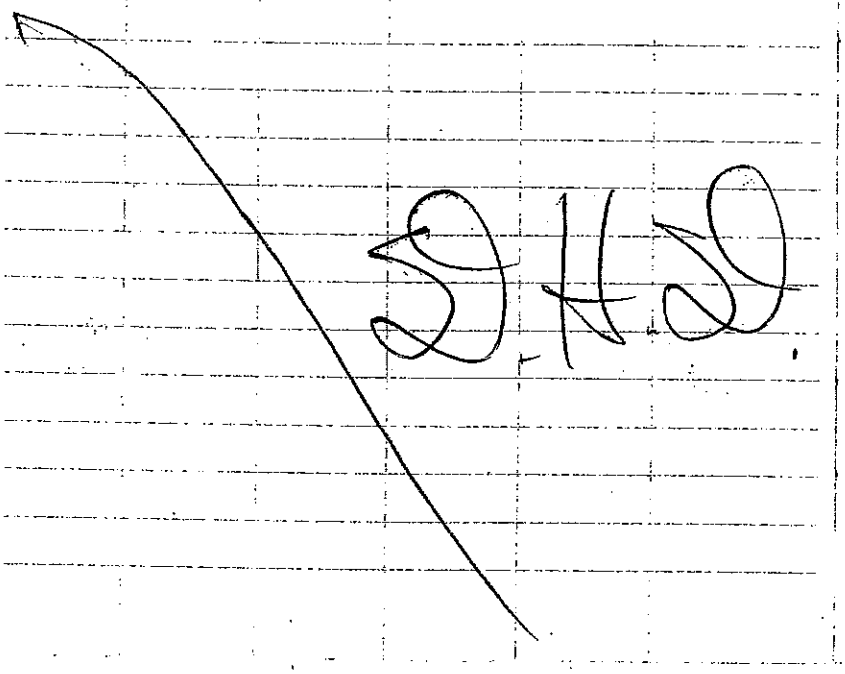
9.25.98 482 Friday

COC INFO

		H-Nrg	TPH/VOHO
482-22(6')	12:30	40	↓
482-23(6')	12:35	40	

* 482-23 is a duplicate of 482-22.

See ~~page~~ 29 for location of this sample.



9.28.98 277

Objective: Remediation of so
at Building 277 associated
a former leaking No. 2 F
oil UST. (UST pulled by

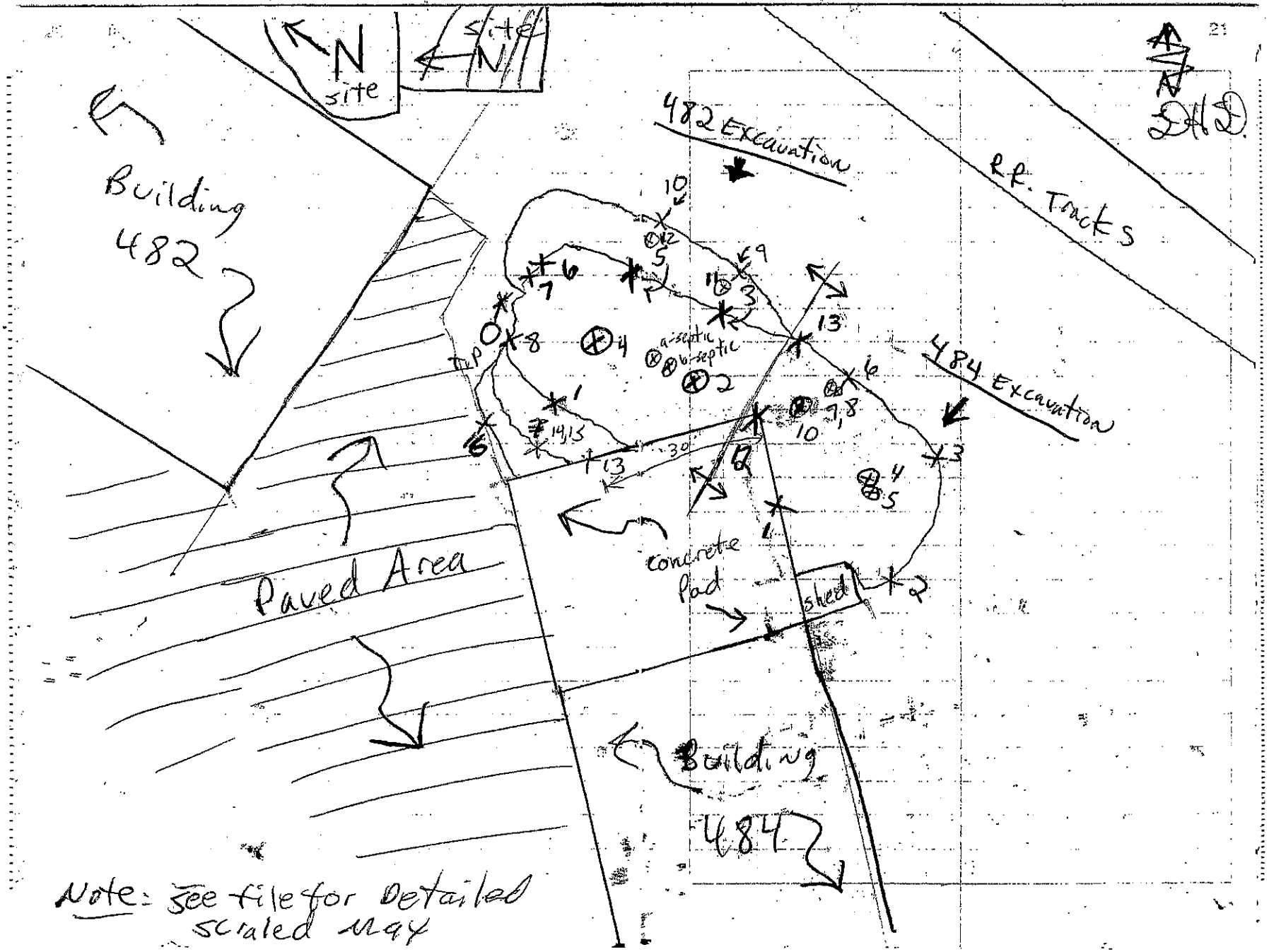
Weather: Partly Sunny, 65-7

Staff: DD, TK & MS

Remediation activities along
the building and the parki
The clean overburden soil
hauled to our clean pile st
area behind the trailers. T
1 1/2" stones in the former
hole is excavated and hauled
our clean staging area. All
contaminated soil is hauled
490 Staging area.

After a few truck loads of
contaminated soil is hauled
I prepair to collect soil
samples from the west side
see next page for locations of
277-7 and 277-9.

7118148

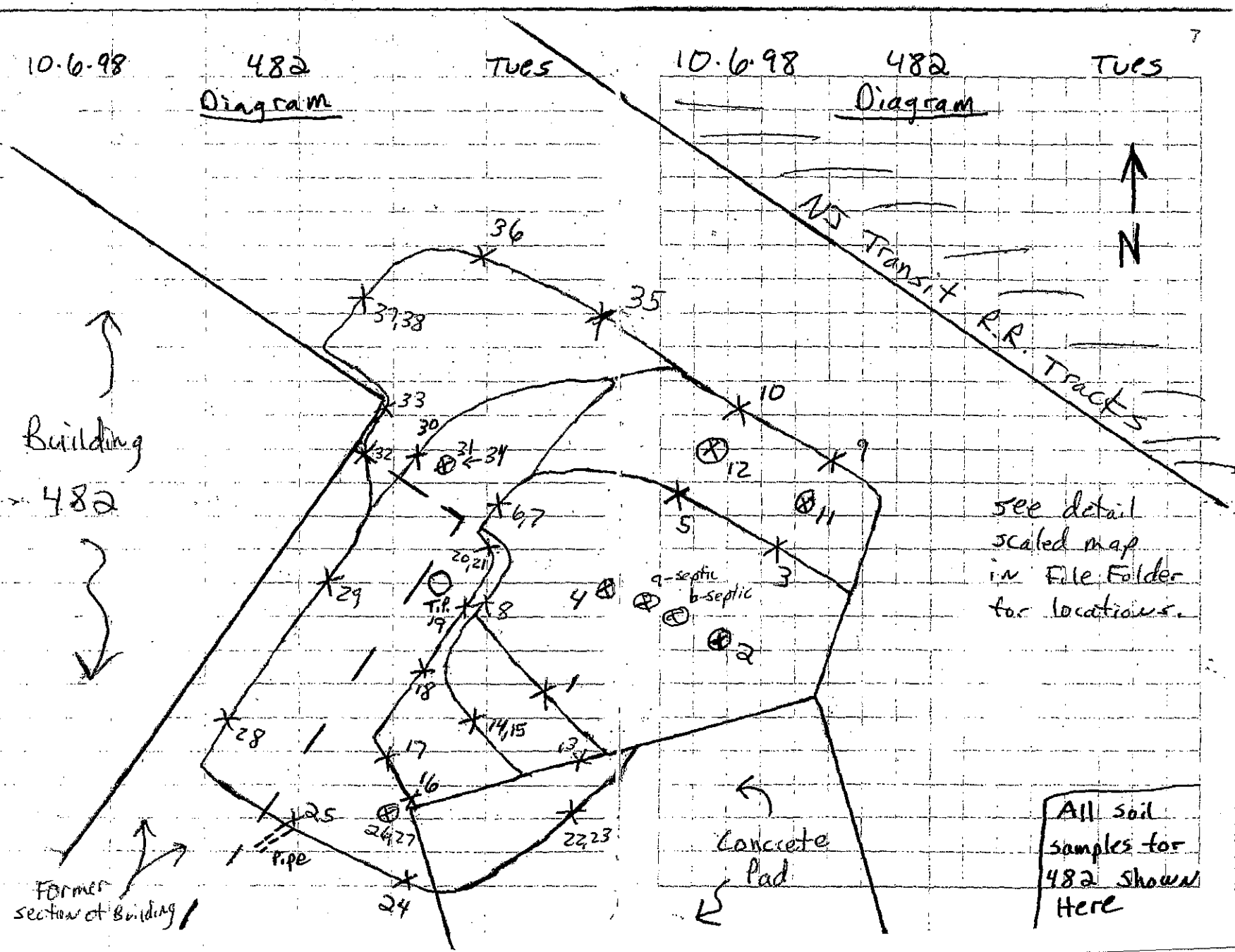

N site
site N
Building 482
482 Excavation
R.R. Tracks
484 Excavation
Paved Area
concrete pad
shed
Building 484
30'
a-septic
b-septic
Note: See file for Detailed scaled map

114

Septic work

10·6·98 482 Tues

Diagram



10·6·98 482 Tues

Diagram

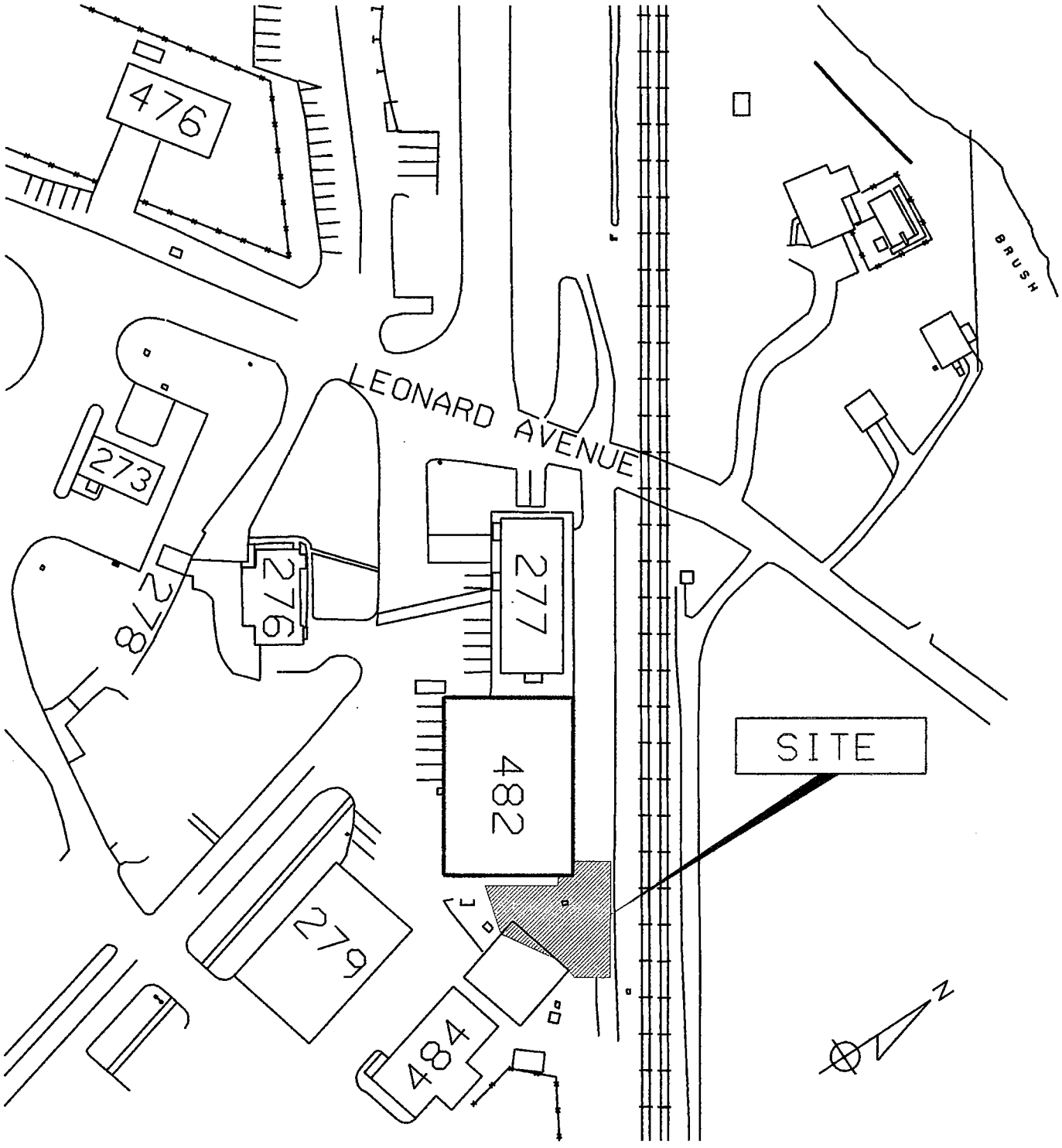
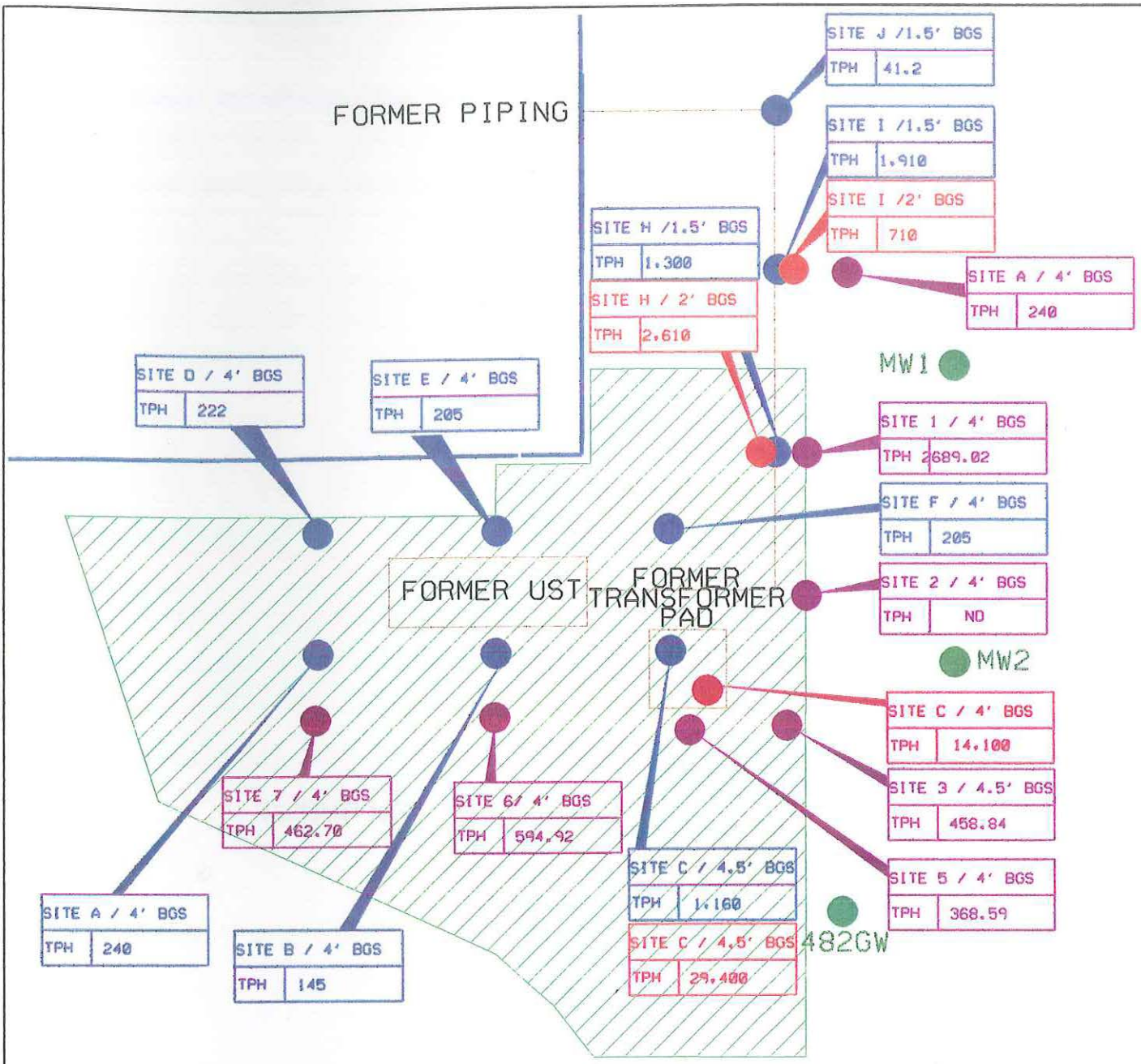


FIGURE 2
SITE MAP
BUILDING 482
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
ENGINEERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

SCALE: 1"=100' | DATE: AUGUST 1994



LEGEND

- SOIL SAMPLE LOCATION (AUG 12, 1994)
- SOIL SAMPLE LOCATION (AUG 26, 1994)
- SOIL SAMPLE LOCATION (SEP 6, 1994)
- SOIL SAMPLE LOCATION (FEB 20, 2002)
- MONITORING WELL LOCATION
- LIMIT OF EXCAVATION (JULY 7, 1994)

NOTES:

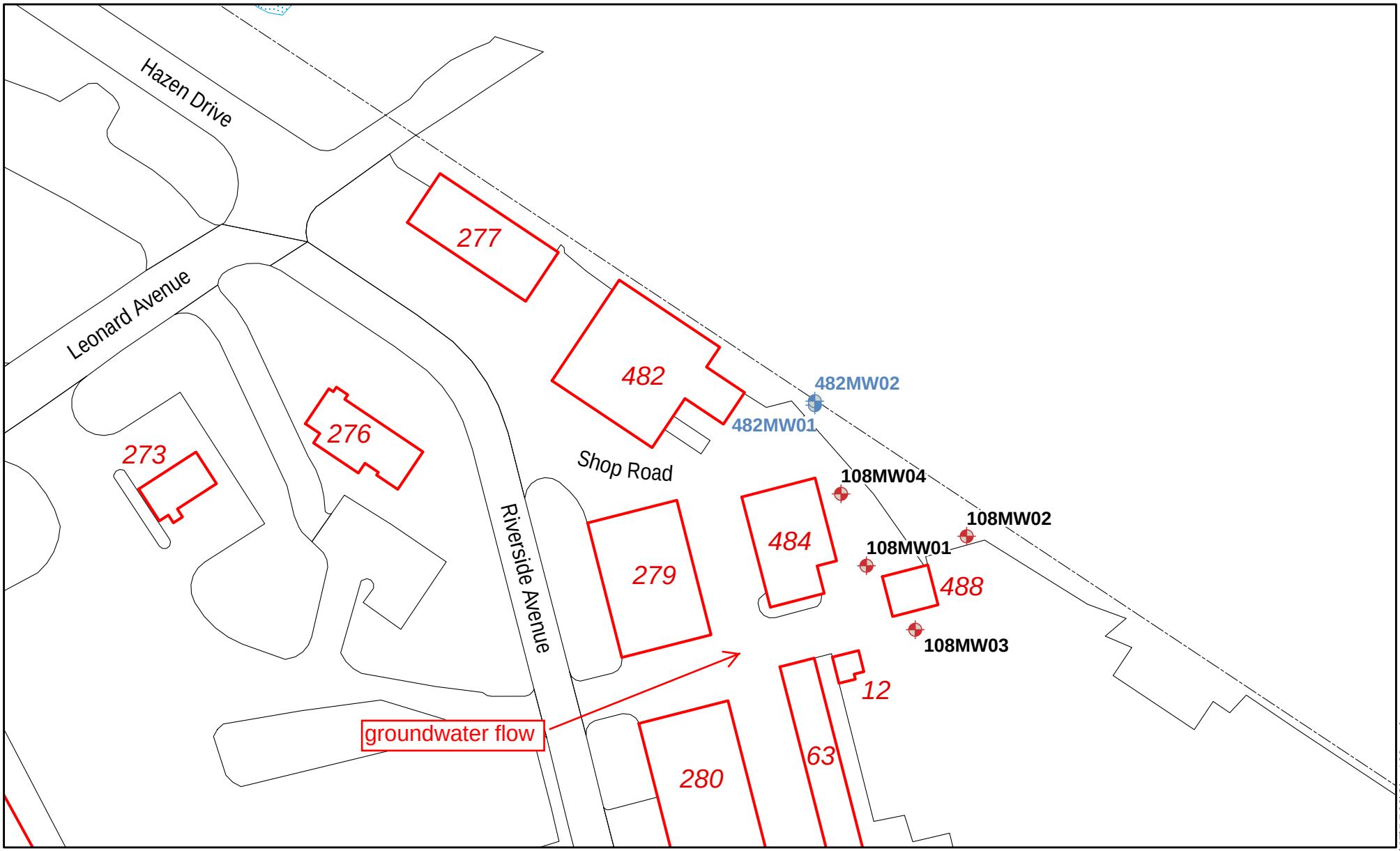
1. ALL RESULTS IN MG/KG.
2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
3. BGS - BELOW GROUND SURFACE

FIGURE 4
SOIL SAMPLING LOCATION MAP
BUILDING 482
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
ENGINEERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

SCALE: 1"=10' | DATE: MARCH 2002

277 FIG4



FTMM-57
Main Post
Fort Monmouth, New Jersey

Map Created by:
Fort Monmouth Installation GIO, Environmental Division
Fort Monmouth, New Jersey
Date: March 22, 2010

N
W E
S

0 50 100 200 Feet

NAD 83, NJ State Plane Feet

Legend

- Monitoring Well - Abandoned
- Monitoring Well - Active
- Recovery Well
- Soil Vapor Extraction Point
- Sparge Point
- Vapor Point
- Irrigation Well
- Roadway & Parking
- Existing Structure
- Demolished Structure
- Landfill Area
- Water Body
- Post Boundary

All features in the legend may not appear in the map.

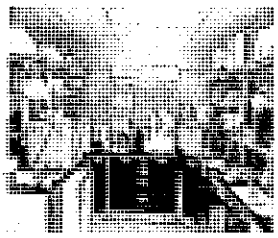
March 22, 2010 U:\GIS\GIS Maps\JTPR02\Site 108.mxd

ATTACHMENT O, Enclosure 2

UST 482 – Analytical Data Reports (10372, 10373, and 11264)

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS
PHONE: (732) 532-6224 FAX: (732) 532-6263
WET-CHEM - METALS - ORGANICS - FIELD SAMPLING
CERTIFICATIONS: NJDEP #13461



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: UST Program

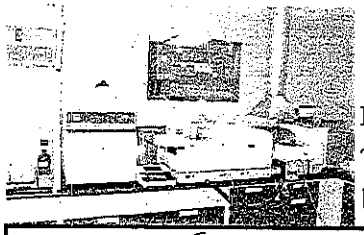
Bldg. 482

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
Trip Blank	1037201	Methanol	31-Aug-10 10:35	08/31/10
482/SB-1 (5.0-5.5)	1037202	Soil	31-Aug-10 10:35	08/31/10

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
VOA+15, ABN+25, PESTICIDES, PCB's
PP METALS, %SOLIDS

ACCUTEST LABORATORIES
TOTAL CYANIDE

Dean Tardiff/Date: 10/29/10
Laboratory Manager



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-6352 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: Fort Monmouth / C. Appleby
Phone #: X22692
( )DERA ( )OMA ( )Other:_____
Project No:
Location: 482
Samplers Name / Company: Robert Youker / TVS

Work Order #	Sample Location	Date	Time	Sample Type	# bottles	VOA's	SVOC's	Pesticides	PCB's	RP Metals	Total Cyanide	% Moisture		Remarks / Preservation Method
10372 01	TRIP	08/31/10	10:30	Soil	1	✓								6883 Meth.
02	482SB-1(5-5.5')	08/31/10	10:35	Soil	5	✓	✓	✓	✓	✓	✓	✓		6884 Meth.

Analysis Parameters

Comments:

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
	08/31/10 11:00				
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

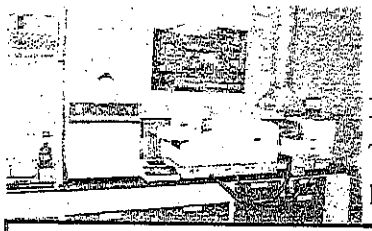
Report Type: ( )Full, ( )Reduced, (✓)Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: (✓)Standard 3 wks, ( )Rush ____Wk., ( )ASAP Verbal ____Hrs.

Remarks:

000002

print legibly

COC Copy.xls8/16/2010



Fort Monmouth Environmental Testing Laboratory

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

Chain of Custody Record

Customer: Dean Tardiff
Phone #: (732)532-4359
( )DERA ( )OMA ( )Other:_____

Project No:
Location: Bldg. 482

Samplers Name / Company:

LIMS/Work Order #	Sample Location	Date	Time	Sample Type	# bottles	Analysis Parameters: Total Cyanide								Comments: Remarks / Preservation Method
1037202	482/SB-5.0-5.5'	8/31/2010	10:35	Soil	1	X								

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
	8-31-10 1215				
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

Report Type: ( )Full, (X)Reduced, (X)Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: (X)Standard 3 wks, ( )Rush Wk., ( )ASAP Verbal ____Hrs.

Comments: PO C09-20650

000004

print legibly

10372 SUBOUT FORT.Cyanide B.483.xls8/31/2010

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

Data File	VA7364.D	Sample Name	1037201	Sample Weight	10.00 g
Operator	ROBERTS	Field ID	TRIP BLANK	Percent Solids	100.0 %
Date Acquired	2 Sep 2010 10:36 pm	Sample Multiplier	0.100	Methanol extract volume	25 ml
				Methanol aliquot volume	1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.436 mg/kg	0.500 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	4	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	25	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	220	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	70000	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	2	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.061 mg/kg	0.100 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.054 mg/kg	0.100 mg/kg	
108-88-3	Toluene			not detected	6300	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.047 mg/kg	0.100 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	90	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	81	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.059 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\GOSSELIN.CRT

9/9/2010 2:43 PM

000018

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

TRIP BLANK

Lab Name: FMETL NJDEP # 13461

Project: Case No.: MW Location: SDG No.: 10372

Matrix: (soil/water) SOIL Lab Sample ID: 1037201

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7364.D

Level: (low/med) MED Date Received: 8/31/2010

% Moisture: not dec. 0 Date Analyzed: 9/2/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File	VA7365.D	Sample Name	1037202	Sample Weight	9.39 g
Operator	ROBERTS	Field ID	482 SB-1 (5-5.5')	Percent Solids	83.1 %
Date Acquired	2 Sep 2010 11:07 pm	Sample Multiplier	0.128	Methanol extract volume	25 ml
				Methanol aliquot volume	1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.559 mg/kg	0.641 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.276 mg/kg	0.641 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.527 mg/kg	0.641 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.041 mg/kg	0.064 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.049 mg/kg	0.064 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.133 mg/kg	0.064 mg/kg	
74-87-3	Chloromethane			not detected	4	0.055 mg/kg	0.064 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.064 mg/kg	0.064 mg/kg	
74-83-9	Bromomethane			not detected	25	0.067 mg/kg	0.064 mg/kg	
75-00-3	Chloroethane			not detected	220	0.056 mg/kg	0.064 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.109 mg/kg	0.064 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.099 mg/kg	0.064 mg/kg	
67-64-1	Acetone			not detected	70000	0.105 mg/kg	0.064 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.087 mg/kg	0.064 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.083 mg/kg	0.064 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.076 mg/kg	0.064 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.074 mg/kg	0.064 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.042 mg/kg	0.128 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.091 mg/kg	0.064 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.074 mg/kg	0.064 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.095 mg/kg	0.064 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.081 mg/kg	0.064 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.079 mg/kg	0.064 mg/kg	
71-43-2	Benzene			not detected	2	0.073 mg/kg	0.064 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.058 mg/kg	0.064 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.069 mg/kg	0.064 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.074 mg/kg	0.064 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.062 mg/kg	0.064 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.078 mg/kg	0.128 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.049 mg/kg	0.064 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.069 mg/kg	0.128 mg/kg	
108-88-3	Toluene			not detected	6300	0.091 mg/kg	0.064 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.058 mg/kg	0.064 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.065 mg/kg	0.064 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.085 mg/kg	0.064 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.060 mg/kg	0.128 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.059 mg/kg	0.064 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.083 mg/kg	0.064 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.088 mg/kg	0.064 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.090 mg/kg	0.064 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.168 mg/kg	0.128 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.079 mg/kg	0.064 mg/kg	
100-42-5	Styrene			not detected	90	0.069 mg/kg	0.064 mg/kg	
75-25-2	Bromoform			not detected	81	0.051 mg/kg	0.064 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.069 mg/kg	0.064 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.074 mg/kg	0.064 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.072 mg/kg	0.064 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.076 mg/kg	0.064 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\GOSSELIN.CRT

9/9/2010 2:43 PM

000020

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

482 SB-1 (5-5.5')

Lab Name: FMETL NJDEP # 13461

Project: Case No.: MW Location: SDG No.: 10372

Matrix: (soil/water) SOIL Lab Sample ID: 1037202

Sample wt/vol: 9.4 (g/ml) G Lab File ID: VA7365.D

Level: (low/med) MED Date Received: 8/31/2010

% Moisture: not dec. 16.9 Date Analyzed: 9/2/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name	E497.D	Misc Info	482 SB-1 (5-5.5')	Sample Weight	10.10 g
Operator	ROBERTS	Dilution factor	1	Percent Solids	83.1 %
Date Acquired	5-Oct-10	Sample Multiplier	0.119		
Sample Name	10372 02	*Sample multiplier = (0.001*Dilution factor)/([sample weight(kg)]*[percent solids/100])*			
		Multiplied by 0.001 to convert ug/kg to mg/kg.			

CAS#	Name	R.T.	Response	Result		MDL	RL		Qualifiers
110-86-1	pyridine			not	detected	0.118	0.60	mg/kg	
62-75-9	N-nitroso-dimethylamine			not	detected	0.200	0.60	mg/kg	
62-53-3	Aniline			not	detected	0.318	0.60	mg/kg	
108-95-2	Phenol			not	detected	0.295	0.60	mg/kg	
111-44-4	bis-2-chloroethyl ether			not	detected	0.230	0.60	mg/kg	
95-57-8	2-chlorophenol			not	detected	0.278	0.60	mg/kg	
541-73-1	1,3-dichlorobenzene			not	detected	0.199	0.60	mg/kg	
106-46-7	1,4-dichlorobenzene			not	detected	0.207	0.60	mg/kg	
100-51-6	Benzyl alcohol			not	detected	0.307	0.60	mg/kg	
95-50-1	1,2-dichlorobenzene			not	detected	0.231	0.60	mg/kg	
95-48-7	2-methylphenol			not	detected	0.328	0.60	mg/kg	
39638-32-9	bis(2-chloroisopropyl)ether			not	detected	0.267	0.60	mg/kg	
106-44-5	4-methylphenol			not	detected	0.367	0.60	mg/kg	
621-64-7	N-nitroso-di-n-propylamine			not	detected	0.301	0.60	mg/kg	
67-72-1	Hexachloroethane			not	detected	0.225	0.60	mg/kg	
98-95-3	Nitrobenzene			not	detected	0.269	0.60	mg/kg	
78-59-1	Isophorone			not	detected	0.286	0.60	mg/kg	
88-75-5	2-nitrophenol			not	detected	0.267	0.60	mg/kg	
105-67-9	2,4-dimethylphenol			not	detected	0.304	0.60	mg/kg	
111-91-1	bis(2-chloroethoxy)methane			not	detected	0.236	0.60	mg/kg	
120-83-2	2,4-dichlorophenol			not	detected	0.300	0.60	mg/kg	
65-85-0	Benzoic acid			not	detected	0.247	0.60	mg/kg	
120-82-1	1,2,4-trichlorobenzene			not	detected	0.261	0.60	mg/kg	
91-20-3	Naphthalene			not	detected	0.288	0.60	mg/kg	
106-47-8	4-chloroaniline			not	detected	0.441	0.60	mg/kg	
87-68-3	Hexachlorobutadiene			not	detected	0.257	0.60	mg/kg	
59-50-7	4-chloro-3-methylphenol			not	detected	0.324	0.60	mg/kg	
91-57-6	2-methylnaphthalene	11.82	15671565	11.35	detected	0.310	0.60	mg/kg	
77-47-4	Hexachlorocyclopentadiene			not	detected	0.174	0.60	mg/kg	
88-06-2	2,4,6-trichlorophenol			not	detected	0.331	0.60	mg/kg	
95-95-4	2,4,5-trichlorophenol			not	detected	0.344	0.60	mg/kg	
91-58-7	2-chloronaphthalene			not	detected	0.299	0.60	mg/kg	
88-74-4	2-nitroaniline			not	detected	0.366	0.60	mg/kg	
131-11-3	Dimethylphthalate			not	detected	0.315	0.60	mg/kg	
208-96-8	Acenaphthylene			not	detected	0.324	0.60	mg/kg	
606-20-2	2,6-dinitrotoluene			not	detected	0.311	0.60	mg/kg	
99-09-2	3-nitroaniline			not	detected	0.263	0.60	mg/kg	
83-32-9	Acenaphthene			not	detected	0.323	0.60	mg/kg	
51-28-5	2,4-dinitrophenol			not	detected	0.207	0.60	mg/kg	
132-64-9	Dibenzofuran			not	detected	0.380	0.60	mg/kg	
100-02-07	4-nitrophenol			not	detected	0.293	0.60	mg/kg	

Semi-Volatile Analysis Report
Page 2

Data File Name	E497.D	Misc Info	482 SB-1 (5-5.5')	Sample Weight	10.10 g
Operator	ROBERTS	Dilution factor	1	Percent Solids	83.1 %
Date Acquired	5-Oct-10	Sample Multiplier	0.119		
Sample Name	10372 02	*Sample multiplier = (0.001*Dilution factor)/([sample weight(kg)]*[percent solic*			
		Multiplied by 0.001 to convert ug/kg to mg/kg.			

CAS#	Name	R.T.	Response	Result			RL		Qualifiers
121-14-2	2,4-dinitrotoluene			not	detected	0.311	0.60	mg/kg	
84-66-2	Diethylphthalate			not	detected	0.298	0.60	mg/kg	
86-73-7	Fluorene			not	detected	0.337	0.60	mg/kg	
7005-72-3	4-chlorophenyl-phenylether			not	detected	0.331	0.60	mg/kg	
100-01-6	4-nitroaniline			not	detected	0.325	0.60	mg/kg	
534-52-1	4,6-dinitro-2-methylphenol			not	detected	0.287	1.19	mg/kg	
86-30-6	N-nitrosodiphenylamine			not	detected	0.323	0.60	mg/kg	
103-33-3	Azobenzene			not	detected	0.342	0.60	mg/kg	
101-55-3	4-bromophenyl-phenylether			not	detected	0.343	0.60	mg/kg	
118-74-1	Hexachlorobenzene			not	detected	0.357	0.60	mg/kg	
87-86-5	Pentachlorophenol			not	detected	0.343	0.60	mg/kg	
85-01-8	Phenanthrene			not	detected	0.354	0.60	mg/kg	
120-12-7	Anthracene			not	detected	0.356	0.60	mg/kg	
84-74-2	Di-n-butylphthalate			not	detected	0.341	0.60	mg/kg	
206-44-0	Fluoranthene			not	detected	0.354	0.60	mg/kg	
92-87-5	Benzidine			not	detected	0.321	0.60	mg/kg	
129-00-0	Pyrene			not	detected	0.378	0.60	mg/kg	
85-68-7	Butylbenzylphthalate			not	detected	0.313	0.60	mg/kg	
56-55-3	Benzo[a]anthracene			not	detected	0.355	0.60	mg/kg	
91-94-1	3,3'-dichlorobenzidine			not	detected	0.324	0.60	mg/kg	
218-01-9	Chrysene			not	detected	0.335	0.60	mg/kg	
117-81-7	bis(2-ethylhexyl)phthalate			not	detected	0.376	0.60	mg/kg	
117-84-0	Di-n-octylphthalate			not	detected	0.316	0.60	mg/kg	
205-99-2	Benzo[b]fluoranthene			not	detected	0.255	0.60	mg/kg	
207-08-9	Benzo[k]fluoranthene			not	detected	0.306	0.60	mg/kg	
50-32-8	Benzo[a]pyrene			not	detected	0.274	0.60	mg/kg	
193-39-5	Indeno[1,2,3-cd]pyrene			not	detected	0.232	0.60	mg/kg	
53-70-3	Dibenz[a,h]anthracene			not	detected	0.217	0.60	mg/kg	
191-24-2	Benzo[g,h,i]perylene			not	detected	0.220	0.60	mg/kg	

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

Qualifiers

E= Value Exceeds Linear Range
D= Value from dilution
B= Compound in Related Blank
RL= Reporting Limit. The values between the MDL and RL are considered estimated.
J= Estimated concentration, value lies between RL and MDL
MDL= Method Detection Limit
NLE= No Limit Established
R.T.=Retention Time

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id: **482 SB-1 (5-5.5')**

Lab Name: FMETL Lab Code 13461

Project: Case No.: Location: SDG No.: 10372

Matrix: (soil/water) SOIL Lab Sample ID: 1037202

Sample wt/vol: 10.1 (g/ml) G Lab File ID: E497.D

Level: (low/med) LOW Date Received: 8/31/2010

% Moisture: 16.9 decanted: (Y/N) N Date Extracted: 9/10/2010

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/5/2010

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

Number TICs found: 25 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	extraction by-product	6.77	29000	J
2. 000091-17-8	Naphthalene, decahydro-	9.53	4100	JN
3.	Alkane: Cyclic	9.86	4000	J
4.	Alkane: Cyclic	11.20	4100	J
5. 000090-12-0	Naphthalene, 1-methyl-	11.96	4400	JN
6.	Alkane: Cyclic	12.09	4000	J
7.	Alkane: Branched	12.26	5900	J
8.	unknown hydrocarbon	12.47	4700	J
9.	1H-Indene-dihydro-trimethyl	12.57	4500	J
10.	Naphthalene, ethyl-	12.63	4300	J
11.	Naphthalene, dimethyl-	12.74	6900	J
12.	Naphthalene, dimethyl-	12.85	6500	J
13.	Alkane: Straight-Chain	12.93	6900	J
14.	Naphthalene, dimethyl-	13.02	4600	J
15.	Alkane: Branched	13.16	4100	J
16.	unknown hydrocarbon	13.23	4900	J
17.	Naphthalene, trimethyl-	13.63	4600	J
18.	Naphthalene, trimethyl-	13.69	6000	J
19.	Naphthalene, trimethyl-	13.85	4000	J
20.	Naphthalene, trimethyl-	13.95	5200	J
21.	Alkane: Branched	14.03	5100	J
22.	unknown hydrocarbon	14.14	6000	J
23.	Alkane: Straight-Chain	14.28	7700	J
24.	Alkane: Branched	14.68	5800	J
25.	Alkane: Branched	17.92	4200	J

Ft. Monmouth Environmental Laboratory
173 Riverside Ave.
Ft. Monmouth, NJ 07703

Client:	US Army	Location:	Bldg 482
Project Name:	Bldg 482	MATRIX:	Soil
Field ID:	482SB-1 (5-5.5')	Ext. Batch:	PP09101001
Lab ID:	10372-02	Date Extracted:	9/10/2010
Filename:	09131023.D	Date Analyzed:	9/13/2010
Lab Project:	10372	Dilution:	1
		Analyst:	CR

CAS #	COMPOUNDS	RESULTS (mg/kg)	Reporting Limit (mg/kg)	Soil Remediation Standard (mg/kg)**	Qualifier	MDL (mg/kg)
319-84-6	alpha-BHC	ND	0.0241	0.1		0.0008
319-85-7	beta-BHC	ND	0.0241	0.4		0.0011
58-89-9	gamma-BHC	ND	0.0241	0.4		0.0007
319-86-8	delta-BHC	ND	0.0241	NLE		0.0006
76-44-8	Heptachlor	ND	0.0241	0.1		0.0102
309-00-2	Aldrin	ND	0.0241	0.04		0.0024
1024-57-3	Heptachlor epoxide	ND	0.0241	0.07		0.0010
5103-74-2	gamma-Chlordane	ND	0.0241	NLE		0.0017
5103-71-9	alpha-Chlordane	ND	0.0241	NLE		0.0016
959-98-8	Endosulfan I	ND	0.0241	470		0.0019
72-55-9	4,4'-DDE	ND	0.0241	2		0.0020
60-57-1	Dieldrin	ND	0.0241	0.04		0.0020
72-20-8	Endrin	ND	0.0241	23		0.0007
33213-65-9	Endosulfan II	ND	0.0241	470		0.0006
72-54-8	4,4'-DDD	ND	0.0241	3		0.0007
7421-93-4	Endrin aldehyde	ND	0.0241	NLE		0.0007
50-29-3	4,4'-DDT	ND	0.0241	2		0.0012
1031-07-8	Endosulfan sulfate	ND	0.0241	470		0.0006
53494-70-5	Endrin ketone	ND	0.0241	NLE		0.0007
72-43-5	Methoxychlor	ND	0.0241	390		0.0008
8001-35-2	Toxaphene	ND	0.0602	0.6		0.0285
57-74-9	Total Chlordane	ND	0.0602	0.2		0.0144

% Solids	83.1
Initial Mass (g)	10.13
Final Vol.(ml)	10

MDL = Method Detection Limit.
ND =Not Detected / Below MDL.
B = Present in the associated Blank.
E = Exceeded Calibration Range, Dilution to follow.
D = Dilution.
NLE = No Limit Established.
RL = Reporting Limit.

*Results between MDL and RL are estimated.
Column-Primary: Rtx-CLPesticides 30/.32mm ID/.25um.
Column-Confirmation: Rtx-CLPesticides2 30m/.32mm ID/.5um.

**Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

Ft. Monmouth Environmental Laboratory
173 Riverside Ave.
Ft. Monmouth, NJ 07703

Client:	US Army	Location:	Bldg 482
Project Name:	Bldg 482	MATRIX:	Soil
Field ID:	482SB-1 (5-5.5')	Ext. Batch:	PP09101001
Lab ID:	10372-02	Date Extracted:	9/10/2010
Filename:	10051018.D	Date Analyzed:	10/25/2010
Lab Project:	10372	Dilution:	1
		Analyst:	CR

CAS #	COMPOUNDS	RESULTS (mg/kg)	Reporting Limit (mg/kg)		Qualifier	MDL (mg/kg)
12674-11-2	Arochlor 1016	ND	0.060			0.0265
11104-28-2	Arochlor 1221	ND	0.060			0.0168
11141-16-5	Arochlor 1232	ND	0.060			0.0132
53469-21-9	Arochlor 1242	ND	0.060			0.0072
12672-29-6	Arochlor 1248	ND	0.060			0.0349
11097-69-1	Arochlor 1254	ND	0.060			0.0193
11096-82-5	Arochlor 1260	ND	0.060			0.0301

MDL = Method Detection Limit.	% Solids	83.1
ND =Not Detected / Below MDL.	Initial Mass (g)	10.13
B = Present in the associated Blank.	Final Vol.(ml)	10

E = Exceeded Calibration Range, Dilution to follow.
D = Dilution.
NLE = No Limit Established.
RL = Reporting Limit.
PQL = Practical Quantitation Limit.

*Results between MDL and RL are estimated.
Column-Primary: Rtx-CLPesticides 30/.32mm ID/.25um.
Column-Confirmation: Rtx-CLPesticides2 30m/.32mm ID/.5um.

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

Lab ID #: 1037202
Sample Received: 08/31/10
Sample Matrix: Soil

Site: Bldg. 482

Field ID: 482/ SB-1 (5.0-5.5)

Method of Digestion: E.P.A SW-846, Method 3051A
Method of Analysis: EPA SW-846 Method 6010B, 7471A

PP-METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Antimony	09/02/10	2.45	31	4.28	1.413
Arsenic	09/02/10	12.3	19	2.14	2.141
Beryllium	09/02/10	1.82	16	0.21	0.128
Cadmium	09/02/10	1.97	78	0.86	0.300
Chromium	09/02/10	149	NLE	2.14	0.557
Copper	09/02/10	8.27	3100	6.42	5.567
Lead	09/02/10	10.8	400	2.14	1.113
Mercury	09/09/10	ND	23	0.21	0.017
Nickel	09/02/10	7.94	1600	2.14	0.942
Selenium	09/02/10	ND	390	8.56	2.997
Silver	09/02/10	10.2	390	2.14	0.428
Thallium	09/02/10	ND	5	4.28	2.141
Zinc	09/02/10	49.9	23000	10.70	9.420

ND = Not Detected, NLE = No Limit Established, NA = Standard Not Available
* Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & R.L.

Accutest Laboratories

Report of Analysis

Client Sample ID:	1037202 482/SB-5.0-5.5'		
Lab Sample ID:	JA55188-1	Date Sampled:	08/31/10
Matrix:	SO - Soil	Date Received:	08/31/10
		Percent Solids:	83.6
Project:	Building 482		

General Chemistry

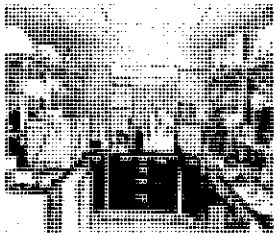
Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.26	0.26	mg/kg	1	09/04/10 14:32	NR	SW846 9012 M/LACHAT
Solids, Percent	83.6		%	1	09/08/10	AL	SM18 2540G

RL = Reporting Limit

000038

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS
PHONE: (732) 532-6224 FAX: (732) 532-6263
WET-CHEM - METALS - ORGANICS - FIELD SAMPLING
CERTIFICATIONS: NJDEP #13461



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: UST Program

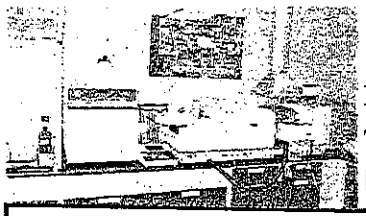
Bldg. 482

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
Trip Blank	1037301	Aqueous	31-Aug-10 08:45	08/31/10
Field Blank	1037302	Aqueous	31-Aug-10 13:30	08/31/10
482/TMP-1	1037303	Aqueous	31-Aug-10 13:45	08/31/10

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
VOA+15, ABN+25, PESTICIDES, PCB's
PP METALS,

ACCUTEST LABORATORIES
TOTAL CYANIDE

Dean Tardiff/Date: 10/29/10
Laboratory Manager



Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-6352 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: Fort Monmouth
Phone #: X22648 / C. Hankey
( )DERA ( )OMA ( )Other:_____
Project No:
Location: 482
Samplers Name / Company: Robert Youhaj / TUS

Work Order #	Sample Location	Date	Time	Sample Type	# bottles	VOA's	SVOC's	Pesticides	PCB's	RP Metals	TAL Cyanide			Comments: Remarks / Preservation Method
10373 01	TRIP	08/31/10	08:45	GW	2	✓	✓	✓						HCl, NaOH
02	Field Blank	08/31/10	13:30	GW	7	✓	✓	✓	✓	✓	✓			HCl, NaOH
03	482TMP_1	08/31/10	13:45	GW	7	✓	✓	✓	✓	✓	✓			HCl, NaOH

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
	08/31/10 1500				
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

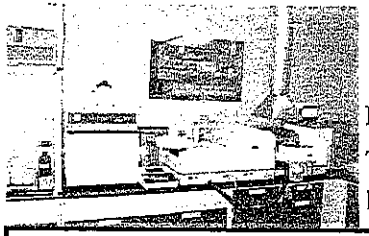
Report Type: ( )Full, (✓)Reduced, ( )Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: (✓)Standard 3 wks, ( )Rush ____Wk., ( )ASAP Verbal ___Hrs.

Remarks:

000002

print legibly

COC Copy.xls8/16/2010



Fort Monmouth Environmental Testing Laboratory

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

Chain of Custody Record

Customer: Dean Tardiff
Phone #: (732)532-4359
( )DERA ( )OMA ( )Other:_____

Project No:
Location: Bldg. 482

Samplers Name / Company:

LIMS/Work Order #	Sample Location	Date	Time	Sample Type	# bottles	Analysis Parameters: Total Cyanide								Comments: Remarks / Preservation Method
1037202	Field Blank	8/31/2010	13:30	AQ	1	X								
1037303	TMP-1	8/31/2010	13:45	AQ	1	X								

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
	9-1-10 1130				
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

Report Type: ( )Full, ( )Reduced, (X)Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: (X)Standard 3 wks, ( )Rush Wk., ( )ASAP Verbal ____Hrs.

Comments: PO C09-20650

000004

print legibly

10372 SUBOUT FORT.Cyanide B.482.xls9/1/2010

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

Data File	VA7376.D	Sample Name	1037301
Operator	ROBERTS	Field ID	482 TRIP BLANK
Date Acquired	3 Sep 2010 5:02 pm	Sample Multiplier	1

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	5	3.21 ug/L	5.00 ug/L	
107131	Acrylonitrile			not detected	2	0.98 ug/L	5.00 ug/L	
75650	tert-Butyl alcohol			not detected	100	1.64 ug/L	5.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.11 ug/L	0.50 ug/L	
108203	Di-isopropyl ether			not detected	20000	0.17 ug/L	0.50 ug/L	
75718	Dichlorodifluoromethane			not detected	1000	0.17 ug/L	0.50 ug/L	
74-87-3	Chloromethane			not detected	nle	0.27 ug/L	0.50 ug/L	
75-01-4	Vinyl Chloride			not detected	1	0.22 ug/L	0.50 ug/L	
74-83-9	Bromomethane			not detected	10	0.37 ug/L	0.50 ug/L	
75-00-3	Chloroethane			not detected	nle	0.32 ug/L	0.50 ug/L	
75-69-4	Trichlorofluoromethane			not detected	2000	0.15 ug/L	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	1	0.15 ug/L	0.50 ug/L	
67-64-1	Acetone			not detected	6000	0.32 ug/L	0.50 ug/L	
75-15-0	Carbon Disulfide			not detected	700	0.12 ug/L	0.50 ug/L	
75-09-2	Methylene Chloride			not detected	3	0.26 ug/L	0.50 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.14 ug/L	0.50 ug/L	
75-35-3	1,1-Dichloroethane			not detected	50	0.12 ug/L	0.50 ug/L	
108-05-4	Vinyl Acetate			not detected	7000	0.20 ug/L	1.00 ug/L	
78-93-3	2-Butanone			not detected	300	0.22 ug/L	0.50 ug/L	
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.12 ug/L	0.50 ug/L	
67-66-3	Chloroform			not detected	70	0.35 ug/L	0.50 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.12 ug/L	0.50 ug/L	
56-23-5	Carbon Tetrachloride			not detected	1	0.12 ug/L	0.50 ug/L	
71-43-2	Benzene			not detected	1	0.12 ug/L	0.50 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.11 ug/L	0.50 ug/L	
79-01-6	Trichloroethene			not detected	1	0.11 ug/L	0.50 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.12 ug/L	0.50 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.12 ug/L	0.50 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.24 ug/L	1.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	1	0.13 ug/L	0.50 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	nle	0.15 ug/L	0.50 ug/L	
108-88-3	Toluene			not detected	1000	0.12 ug/L	0.50 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	1	0.13 ug/L	0.50 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.14 ug/L	0.50 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.14 ug/L	0.50 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.17 ug/L	1.00 ug/L	
126-48-1	Dibromochloromethane			not detected	1	0.12 ug/L	0.50 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.12 ug/L	0.50 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.12 ug/L	0.50 ug/L	
630-20-6	1,1,1,2-tetrachloroethane			not detected	1	0.13 ug/L	0.50 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	0.30 ug/L	1.00 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.14 ug/L	0.50 ug/L	
100-42-5	Styrene			not detected	100	0.14 ug/L	0.50 ug/L	
75-25-2	Bromoform			not detected	4	0.14 ug/L	0.50 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.14 ug/L	0.50 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.16 ug/L	0.50 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.15 ug/L	0.50 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.13 ug/L	0.50 ug/L	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated concentration, value falls between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\624FY10.CRT

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

TRIP BLANK

Lab Name: FMETL NJDEP # 13461

Project: Case No.: MW Location: SDG No.: 10373

Matrix: (soil/water) WATER Lab Sample ID: 1037301

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VA7376.D

Level: (low/med) LOW Date Received: 8/31/2010

% Moisture: not dec. Date Analyzed: 9/3/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File	VA7377.D	Sample Name	1037302
Operator	ROBERTS	Field ID	482 FIELD BLANK
Date Acquired	3 Sep 2010 5:33 pm	Sample Multiplier	1

CAS#	Compound Name	R.T.	Response	Result		Regulatory Level (ug/l)*	MDL	RL	Qualifiers
107028	Acrolein			not	detected	5	3.21 ug/L	5.00 ug/L	
107131	Acrylonitrile			not	detected	2	0.98 ug/L	5.00 ug/L	
75650	tert-Butyl alcohol			not	detected	100	1.64 ug/L	5.00 ug/L	
1634044	Methyl-tert-Butyl ether			not	detected	70	0.11 ug/L	0.50 ug/L	
108203	Di-isopropyl ether			not	detected	20000	0.17 ug/L	0.50 ug/L	
75718	Dichlorodifluoromethane			not	detected	1000	0.17 ug/L	0.50 ug/L	
74-87-3	Chloromethane			not	detected	nle	0.27 ug/L	0.50 ug/L	
75-01-4	Vinyl Chloride			not	detected	1	0.22 ug/L	0.50 ug/L	
74-83-9	Bromomethane			not	detected	10	0.37 ug/L	0.50 ug/L	
75-00-3	Chloroethane			not	detected	nle	0.32 ug/L	0.50 ug/L	
75-69-4	Trichlorofluoromethane			not	detected	2000	0.15 ug/L	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not	detected	1	0.15 ug/L	0.50 ug/L	
67-64-1	Acetone			not	detected	6000	0.32 ug/L	0.50 ug/L	
75-15-0	Carbon Disulfide			not	detected	700	0.12 ug/L	0.50 ug/L	
75-09-2	Methylene Chloride			not	detected	3	0.26 ug/L	0.50 ug/L	
156-60-5	trans-1,2-Dichloroethene			not	detected	100	0.14 ug/L	0.50 ug/L	
75-35-3	1,1-Dichloroethane			not	detected	50	0.12 ug/L	0.50 ug/L	
108-05-4	Vinyl Acetate			not	detected	7000	0.20 ug/L	1.00 ug/L	
78-93-3	2-Butanone			not	detected	300	0.22 ug/L	0.50 ug/L	
156-59-2	cis-1,2-Dichloroethene			not	detected	70	0.12 ug/L	0.50 ug/L	
67-66-3	Chloroform			not	detected	70	0.35 ug/L	0.50 ug/L	
75-55-6	1,1,1-Trichloroethane			not	detected	30	0.12 ug/L	0.50 ug/L	
56-23-5	Carbon Tetrachloride			not	detected	1	0.12 ug/L	0.50 ug/L	
71-43-2	Benzene			not	detected	1	0.12 ug/L	0.50 ug/L	
107-06-2	1,2-Dichloroethane			not	detected	2	0.11 ug/L	0.50 ug/L	
79-01-6	Trichloroethene			not	detected	1	0.11 ug/L	0.50 ug/L	
78-87-5	1,2-Dichloropropane			not	detected	1	0.12 ug/L	0.50 ug/L	
75-27-4	Bromodichloromethane			not	detected	1	0.12 ug/L	0.50 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not	detected	nle	0.24 ug/L	1.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not	detected	1	0.13 ug/L	0.50 ug/L	
108-10-1	4-Methyl-2-Pentanone			not	detected	nle	0.15 ug/L	0.50 ug/L	
108-88-3	Toluene			not	detected	1000	0.12 ug/L	0.50 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not	detected	1	0.13 ug/L	0.50 ug/L	
79-00-5	1,1,2-Trichloroethane			not	detected	3	0.14 ug/L	0.50 ug/L	
127-18-4	Tetrachloroethene			not	detected	1	0.14 ug/L	0.50 ug/L	
591-78-6	2-Hexanone			not	detected	nle	0.17 ug/L	1.00 ug/L	
126-48-1	Dibromochloromethane			not	detected	1	0.12 ug/L	0.50 ug/L	
108-90-7	Chlorobenzene			not	detected	50	0.12 ug/L	0.50 ug/L	
100-41-4	Ethylbenzene			not	detected	700	0.12 ug/L	0.50 ug/L	
630-20-6	1,1,1,2-tetrachloroethane			not	detected	1	0.13 ug/L	0.50 ug/L	
1330-20-7	m+p-Xylenes			not	detected	nle	0.30 ug/L	1.00 ug/L	
1330-20-7	o-Xylene			not	detected	nle	0.14 ug/L	0.50 ug/L	
100-42-5	Styrene			not	detected	100	0.14 ug/L	0.50 ug/L	
75-25-2	Bromoform			not	detected	4	0.14 ug/L	0.50 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not	detected	1	0.14 ug/L	0.50 ug/L	
541-73-1	1,3-Dichlorobenzene			not	detected	600	0.16 ug/L	0.50 ug/L	
106-46-7	1,4-Dichlorobenzene			not	detected	75	0.15 ug/L	0.50 ug/L	
95-50-1	1,2-Dichlorobenzene			not	detected	600	0.13 ug/L	0.50 ug/L	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated concentration, value falls between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\624FY10.CRT

9/3/2010 5:34 PM

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

FIELD BLANK

Lab Name: FMETL NJDEP # 13461

Project: Case No.: MW Location: SDG No.: 10373

Matrix: (soil/water) WATER Lab Sample ID: 1037302

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VA7377.D

Level: (low/med) LOW Date Received: 8/31/2010

% Moisture: not dec. Date Analyzed: 9/3/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File	VA7378.D	Sample Name	1037303
Operator	ROBERTS	Field ID	482 TMP-1
Date Acquired	3 Sep 2010 6:04 pm	Sample Multiplier	1

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	5	3.21 ug/L	5.00 ug/L	
107131	Acrylonitrile			not detected	2	0.98 ug/L	5.00 ug/L	
75650	tert-Butyl alcohol			not detected	100	1.64 ug/L	5.00 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0.11 ug/L	0.50 ug/L	
108203	Di-isopropyl ether			not detected	20000	0.17 ug/L	0.50 ug/L	
75718	Dichlorodifluoromethane			not detected	1000	0.17 ug/L	0.50 ug/L	
74-87-3	Chloromethane			not detected	nle	0.27 ug/L	0.50 ug/L	
75-01-4	Vinyl Chloride			not detected	1	0.22 ug/L	0.50 ug/L	
74-83-9	Bromomethane			not detected	10	0.37 ug/L	0.50 ug/L	
75-00-3	Chloroethane			not detected	nle	0.32 ug/L	0.50 ug/L	
75-69-4	Trichlorofluoromethane			not detected	2000	0.15 ug/L	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	1	0.15 ug/L	0.50 ug/L	
67-64-1	Acetone			not detected	6000	0.32 ug/L	0.50 ug/L	
75-15-0	Carbon Disulfide			not detected	700	0.12 ug/L	0.50 ug/L	
75-09-2	Methylene Chloride			not detected	3	0.26 ug/L	0.50 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0.14 ug/L	0.50 ug/L	
75-35-3	1,1-Dichloroethane			not detected	50	0.12 ug/L	0.50 ug/L	
108-05-4	Vinyl Acetate			not detected	7000	0.20 ug/L	1.00 ug/L	
78-93-3	2-Butanone			not detected	300	0.22 ug/L	0.50 ug/L	
156-59-2	cis-1,2-Dichloroethene			not detected	70	0.12 ug/L	0.50 ug/L	
67-66-3	Chloroform			not detected	70	0.35 ug/L	0.50 ug/L	
75-55-6	1,1,1-Trichloroethane			not detected	30	0.12 ug/L	0.50 ug/L	
56-23-5	Carbon Tetrachloride			not detected	1	0.12 ug/L	0.50 ug/L	
71-43-2	Benzene			not detected	1	0.12 ug/L	0.50 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.11 ug/L	0.50 ug/L	
79-01-6	Trichloroethene			not detected	1	0.11 ug/L	0.50 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.12 ug/L	0.50 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.12 ug/L	0.50 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0.24 ug/L	1.00 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	1	0.13 ug/L	0.50 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	nle	0.15 ug/L	0.50 ug/L	
108-88-3	Toluene			not detected	1000	0.12 ug/L	0.50 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not detected	1	0.13 ug/L	0.50 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.14 ug/L	0.50 ug/L	
127-18-4	Tetrachloroethene			not detected	1	0.14 ug/L	0.50 ug/L	
591-78-6	2-Hexanone			not detected	nle	0.17 ug/L	1.00 ug/L	
126-48-1	Dibromochloromethane			not detected	1	0.12 ug/L	0.50 ug/L	
108-90-7	Chlorobenzene			not detected	50	0.12 ug/L	0.50 ug/L	
100-41-4	Ethylbenzene			not detected	700	0.12 ug/L	0.50 ug/L	
630-20-6	1,1,1,2-tetrachloroethane			not detected	1	0.13 ug/L	0.50 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	0.30 ug/L	1.00 ug/L	
1330-20-7	o-Xylene			not detected	nle	0.14 ug/L	0.50 ug/L	
100-42-5	Styrene			not detected	100	0.14 ug/L	0.50 ug/L	
75-25-2	Bromoform			not detected	4	0.14 ug/L	0.50 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.14 ug/L	0.50 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.16 ug/L	0.50 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.15 ug/L	0.50 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.13 ug/L	0.50 ug/L	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated concentration, value falls between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\624FY10.CRT

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

482 TMP-1

Lab Name: FMETL NJDEP # 13461

Project: Case No.: MW Location: SDG No.: 10373

Matrix: (soil/water) WATER Lab Sample ID: 1037303

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VA7378.D

Level: (low/med) LOW Date Received: 8/31/2010

% Moisture: not dec. Date Analyzed: 9/3/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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

Number TICs found: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Cyclic	10.16	19	J
2.	Alkane: Cyclic	11.72	15	J
3.	C4 alkyl benzene	20.56	15	J
4. 000496-11-7	Indane	20.71	71	JN
5.	C4 alkyl benzene	21.45	44	J
6.	1H-Indene-dihydro-methyl-	21.64	18	J
7.	1H-Indene-dihydro-methyl-	21.77	51	J
8.	C4 alkyl benzene	22.27	37	J
9.	1H-Indene-dihydro-methyl-	23.01	24	J
10.	C4 alkyl benzene	23.28	70	J
11.	1H-Indene-dihydro-methyl-	23.35	67	J
12.	1H-Indene-dihydro-dimethyl-	23.89	22	J
13.	1H-Indene-dihydro-dimethyl-	24.00	14	J
14.	1H-Indene-dihydro-dimethyl-	24.16	29	J
15.	unknown hydrocarbon	25.46	16	J

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name E502.D
Operator ROBERTS
Date Acquired 5-Oct-10
Sample Name 1037302

Misc Info FIELD BLANK
Sample Multiplier 1

CAS#	Name	R.T.	Response	Result		MDL	RL		Qualifiers
110-86-1	pyridine			not	detected	1.56	5.00	ug/L	
62-75-9	N-nitroso-dimethylamine			not	detected	3.57	5.00	ug/L	
62-53-3	Aniline			not	detected	2.75	5.00	ug/L	
108-95-2	Phenol			not	detected	0.81	5.00	ug/L	
111-44-4	bis-2-chloroethyl ether			not	detected	3.23	5.00	ug/L	
95-57-8	2-chlorophenol			not	detected	1.80	5.00	ug/L	
541-73-1	1,3-dichlorobenzene			not	detected	2.97	5.00	ug/L	
106-46-7	1,4-dichlorobenzene			not	detected	3.05	5.00	ug/L	
100-51-6	Benzyl alcohol			not	detected	1.49	5.00	ug/L	
95-50-1	1,2-dichlorobenzene			not	detected	2.92	5.00	ug/L	
95-48-7	2-methylphenol			not	detected	1.55	5.00	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not	detected	2.67	5.00	ug/L	
106-44-5	4-methylphenol			not	detected	1.64	5.00	ug/L	
621-64-7	N-nitroso-di-n-propylamine			not	detected	2.61	5.00	ug/L	
67-72-1	Hexachloroethane			not	detected	2.75	5.00	ug/L	
98-95-3	Nitrobenzene			not	detected	2.91	5.00	ug/L	
78-59-1	Isophorone			not	detected	2.93	5.00	ug/L	
88-75-5	2-nitrophenol			not	detected	2.06	5.00	ug/L	
105-67-9	2,4-dimethylphenol			not	detected	1.97	5.00	ug/L	
111-91-1	bis(2-chloroethoxy)methane			not	detected	2.74	5.00	ug/L	
120-83-2	2,4-dichlorophenol			not	detected	2.11	5.00	ug/L	
65-85-0	Benzoic acid			not	detected	5.27	10.00	ug/L	
120-82-1	1,2,4-trichlorobenzene			not	detected	2.99	5.00	ug/L	
91-20-3	Naphthalene			not	detected	3.06	5.00	ug/L	
106-47-8	4-chloroaniline			not	detected	3.72	5.00	ug/L	
87-68-3	Hexachlorobutadiene			not	detected	3.07	5.00	ug/L	
59-50-7	4-chloro-3-methylphenol			not	detected	2.36	5.00	ug/L	
91-57-6	2-methylnaphthalene			not	detected	3.35	5.00	ug/L	
77-47-4	Hexachlorocyclopentadiene			not	detected	2.07	5.00	ug/L	
88-06-2	2,4,6-trichlorophenol			not	detected	2.95	5.00	ug/L	
95-95-4	2,4,5-trichlorophenol			not	detected	3.36	5.00	ug/L	
91-58-7	2-chloronaphthalene			not	detected	3.99	5.00	ug/L	
88-74-4	2-nitroaniline			not	detected	3.46	5.00	ug/L	
131-11-3	Dimethylphthalate			not	detected	3.26	5.00	ug/L	
208-96-8	Acenaphthylene			not	detected	3.46	5.00	ug/L	
606-20-2	2,6-dinitrotoluene			not	detected	3.47	5.00	ug/L	
99-09-2	3-nitroaniline			not	detected	4.12	5.00	ug/L	
83-32-9	Acenaphthene			not	detected	3.58	5.00	ug/L	
51-28-5	2,4-dinitrophenol			not	detected	4.02	10.00	ug/L	
132-64-9	Dibenzofuran			not	detected	2.94	5.00	ug/L	
100-02-07	4-nitrophenol			not	detected	1.14	5.00	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**E502.D**	Misc Info	**FIELD BLANK**
Operator	**ROBERTS**	Sample Mutliplier	**1**
Date Acquired	**5-Oct-10**		
Sample Name	**1037302**		

CAS#	Name	R.T.	Response	Result		MDL	RL		Qualifiers
121-14-2	2,4-dinitrotoluene			not	detected	3.47	5.00	ug/L	
84-66-2	Diethylphthalate			not	detected	3.54	5.00	ug/L	
86-73-7	Fluorene			not	detected	3.64	5.00	ug/L	
7005-72-3	4-chlorophenyl-phenylether			not	detected	3.74	5.00	ug/L	
100-01-6	4-nitroaniline			not	detected	2.92	5.00	ug/L	
534-52-1	4,6-dinitro-2-methylphenol			not	detected	2.22	10.00	ug/L	
86-30-6	N-nitrosodiphenylamine			not	detected	3.49	5.00	ug/L	
103-33-3	Azobenzene			not	detected	3.43	5.00	ug/L	
101-55-3	4-bromophenyl-phenylether			not	detected	3.98	5.00	ug/L	
118-74-1	Hexachlorobenzene			not	detected	3.73	5.00	ug/L	
87-86-5	Pentachlorophenol			not	detected	2.70	5.00	ug/L	
85-01-8	Phenanthrene			not	detected	3.42	5.00	ug/L	
120-12-7	Anthracene			not	detected	3.27	5.00	ug/L	
84-74-2	Di-n-butylphthalate			not	detected	2.83	5.00	ug/L	
206-44-0	Fluoranthene			not	detected	3.08	5.00	ug/L	
92-87-5	Benzidine			not	detected	16.11	16.11	ug/L	
129-00-0	Pyrene			not	detected	2.59	5.00	ug/L	
85-68-7	Butylbenzylphthalate			not	detected	2.57	5.00	ug/L	
56-55-3	Benzo[a]anthracene			not	detected	2.71	5.00	ug/L	
91-94-1	3,3'-dichlorobenzidine			not	detected	11.62	11.62	ug/L	
218-01-9	Chrysene			not	detected	2.47	5.00	ug/L	
117-81-7	bis(2-ethylhexyl)phthalate			not	detected	3.74	5.00	ug/L	
117-84-0	Di-n-octylphthalate			not	detected	2.41	5.00	ug/L	
205-99-2	Benzo[b]fluoranthene			not	detected	2.28	5.00	ug/L	
207-08-9	Benzo[k]fluoranthene			not	detected	2.56	5.00	ug/L	
50-32-8	Benzo[a]pyrene			not	detected	2.60	5.00	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not	detected	2.67	5.00	ug/L	
53-70-3	Dibenz[a,h]anthracene			not	detected	2.68	5.00	ug/L	
191-24-2	Benzo[g,h,i]perylene			not	detected	3.16	5.00	ug/L	

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

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.
J= Estimated concentration, value lies between RL and MDL

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id: **FIELD BLANK**

Lab Name: FMETL Lab Code 13461

Project: _____ Case No.: _____ Location: _____ SDG No.: 10373

Matrix: (soil/water) WATER Lab Sample ID: 1037302

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E502.D

Level: (low/med) LOW Date Received: 8/31/2010

% Moisture: _____ decanted: (Y/N) N Date Extracted: 9/3/2010

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/5/2010

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	extraction by-product	6.70	6	J

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name	E503.D	Misc Info	482 TMP-1
Operator	ROBERTS	Sample Multiplier	1
Date Acquired	5-Oct-10		
Sample Name	1037303		

CAS#	Name	R.T.	Response	Result		MDL	RL		Qualifiers
110-86-1	pyridine			not	detected	1.56	5.00	ug/L	
62-75-9	N-nitroso-dimethylamine			not	detected	3.57	5.00	ug/L	
62-53-3	Aniline			not	detected	2.75	5.00	ug/L	
108-95-2	Phenol			not	detected	0.81	5.00	ug/L	
111-44-4	bis-2-chloroethyl ether			not	detected	3.23	5.00	ug/L	
95-57-8	2-chlorophenol			not	detected	1.80	5.00	ug/L	
541-73-1	1,3-dichlorobenzene			not	detected	2.97	5.00	ug/L	
106-46-7	1,4-dichlorobenzene			not	detected	3.05	5.00	ug/L	
100-51-6	Benzyl alcohol			not	detected	1.49	5.00	ug/L	
95-50-1	1,2-dichlorobenzene			not	detected	2.92	5.00	ug/L	
95-48-7	2-methylphenol			not	detected	1.55	5.00	ug/L	
39638-32-9	bis(2-chloroisopropyl)ether			not	detected	2.67	5.00	ug/L	
106-44-5	4-methylphenol			not	detected	1.64	5.00	ug/L	
621-64-7	N-nitroso-di-n-propylamine			not	detected	2.61	5.00	ug/L	
67-72-1	Hexachloroethane			not	detected	2.75	5.00	ug/L	
98-95-3	Nitrobenzene			not	detected	2.91	5.00	ug/L	
78-59-1	Isophorone			not	detected	2.93	5.00	ug/L	
88-75-5	2-nitrophenol			not	detected	2.06	5.00	ug/L	
105-67-9	2,4-dimethylphenol			not	detected	1.97	5.00	ug/L	
111-91-1	bis(2-chloroethoxy)methane			not	detected	2.74	5.00	ug/L	
120-83-2	2,4-dichlorophenol			not	detected	2.11	5.00	ug/L	
65-85-0	Benzoic acid			not	detected	5.27	10.00	ug/L	
120-82-1	1,2,4-trichlorobenzene			not	detected	2.99	5.00	ug/L	
91-20-3	Naphthalene			not	detected	3.06	5.00	ug/L	
106-47-8	4-chloroaniline			not	detected	3.72	5.00	ug/L	
87-68-3	Hexachlorobutadiene			not	detected	3.07	5.00	ug/L	
59-50-7	4-chloro-3-methylphenol			not	detected	2.36	5.00	ug/L	
91-57-6	2-methylnaphthalene	11.80	1305852	8.00	detected	3.35	5.00	ug/L	
77-47-4	Hexachlorocyclopentadiene			not	detected	2.07	5.00	ug/L	
88-06-2	2,4,6-trichlorophenol			not	detected	2.95	5.00	ug/L	
95-95-4	2,4,5-trichlorophenol			not	detected	3.36	5.00	ug/L	
91-58-7	2-chloronaphthalene			not	detected	3.99	5.00	ug/L	
88-74-4	2-nitroaniline			not	detected	3.46	5.00	ug/L	
131-11-3	Dimethylphthalate			not	detected	3.26	5.00	ug/L	
208-96-8	Acenaphthylene			not	detected	3.46	5.00	ug/L	
606-20-2	2,6-dinitrotoluene			not	detected	3.47	5.00	ug/L	
99-09-2	3-nitroaniline			not	detected	4.12	5.00	ug/L	
83-32-9	Acenaphthene			not	detected	3.58	5.00	ug/L	
51-28-5	2,4-dinitrophenol			not	detected	4.02	10.00	ug/L	
132-64-9	Dibenzofuran			not	detected	2.94	5.00	ug/L	
100-02-07	4-nitrophenol			not	detected	1.14	5.00	ug/L	

Semi-Volatile Analysis Report
Page 2

Data File Name	**E503.D**	Misc Info	**482 TMP-1**
Operator	**ROBERTS**	Sample Mutliplier	**1**
Date Acquired	**5-Oct-10**		
Sample Name	**1037303**		

CAS#	Name	R.T.	Response	Result		MDL	RL		Qualifiers
121-14-2	2,4-dinitrotoluene			not	detected	3.47	5.00	ug/L	
84-66-2	Diethylphthalate			not	detected	3.54	5.00	ug/L	
86-73-7	Fluorene			not	detected	3.64	5.00	ug/L	
7005-72-3	4-chlorophenyl-phenylether			not	detected	3.74	5.00	ug/L	
100-01-6	4-nitroaniline			not	detected	2.92	5.00	ug/L	
534-52-1	4,6-dinitro-2-methylphenol			not	detected	2.22	10.00	ug/L	
86-30-6	N-nitrosodiphenylamine			not	detected	3.49	5.00	ug/L	
103-33-3	Azobenzene			not	detected	3.43	5.00	ug/L	
101-55-3	4-bromophenyl-phenylether			not	detected	3.98	5.00	ug/L	
118-74-1	Hexachlorobenzene			not	detected	3.73	5.00	ug/L	
87-86-5	Pentachlorophenol			not	detected	2.70	5.00	ug/L	
85-01-8	Phenanthrene			not	detected	3.42	5.00	ug/L	
120-12-7	Anthracene			not	detected	3.27	5.00	ug/L	
84-74-2	Di-n-butylphthalate			not	detected	2.83	5.00	ug/L	
206-44-0	Fluoranthene			not	detected	3.08	5.00	ug/L	
92-87-5	Benzidine			not	detected	16.11	16.11	ug/L	
129-00-0	Pyrene			not	detected	2.59	5.00	ug/L	
85-68-7	Butylbenzylphthalate			not	detected	2.57	5.00	ug/L	
56-55-3	Benzo[a]anthracene			not	detected	2.71	5.00	ug/L	
91-94-1	3,3'-dichlorobenzidine			not	detected	11.62	11.62	ug/L	
218-01-9	Chrysene			not	detected	2.47	5.00	ug/L	
117-81-7	bis(2-ethylhexyl)phthalate			not	detected	3.74	5.00	ug/L	
117-84-0	Di-n-octylphthalate			not	detected	2.41	5.00	ug/L	
205-99-2	Benzo[b]fluoranthene			not	detected	2.28	5.00	ug/L	
207-08-9	Benzo[k]fluoranthene			not	detected	2.56	5.00	ug/L	
50-32-8	Benzo[a]pyrene			not	detected	2.60	5.00	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not	detected	2.67	5.00	ug/L	
53-70-3	Dibenz[a,h]anthracene			not	detected	2.68	5.00	ug/L	
191-24-2	Benzo[g,h,i]perylene			not	detected	3.16	5.00	ug/L	

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

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.
J= Estimated concentration, value lies between RL and MDL

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Field Id: **482 TMP-1**

Lab Name: FMETL Lab Code 13461

Project: Case No.: Location: SDG No.: 10373

Matrix: (soil/water) WATER Lab Sample ID: 1037303

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E503.D

Level: (low/med) LOW Date Received: 8/31/2010

% Moisture: decanted: (Y/N) N Date Extracted: 9/3/2010

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 10/5/2010

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CONCENTRATION UNITS:

Number TICs found: 25 (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	extraction by-product	6.70	7	J
2.	C4 alkyl benzene	10.40	5	J
3. 000090-12-0	Naphthalene, 1-methyl-	11.94	10	JN
4.	Naphthalene, ethyl-	12.61	5	J
5.	Naphthalene, dimethyl-	12.71	7	J
6.	Naphthalene, dimethyl-	12.81	8	J
7.	Naphthalene, dimethyl-	12.85	4	J
8.	Alkane: Branched	12.90	7	J
9.	Naphthalene, dimethyl-	12.99	5	J
10.	Naphthalene, dimethyl-	13.11	5	J
11.	Naphthalene, trimethyl-	13.61	5	J
12.	Naphthalene, trimethyl-	13.90	7	J
13.	unknown hydrocarbon	14.03	4	J
14.	unknown hydrocarbon	14.11	6	J
15.	Alkane: Branched	14.25	8	J
16.	Alkane: Branched	14.64	13	J
17.	9H-Fluorene, methyl-	14.96	5	J
18.	Alkane: Branched	15.32	9	J
19.	Alkane: Branched	15.83	7	J
20.	unknown carboxylic acid	16.24	23	J
21.	Alkane: Branched	16.36	5	J
22.	unknown hydrocarbon	16.59	4	J
23.	unknown carboxylic acid	17.38	14	J
24.	unknown hydrocarbon	18.48	4	J
25.	unknown hydrocarbon	20.56	7	J

U.S. Army, Ft. Monmouth
Environmental Laboratory
173 Riverside Ave., NJ 07703

Client:	U.S. ARMY	Location:	Bldg 482
Project Name:	Bldg 482	MATRIX:	Aqueous
Field ID:	Field Blank	Ext. Batch:	PP09011001
Lab ID:	10373-02	Date Extracted:	9/1/2010
Filename:	09131006.D	Date Analyzed:	9/13/2010
Lab Project :	10373	Dilution:	1
		Analyst:	CR

CAS #	COMPOUNDS	RESULTS	Reporting Limit	Regulatory Level	Qualifier	MDL
		(ug/L)	(ug/L)	(ug/L)		(ug/L)
319-84-6	alpha-BHC	ND	0.02	0.02		0.003
319-85-7	beta-BHC	ND	0.02	0.04		0.008
58-89-9	gamma-BHC	ND	0.02	0.03		0.004
319-86-8	delta-BHC	ND	0.02	NLE		0.006
76-44-8	Heptachlor	ND	0.02	0.05		0.005
309-00-2	Aldrin	ND	0.02	0.04		0.005
1024-57-3	Heptachlor epoxide	ND	0.02	0.2		0.005
5103-71-9	gamma-Chlordane	ND	0.02	NLE		0.007
5103-74-2	alpha-Chlordane	ND	0.02	NLE		0.006
959-98-8	Endosulfan I	ND	0.02	40		0.006
72-55-9	4,4'-DDE	ND	0.02	0.1		0.008
60-57-1	Dieldrin	ND	0.02	0.03		0.006
72-20-8	Endrin	ND	0.02	2		0.008
33213-65-9	Endosulfan II	ND	0.02	40		0.007
72-54-8	4,4'-DDD	ND	0.02	0.1		0.008
7421-93-4	Endrin aldehyde	ND	0.02	NLE		0.007
50-29-3	4,4'-DDT	ND	0.02	0.1		0.009
1031-07-8	Endosulfan sulfate	ND	0.02	40		0.007
53494-70-5	Endrin ketone	ND	0.02	NLE		0.007
72-43-5	Methoxychlor	ND	0.02	40		0.008
8001-35-2	Toxaphene	ND	0.5	2		0.090
57-74-9	Chlordane	ND	0.5	0.5		0.071

MDL = Method Detection Limit.
ND =Not Detected / Below MDL.
B = Present in the associated Blank.
E = Exceeded Calibration Range, Dilution to follow.
D = Dilution.
NLE = No Limit Established.
RL = Reporting Limit.

Initial Vol.(ml)	1000
Final Vol.(ml)	10

*Higher of PQLs and ground water criteria as per NJAC 7:9-6
*Results between MDL and RL are estimated.
Column-Primary: Rtx-CLPesticides 30m/.32mm ID/.25um.
Column-Confirmation: Rtx-CLPesticides2 30m/.32mm ID/.5um.

U.S. Army, Ft. Monmouth
Environmental Laboratory
173 Riverside Ave., NJ 07703

Client:	U.S. ARMY	Location:	Bldg 482
Project Name:	Bldg 482	MATRIX:	Aqueous
Field ID:	482-TMP-1	Ext. Batch:	PP09011001
Lab ID:	10373-03	Date Extracted:	9/1/2010
Filename:	09131007.D	Date Analyzed:	9/13/2010
Lab Project :	10373	Dilution:	1
		Analyst:	CR

CAS #	COMPOUNDS	RESULTS	Reporting Limit	Regulatory Level	Qualifier	MDL
		(ug/L)	(ug/L)	(ug/L)		(ug/L)
319-84-6	alpha-BHC	ND	0.02	0.02		0.003
319-85-7	beta-BHC	ND	0.02	0.04		0.008
58-89-9	gamma-BHC	ND	0.02	0.03		0.004
319-86-8	delta-BHC	ND	0.02	NLE		0.006
76-44-8	Heptachlor	ND	0.02	0.05		0.005
309-00-2	Aldrin	ND	0.02	0.04		0.005
1024-57-3	Heptachlor epoxide	ND	0.02	0.2		0.005
5103-71-9	gamma-Chlordane	ND	0.02	NLE		0.007
5103-74-2	alpha-Chlordane	ND	0.02	NLE		0.006
959-98-8	Endosulfan I	ND	0.02	40		0.006
72-55-9	4,4'-DDE	ND	0.02	0.1		0.008
60-57-1	Dieldrin	ND	0.02	0.03		0.006
72-20-8	Endrin	ND	0.02	2		0.008
33213-65-9	Endosulfan II	ND	0.02	40		0.007
72-54-8	4,4'-DDD	ND	0.02	0.1		0.008
7421-93-4	Endrin aldehyde	ND	0.02	NLE		0.007
50-29-3	4,4'-DDT	ND	0.02	0.1		0.009
1031-07-8	Endosulfan sulfate	ND	0.02	40		0.007
53494-70-5	Endrin ketone	ND	0.02	NLE		0.007
72-43-5	Methoxychlor	ND	0.02	40		0.008
8001-35-2	Toxaphene	ND	0.5	2		0.090
57-74-9	Chlordane	ND	0.5	0.5		0.071

MDL = Method Detection Limit.
ND =Not Detected / Below MDL.
B = Present in the associated Blank.
E = Exceeded Calibration Range, Dilution to follow.
D = Dilution.
NLE = No Limit Established.
RL = Reporting Limit.

Initial Vol.(ml)	1000
Final Vol.(ml)	10

*Higher of PQLs and ground water criteria as per NJAC 7:9-6
*Results between MDL and RL are estimated.
Column-Primary: Rtx-CLPesticides 30m/.32mm ID/.25um.
Column-Confirmation: Rtx-CLPesticides2 30m/.32mm ID/.5um.

U.S. Army, Ft. Monmouth Environmental Laboratory

Report of Analysis
NJDEP Certification # 13461
Method 8082

Client: US Army
Location: Bldg 482
Client ID: Field Blank
Lab ID: 10373-02
Filename: 10051014.D
Lab Project No: 10373

MATRIX: Aqueous
Date Extracted: 9/1/2010
Ext. Batch: PP09011001
Date Analyzed: 10/25/2010
DILUTION: 1

Analyst: CR

CAS #	COMPOUNDS	RESULTS (ug/L)	QUALIFIER	MDL (ug/L)
12674-11-2	AROCLOR 1016	ND		0.060
11104-28-2	AROCLOR 1221	ND		0.290
11141-16-5	AROCLOR 1232	ND		0.110
53469-21-9	AROCLOR 1242	ND		0.110
12672-29-6	AROCLOR 1248	ND		0.050
11097-69-1	AROCLOR 1254	ND		0.040
11096-82-5	AROCLOR 1260	ND		0.160

*RESULTS BETWEEN MDL AND RL ARE ESTIMATED.
MDL = METHOD DETECTION LIMIT
ND =UNDETECTED BELOW THE MDL
B = PRESENT IN THE ASSOCIATED BLANK
E = EXCEEDED CALIBRATION RANGE, DILUTION TO FOLLOW
D = DILUTION

Initial Vol (ml) 1000.00
Final Vol.(ml) 10.00

U.S. Army, Ft. Monmouth Environmental Laboratory

Report of Analysis
NJDEP Certification # 13461
Method 8082

Client: US Army
Location: Bldg 482
Client ID: 482-TMP-1
Lab ID: 10373-03
Filename: 10051015.D
Lab Project No: 10373

MATRIX: Aqueous
Date Extracted: 9/1/2010
Ext. Batch: PP09011001
Date Analyzed: 10/25/2010
DILUTION: 1

Analyst: CR

CAS #	COMPOUNDS	RESULTS (ug/L)	QUALIFIER	MDL (ug/L)
12674-11-2	AROCLOR 1016	ND		0.060
11104-28-2	AROCLOR 1221	ND		0.290
11141-16-5	AROCLOR 1232	ND		0.110
53469-21-9	AROCLOR 1242	ND		0.110
12672-29-6	AROCLOR 1248	ND		0.050
11097-69-1	AROCLOR 1254	ND		0.040
11096-82-5	AROCLOR 1260	ND		0.160

*RESULTS BETWEEN MDL AND RL ARE ESTIMATED.
MDL = METHOD DETECTION LIMIT
ND =UNDETECTED BELOW THE MDL
B = PRESENT IN THE ASSOCIATED BLANK
E = EXCEEDED CALIBRATION RANGE, DILUTION TO FOLLOW
D = DILUTION

Initial Vol (ml) 1000.00
Final Vol.(ml) 10.00

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

Lab ID #: 1037302
Sample Received: 08/31/10
Sample Matrix: Aqueous

Site: Bldg. 482

Field ID#: Field Blank

Method of Analysis: Std. Methods 18th, Method 3120B, 3113B & 3112B
EPA Method 279.2

PP-METALS RESULTS SUMMARY (ug/L)

Element	Date of Analysis	Result (ug/L)	Regulatory Level (ug/L)*	R.L. (ug/L)	MDL (ug/L)
Antimony	09/14/10	ND	6	10.00	4.80
Arsenic	09/13/10	ND	3	5.00	0.62
Beryllium	09/14/10	ND	1	0.500	0.04
Cadmium	09/14/10	ND	4	2.00	0.500
Chromium	09/14/10	ND	70	5.00	1.00
Copper	09/14/10	ND	1300	5.00	1.00
Lead	09/14/10	ND	5	5.00	2.40
Mercury	09/14/10	ND	2	0.500	0.050
Nickel	09/14/10	1.00	100	5.00	0.400
Selenium	10/22/10	ND	40	5.00	1.36
Silver	09/14/10	1.00	40	5.00	0.500
Thallium	09/15/10	ND	2	5.00	0.53
Zinc	09/14/10	3.00	2000	50.00	1.20

ND = Not Detected NLE = No Limit Established, MDL = Method Detection Limit
* Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9C 11/07/05
R.L. = Reporting limit, Estimated results between MDL and R.L.

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

Lab ID #: 1037303
Sample Received: 08/31/10
Sample Matrix: Aqueous

Site: Bldg. 482

Field ID#: 482/TMP-1

Method of Analysis: Std. Methods 18th, Method 3120B, 3113B & 3112B
EPA Method 279.2

PP-METALS RESULTS SUMMARY (ug/L)

Element	Date of Analysis	Result (ug/L)	Regulatory Level (ug/L)*	R.L. (ug/L)	MDL (ug/L)
Antimony	09/14/10	11.5	6	10.00	4.80
Arsenic	09/13/10	85.63	3	5.00	0.62
Beryllium	09/14/10	0.043	1	0.500	0.04
Cadmium	09/14/10	1.63	4	2.00	0.500
Chromium	09/14/10	3.52	70	5.00	1.00
Copper	09/14/10	2.71	1300	5.00	1.00
Lead	09/14/10	6.17	5	5.00	2.40
Mercury	09/14/10	ND	2	0.500	0.050
Nickel	09/14/10	2.79	100	5.00	0.400
Selenium	10/22/10	ND	40	5.00	1.36
Silver	09/14/10	7.48	40	5.00	0.500
Thallium	09/15/10	ND	2	5.00	0.53
Zinc	09/14/10	ND	2000	50.00	1.20

ND = Not Detected NLE = No Limit Established, MDL = Method Detection Limit
* Higher of PQL's and Interim Criteria as per N.J.A.C. 7:9C 11/07/05
R.L. = Reporting limit, Estimated results between MDL and R.L.

Report of Analysis

1037302

Client Sample ID:	1037202-FIELD BLANK		
Lab Sample ID:	JA55318-1	Date Sampled:	08/31/10
Matrix:	AQ - Equipment Blank	Date Received:	09/01/10
		Percent Solids:	n/a
Project:	Building 482		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	09/07/10 11:07	NP	EPA 335.4/LACHAT

RL = Reporting Limit

Report of Analysis

Client Sample ID:	~~1037203~~ 1037303 SB TMP-1		
Lab Sample ID:	JA55318-2	Date Sampled:	08/31/10
Matrix:	AQ - Ground Water	Date Received:	09/01/10
		Percent Solids:	n/a
Project:	Building 482		

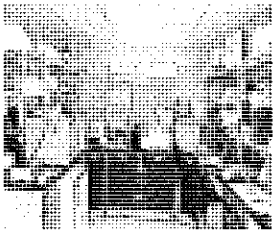
General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Cyanide	< 0.010	0.010	mg/l	1	09/07/10 11:08	NP	EPA 335.4/LACHAT

RL = Reporting Limit

FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS
PHONE: (732) 532-6224 FAX: (732) 532-6263
WET-CHEM - METALS - ORGANICS - FIELD SAMPLING
CERTIFICATIONS: NJDEP #13461



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: 11-124969

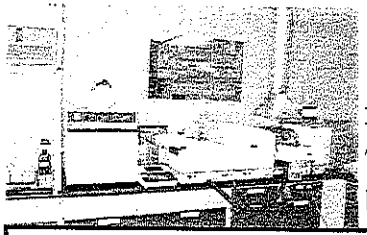
Bldg. 482/UST

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
482-GW-2	1126401	Aqueous	25-Jun-11 09:30	06/27/11
482-GW2-DUP.	1126402	Aqueous	25-Jun-11 09:30	06/27/11
482-GW2-Field Blank	1126403	Aqueous	25-Jun-11 09:00	06/27/11
Trip Blank	1126404	Aqueous	25-Jun-11	06/27/11

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
VOA+15

ACCUTEST LABORATORIES
TOTAL LEAD

Dean Tardiff/Date: 7/5/11
Laboratory Manager



Fort Monmouth Environmental Testing Laboratory

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

Chain of Custody Record

Customer: JOE FALLON | Project No: 11-124169
Phone #: X26223 | Location: BLDG 482
( )DERA ( )OMA (X)Other: BRC
Samplers Name / Company: FRANK ACCORSI

Work Order #	Sample Location	Date	Time	Sample Type	# bottles	VOA's	PP						Comments: Remarks / Preservation Method
11264.01	482-GW 2	6-25-11	0930	AQ	3	X	X						ICE
.02	482 GW2-DUPLICATE		0930		3	X	X						
.03	482 GW2- FIELD BLANK		0900		3	X	X						
.04	TRIP BLANK		—		2	X							

Analysis Parameters: VOA's; PP

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
Frank Accorsi	6-25-11 1615	6-27-11 8:00			
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

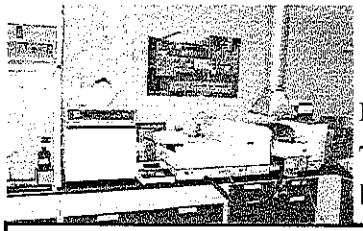
Report Type: ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: ( )Standard 3 wks, (X)Rush 1 Wk., ( )ASAP Verbal ____Hrs.

Comments: Field Blank VOA shared w/ 11265

print legibly

COC .xls5/11/2011

200000



Fort Monmouth Environmental Testing Laboratory

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

Chain of Custody Record

Customer: Dean Tardiff
Phone #: (732)532-6352
( )DERA ( )OMA ( )Other:_____

Project No:
Location: Bldg. 482

Samplers Name / Company:

Work Order #	Sample Location	Date	Time	Sample Type	# bottles	Analysis Parameters: LEAD								Comments: Remarks / Preservation Method
1126401	482-GW-2	06/25/411	9:30	AQ	X	X								
1126402	482GW2-DUP.	06/25/411	9:30	AQ	X	X								
1126403	482GW2-Field Blank	06/25/411	9:00	AQ	X	X								

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
[signature]	6/28/11 1310	[signature]			
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

Report Type: (_)Full, (X)Reduced, (_)Standard, (_)Screen / non-certified, (_)EDD
Turnaround time: (_)Standard 2 wks, (X)Rush Wk., _(_)ASAP Verbal ____Hrs.

Comments: PO C09-20650/(1 WK TAT)

001004

print legibly

Bldg. 482 11264.xls6/28/2011

U.S. ARMY-FT. MONMOUTH, NJ

SITE 482

SOIL SAMPLING GPS POSITIONS & COORDINATES

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

POSITION/DESCRIPTION	Y COORDINATE (NORTHING)	X COORDINATE (EASTING)
482-GW-2	541786.083	623621.5368

Field Duplicate Identification

Lab ID: 11264

Site: Bldg. 482

The Field Duplicate was performed on 482-GW-2 (1126401).

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

Data File	**VA10104.D**	Sample Name	**1126401**
Operator	**ROBERTS**	Field ID	**482-GW2**
Date Acquired	**27 Jun 2011 5:38 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result		MDL		RL	Qualifiers
107028	Acrolein			not	detected	3.21	ug/L	5.00 ug/L	
107131	Acrylonitrile			not	detected	0.98	ug/L	5.00 ug/L	
75650	tert-Butyl alcohol			not	detected	1.64	ug/L	5.00 ug/L	
1634044	Methyl-tert-Butyl ether			not	detected	0.11	ug/L	0.50 ug/L	
108203	Di-isopropyl ether			not	detected	0.17	ug/L	0.50 ug/L	
75718	Dichlorodifluoromethane			not	detected	0.17	ug/L	0.50 ug/L	
74-87-3	Chloromethane			not	detected	0.27	ug/L	0.50 ug/L	
75-01-4	Vinyl Chloride			not	detected	0.22	ug/L	0.50 ug/L	
74-83-9	Bromomethane			not	detected	0.37	ug/L	0.50 ug/L	
75-00-3	Chloroethane			not	detected	0.32	ug/L	0.50 ug/L	
75-69-4	Trichlorofluoromethane			not	detected	0.15	ug/L	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not	detected	0.15	ug/L	0.50 ug/L	
67-64-1	Acetone			not	detected	0.32	ug/L	0.50 ug/L	
75-15-0	Carbon Disulfide			not	detected	0.12	ug/L	0.50 ug/L	
75-09-2	Methylene Chloride			not	detected	0.26	ug/L	0.50 ug/L	
156-60-5	trans-1,2-Dichloroethene			not	detected	0.14	ug/L	0.50 ug/L	
75-35-3	1,1-Dichloroethane			not	detected	0.12	ug/L	0.50 ug/L	
108-05-4	Vinyl Acetate			not	detected	0.20	ug/L	0.50 ug/L	
78-93-3	2-Butanone			not	detected	0.22	ug/L	0.50 ug/L	
156-59-2	cis-1,2-Dichloroethene			not	detected	0.12	ug/L	0.50 ug/L	
67-66-3	Chloroform			not	detected	0.35	ug/L	0.50 ug/L	
75-55-6	1,1,1-Trichloroethane			not	detected	0.12	ug/L	0.50 ug/L	
56-23-5	Carbon Tetrachloride			not	detected	0.12	ug/L	0.50 ug/L	
71-43-2	Benzene	10.60	5423	0.17	ug/L	0.12	ug/L	0.50 ug/L	J
107-06-2	1,2-Dichloroethane			not	detected	0.11	ug/L	0.50 ug/L	
79-01-6	Trichloroethene			not	detected	0.11	ug/L	0.50 ug/L	
78-87-5	1,2-Dichloropropane			not	detected	0.12	ug/L	0.50 ug/L	
75-27-4	Bromodichloromethane			not	detected	0.12	ug/L	0.50 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not	detected	0.24	ug/L	0.50 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not	detected	0.13	ug/L	0.50 ug/L	
108-10-1	4-Methyl-2-Pentanone			not	detected	0.15	ug/L	0.50 ug/L	
108-88-3	Toluene			not	detected	0.12	ug/L	0.50 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not	detected	0.13	ug/L	0.50 ug/L	
79-00-5	1,1,2-Trichloroethane			not	detected	0.14	ug/L	0.50 ug/L	
127-18-4	Tetrachloroethene			not	detected	0.14	ug/L	0.50 ug/L	
591-78-6	2-Hexanone			not	detected	0.17	ug/L	0.50 ug/L	
126-48-1	Dibromochloromethane			not	detected	0.12	ug/L	0.50 ug/L	
108-90-7	Chlorobenzene			not	detected	0.12	ug/L	0.50 ug/L	
100-41-4	Ethylbenzene			not	detected	0.12	ug/L	0.50 ug/L	
630-20-6	1,1,1,2-tetrachloroethane			not	detected	0.13	ug/L	0.50 ug/L	
1330-20-7	m+p-Xylenes			not	detected	0.30	ug/L	1.00 ug/L	
1330-20-7	o-Xylene			not	detected	0.14	ug/L	0.50 ug/L	
100-42-5	Styrene			not	detected	0.14	ug/L	0.50 ug/L	
75-25-2	Bromoform			not	detected	0.14	ug/L	0.50 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not	detected	0.14	ug/L	0.50 ug/L	
541-73-1	1,3-Dichlorobenzene			not	detected	0.16	ug/L	0.50 ug/L	
106-46-7	1,4-Dichlorobenzene			not	detected	0.15	ug/L	0.50 ug/L	
95-50-1	1,2-Dichlorobenzene			not	detected	0.13	ug/L	0.50 ug/L	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated concentration, value falls between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\624FY10NOREG.CRT

000019

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **482 GW2**

Lab Name: FMETL NJDEP# 13461

Project: Case No: Location: 482 SDG No.: 11264

Matrix: (soil/water) WATER Lab Sample ID: 1126401

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VA10104.D

Level: (low/med) LOW Date Received: 6/25/2011

% Moisture: not dec. Date Analyzed: 6/27/2011

GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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

Number TICs found: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Cyclic	10.16	36	J
2.	Alkane: Cyclic	11.71	29	J
3. 000103-65-1	Benzene, propyl-	18.36	17	JN
4.	C4 alkyl benzene	20.53	17	J
5. 000496-11-7	Indane	20.68	67	JN
6.	C4 alkyl benzene	21.34	49	J
7.	1H-Indene-dihydro-methyl-	21.49	19	J
8.	1H-Indene-dihydro-methyl-	21.59	46	J
9.	C4 alkyl benzene	21.96	39	J
10.	1H-Indene-dihydro-methyl-	22.49	34	J
11.	C4 alkyl benzene	22.69	80	J
12.	1H-Indene-dihydro-methyl-	22.74	74	J
13.	1H-Indene-dihydro-dimethyl-	23.18	28	J
14.	1H-Indene-dihydro-dimethyl-	23.27	21	J
15.	1H-Indene-dihydro-dimethyl-	23.42	46	J

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

Data File	**VA10105.D**	Sample Name	**1126402**
Operator	**ROBERTS**	Field ID	**482-GW2 DUPLICATE**
Date Acquired	**27 Jun 2011 6:18 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result		MDL		RL	Qualifiers
107028	Acrolein			not	detected	3.21	ug/L	5.00 ug/L	
107131	Acrylonitrile			not	detected	0.98	ug/L	5.00 ug/L	
75650	tert-Butyl alcohol			not	detected	1.64	ug/L	5.00 ug/L	
1634044	Methyl-tert-Butyl ether			not	detected	0.11	ug/L	0.50 ug/L	
108203	Di-isopropyl ether			not	detected	0.17	ug/L	0.50 ug/L	
75718	Dichlorodifluoromethane			not	detected	0.17	ug/L	0.50 ug/L	
74-87-3	Chloromethane			not	detected	0.27	ug/L	0.50 ug/L	
75-01-4	Vinyl Chloride			not	detected	0.22	ug/L	0.50 ug/L	
74-83-9	Bromomethane			not	detected	0.37	ug/L	0.50 ug/L	
75-00-3	Chloroethane			not	detected	0.32	ug/L	0.50 ug/L	
75-69-4	Trichlorofluoromethane			not	detected	0.15	ug/L	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not	detected	0.15	ug/L	0.50 ug/L	
67-64-1	Acetone			not	detected	0.32	ug/L	0.50 ug/L	
75-15-0	Carbon Disulfide			not	detected	0.12	ug/L	0.50 ug/L	
75-09-2	Methylene Chloride			not	detected	0.26	ug/L	0.50 ug/L	
156-60-5	trans-1,2-Dichloroethene			not	detected	0.14	ug/L	0.50 ug/L	
75-35-3	1,1-Dichloroethane			not	detected	0.12	ug/L	0.50 ug/L	
108-05-4	Vinyl Acetate			not	detected	0.20	ug/L	0.50 ug/L	
78-93-3	2-Butanone			not	detected	0.22	ug/L	0.50 ug/L	
156-59-2	cis-1,2-Dichloroethene			not	detected	0.12	ug/L	0.50 ug/L	
67-66-3	Chloroform			not	detected	0.35	ug/L	0.50 ug/L	
75-55-6	1,1,1-Trichloroethane			not	detected	0.12	ug/L	0.50 ug/L	
56-23-5	Carbon Tetrachloride			not	detected	0.12	ug/L	0.50 ug/L	
71-43-2	Benzene	10.60	7805	0.23	ug/L	0.12	ug/L	0.50 ug/L	J
107-06-2	1,2-Dichloroethane			not	detected	0.11	ug/L	0.50 ug/L	
79-01-6	Trichloroethene			not	detected	0.11	ug/L	0.50 ug/L	
78-87-5	1,2-Dichloropropane			not	detected	0.12	ug/L	0.50 ug/L	
75-27-4	Bromodichloromethane			not	detected	0.12	ug/L	0.50 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not	detected	0.24	ug/L	0.50 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not	detected	0.13	ug/L	0.50 ug/L	
108-10-1	4-Methyl-2-Pentanone			not	detected	0.15	ug/L	0.50 ug/L	
108-88-3	Toluene			not	detected	0.12	ug/L	0.50 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not	detected	0.13	ug/L	0.50 ug/L	
79-00-5	1,1,2-Trichloroethane			not	detected	0.14	ug/L	0.50 ug/L	
127-18-4	Tetrachloroethene			not	detected	0.14	ug/L	0.50 ug/L	
591-78-6	2-Hexanone			not	detected	0.17	ug/L	0.50 ug/L	
126-48-1	Dibromochloromethane			not	detected	0.12	ug/L	0.50 ug/L	
108-90-7	Chlorobenzene			not	detected	0.12	ug/L	0.50 ug/L	
100-41-4	Ethylbenzene			not	detected	0.12	ug/L	0.50 ug/L	
630-20-6	1,1,1,2-tetrachloroethane			not	detected	0.13	ug/L	0.50 ug/L	
1330-20-7	m+p-Xylenes			not	detected	0.30	ug/L	1.00 ug/L	
1330-20-7	o-Xylene			not	detected	0.14	ug/L	0.50 ug/L	
100-42-5	Styrene			not	detected	0.14	ug/L	0.50 ug/L	
75-25-2	Bromoform			not	detected	0.14	ug/L	0.50 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not	detected	0.14	ug/L	0.50 ug/L	
541-73-1	1,3-Dichlorobenzene			not	detected	0.16	ug/L	0.50 ug/L	
106-46-7	1,4-Dichlorobenzene			not	detected	0.15	ug/L	0.50 ug/L	
95-50-1	1,2-Dichlorobenzene			not	detected	0.13	ug/L	0.50 ug/L	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated concentration, value falls between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\624FY10NOREG.CRT

000021

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **482 GW2 DUP**

Lab Name: FMETL NJDEP# 13461

Project: Case No: Location: 482 SDG No.: 11264

Matrix: (soil/water) WATER Lab Sample ID: 1126402

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VA10105.D

Level: (low/med) LOW Date Received: 6/25/2011

% Moisture: not dec. Date Analyzed: 6/27/2011

GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

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

Number TICs found: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Cyclic	10.16	46	J
2.	Alkane: Cyclic	11.72	35	J
3. 000103-65-1	Benzene, propyl-	18.36	18	JN
4.	C4 alkyl benzene	20.53	19	J
5. 000496-11-7	Indane	20.69	76	JN
6.	C4 alkyl benzene	21.33	56	J
7.	1H-Indene-dihydro-methyl-	21.48	21	J
8.	1H-Indene-dihydro-methyl-	21.59	58	J
9.	C4 alkyl benzene	21.96	48	J
10.	1H-Indene-dihydro-methyl-	22.49	36	J
11.	C4 alkyl benzene	22.69	95	J
12.	1H-Indene-dihydro-methyl-	22.75	78	J
13.	1H-Indene-dihydro-dimethyl-	23.18	33	J
14.	1H-Indene-dihydro-dimethyl-	23.28	23	J
15.	1H-Indene-dihydro-dimethyl-	23.43	50	J

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

Data File	**VA10102.D**	Sample Name	**1126404**
Operator	**ROBERTS**	Field ID	**TRIP BLANK**
Date Acquired	**27 Jun 2011 4:40 pm**	Sample Multiplier	**1**

CAS#	Compound Name	R.T.	Response	Result		MDL		RL	Qualifiers
107028	Acrolein			not	detected	3.21	ug/L	5.00 ug/L	
107131	Acrylonitrile			not	detected	0.98	ug/L	5.00 ug/L	
75650	tert-Butyl alcohol			not	detected	1.64	ug/L	5.00 ug/L	
1634044	Methyl-tert-Butyl ether			not	detected	0.11	ug/L	0.50 ug/L	
108203	Di-isopropyl ether			not	detected	0.17	ug/L	0.50 ug/L	
75718	Dichlorodifluoromethane			not	detected	0.17	ug/L	0.50 ug/L	
74-87-3	Chloromethane			not	detected	0.27	ug/L	0.50 ug/L	
75-01-4	Vinyl Chloride			not	detected	0.22	ug/L	0.50 ug/L	
74-83-9	Bromomethane			not	detected	0.37	ug/L	0.50 ug/L	
75-00-3	Chloroethane			not	detected	0.32	ug/L	0.50 ug/L	
75-69-4	Trichlorofluoromethane			not	detected	0.15	ug/L	0.50 ug/L	
75-35-4	1,1-Dichloroethene			not	detected	0.15	ug/L	0.50 ug/L	
67-64-1	Acetone			not	detected	0.32	ug/L	0.50 ug/L	
75-15-0	Carbon Disulfide			not	detected	0.12	ug/L	0.50 ug/L	
75-09-2	Methylene Chloride			not	detected	0.26	ug/L	0.50 ug/L	
156-60-5	trans-1,2-Dichloroethene			not	detected	0.14	ug/L	0.50 ug/L	
75-35-3	1,1-Dichloroethane			not	detected	0.12	ug/L	0.50 ug/L	
108-05-4	Vinyl Acetate			not	detected	0.20	ug/L	0.50 ug/L	
78-93-3	2-Butanone			not	detected	0.22	ug/L	0.50 ug/L	
156-59-2	cis-1,2-Dichloroethene			not	detected	0.12	ug/L	0.50 ug/L	
67-66-3	Chloroform			not	detected	0.35	ug/L	0.50 ug/L	
75-55-6	1,1,1-Trichloroethane			not	detected	0.12	ug/L	0.50 ug/L	
56-23-5	Carbon Tetrachloride			not	detected	0.12	ug/L	0.50 ug/L	
71-43-2	Benzene			not	detected	0.12	ug/L	0.50 ug/L	
107-06-2	1,2-Dichloroethane			not	detected	0.11	ug/L	0.50 ug/L	
79-01-6	Trichloroethene			not	detected	0.11	ug/L	0.50 ug/L	
78-87-5	1,2-Dichloropropane			not	detected	0.12	ug/L	0.50 ug/L	
75-27-4	Bromodichloromethane			not	detected	0.12	ug/L	0.50 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not	detected	0.24	ug/L	0.50 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not	detected	0.13	ug/L	0.50 ug/L	
108-10-1	4-Methyl-2-Pentanone			not	detected	0.15	ug/L	0.50 ug/L	
108-88-3	Toluene			not	detected	0.12	ug/L	0.50 ug/L	
10061-02-6	trans-1,3-Dichloropropene			not	detected	0.13	ug/L	0.50 ug/L	
79-00-5	1,1,2-Trichloroethane			not	detected	0.14	ug/L	0.50 ug/L	
127-18-4	Tetrachloroethene			not	detected	0.14	ug/L	0.50 ug/L	
591-78-6	2-Hexanone			not	detected	0.17	ug/L	0.50 ug/L	
126-48-1	Dibromochloromethane			not	detected	0.12	ug/L	0.50 ug/L	
108-90-7	Chlorobenzene			not	detected	0.12	ug/L	0.50 ug/L	
100-41-4	Ethylbenzene			not	detected	0.12	ug/L	0.50 ug/L	
630-20-6	1,1,1,2-tetrachloroethane			not	detected	0.13	ug/L	0.50 ug/L	
1330-20-7	m+p-Xylenes			not	detected	0.30	ug/L	1.00 ug/L	
1330-20-7	o-Xylene			not	detected	0.14	ug/L	0.50 ug/L	
100-42-5	Styrene			not	detected	0.14	ug/L	0.50 ug/L	
75-25-2	Bromoform			not	detected	0.14	ug/L	0.50 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not	detected	0.14	ug/L	0.50 ug/L	
541-73-1	1,3-Dichlorobenzene			not	detected	0.16	ug/L	0.50 ug/L	
106-46-7	1,4-Dichlorobenzene			not	detected	0.15	ug/L	0.50 ug/L	
95-50-1	1,2-Dichlorobenzene			not	detected	0.13	ug/L	0.50 ug/L	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank
E = Value above linear range
D = Value from dilution
PQL = Practical Quantitation Limit
J= Estimated concentration, value falls between R.L. and M.D.L.

MDL = Method Detection Limit
NLE = No Limit Established
R.T. = Retention Time
R.L. = Reporting Limit

C:\HPCHEM\Custrpt\Volatile\2007\624FY10NOREG.CRT 000023

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID: **TRIP BLANK**

Lab Name: FMETL NJDEP# 13461

Project: _____ Case No: _____ Location: 482 SDG No.: 11264

Matrix: (soil/water) WATER Lab Sample ID: 1126404

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: VA10102.D

Level: (low/med) LOW Date Received: 6/25/2011

% Moisture: not dec. _____ Date Analyzed: 6/27/2011

GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

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

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Report of Analysis

Client Sample ID:	1126401 482-GW-2		
Lab Sample ID:	JA79588-1	**Date Sampled:**	06/25/11
Matrix:	AQ - Ground Water	**Date Received:**	06/28/11
		Percent Solids:	n/a
Project:	Fort Monmouth Env Testing Lab, Building 173, SELFM-PW-EV, Fort Monmouth, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead [a]	80.6	12	ug/l	2	06/30/11	07/02/11 VC	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA26653
(2) Prep QC Batch: MP58959

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	1126402 482GW2-DUP		
Lab Sample ID:	JA79588-2	**Date Sampled:**	06/25/11
Matrix:	AQ - Ground Water	**Date Received:**	06/28/11
		Percent Solids:	n/a
Project:	Fort Monmouth Env Testing Lab, Building 173, SELFM-PW-EV, Fort Monmouth, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead [a]	79.0	12	ug/l	2	06/30/11	07/02/11 VC	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA26653
(2) Prep QC Batch: MP58959

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

Report of Analysis

Client Sample ID:	1126403 482GW2-FIELD BLANK		
Lab Sample ID:	JA79588-3	**Date Sampled:**	06/25/11
Matrix:	AQ - Field Blank Water	**Date Received:**	06/28/11
		Percent Solids:	n/a
Project:	Fort Monmouth Env Testing Lab, Building 173, SELFM-PW-EV, Fort Monmouth, NJ		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	<3.0	3.0	ug/l	1	06/30/11	07/01/11 VC	SW846 6010B [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA26643
(2) Prep QC Batch: MP58959

RL = Reporting Limit

PARSONS

Page 1 of 1

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: ~3'
DATE: 4/5/16
TIME: 1055
MEAS. FROM: BGS

INSPECTOR: CW
DRILLER: Tom Grenak
WEATHER: 35°F windy
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 1025 4/5/16
DATE/TIME FINISH: 1650 4/5/16
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAP-83-SB-12
LOCATION DESCRIPTION: Parcel 83
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			60/46	0	0-12" concrete		
				0	12"-27" moist, grey-green, MC, M. Dense SAND, little silt, little F gravel		
1	1-1.5			0			
	1.5-2			0			
2				0	27"-46" moist, grey-green, mF, M. Dense SAND, some silt, little clay * saturated @ 37"		
	2.5-3			138			
3				56.5			
				19.0	46"-60" NR		
4				NR			
				NR			
5			60/60	64.3	0-44" SAA		
				29.0			
6				41.2	44-60" Wet, grey-green/orange-brown mottled, mF, M. Dense, SAND, trace silt, trace clay		
				5.7			
7				2.1			
				0			
8				0			
				0			
9				0			
				0			
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)			Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50		V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense: >50		Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30			M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

PARSONS Page 1 of 1

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: ~3'
DATE: 4/5/16
TIME: 1255
MEAS. FROM: BGS

INSPECTOR: CW
DRILLER: JOE BARNAK
WEATHER: 38°F windy
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 4/5/16 1230
DATE/TIME FINISH: 4/5/16 1250
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM-83-SB-13
LOCATION DESCRIPTION: Parcel 83
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			60/40	6	0-3" Asphalt		
1245	0.5-1				3-5" Crushed Asphalt/Rock		
1					5-18" Moist grey/brown, m. dense, mf SAND, little f gravel, little f rock frags, trace silt, TRACE M. Rock Frags		
1255	1.5-2						
2							
1300	2.5-3						
3					18"-40" moist, grey-green, mf, m. dense SAND, little silt, trace clay Saturated @ 35"		
4							
5			60/60	0	0-23" SAA		
					23-60" Wet, green-grey/brown mottled mf SAND, trace silt, trace clay		
6							
7							
8							
9							
10					End of Boring @ 10'		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

State of New Jersey

James E. McGreevey
Governor

Department of Environmental Protection

Bradley M. Campbell
Commissioner

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

JAN 10 2003

Re: UST Closure Approval/NFA
Fort Monmouth Main Post
Monmouth County

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	NO
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

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

FTMMTH116IRC.DOC

EXCERPTS

UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 482

MAIN POST-EAST AREA
NJDEP UST REGISTRATION NO. 90010-55

MARCH 2002

PREPARED FOR:

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

PREPARED BY:

VERSAR
1900 FROST ROAD
SUITE 110
BRISTOL, PA 19007

TABLE OF CONTENTS

EXECUTIVE SUMMARY iv

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES 1

1.1 OVERVIEW 1
1.2 SITE DESCRIPTION 2

1.2.1 Geological/Hydrogeological Setting 2

1.3 HEALTH AND SAFETY 4
1.4 REMOVAL OF UNDERGROUND STORAGE TANK 4

1.4.1 General Procedures 4
1.4.2 Underground Storage Tank Excavation and Cleaning 4

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL 5
1.6 MANAGEMENT OF EXCAVATED SOILS 5

2.0 SITE INVESTIGATION ACTIVITIES 6

2.1 OVERVIEW 6
2.2 FIELD SCREENING/MONITORING 6
2.3 SOIL SAMPLING 7
2.4 GROUNDWATER SAMPLING 7

3.0 CONCLUSIONS AND RECOMMENDATIONS 8

3.1 SOIL SAMPLING RESULTS 8
3.2 GROUNDWATER SAMPLING RESULTS
3.3 CONCLUSIONS AND RECOMMENDATIONS 9

TABLE OF CONTENTS (CONTINUED)

TABLES

Table 1	Summary of Post-Excavation Sampling Activities
Table 2	Post-Excavation Soil Sampling Results
Table 3	Groundwater Sampling Results

FIGURES

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Sample Location Map

APPENDICES

Appendix A	NJDEP UST Report Certification Form
Appendix B	Waste Manifest
Appendix C	UST Disposal Certificate
Appendix D	Soil Analytical Data Package
Appendix E	Groundwater Analytical Data Package
Appendix F	Photographs

EXECUTIVE SUMMARY

UST Closure

On August 11, 1994, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) closure procedures at the Main Post-East area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0090010-55 (Fort Monmouth ID No. 482), was located east of Building 482. UST No. 0090010-55 was a 1,000 gallon #2 fuel oil UST.

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*. The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes. No holes or punctures were noted in the UST, although stained soil was observed. The NJDEP hotline was notified and the case was assigned DICAR No. 94-8-11-1345-43. Approximately 80 cubic yards of potentially contaminated soil were removed from the excavated area and stored at the Fort Monmouth petroleum contaminated soil staging area.

On August 12, 1994, nine post-excavation soil samples, A through I, were collected from the UST and piping excavations. On August 26, 1994, additional soil removal was conducted at three soil sample locations, C, H, and I, which exhibited elevated levels of TPH. Post-excavation samples were then collected from the new extent of the excavations at the three locations.

On September 6, 1994, additional soil was removed from the vicinity of sample location C due to the elevated concentration of TPH in the August 26 sample. Yet another post-excavation sample was collected from the new extent of the excavation.

All of the samples collected on August 12, 1994 contained TPH concentrations below the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg. However, subsequent samples collected at location C on August 26 and September 6, 1994 contained 29,400 mg/kg and 14,100 mg/kg, respectively. In order to address these results and determine current soil conditions, soil samples were collected at seven new locations on February 20, 2002. The soil samples were analyzed for TPH and VOCs. None of the results exceeded the NJDEP soil cleanup criteria for TPH. There were no VOCs detected in any of the seven samples.

Groundwater was encountered at 4.0 feet below ground surface and a sheen was observed on groundwater. In response to the observation of sheen on groundwater, two (2) monitoring wells, MW-1 and MW-2, were installed downgradient from the UST. Groundwater samples were collected from each of the wells on November 27 and

December 18, 1995. The samples were analyzed for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). All groundwater analytical results were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

No further action is proposed in regard to the closure and site assessment of UST No. 90010-55 at Building 482.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 90010-55, was closed at Building 482 at the Main Post-East area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on August 11, 1994. Refer to the site location map on Figure 1. This report presents the results of the Department of Public Works' (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a steel 1,000-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 90010-55 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. The decommissioning activities were conducted by DPW personnel who are registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 90010-55 proceeded under the approval of the NJDEP Bureau of Federal Case Management (NJDEP-BFCM).

Based on field screening of subsurface soils and a sheen on the groundwater within the UST excavation, the DPW concluded that an historical discharge had occurred. On August 11, 1994, a spill was reported to the NJDEP "Hotline" for UST No. 0090010-54 and was assigned Spill Case No. 94-8-11-1345-43.

This UST Closure and Site Investigation Report has been prepared by Versar, to assist the U.S. Army DPW in complying with the NJDEP regulations. The applicable NJDEP 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. October 1990 and revisions dated November 1, 1991).

This report was prepared using information collected 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 and groundwater investigation, are presented in the final section of this report.

1.2 SITE DESCRIPTION

Building 482 is located in the Main Post-East area of the Fort Monmouth Army Base. UST No. 0090010-55 was located east of Building 482 and appurtenant copper piping ran approximately 6 feet northeast, 44 feet northwest, and 2 feet southwest from the UST excavation to Building 482. 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 482. Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Main Post area.

Regional Geology

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

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

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

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish brown clayey, medium-to-coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

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

Hydrogeology

The water table aquifer in the Main Post area is identified as part of the "composite confining units," or minor aquifers. The minor aquifers include the Navesink formation, Red Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation.

Based on records of wells drilled in the Main Post area, water is typically encountered at depths of 2 to 9 feet below ground surface (bgs). According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

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

Shallow groundwater is locally influenced within the Main Post 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 Main Post 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. This is consistent with lithologies observed in borings installed within the Main Post area, which primarily consisted of fine-to-medium grained sands, with occasional lenses or laminations of gravel silt and/or clay.

Building 482 is located approximately 800 feet southwest of Parkers Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 482 is anticipated to be to the northeast.

1.3 HEALTH AND SAFETY

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

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

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

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 122 gallons of liquid from the UST and its associated piping were transported by Lionetti Oil Recovery Co. Inc to the Lionetti Oil Recovery Co. Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, New Jersey.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes or punctures were noted in the UST during the inspection by the Sub-Surface Evaluator.

Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. Soils were stained. Approximately 80 cubic yards of potentially contaminated soil were removed from the excavated area and transported to the Main Post

petroleum contaminated soil holding area. Soil screening was also performed along the piping associated with the UST. No contamination was noted anywhere along the piping length.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tank was transported in compliance with all applicable regulations and laws to Mazza and Sons, Inc.

The UST was labeled prior to transport with the following information:

- Site of origin
- Contact person
- NJDEP UST Facility ID number
- Former contents
- Destination site
- Date

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on OVA air monitoring and TPH analysis results from the post-excavation soil samples, approximately 80 cubic yards of potentially contaminated soil were removed from the UST excavation. 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 soil staging area. Soils that did not exhibit signs of contamination were used as backfill following the removal of the UST. Groundwater was encountered at 4 feet below ground surface and sheen was observed on groundwater.

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

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

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. Approximately 80 cubic yards of potentially petroleum contaminated soil were removed from the excavated area and transported to the Fort Monmouth petroleum contaminated soil holding area. Soils were removed from the excavation until no evidence of contamination remained. Groundwater was encountered at 4 feet below ground surface and sheen was observed on groundwater.

2.3 SOIL SAMPLING

On August 11, 1994, following removal of the UST, approximately 20 cubic yards of soil were removed from the base and sidewalls of the excavation. The soil was removed due to high FID readings and a sheen observed on the groundwater.

On August 12, 1994, approximately 30 cubic yards of soil were removed from the excavation and from the piping trench due to visible contamination. Post-excavation soil samples A, B, C, D, E, F, and a duplicate of F were collected from the UST excavation. Samples H, I, and J were collected from the piping excavation. All samples were analyzed for total petroleum hydrocarbons (TPH) and total solids.

On August 26, 1994, due to high levels of TPH, approximately 10 cubic yards of soil were removed from the UST excavation in the vicinity of sample C, and samples H and I. Post-excavation samples were then collected from the expanded portions of the excavation at locations C, H, and I. Samples were analyzed for TPH.

On September 6, 1994, approximately 20 cubic yards of potientially contaminated soil were removed from the excavation in the vicinity of sample C due to elevated TPH levels detected in the August 26 sample. A post-excavation sample was then collected from the new extent of the excavation at sample location C. The sample was analyzed for TPH.

In response to recommendations made in the May 2000, Smith Technology Corporation Underground Storage Tank Closure and Site Investigation Report for Building 482, additional soil samples were collected at the site on February 20, 2002. Soil samples, 1 through 7, were collected along the downgradient perimeter of the former excavation and analyzed for TPH and VOCs.

DPW personnel in accordance with the NJDEP Technical Requirements and the NJDEP Field Sampling Procedures Manual performed the site assessment. A summary of sampling activities including parameters analyzed is provided in Table 1. The post-excavation soil samples were collected using NJDEP *Field Sampling Procedures Manual* (1992) standard sampling procedures. 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.

2.4 GROUNDWATER SAMPLING

In response to the observation of potentially contaminated soil near the shallow water table, two shallow monitoring wells (MW-1 and MW-2) were installed at the Building 482 area on August 11, 1995. Monitoring well MW-1 was installed 25 feet east of the UST excavation and MW-2 was installed 17 feet east of the UST excavation. Both wells were assumed to be downgradient of the excavation. The wells were screened from 2 to 12 feet BGS. The wells were constructed in accordance with the NJDEP's well construction protocols outlined in its May 1992 *Field Sampling Procedures Manual.*

On November 27,1995, and December 18, 1995, groundwater was collected from each well and analyzed for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). Sampling and analysis were performed in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements For Site Remediation.* Refer to Appendix F for the field sampling documentation.

Based on evidence of the former presence of a septic tank in the vicinity of the former No. 2 fuel oil UST, one Geoprobe groundwater sample was collected at the site and analyzed for VOC, SVOC, and total and fecal coliform on February 20, 2002. The monitoring wells were not sampled on that day because they were apparently destroyed during the construction of a new garage at Building 482.

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

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

Lab. ID #: 1609.1-.10
Sample Rec'd: 08/12/94
Analysis Start: 08/16/94
Analysis Comp: 08/16/94

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

NJDEPE UST Reg.#: **0090010-54**
Closure #: **c93-3898**
DICAR #:
Location #: **Bldg. 482**

Lab ID.	Description		%Solid	Result (mg/Kg)	MDL
1609.1	Site A, SE	OVA= 3	87	240.	6.6
1609.2	Site B, S	OVA= <1	87	145.	6.6
1609.3	Site C, SE	OVA= <1	89	1160.	6.6
1609.4	Site D, NE	OVA= 3	90	222.	6.6
1609.5	Site E, N	OVA= 5	84	205.	6.6
1609.6	Site F, NE	OVA= 3	85	235.	6.6
1609.7	Site G (dup)	OVA= 3	87	134.	6.6
1609.8	Site H, PIPE	OVA= 9	79	1300.	6.6
1609.9	Site I	OVA= 10 *	80	1910.	46.
1609.10	Site J	OVA= 9	93	41.2	6.6
M. Bl.	Method Blank		100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added, NA = Not Applicable
1609.10dup= 112% 1609.10s= 87% 1609.10sd= 88% RPD= 1.0%

Brian K. McKee
Laboratory Director

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

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

Lab. ID #: 1625.1-.3
Sample Rec'd: 08/26/94
Analysis Start: 08/31/94
Analysis Comp: 08/31/94

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

NJDEPE UST Reg.#: **90010-54**
Closure #: **C-93-3898**
DICAR #:
Location #: **Bldg. 482**

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1625.1	Site C OVA= 60.	75	29400.	158
1625.2	Site H, FEEDLINE * OVA= 20.	86	2610.	46.
1625.3	Site I, FEEDLINE OVA= 5.	85	710.	6.6
M. Bl.	Method Blank	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added, NA = Not Applicable
BATHC dup= 115% BATCH s= 116% BATCH sd= 115% RPD= 0.8%

Brian K. McKee
Laboratory Director

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

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

Lab. ID #: 1632.1
Sample Rec'd: 09/06/94
Analysis Start: 09/08/94
Analysis Comp: 09/08/94

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

NJDEPE UST Reg.#: 90010-54
Closure #:
DICAR #: 94-8-11-1345-43
Location #: Bldg. 482

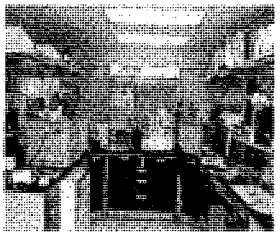
Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1632.1	Site C2 (sidewall) SE OVA= 100.	85	14100.	46.
M. Bl.	Method Blank	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added, NA = Not Applicable
BATCH DUP= 105% BATCH S= 112% BATCH SD= 105% RPD= 6.3%

Brian K. McKee
Laboratory Director

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: UST Program

Bldg. 482

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
T. B.	2010601	Methanol	20-Feb-02	02/20/02
F. B.	2010602	Aqueous	20-Feb-02 09:30	02/20/02
482-1/9.6'	2010603	Soil	20-Feb-02 10:45	02/20/02
482-2/9.6'	2010604	Soil	20-Feb-02 11:00	02/20/02
482-3/9.6'	2010605	Soil	20-Feb-02 11:15	02/20/02
482-4/9.6'	2010606	Soil	20-Feb-02 11:30	02/20/02
482-5/9.6'	2010607	Soil	20-Feb-02 13:15	02/20/02
482-6/9.6'	2010608	Soil	20-Feb-02 13:25	02/20/02
482-7/9.6'	2010609	Soil	20-Feb-02 13:35	02/20/02
482 GW/9.8'	2010610	Aqueous	20-Feb-02 13:45	02/20/02
F. D.	2010611	Soil	20-Feb-02	02/20/02

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

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

3-12-02
Daniel Wright/Date
Laboratory Director

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: D. DESAI
Phone #: X2475
( )DERA (X)OMA ( )Other:

Project No: 02 -
Location: BLDG. 482

Samplers Name / Company: MARK LAURA - TVS-PWS 07

LIMS/Work Order #		Sample Location		Date	Time	Sample Type	# bottles	VOA+15	BN+15	TPHC	%SOLIDS	TOTAL COLI	FECAL COLI		HNU (ppm)	Comments: Remarks / Preservation Method
20106	1	T.B.		2-20-02	—	METH.	1	X							—	3013 <4°C
	2	F.B			0930	AQ.	3	X	X						—	~~3014~~
1	3	482-1	9.6'		1045	soil	2	X		X	X				300	3014 <4°C
	4	" -2	9.6'		1100	soil	2	X		X	X				0	3015 <4°C
	5	" -3	9.6'		1115	soil	2	X		X	X				5	3016 <4°C
	6	" -4	9.6'		1130	soil	2	X		X	X				0	3017 <4°C
	7	" -5	9.6'		1315	soil	2	X		X	X				0	3018 <4°C
	8	" -6	9.6'		1325	soil	2	X		X	X				0	3019 <4°C
	9	" -7	9.6'		1335	soil	2	X		X	X				0	3020 <4°C
	10	482 GW	9.8'		1345	AQ	5	X	X			X	X		—	HCl, <4°C
	11	F.D.	9.6'		—	soil	2	X		X	X				—	3021 <4°C

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
Matthew	2-20-02 1400				
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

Report Type: ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: (X)Standard 3 wks, ( )Rush ___ Days, ( )ASAP Verbal ___ Hrs.

Remarks:

print legibly

Coc.xls10/17/01

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 :** **UST Reg. # :**	20106 Bldg.482
Analysis :	OQA-QAM-025	**Date Received :**	20-Feb-02
Matrix :	Soil	**Date Extracted :**	25-Feb-02
Inst. ID. :	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	27-Feb-02
Injection Volume :	1uL	**Analyst :**	B.Patel

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
2010603	482-1	**1.00**	15.06	83.36	180	**2689.02**
2010604	482-2	**1.00**	15.23	81.48	183	**ND**
2010605	482-3	**1.00**	15.16	84.33	177	**458.84**
2010606	482-4	**1.00**	15.41	82.28	179	**565.50**
2010607	482-5	**1.00**	15.27	81.73	181	**368.59**
2010608	482-6	**1.00**	15.21	78.50	190	**594.92**
2010609	482-7	**1.00**	15.28	79.97	185	**462.70**
2010611	Field Dup.	**1.00**	15.16	83.67	179	**1223.63**
METHOD BLANK	MB-022502	**1.00**	15.00	100.00	151	**ND**

ND = Not Detected

MDL = Method Detection Limit

Attachment B
Soil Boring Logs and Well Construction Details

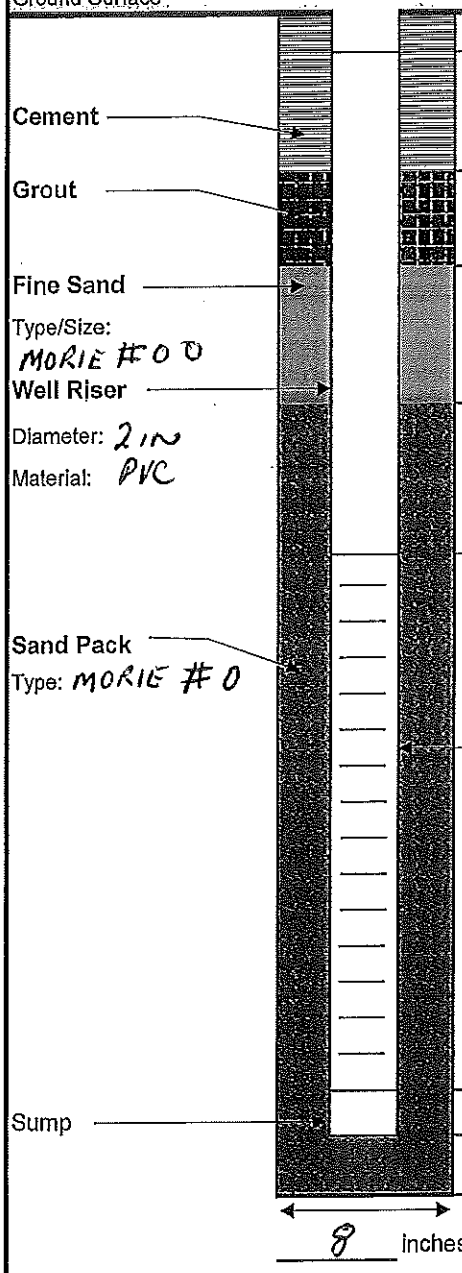
PARSONS

Well Construction Detail (Single Cased - Road Box)

Client: USACE

Well ID: PAR-83-482-MW-01 NJBWA Permit No.

Date Well Installed: 12-18-17 Location: FTMM - PARCEL 83-UST 482



	Depth Below Ground Surface (ft)
Ground Surface	0.0
Top of Well Casing _____ ft	
Top of Grout	0.5
Top of Fine Sand	1.0
Top of Sand Pack	2.0
Top of Screen	02.0
Well Screen Diameter: 2 IN. Slot Size: .010 IN Material: PVC	
Bottom of Screen	12.0
Bottom of Sump	12.5
Bottom of Borehole	13.0

Top of Confining Unit (if present): _____

PARSONS Page 1 of _____

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM (Parcel) 83-482
PROJECT NUMBER: 748810-

INSPECTOR: F. ACCORSI
DRILLER: K. ATWOOD T. MCNALLY
WEATHER: 40°, CLOUDY
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 12-18-17 0950
DATE/TIME FINISH: 12-18-17 1100
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-83-482-MW-01
LOCATION DESCRIPTION

LOCATION PLAN
Oceanport, New Jersey

GROUNDWATER OBSERVATIONS
WATER LEVEL: 3.5' @ 108 MW04
DATE: 12-18-17
TIME:
MEAS. FROM:

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0					HOLLOW STEM AUGER TO 13 FT. SET WELL SCREEN FROM 2'-12' MOIST, WET @ 4', GREEN SANDY SILTY CLAY. PID READINGS FROM SOIL CUTTINGS 0 PPM TO 108 PPM PETROLEUM ODORS IN LOWER HALF OF CUTTINGS.		
1							
2							
3							
4							
5					END OF BORING @ 13 FT. SEE WELL CONSTRUCTION DETAIL		
6							
7							
8							
9							
10							

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S – Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U – Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C – Rock Core	Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A – Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

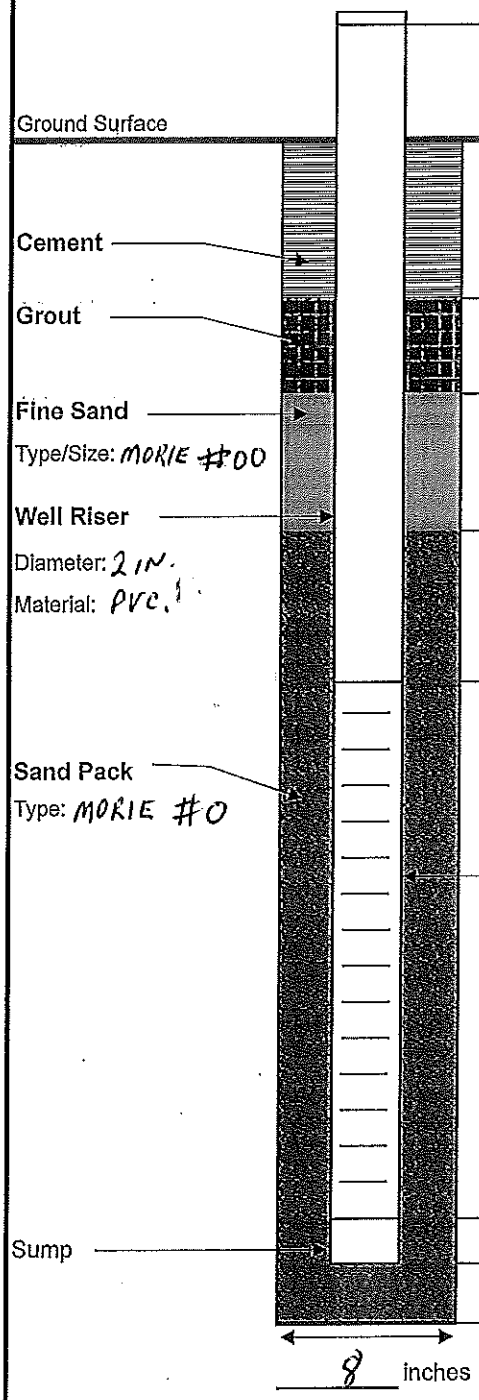
PARSONS

Well Construction Detail (Single Cased - Stickup)

Client: USACE

Well ID: PAR-83-482-MW-02 NJBWA Permit No.

Date Well Installed: 12-18-17 Location: FTMM, PARCEL 83, UST 482



	Depth Below Ground Surface (ft)
Top of Well Casing: +2.30 ft	
Ground Surface	0.0
Top of Grout	0.5
Top of Fine Sand	1.0
Top of Sand Pack	2.0
Top of Screen	2.0
Well Screen Diameter: 2 IN. Slot Size: .010 IN Material: PVC	
Bottom of Screen	12.0
Bottom of Sump	12.5
Bottom of Borehole	13.0

Top of Confining Unit (if present): _____

PARSONS

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel 83-482
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: 3.5' @ 108MW04
DATE: 12-18-17
TIME:
MEAS. FROM: BGS

INSPECTOR: P. ACCORSI
DRILLER: K. ATWOOD, T. McNALLY
WEATHER: 40°, LT. RAIN
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 12-18-17 0800
DATE/TIME FINISH: 12-18-17 0940
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-83-482-MW-02
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0					HOLLOW STEM AUGER TO 13FT		
					SET WELL SCREEN FROM 2' TO 12'		
1					MOIST, GREEN BROWN SILTY CLAY		
					AND MUD TO FINE SAND		WET @ 4'
2					PID READINGS FROM SOIL		
					CUTTINGS: 0 PPM		
3							
4							
5					END OF BORING @ 13 FT		
					SEE WELL CONSTRUCTION LOG		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

PARSONS

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: 2.5' (MW-57)
DATE: 11-13-17
TIME: 0900
MEAS. FROM: TOC

INSPECTOR: T. HORN
DRILLER: ECDI / WELLS REEVE
WEATHER: LIGHT RAIN, 50°
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) ~~7822DT~~ 6610DT
DATE/TIME START: 11-13-17 / 1120
DATE/TIME FINISH: 11-13-17 / 1125
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-83-482-SB01
LOCATION DESCRIPTION: CONCRETE
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			30/60	0.0	DCM CONCRETE RUBBLE, BRICK RUBBLE		
	PAR-83-482-SB-01-0.5-1			0.2	MOIST, DARK-GREENISH-GRAY MOD SOFT SAND & SILT PETROLEUM-LIKE ODOR SLIGHT		1145
1				0.8	MOIST TAN-GREENISH GRAY MOD DENSE SILTY SAND PETRO ODOR		
	PAR-83-482-SB-01-1.5-2			101.00	MOIST DK OLIVE-GRAY-CLAMEY SILT, MOD SOFT STRONG PETRO-ODOR		1150
2							
					~~WET~~		
3					NO RECOVERY		
4							
5			40/60	0.5	WET VERY LOOSE DARK GREEN-GREEN SILTY SAND, TR F-M GRAVEL PETRO ODOR		
				2.0			
6	PAR-83-482-TMW-01-6			1.0			
				0.0			
7				1.0	WET MOD SOFT CLAMEY SILT, TR SAND GRAY-GREEN SLIGHT PETRO ODOR		1135
	PAR-83-482-SB-01-7.5-8			0.0			
8				0.0			
					NO RECOVERY		
9							
10					end of boring @ 10'		

Remarks: TMW-01 WAS SCREENED FROM 0 – 10 FT.

Sample Types
S – Split Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: 2.5' (109 MW-04)
DATE: 11-13-17
TIME: 0900
MEAS. FROM: TOIC

INSPECTOR: TOM HORN
DRILLER: ECDI WARREN REEVE
WEATHER: LIGHT RAIN, 50°F
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) ~~7822DT~~ 6610 DT
DATE/TIME START: 11-13-17 / 1215
DATE/TIME FINISH: 11-13-17 / 1225
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-83-482-SB-02
LOCATION DESCRIPTION: GRASSY AREA
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			48/60	0.0	DRY DK GRAY-BROWN MOD DENSE SILTY SAND AND GRASS ROOTS		
				0.0	MOIST YELLOW-TAN MOD LOOSE SAND TR. VF GRAVEL		
1				0.0	MOIST GRAY BROWN-GRAY SANDY SILT, SOME		
				0.0	WET GRAY-STAINED LT GRAY-TAN F-M SAND		
2				0.0			
				0.0			
3				0.0			
				0.0			
4				0.0	NO RECOVERY		
				0.0			
5			48/60	0.0	WET GRAY - BROWN MOD SOFT SANDY SILT		
X	PAR-83-482-SB-02-5.5-6			0.1			1245
6				9.0	WET, VERY SOFT OLIVE-GRAY SANDY SILT PETROLEUM-LIKE ODOR		
				38.0			
7				92.0	MOD STIFF STRIATIONS (MOTTLED) REDISH-ORANGE BROWN AND DARK GREENISH-GRAY SANDY SILT. STRONG PETROLEUM ODOR		
X	PAR-83-482-SB-02-7.5-8			155.0			1255
8				60.0			
				12.0			
9					NO RECOVERY		
10					BORING CONTINUES		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S – Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U – Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C – Rock Core	Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A – Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: >30	trace - <10%
					moisture, density, color, gradation

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: 2.5' (108MW-04)
DATE: 11-13-17
TIME: 0900
MEAS. FROM: TOIC

INSPECTOR: TOM NORN
DRILLER: ECDI WELLS REEVE
WEATHER: LIGHT RAIN, 55°F
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) ~~7822DT~~ 6610 DT
DATE/TIME START: 11-13-17 / 1215
DATE/TIME FINISH: 11-13-17 / 1225
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-83-482-SB-02
LOCATION DESCRIPTION: ~~ASPHALT~~ GRASSY AREA
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			60/60		LIGHT GRAY - BROWN MOD LOOSE SAND, TR SILT WET		
1				7.0	WET DARK OLIVE-GRAY MOD STIFF SANDY SILT		
				2.0	WET MOTTLED REDDISH-ORANGE AND DARK GREENISH GRAY STIFF SANDY SILT		
2				0.0			
	PAR-83-482-SB-02-12.5-13			0.0			1305
3				0.0			
				0.0			
4				0.0			
				0.0	WET BROWN BLACK MOD STIFF SANDY SILT		
5					end of boring @ 15'		
6							
7							
8							
9							
20							

Remarks:

Sample Types
S -- Split-Spoon
U -- Undisturbed Tube
C -- Rock Core
A -- Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)			Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50		V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense: >50		Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30			M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

PARSONS

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: 2.5' (108 MW-04)
DATE: 11-13-17
TIME: 0900
MEAS. FROM: TOIC

INSPECTOR: T. HORN
DRILLER: ECDI WELLS REEVE
WEATHER: LIGHT RAIN, 50°F
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) ~~7822DT~~ 6610 DT
DATE/TIME START: 11/13/17 / ~~0830~~ 1145
DATE/TIME FINISH: 11/13/17 / ~~1000~~ 1155
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-83-482-SB-03
LOCATION DESCRIPTION: ~~ASPHALT~~ GRASSY AREA
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			24/60	0.0	MOIST, LT REDDISH BROWN MOD DENSE SAND SOME SILT, LITTLE GRASS ROOTS		
				0.0	MOIST, LT REDDISH BROWN MOD DENSE SILTY SAND, SOME C GRAVEL		
1				0.0			
Y	PAR-83-482-SB-03-1.5-2			0.0			1215
2					NO RECOVERY		
3							
4							
X			32/60	0.0	WET DK REDDISH BROWN MOD DENSE SANDY SILT, LITTLE F-M GRAVEL		1230
				0.0			
Y	PAR83-482-SB-03-6-6.5			0.0	WET, DK BROWN-GREY MOD LOOSE SILTY SAND AND C. BLACK GRAVEL		1220
	PAR-83-482-TMW-02-6			0.0			
7				0.0			
					NO RECOVERY		
8							
9							
10					end of boring @ 10'		

Remarks: TMW-02 : SCREEN SET FROM 0-10'

Sample Types	Consistency vs. Blowcount / Foot				
S – Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U – Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C – Rock Core	Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A – Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: 7.5 (108mw-04)
DATE: 11-13-17
TIME: 0900
MEAS. FROM: TOC

INSPECTOR: Tom Horn
DRILLER: E(D) Wells, Reeve
WEATHER: OVERCAST 53°F
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) ~~7822DT~~ 6610DT
DATE/TIME START: 11-13-17 / 1300
DATE/TIME FINISH: 11-13-17 / 1310
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-83-482-SB-04
LOCATION DESCRIPTION: ASPHALT
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
* 0	~~PAR-83-~~ SB-04-0-.5	482-	40/60	0.0	DRY REDDISH-TAN V DENSE SLAG. STIFF		1345
				12.0	WISTIFF DK GRNISH-GREEN SILTY SAND.		
1				17.0	MOIST DARK-GREEN GRAY MOD SOFT SANDY SILT,		
				38.0			
2				152.0	WET DARK-GREEN GRAY SOFT SANDY SILT, TR CLAY.		
				200.0			
* 3	PAR-83-482-SB-04-3-3.5			180.0		ET	1350
					NO RECOVERY		
4							
5			48/60	45.0	WET, MOD SOFT GREENISH DK-GRAY SILT, LITTLE VFSAND		
				60.0			
6				53.0			
				39.0			
7				28.0	WET MOD DENSE MOTTLED REDDISH-ORANGE-BROWN AND DARK GREENISH GRAY SILTY SAND		
				22.0			
8				3.8			
*	PAR-83-482-SB-04-8.5-9			1.5			1355
9					NO RECOVERY		
10					end of boring @ 10'		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S – Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U – Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C – Rock Core	Loose: 4-10	V. Dense: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A – Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

Attachment C
Field Notes

Location FTMM Date 11-10-17

Project / Client USACE

PAR-79-MW-01

1245 CREW TRANSFERS REMAINDER OF EQUIPMENT FROM PAR 79-MW-01 LOCATION TO PARK AT STAGING AREA

1330 CREW RETURNS TO COMPLETE THE RAD

1350 HEAD TO PAR 105 LOCATIONS FOR SOIL BORING SAMPLING. CONFER AT 1405

1410 PUSH AT 105-SB-01 0-5

1420 PUSH AT 105-SB-02 0-5

1430 PUSH AT 105-SB-03 0-5

1425 COLLECT SAMPLES AND COMPLETE BORING LOGS FOR ABOVE THREE BORINGS.

1450 CREW LOADS EQUIPMENT AND DEBRIS FOR THE DAY.

1510 HEAD TO THE OFFICE TO PREPARE COCs AND FIELD NOTE SCANS.

1630 TERMINATE PINE RENTAL FOR ONE PID AND ONE WATER LEVEL METER. THE PINE CONFIRMATION # IS KCG15726. THEY ARE SCHEDULED TO PICK UP THE EQUIPMENT 11/13/17

1700 SIGN COC FORMS, REFRIGERATE SAMPLES.

1750 OFF SITE

11-10-17

Location FTMM Date 11-13-17

Project / Client USACE

PAR-83-273-SB-01

0900 BEGIN MOBILIZING TO PROPOSED LOCATION AT PAR-83-273-SB-01.

0905 CONFIRM FLAGGED PZ AND RECORD OBSERVATIONS TO THE SOIL BORING LOG

0935 BEGIN PUSHING AT PAR-83-273-SB-02

0955 BEGIN PUSHING AT PAR 83-273-SB-03

1100 RELOCATE TO PAR-83-482.

1120 BEGIN PUSHING AT PAR-83-482-SB-01

1130 INSTALL TEMPORARY WELL PAR-83-482-TMW-01. ORIGINAL HOLE PERFORMED FOR ADDITIONAL VOLUME BUT SIMILAR RECOVERY WAS

1145 BEGIN PUSHING AT PAR-83-482-SB-03

1155 INSTALL PAR-83-482-TMW-03

1215 BEGIN PUSHING AT PAR-83-482-SB-02 GRAB AN ADDITIONAL SAMPLE FROM 10-15'

1300 BEGIN PUSHING AT PAR-83-482-SB-04

1330 BEGIN PUSHING AT ~~PAR-8~~ FTMM-57-SB-02

1350 BEGIN PUSHING AT FTMM-57-SB-01.

1400 COLLECTS ADDITIONAL VOLUME FROM FTMM-57-SB-02 FOR QA/QC SAMPLES

REMOVE TEMPORARY WELL FROM PAR 83-482

11-13-17

Location FT MM Date 11-13-17

Project / Client USACE

FTMM-57-58

TMW-03, AND INSIDE TEMPORARY WELL IN FTMM-83-482-TMW-02.

1500 CREW SAMPLED FTMM-83-482-TMW-03. LOCATED IN SB02. DTW 3.4'

1525 COLLECT FTMM-83-482-TMW-01 DTW, 2.5' SAMPLE GRAB AT 6' BGS FOR BOTH TEMP WELLS.

1600 CREW AREA

1630 HEAD TO OFFICE TO COMPLETE COC'S

1650 COLLECT FTMM-57-EB-11132017 FOR VOC'S + DC'S, ARSENIC, PAH'S, NAPHTHALENE AND 2-METHYL NAPHTHALENE

11-13-17

Location Date

Project / Client