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

22 February 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 202A Site Investigation Report
Fort Monmouth, Monmouth County, Oceanport, New Jersey
PI G000000032

Dear Mr. Joshi:

The U.S. Army Fort Monmouth (FTMM) Team prepared this Site Investigation (SI) Report to summarize existing file information and present the results of additional field sampling at former Underground Storage Tank (UST) 202A (**Figure 1**), located in Parcel 81. Based on this information, we request an Unrestricted Use, No Further Action (NFA) determination for UST 202A.

UST 202A Background

UST 202A (Registration ID No.90010-21) was a fiberglass 1,000-gallon heating oil UST that was removed in October 2001, along with an unspecified quantity of contaminated soil, as presented in Reference 7 of **Attachment A**. NFA approval was requested in 2015 for UST 202A. However, NJDEP concluded there was insufficient information relative to groundwater contamination for an NFA approval (Reference 6 and 7 in **Attachment A**).

In 2016, the Army performed additional groundwater sampling (Reference 5 in **Attachment A**) from one temporary and two permanent groundwater monitoring wells in Parcel 81. The locations of the well samples are shown on Figures 1 and 5 in Reference 4 of **Attachment A.** There were no exceedances of the NJDEP Groundwater Quality Criteria (GWQC) in the permanent well samples, and there was one slight polynuclear aromatic hydrocarbon (PAH) exceedance in the temporary well that was not attributed to fuel oil contamination (Reference 4 in **Attachment A**). However, groundwater was not sampled near the former UST 202A location in 2016. This data gap, as described below, was addressed in 2017.

In 2016, soil sampling was also performed at Parcel 81 because NJDEP commented that soil contamination encountered at UST 202A could have contributed to impacts to groundwater (Reference 4 in **Attachment A**). One soil boring (PAR-79-202-SS-03) was advanced and three soil samples were collected at the location of former UST 202A. The maximum total Extractable Petroleum Hydrocarbons (EPH) concentration encountered in soil at UST 202A was 6 mg/kg as shown on Table 1 in Reference 4 of **Attachment A**. The results indicated that further soil investigation at UST 202A was not warranted.

Additional field investigation at former UST 202A was proposed by the Army in August 2017 (Reference 2 of **Attachment A**) and approved by NJDEP (Reference 1 of **Attachment A**).

Recent Investigation Results

To address the UST 202A groundwater data gap described above, a groundwater sample was collected in 2017 from one temporary monitoring well (PAR-81-202A-TMW-04) (**Figure 2**). The sample was collected from 6.5 feet below ground surface (bgs). Field notes and soil boring logs are provided in **Attachment B** and **Attachment C**. The groundwater sample was analyzed for Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) by ALS Environmental (ALS). VOCs and SVOCs were not detected in the sample at concentrations exceeding the current NJDEP GWQC (**Table 1**).

Summary

An Unrestricted Use, NFA determination is requested for UST 202A. 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

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)

Figures:

Figure 1 UST 202A Site Location
Figure 2 UST 202A Site Layout and Sampling Locations

Tables:

Table 1 –2017 Groundwater Sampling Results – Comparison to NJDEP Ground Water Quality Criteria

Attachments:

A. UST 202A Correspondence
B. Field Notes
C. Soil Boring Logs

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 202A Site Investigation Report, Fort Monmouth, Monmouth County, Oceanport, New Jersey" (22 February 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: 22 February 2018

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

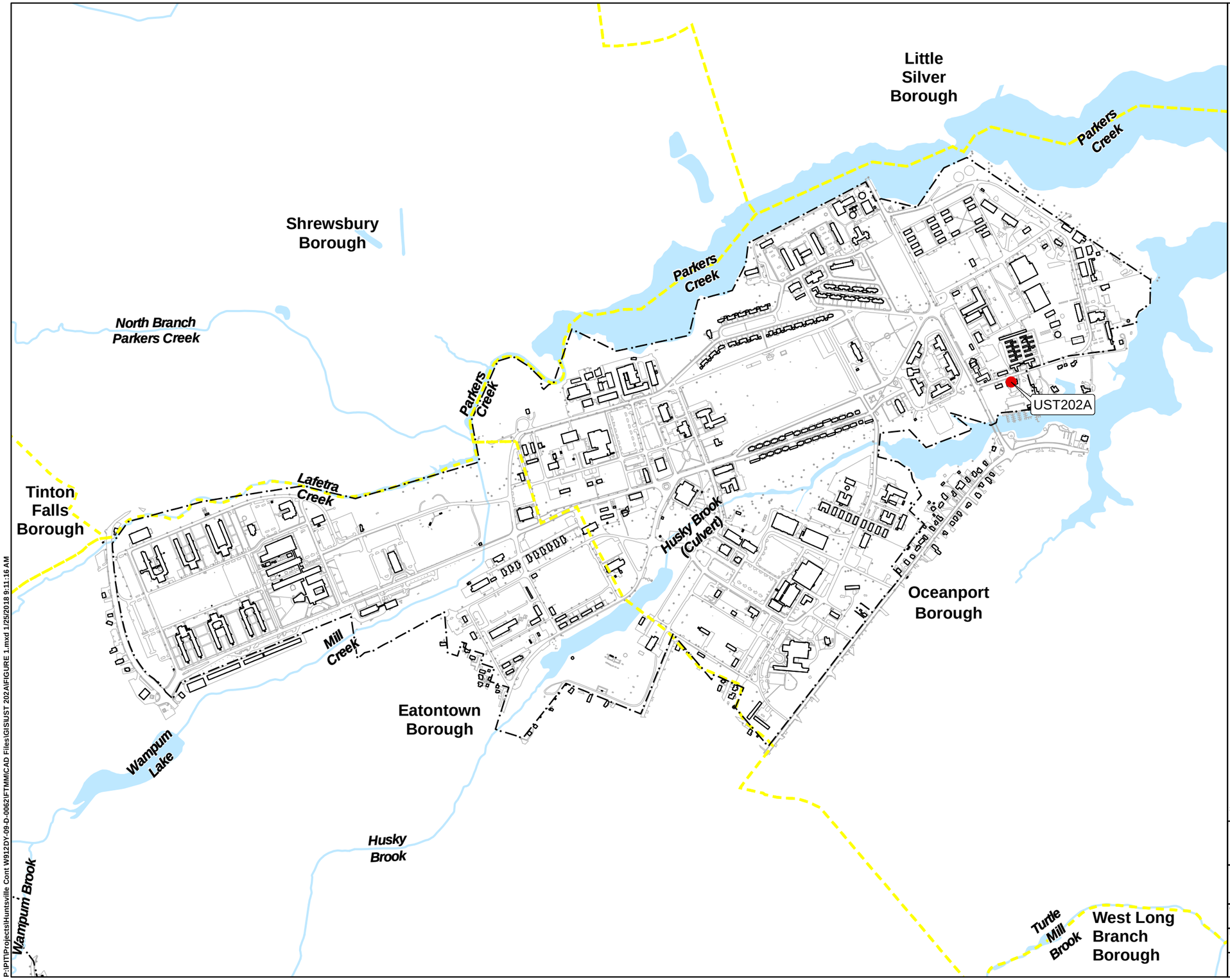
Completed form should be sent to:

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 202A Location

Figure 2 – UST 202A Site Layout and Sampling Locations



LEGEND:

- Former UST202A Location
- Installation Boundary
- Municipal Boundary
- Surface Water Feature

N

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

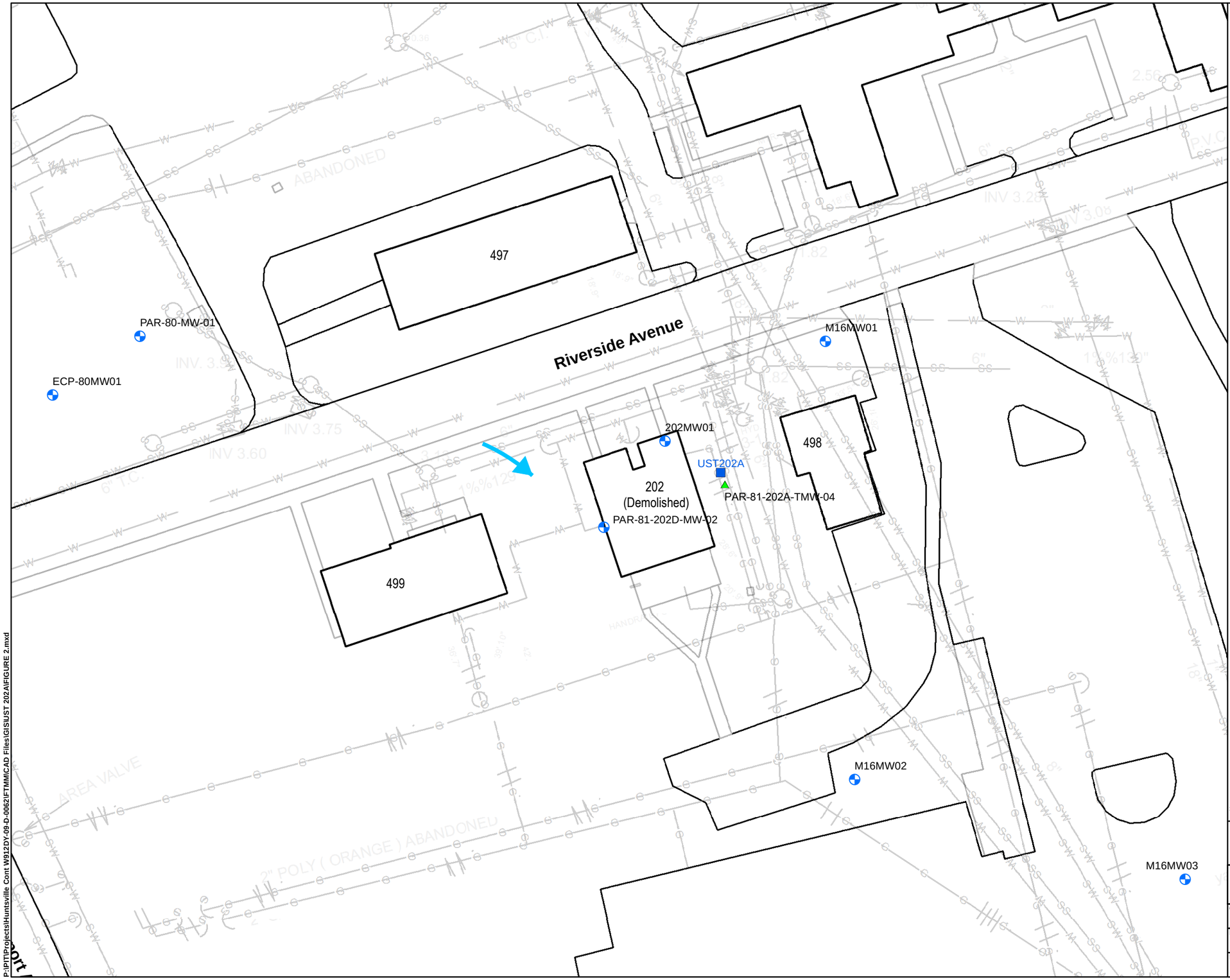
Source: FTMM Supplied CAD, 2013; ESRI Data and Maps, 2011; USGS NHD, 2012.

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

UST 202A LOCATION

CREATED BY: RR	REVIEWED BY: AM
DATE: JAN. 2018	FIGURE NUMBER: FIGURE 1
PROJECT NUMBER: 748810-06031	FILE: FIGURE 1.mxd

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\UST 202A\FIGURE 1.mxd 1/25/2018 9:11:16 AM



LEGEND:

- Former UST Location
- Groundwater Sample (Temporary Well)
- Shallow Monitoring Well
- W Water Line
- S Sanitary Sewer Line
- SW Storm Sewer Line
- G Gas Line
- Estimated Groundwater Flow Direction

N

1 inch = 40 feet

0 20 40 80 Feet

Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008; 2008 SI Report; USGS NHD, 2012.

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

UST202A SITE LAYOUT AND SAMPLING LOCATIONS

CREATED BY: RR	REVIEWED BY: AM
DATE: JAN. 2018	FIGURE NUMBER: FIGURE 2
PROJECT NUMBER: 748810-06031	FILE: FIGURE 2.mxd

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\UST 202A\FIGURE 2.mxd

TABLES

Table 1 –2017 Groundwater Sampling Results – Comparison to NJDEP Ground Water Quality Criteria

TABLE 1
2017 GROUNDWATER SAMPLING RESULTS - COMPARISON TO
NJDEP GROUNDWATER QUALITY CRITERIA
SITE PARCEL 81 202A UST
FORT MONMOUTH, NEW JERSEY

Loc ID	PAR-81-202A-TMW-04
Sample ID	PAR-81-202A-TMW-04-6.5
Sample Date	11/1/2017
Filtered	Total
Volatile Organic Compounds (µg/l)	
1,1,1,2-Tetrachloroethane	< 0.75
1,1,1-Trichloroethane	< 0.75
1,1,2,2-Tetrachloroethane	< 0.75
1,1,2-Trichloroethane	< 0.75
1,1-Dichloroethane	< 0.75
1,1-Dichloroethene	< 0.75
1,1-Dichloropropene	< 0.75
1,2,3-Trichlorobenzene	< 0.75
1,2,3-Trichloropropane	< 2.5
1,2,4-Trichlorobenzene	< 0.75
1,2,4-Trimethylbenzene	< 0.75
1,2-Dibromo-3-chloropropane	< 2.5
1,2-Dibromoethane	< 0.75
1,2-Dichlorobenzene	< 0.75
1,2-Dichloroethane	< 0.75
1,2-Dichloropropane	< 0.75
1,3,5-Trimethylbenzene	< 0.75
1,3-Dichlorobenzene	< 0.75
1,3-Dichloropropane	< 0.75
1,4-Dichlorobenzene	< 0.75
2,2-Dichloropropane	< 0.75
2-Chlorotoluene	< 0.75
Acetone	< 13.1
Benzene	< 0.75
Bromobenzene	< 0.75
Bromochloromethane	< 0.75
Bromodichloromethane	< 0.75
Bromoform	< 0.75
Carbon tetrachloride	< 0.75
Chlorobenzene	< 0.75
Chlorodibromomethane	< 0.75
Chloroethane	< 0.75
Chloroform	< 0.75
Cis-1,2-Dichloroethene	< 0.75
Cis-1,3-Dichloropropene	< 0.75
Cymene	< 0.75
Dichlorodifluoromethane	< 0.75
Ethyl benzene	< 0.75
Hexachlorobutadiene	< 0.75
Isopropylbenzene	< 0.75
Meta/Para Xylene	< 1.5
Methyl bromide	< 0.75 UJ
Methyl butyl ketone	< 3.8
Methyl chloride	< 0.75
Methyl ethyl ketone	< 3.8
Methyl isobutyl ketone	< 3.8
Methyl Tertbutyl Ether	< 0.75
Methylene chloride	< 0.75
Naphthalene	< 0.75
n-Butylbenzene	< 0.75
Ortho Xylene	< 0.75
p-Chlorotoluene	< 0.75
Propylbenzene	< 0.75
sec-Butylbenzene	< 0.75
Styrene	< 0.75
Tert Butyl Alcohol	< 12.5
tert-Butylbenzene	< 0.75
Tetrachloroethene	< 0.75
Toluene	< 0.75
Total Xylenes	< 2.3
Trans-1,2-Dichloroethene	< 0.75
Trans-1,3-Dichloropropene	< 0.75
Trichloroethene	< 0.75
Trichlorofluoromethane	< 0.75
Vinyl chloride	< 0.75
Semivolatile Organic Compounds (µg/l)	
1,2,4-Trichlorobenzene	< 2
1,2-Dichlorobenzene	< 2
1,2-Diphenylhydrazine	< 2
1,3-Dichlorobenzene	< 2
1,4-Dichlorobenzene	< 2
2,4,5-Trichlorophenol	< 6
2,4,6-Trichlorophenol	< 2
2,4-Dichlorophenol	< 2
2,4-Dimethylphenol	< 10
2,4-Dinitrophenol	< 16
2,4-Dinitrotoluene	< 2
2,6-Dinitrotoluene	< 2
2-Chloronaphthalene	< 2

TABLE 1
2017 GROUNDWATER SAMPLING RESULTS - COMPARISON TO
NJDEP GROUNDWATER QUALITY CRITERIA
SITE PARCEL 81 202A UST
FORT MONMOUTH, NEW JERSEY

2-Chlorophenol	< 4
2-Methylnaphthalene	< 2
2-Methylphenol	< 2
2-Nitroaniline	< 2
2-Nitrophenol	< 4
3,3'-Dichlorobenzidine	< 6
3-Nitroaniline	< 4
4,6-Dinitro-2-methylphenol	< 10
4-Bromophenyl phenyl ether	< 2
4-Chloro-3-methylphenol	< 2
4-Chloroaniline	< 2
4-Chlorophenyl phenyl ether	< 2
4-Nitroaniline	< 2
4-Nitrophenol	< 10
Acenaphthene	< 2
Acenaphthylene	< 2
Anthracene	< 2
Benzidine	< 60
Benzo(a)anthracene	< 2
Benzo(a)pyrene	< 2
Benzo(b)fluoranthene	< 2
Benzo(ghi)perylene	< 2
Benzo(k)fluoranthene	< 2
Benzyl alcohol	< 4
Bis(2-Chloroethoxy)methane	< 2
Bis(2-Chloroethyl)ether	< 2
Bis(2-Chloroisopropyl)ether	< 2
Bis(2-Ethylhexyl)phthalate	< 2
Butyl benzyl phthalate	< 2
Carbazole	< 2
Chrysene	< 2
Cresol	< 2
Dibenz(a,h)anthracene	< 2
Dibenzofuran	< 2
Diethyl phthalate	< 2
Dimethyl phthalate	< 2
Di-n-butylphthalate	< 2
Di-n-octylphthalate	< 2
Fluoranthene	**0.57 J**
Fluorene	< 2
Hexachlorobenzene	< 2
Hexachlorobutadiene	< 2
Hexachlorocyclopentadiene	< 4
Hexachloroethane	< 2
Indeno(1,2,3-cd)pyrene	< 2
Isophorone	< 2
Naphthalene	< 2
Nitrobenzene	< 4
N-Nitrosodimethylamine	< 4
N-Nitroso-di-n-propylamine	< 2
N-Nitrosodiphenylamine	< 4
Pentachlorophenol	< 16
Phenanthrene	< 2
Phenol	< 2
Pyrene	**0.42 J**
TIC SVOCs (µg/l)	
TIC Unknown	**21.8 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.

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

Attachment A
Correspondence:

1. New Jersey Department of Environmental Protection (NJDEP). 2017. Letter to the Army, *Supplemental Unregulated Heating Oil Tank (UHOT) Work Plan, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. October 13.
2. Department of the Army. 2017. *Supplemental Unregulated Heating Oil Tank (UHOT) Work Plan, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. August 15.
3. New Jersey Department of Environmental Protection (NJDEP). 2017. Letter to the Army, RE: *Request for No Further Action at Multiple Parcel 79 Storage Tanks Site Investigation Report Addendum dated May 2017, Fort Monmouth, Oceanport, Monmouth County.* May 8.
4. Department of the Army. 2017. *Parcel 79 Storage Tanks Site Investigation Report Addendum dated February 2017, Fort Monmouth, Oceanport, Monmouth County.* Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. February 8.
5. Department of the Army. 2016. *Response to NJDEP's 25 August 2015 Comments on the April 2015 underground Storage Tanks within ECP Parcel 79, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. February 10.
6. New Jersey Department of Environmental Protection (NJDEP). 2015. Letter to the Army, RE: *Underground Storage Tanks Within ECP Parcel 79 dated April 2015, Fort Monmouth, Oceanport, Monmouth County.* August 25.
7. Department of the Army. 2015. *Underground Storage Tanks within Parcel 79, Fort Monmouth, NJ*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. April 22.

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Northern Field Operations
7 Ridgedale Avenue
Cedar Knolls, NJ 07927
Phone #: 973-631-6401
Fax #: 973-656-4440

BOB MARTIN
Commissioner

October 13, 2017

Mr. William Colvin
BRAC Environmental Coordinator
OACSIM – U.S. Army Fort Monmouth
P. O. Box 148
Oceanport, NJ 07757

Re: Supplemental Unregulated Heating Oil Tank Work Plan
Fort Monmouth
Oceanport, Monmouth County
PI G000000032

Dear Mr. Colvin,

The New Jersey Department of Environmental Protection (Department) has completed review of the Supplemental Unregulated Heating Oil Tank Work Plan (UST Workplan). The UST Workplan included proposal for further investigation(s) at various Underground Storage Tank (UST) locations. The Department offers the following comments:

- **UST 142B, UST 202A, UST 202D** – The proposal to install monitor wells (MWs) is approved. Please ensure that all approved sampling methodologies are utilized. Please also document field observations, including the presence of free product and/or sheen in any of the MWs. Please note that the proposal to install additional MW, as needed, is also approved as this may assist in further delineating the extent of ground water contamination.
- **UST 211** – Further investigation is approved as proposed. However, the Department recommends installing one temporary well south of boring locations SCREEN 5 and SCREEN 6.
- **UST 228B** – Further investigation is approved as proposed. Based on the findings from previous investigation(s) and subsequent sampling results (soils and ground water), the Department may recommend removing the UST.
- **UST 444** – The installation of borings (6), temporary wells (3) and permanent monitor wells (3) is approved. However, as other USTs were present in the area, please ensure that results from UST 444 and other USTs' results are not co-mingled.
- **UST 490** – Further investigation is approved as proposed. However, please indicate if any previous soil remediation in the form of soil removal was performed when this UST was removed in 1990 or thereafter.
- **UST 750J, UST 800-12, UST 800-20, UST 884, UST 906A** and **UST 3035** – Further investigations are approved as proposed at these locations.

Please submit all results of the findings to my attention for review. If possible, please have each UST findings, tables, figures and maps individually prepared. Thank you and please feel free to contact me if you have any questions.

Sincerely,

A.J. Joshi

C: James Moore, USACE
Rich Harrison, FMERA
Joe Fallon, FMERA
Joe Pearson, Calibre
File

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

15 August 2017

Mr. Ashish Joshi
New Jersey Department of Environmental Protection
Northern Bureau of Field Operations
7 Ridgedale Avenue
Cedar Knolls, NJ 07927

SUBJECT: Supplemental Unregulated Heating Oil Tank (UHOT) Work Plan
Fort Monmouth, New Jersey
PI G000000032

Figures:

Figure 1 – UHOT Locations
Figure 2 – UST 142B Sample Location
Figure 3 – UST 202A and UST 202D Sample Locations
Figure 4 – UST 211 Sample Locations
Figure 5 – UST 228B Sample Location
Figure 6 – UST 444 Sample Locations
Figure 7 – UST 490 Sample Locations
Figure 8 – UST 750J Sample Location
Figure 9 – UST 800-12 Sample Locations
Figure 10 – UST 800-20 Sample Locations
Figure 11 – UST 884 Sample Locations
Figure 12 – UST 906A Soil Sample Locations
Figure 13 – UST 906A Groundwater Sample Locations
Figure 14 – UST 3035 Sample Locations

Tables:

Table 1 – Sampling Summary
Table 2 – UST 906A Soil Sample Results
Table 3 – UST 906A Groundwater Sample Results

Attachments:

A. Groundwater Flow Direction Maps

Dear Mr. Joshi:

The U.S. Army Fort Monmouth (FTMM) Team has prepared this Work Plan to describe the proposed sampling and analyses activities to support environmental investigations at select unregulated heating oil tanks (UHOTs; also referred to as underground storage tanks [USTs] in this submittal) at FTMM (Figure 1).

The UHOTs described in this Work Plan are being evaluated in accordance with the New Jersey Administrative Code (NJAC) 7:26E *Technical Requirements for Site Remediation*. Most of these UHOTs require a remedial investigation (RI) in accordance with NJAC 7:26E-4.3 for delineation of an identified release of fuel oil constituents in groundwater. However, additional USTs have been included in this Work Plan that only require site investigation (SI) soil or groundwater sampling (NJAC 7:26E-3.4 or -3.5) to determine if a release has occurred, as designated below:

- UST 142B (SI)
- UST 202A (SI)
- UST 202D (RI)
- UST 211 (RI)
- UST 228B (SI)
- UST 444 (RI)
- UST 490 (RI)
- UST 750J (SI)
- UST 800-12 (RI)
- UST 800-20 (RI)
- UST 884 (RI)
- UST 906A (RI)
- UST 3035 (SI)

Specific data needs and proposed sampling at each UHOT site are described in the subsections below. Groundwater flow directions in the area where delineation in groundwater is required are generally not well established due to the distances to other nearby monitor wells. Therefore, regional groundwater flow directions from previous documents (Attachment A) were used as a basis for initial planning of groundwater sampling at each site.

The proposed groundwater assessment strategy includes a combination of field screening and groundwater sampling and analysis to delineate the groundwater plume. For a typical UHOT site without any previous plume assessment, Geoprobe soil borings will be placed in a ring around the former tank site, and each boring will be advanced to a depth below the shallow groundwater. Field screening using a photoionization detector (PID) and visual observation of the Geoprobe soil cores will be used to identify and assess areas impacted by fuel oil downgradient of the source area. Previous Geoprobe assessments at FTMM have successfully identified fuel oil contamination in areas downgradient of former UHOTs using these field screening techniques. The field screening results will be used to verify the contaminant migration direction (and by implication, the groundwater flow direction) for each UHOT site. Temporary groundwater monitoring wells will then be placed within and outside of the plume at each tank site using a Geoprobe, and the groundwater will be sampled to verify the nature and extent of groundwater contamination. Following receipt of analytical data from the temporary wells, permanent monitoring wells will be installed to establish a monitoring network with a minimum of three wells at each site: a source area well near the former tank site, a well downgradient of the source but within the plume, and a downgradient sentry well beyond the plume. Select existing monitoring wells will also be used for water level measurements to complement the monitoring network. All new permanent monitoring wells and the existing monitoring wells to be used for water level measurements will be surveyed by a New Jersey-licensed surveyor in accordance with the Sampling and Analysis Plan (SAP; Reference 23).

Sampling and analytical procedures will follow the protocols established for previous FTMM Work Plan submittals (Reference 24). All Site personnel will be required to read, understand, and comply with the safety guidelines in the Accident Prevention Plan (APP) including the Site Health and Safety Plan (SHASP), which is included as Appendix A of the APP (Reference 25). The detailed field procedures to be used for the activities described in this sampling plan are described in the SAP (Reference 23). Please let me know if you need these or any other documents referred to in this Work Plan to be sent to you.

Specific sampling and analytical requirements are summarized in Table 1, and are described for each UHOT in the subsections below.

1. UST 142B

UST 142B was a steel 550-gallon No. 2 fuel oil UST that was removed in July 1994, along with approximately 30 cubic yards of contaminated soil, as presented in Attachment H of ***USTs Within ECP Parcel 79*** (Reference 2). Subsequently, NJDEP required a groundwater investigation to be performed (Reference 13); a temporary well was installed, sampled and abandoned in August 2016. Multiple polynuclear aromatic hydrocarbons (PAHs) were detected in the groundwater sample, which was attributed to sample turbidity rather than a release of fuel oil to groundwater (as reported in Reference 10). NJDEP (Reference 22) then recommended resampling using a method to reduce turbidity due to the high concentrations for PAHs detected.

To address this data need, a 2-inch diameter permanent monitoring well will be installed at the former UST 142B tank location, as shown on Figure 2. This approach is expected to result in a low-turbidity groundwater sample without PAH exceedances. The well will be installed within a Geoprobe boring and will be completed with a 10-foot well screen to approximately 7 feet (ft) below the water table (estimated at approximately 4 ft below ground surface [bgs]). The well will be developed to meet the criteria specified in NJDEP's most recent ***Field Sampling Procedures Manual***. Low-flow sampling methods will be used to sample this well and the sample will be analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) in accordance with the requirements for No. 2 fuel oil in Table 2-1 of the NJAC 7:26E ***Technical Requirements for Site Remediation***. The Field Geologist will note any indications of fill within the soil column such as cinders, coal, or other debris. A letter report will be prepared for UST 142B that either requests a No Further Action (NFA) determination or recommends additional investigation or action, as warranted from the analytical data.

2. UST 202A

UST 202A was a fiberglass 1,000-gallon heating oil UST that was removed in October 2001, along with an unspecified quantity of contaminated soil, as presented in Attachment J of ***USTs Within ECP Parcel 79*** (Reference 2). NJDEP (Reference 13) subsequently required a groundwater investigation for the UST 202A and UST 202D area. One temporary well and two existing permanent wells were sampled in May and August 2016 (Reference 10). NJDEP then recommended installation of a permanent well nearby to assess UST 202D (Reference 22); at the same time, NFA was not approved for UST 202A. Additional data are needed to delineate groundwater contamination associated with UST 202A and to delineate groundwater contamination at nearby UST 202D (described in Section 3 below).

To address the UST 202A data need, one temporary monitoring well will be installed at the former UST 202A tank location, as shown on Figure 3. The well will be installed within a Geoprobe boring and will be completed with a 5-foot well screen to approximately 4 ft below the water table (estimated at approximately 2 ft bgs). This well will be sampled and the sample will be analyzed for VOCs and SVOCs in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E. The Army may also install and sample additional permanent wells based on the temporary well results. A letter report will be prepared for UST 202A that either requests a No Further Action (NFA) determination or recommends additional investigation or action.

3. UST 202D

UST 202D was a steel 500-gallon heating oil UST that was removed in May 2005 along with approximately 20 cubic yards of contaminated soil (Attachment L of Reference 2). A temporary well was sampled at the former UST 202D location in June 2011; benzene (1.61 µg/L) and 2-methylnaphthalene (109 to 233 µg/L) were detected at concentrations greater than NJDEP Ground Water Quality Criteria (GWQC). NJDEP subsequently required a groundwater investigation for UST 202D (Reference 13). One temporary well and two existing permanent wells were sampled in May and August 2016 (Reference 10). NJDEP then recommended installation of a permanent well to assess UST 202D with low-flow sampling and analysis for VOCs and SVOCs (Reference 22).

To address this data need, one permanent monitoring well and at least three temporary wells will be installed at the former UST 202D tank location, as shown on Figure 3. Recent temporary well results (Reference 10) suggest that fuel oil constituents have not migrated more than approximately 50 ft downgradient of the former tank location (Figure 3). Therefore, two additional downgradient temporary wells and one field screening boring will be installed for verification at offset locations approximately 50 feet downgradient of the former tank location to verify that the plume was not missed. A third temporary well will be installed at the former UST 202A location as described in Section 2.0 above. These temporary wells will be installed within a Geoprobe boring and will typically be completed with a 5-foot well screen to approximately 4 ft below the water table (estimated to be 2 ft bgs). Samples will be collected from the temporary wells for VOCs and SVOCs analyses, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E. Additional temporary wells may be installed as needed based on the groundwater sampling described above.

It is anticipated that existing well M16MW02 will be utilized as a downgradient sentry monitor well for the UST 202D site. New well 202MW02 will be developed. Both new well 202MW02 and existing well M16MW02 will be sampled using low-flow methods; the samples will be analyzed for VOCs and SVOCs in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from monitoring wells 202MW01, 202MW02, M16MW01, and M16MW02 (Figure 3) to determine the local groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 202D.

4. UST 211

UST 211 was a fiberglass 2000-gallon No. 2 fuel oil UST that was removed in November 2001. As presented in Attachment F.1 of Reference 8, one closure soil sample contained 3,968 mg/kg Total Petroleum Hydrocarbons (TPH). A temporary well was sampled at the former UST 211 location in August 2016; multiple analytes were detected at concentrations greater than the GWQCs including 1,2,4-trimethylbenzene (543 J µg/L), benzene (2.8 µg/L), naphthalene (1,450 µg/L), 2-methylnaphthalene (6,680 µg/L), total VOC Tentatively Identified Compounds (TICs; 1,302 µg/L) and total SVOC TICs (14,322 µg/L) (Attachment D of Reference 8). NJDEP stated that additional remedial efforts were required for this site (Reference 19). Additional data are needed to delineate groundwater contamination at UST 211.

To address this data need, multiple field screening borings, temporary monitoring wells and permanent monitoring wells will be installed near the former UST 211 tank location, as shown on Figure 4. Field screening Geoprobe borings SCREEN1 through SCREEN6 (Figure 4) will be advanced at locations around the former UST 211 location to provide field verification of the groundwater flow direction, which is assumed to be towards the north-northwest based on regional groundwater maps (Attachment A). These borings will be advanced past the water table, which is assumed to be approximately 12 ft bgs based on previous drilling at PAR-72-211-TMW-01. The field screening borings will be logged visually and with a PID, which has proven useful for identifying fuel oil contamination at FTMM. The field results will be used to validate the locations for subsequent temporary wells to assist with delineating the groundwater plume.

A total of four additional temporary monitor wells are proposed at UST 211. A line of three temporary monitor wells (TMW-02 through TMW-04) will be installed along Russel Avenue (approximately 60 ft downgradient of the tank) to verify the direction and lateral boundaries of the plume. A fourth temporary monitor well (TMW-05) will be installed further downgradient to establish the downgradient extent of the plume prior to installing a downgradient permanent sentry well. As with the field screening borings, the borings for temporary wells will be logged visually and with a PID to estimate the extent of the plume in the field. Additional field screening borings (like SCREEN7 on Figure 4) may be used to determine the downgradient extent of the plume. The temporary wells will be installed within Geoprobe borings and will typically be completed with a 5-foot well screen to approximately 4 ft below the water table (estimated at approximately 12 ft bgs). Samples will be collected from each temporary well and analyzed for VOCs and SVOCs in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Based on the analytical results of the temporary well samples, three permanent monitoring wells will be installed for groundwater monitoring: one at the source area (MW-01); one within the plume (MW-02); and one downgradient sentry location (MW-03). The new wells will be developed and sampled using low-flow methods, and the groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from the three new monitoring wells, and from nearby wells 200MW01 (located south of Building 216; see Attachment A), 200MW06 (located north of Building 228; Figure 5), and B5MW05B (located southeast of Building 261), to determine the local groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 211.

5. UST 228B

UST 228B is a steel 1,000-gallon No. 2 fuel oil UST that was partially uncovered in December 2010, and then re-buried and left in place. Therefore, UST 228B has not been administratively closed. The Army has conducted soil sampling along the tank to determine if a release has occurred at UST 228B, and the results were described in Attachment G.4 of Reference 8. One soil sample from the 7 to 7.5 foot interval of boring PAR-72-228-SB-03 had a 2-methylnaphthalene concentration of 23.9 mg/kg which exceeded the NJDEP Impact to Ground Water (IGW) screening level, but not the Residential Direct Contact Soil Remediation Standard (RDCSRS). Synthetic Precipitation Leachate Procedure (SPLP) analysis for 2-methylnaphthalene was not performed (as prescribed by NJDEP guidance) on this soil sample due to exceedance of holding times. However, a temporary well located about 10 ft downgradient of boring PAR-72-228-SB-03 was sampled and 2-methylnaphthalene was notably absent in this sample. NJDEP agreed that additional remedial efforts were required (Reference 19). Further evaluation of the soil boring log for PAR-72-228-SB-03 indicates that groundwater was encountered at approximately 7 ft bgs, and therefore this sample may have been from the saturated zone and, if so, IGW screening levels would not apply, and there would be no soil exceedances at this site. Additional data, as described below, are needed to assess the potential for unsaturated soil to exceed the SPLP criteria for 2-methylnaphthalene.

To address this data need, one Geoprobe soil boring (SB-04) will be advanced at the location of the previous boring PAR-72-228-SB-03 where the IGW screening level for 2-methylnaphthalene was exceeded (Figure 5). An unsaturated soil sample (from above the water table) will be collected from approximately 7 to 7.5 ft bgs for 2-methylnaphthalene analysis using the SPLP procedure. A letter report will be prepared for UST 228B that reports the results of this additional investigation.

6. UST 444

UST 444 was a steel 1,000-gallon No. 2 fuel oil UST that was removed in January 2010; an unreported quantity of contaminated soil was removed the following month (Attachment U of Reference 2). NJDEP required a groundwater investigation for the UST 444 area (Reference 13). A temporary well was sampled at the former UST 444 location in August 2016; multiple analytes were detected at concentrations greater than the GWQCs, including benzene (1.7 J µg/L), 2-methylnaphthalene (30.6 J µg/L), and total SVOC TICs (1,758 µg/L) (Reference 10). NJDEP commented that further investigation was necessary for this site (Reference 22). Additional data are needed to delineate groundwater contamination at UST 444.

To address this data need, multiple field screening borings, temporary monitoring wells and permanent monitoring wells will be installed around the former UST 444 tank location, as shown on Figure 6. Field screening Geoprobe borings SCREEN1 through SCREEN6 (Figure 6) will be advanced at locations around the former UST 444 location to determine the groundwater flow direction which is assumed to be towards the north based on regional groundwater maps (Attachment A). These borings will be advanced past the water table, which is assumed to be at approximately 6 ft bgs based on previous drilling at PAR-79-MP-TMW-02. The field screening borings will be logged visually and with a PID, which has proven useful for identifying fuel oil contamination at FTMM. The field results will be used to verify the field locations for subsequent temporary wells to assist with delineating the groundwater plume.

A total of three additional temporary monitor wells are proposed at UST 444. A line of two additional temporary monitor wells (TMW-01 and TMW-02) will be installed approximately 100 ft downgradient of the tank to verify the direction and lateral boundaries of the plume. Results from a temporary well (PAR-79-MP-TMW03) installed in August 2016 for another former UST investigation will be used to complete this line of temporary wells (there were no exceedances of GWQC in this well). A third temporary monitor well (TMW-03) will be installed approximately 100 feet farther downgradient to establish the downgradient extent of the plume prior to installing a permanent downgradient sentry well. As with the field screening borings, the borings for temporary wells will be logged visually and with a PID to estimate the extent of the plume in the field. Additional field screening borings may be used to determine the downgradient extent of the plume. The temporary wells will be installed within Geoprobe borings and will be completed with a 5-foot well screen to approximately 4 feet below the water table (estimated at approximately 6 ft bgs). Each temporary well will be sampled and the groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Three new permanent monitoring wells will be installed for groundwater monitoring at the source area (MW-01), within the plume (MW-02), and at a downgradient sentry location (MW-03). These wells will be installed after the analytical data for the temporary wells have been evaluated; therefore the actual locations may be adjusted from those shown on Figure 6 based on these data. The new wells will be developed and sampled using low-flow methods, and the groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from the three new monitoring wells and from nearby well 430MW-1 (Figure 6) to determine the local groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 444.

7. UST 490

UST 490 was a steel 1,000-gallon No. 2 fuel oil UST that was removed in May 1990 (Attachment CC of Reference 2). NJDEP subsequently required additional characterization of groundwater contamination for the UST 490 area (Reference 13). Multiple rounds of Geoprobe soil sampling performed from 2005 through 2016 verified the presence of petroleum contaminated soils near the former UST location. Groundwater was sampled in August 2016 from a temporary well (PAR-79-490-TMW-03) located downgradient of the former UST location and just south of Building 490; 2-methylnaphthalene (63.5 µg/L) and total SVOC TICs (1,323 µg/L) were detected at concentrations greater than the GWQCs (Reference 10). NJDEP commented that additional groundwater investigations must also include analyses for PAHs (Reference 22). As described below, additional data are needed to estimate the nature and extent of groundwater contamination at UST 490.

Previous sampling results have been used to select additional field screening borings, temporary monitoring wells and permanent monitoring wells which will be installed downgradient of the former UST 490 location (Figure 7). Field screening Geoprobe borings will be advanced at two locations (SCREEN1 and SCREEN2; Figure 7) south of Building 490 to determine the groundwater flow direction which is assumed to be towards the southeast based on regional groundwater maps (Attachment A). The field screening borings will be advanced past the water table, which is assumed to be at approximately 3 ft bgs based on previous drilling at PAR-79-490-TMW-03. The field

screening borings will be logged visually and with a PID, which has proven useful for identifying fuel oil contamination at FTMM. The field results will be used to select the field locations of temporary wells to be installed to delineate the groundwater plume.

A total of four additional temporary monitor wells are proposed at UST 490. Two temporary monitor wells (TMW-04 and TMW-05) will be installed approximately 50 ft from the previous PAR-79-490-TMW-03 location to locate the lateral (cross-gradient) boundaries of the plume. Two temporary monitor wells (TMW-06 and TMW-07) will be installed approximately 70 and 120 ft farther downgradient from Building 490 to establish the downgradient extent of the plume, prior to installing a permanent downgradient sentry well. As with the field screening borings, the borings for temporary wells will be logged visually and with a PID to estimate the extent of the plume in the field. Additional field screening borings may be used to determine the downgradient extent of the plume. The temporary wells will be installed within Geoprobe borings and will typically be completed with a 5-ft well screen to approximately 4 ft below the water table (estimated at approximately 3 ft bgs). Samples will be collected from each temporary well for VOC and SVOC analyses, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Existing well 490MW01 will be maintained as a source area well at the former UST 490 location. Two new permanent monitoring wells will be installed for groundwater monitoring within the plume (MW-02) and at a downgradient sentry location (MW-03). These wells will be installed after the analytical data for the temporary wells have been evaluated; therefore the actual locations may be adjusted from those shown on Figure 7. The two new wells will be developed. These two new wells and existing well 490MW01 will be sampled using low-flow methods and the groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from the three new monitoring wells, from the new well at former UST 142B (Figure 2), and from existing well M16MW01 (Figure 3) to determine the local groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 490.

8. UST 750J

UST 750J was a steel 1,000-gallon heating oil UST that was removed in August 2009, along with approximately 24 cubic yards of contaminated soil (Attachment M of Reference 6). NJDEP commented that a groundwater investigation was warranted (Reference 21).

One temporary monitoring well (TMW-01) will be installed at the former UST 750J tank location (Figure 8). The well will be installed within a Geoprobe boring and will be completed with a 5 foot well screen to approximately 4 ft below the water table (approximately 6.5 ft bgs). A sample from this well will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E. A letter report will be prepared for UST 750J that either requests a NFA determination or recommends additional investigation or action.

9. UST 800-12

UST 800-12 was a steel 1,000-gallon No. 2 fuel oil UST located in the parking lot of the former First Atlantic Credit Union (Building 1006). This UST was removed in May 2003 along with

approximately 18 cubic yards of contaminated soil (Attachment J of Reference 3). NJDEP commented that a groundwater investigation for the UST 800-12 area was necessary (Reference 15). Temporary well ARE-800-TMW-07 was installed and sampled at the former UST 800-12 location in August 2016; 2-methylnaphthalene (148 µg/L) and total SVOC TICs (510 µg/L) were detected at concentrations greater than the GWQCs (Reference 9). Based on these groundwater results, NJDEP (Reference 20) commented that further groundwater investigation was necessary. Further delineation of groundwater contamination at UST 800-12 will be performed as described below.

Multiple field screening borings, temporary monitoring wells and permanent monitoring wells will be installed around the former UST 800-12 tank location (Figure 9). Field screening Geoprobe borings SCREEN1 through SCREEN6 (Figure 9) will be advanced at locations around the former UST 800-12 location to determine the local groundwater flow direction, which is assumed to be towards the north-northwest based on regional groundwater maps (Attachment A). These borings will be advanced past the water table, which is assumed to be approximately 8.5 ft bgs based on previous drilling at ARE-800-TMW-07 (Reference 9). The field screening borings will be logged visually and the soils will be monitored with a PID which has proven useful for identifying fuel oil contamination at FTMM. The field results will be used to select the field locations for temporary wells to assist with delineating the groundwater plume.

A total of four temporary monitor wells are proposed at UST 800-12. A line of three temporary monitor wells (TMW-01 through TMW-03) will be installed approximately 80 ft downgradient of the location of the former tank to determine the direction and lateral boundaries of the plume. A fourth temporary monitor well (TMW-04) will be installed approximately 80 ft farther downgradient to establish the downgradient extent of the plume; this temporary well will be installed and sampled prior to installing a permanent downgradient sentry well. As with the field screening borings, the borings for temporary wells will be logged visually and with a PID to estimate the extent of the plume in the field. Additional field screening borings may be used to determine the downgradient extent of the plume. The temporary wells will be installed within Geoprobe borings and will typically be completed with a 5 foot well screen to approximately 4 ft below the water table (approximately 8.5 ft bgs). Each temporary well will be sampled and the groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Three new permanent monitoring wells will be installed to monitor groundwater at the source area (MW-01), within the plume (MW-02), and at a downgradient sentry location (MW-03). These wells will be installed after the analytical data for the temporary wells have been evaluated; the actual locations may be adjusted from those shown on Figure 9 based on these data. The new permanent wells will be developed and sampled using low-flow methods. The groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from the three new monitoring wells and from nearby existing wells 812MW05 and 812MW13 (Figure 2 of Attachment A) to determine the local groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 800-12.

10. UST 800-20

UST 800-20 was a steel 1,000-gallon No. 2 fuel oil UST that was removed in July 2003 along with approximately 80 cubic yards of contaminated soil (Attachment O of Reference 3). NJDEP commented that a groundwater investigation for the UST 800-20 area was necessary (Reference 15). A temporary well was sampled at the former UST 800-20 location in August 2016; 1,1,2-trichloroethane (5.5 µg/L), 2-methylnaphthalene (41 µg/L) and total SVOC TICs (724 µg/L) were detected at concentrations greater than the GWQCs (Reference 9). Based on these groundwater results, NJDEP commented that additional groundwater investigation was necessary for this site (Reference 20). Further delineation of groundwater contamination at UST 800-20 will be performed as described below.

Multiple field screening borings, temporary monitoring wells and permanent monitoring wells will be installed around the former UST 800-20 tank location (Figure 10). Field screening Geoprobe borings SCREEN1 through SCREEN6 (Figure 10) will be advanced at locations around the former UST 800-20 location to determine the local groundwater flow direction, which is assumed to be towards the north-northwest based on regional groundwater maps (Attachment A). These borings will be advanced past the water table which is assumed to be at approximately 7 ft bgs based on previous drilling at ARE-800-TMW-08 (Reference 9). The field screening borings will be logged visually and with a PID which has proven useful for identifying fuel oil contamination at FTMM. The field results will be used to select the locations for temporary wells to assist with delineating the groundwater plume.

A total of four additional temporary monitor wells are proposed at former UST 800-20. A line of three temporary monitor wells (TMW-01 through TMW-03) will be installed approximately 60 ft downgradient of the former tank to verify the direction and lateral boundaries of the plume. A fourth temporary monitor well (TMW-04) will be installed approximately 80 ft farther downgradient to establish the downgradient extent of the plume, prior to installing a downgradient permanent sentry well. As with the field screening borings, the borings for temporary wells will be logged visually and with a PID to estimate the extent of the plume in the field. Additional field screening borings may be used to determine the downgradient extent of the plume. The temporary wells will be installed within Geoprobe borings and will typically be completed with a 5 foot well screen approximately 4 ft below the water table (approximately 7 ft bgs). Samples from each temporary well will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Three new permanent monitoring wells will be installed to monitor groundwater at the source area (MW-01), within the plume (MW-02), and at a downgradient sentry location (MW-03). These wells will be installed after the analytical data for the temporary wells have been evaluated; the actual locations may be adjusted from those shown on Figure 10 based on these data. The new wells will be developed and sampled using low-flow methods. The groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from the three new monitoring wells, and from nearby existing wells 812MW05 and 812MW13 (Figure 2 of Attachment A), to determine the local

groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 800-20.

11. UST 884

UST 884 was a steel 1,000-gallon No. 2 fuel oil UST that was removed in October 2003 along with an unspecified amount of contaminated soil (Attachment U of the Reference 3). NJDEP commented that a groundwater investigation was necessary for the UST 884 area (Reference 15). A temporary well was sampled at the former UST 884 location in April 2016; 2-methylnaphthalene (150 µg/L) and total VOC TICs (981 µg/L) were detected at concentrations greater than the GWQCs (Reference 9). Based on these groundwater results, NJDEP commented additional groundwater investigation was necessary (Reference 20). Further delineation of groundwater contamination at UST 884 will be performed as described below.

Multiple field screening borings, temporary monitoring wells and permanent monitoring wells will be installed around the former UST 884 tank location (Figure 11). Field screening Geoprobe borings SCREEN1 through SCREEN6 (Figure 11) will be advanced at locations around the former UST 884 location to determine the local groundwater flow direction, which is assumed to be towards the northwest based on regional groundwater maps (Attachment A). These borings will be advanced past the water table, which is assumed to be at approximately 6 ft bgs based on previous drilling at ARE-800-TMW-05 (Reference 9). The field screening borings will be logged visually and with a PID which has proven useful for identifying fuel oil contamination at FTMM. The field results will be used to select the locations for temporary wells to assist with delineating the groundwater plume.

A total of four additional temporary monitor wells are proposed at UST 884. A line of three temporary monitor wells (TMW-01 through TMW-03) will be installed approximately 60 ft downgradient of the tank to verify the direction and lateral boundaries of the plume. A fourth temporary monitor well (TMW-04) will be installed approximately 60 ft farther downgradient to establish the downgradient extent of the plume, prior to installing a downgradient permanent sentry well. As with the field screening borings, the borings for temporary wells will be logged visually and with a PID to estimate the extent of the plume in the field. Additional field screening borings may be used to determine the downgradient extent of the plume. The temporary wells will be installed within Geoprobe borings and will typically be completed with a 5-foot well screen to approximately 4 ft below the water table (approximately 6 ft bgs). Samples will be collected from each temporary well and analyzed for VOCs and SVOCs in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Three new permanent monitoring wells will be installed to monitor groundwater at the source area (MW-01), within the plume (MW-02), and at a downgradient sentry location (MW-03). These wells will be installed after the analytical data for the temporary wells have been evaluated; based on these data, the actual locations may be adjusted from those shown on Figure 11. The new wells will be developed, and sampled using low-flow methods. The samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from the three new monitoring wells and from nearby existing wells 800MW01 and 800MW02 (located west and north of Building 800), to determine the

local groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 884.

12. UST 906A

UST 906A was a steel 1,000-gallon No. 2 fuel oil UST that was removed in June 1990 (Attachment D of Reference 1). NJDEP did not approve the Army's NFA request for UST 906A due to elevated TPH levels in soil and 2-methylnaphthalene in groundwater at a concentration greater than the GWQC (Reference 14). The Army subsequently prepared a Work Plan for the UST 906A area (Reference 4), which was approved by NJDEP (Reference 16).

Field work at the UST 906A site was performed in April, May, and August 2016 and consisted of Geoprobe soil sampling near the former tank area and temporary well sampling from within and downgradient of the former UST 906A tank area. Soil sample results are presented in Table 2 and Figure 12, and as indicated, Extractable Petroleum Hydrocarbons (EPH) concentrations were greater than the NJDEP cleanup criteria of 5,100 mg/kg are present near the former tank area. The soil EPH exceedance has not been delineated in the northwest direction from the former tank site. One soil sample from boring PAR-68-SB-04 (Figure 12) was also analyzed for SVOCs and 2-methylnaphthalene in this sample (35 mg/kg) exceeded the NJDEP IGW screening level.

Groundwater analyses are presented in Table 3 and Figure 13. The groundwater sample at PAR-68-TMW-01 from the former UST 906A source area exceeded the GWQC for 1,2,2-trichloroethane (present at 4.6 µg/L) and total SVOC TICs (present at 2,719 µg/L). The groundwater sample further downgradient at PAR-68-TMW-02 exceeded the GWQC for 1,2,4-trimethylbenzene (102 µg/L), 2-methylnaphthalene (386 µg/L) and total SVOC TICs (2,319 µg/L). Based on these groundwater results, it is apparent that a groundwater plume associated with UST 906A has migrated in the north-northwest direction below Building 906 and farther downgradient an unknown distance. Therefore, additional data, as described below, are needed to delineate groundwater contamination at former UST 906A.

Multiple soil borings, temporary monitoring wells and permanent monitoring wells will be installed around the former UST 906A tank location, as shown on Figures 12 and 13. Field screening Geoprobe borings (locations PAR-68-TMW-2-1 through TMW-2-4 shown on Figure 13) were previously used in April 2016 to verify the north-northwest direction of plume migration; therefore, additional field screening borings are not proposed for the future work.

One additional soil boring (SB-07 on Figure 12) will be advanced to the northwest of the former UST 906A excavation for collection of soil samples to delineate the EPH exceedances in this direction. Three soil samples will be collected from this boring to characterize the soil with depth: one from above, one from within, and one from below the most contaminated soil interval within the boring. The soil samples will be analyzed for EPH and the sample with the highest field indications of contamination will be analyzed for the SVOCs 2-methylnaphthalene and naphthalene, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

A total of three temporary monitoring wells will be installed. A line of two temporary monitoring wells (TMW-03 and TMW-04 on Figure 13) will be installed approximately 100 ft downgradient of the tank to verify the lateral boundaries of the plume. The previous temporary well PAR-68-TMW-02 established the plume migration direction. An additional temporary monitoring well (TMW-05)

will be installed approximately 70 ft further downgradient to verify the downgradient extent of the plume, prior to installing a permanent downgradient sentry well. The borings for temporary wells will be logged visually and with a PID to estimate the extent of the plume in the field. Additional field screening borings may be used to determine the downgradient extent of the plume. The temporary wells will be installed within Geoprobe borings and will typically be completed with a 5 foot well screen to approximately 4 ft below the water table (approximately 5 ft bgs). Groundwater samples will be collected from each temporary well and will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Three new permanent monitoring wells will be installed to monitor groundwater at: the source area (MW-01, same location as new soil boring SB-07); within the plume (MW-02, same location as previous temporary well PAR-68-TMW-02); and at a downgradient sentry location (MW-03). These wells will be installed after the analytical data from the new temporary wells have been evaluated; the actual locations may be adjusted from those shown on Figure 13 based on these data. The new wells will be developed and sampled using low-flow methods and the groundwater samples will be analyzed for VOCs and SVOCs, in accordance with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E.

Water level measurements will be collected from the three new monitoring wells and from nearby existing well M12MW14 (Figure 13) to determine the local groundwater flow direction. It is anticipated that a remedial investigation report will be prepared for UST 906A.

13. UST 3035

UST 3035 was a steel 5,000-gallon No. 2 fuel oil UST that was removed in 1989. The location of former UST 3035 is not well documented and has been estimated based on the location of the former boiler room at Building 3035 (Figure 14).

As described in Reference 5, closure soil samples were not collected when former UST 3035 was removed. The SI Report Addendum was submitted to NJDEP along with a request for a NFA determination NJDEP was unable to approve the NFA request without analytical data (Reference 17) and the Army proposed additional sampling (Reference 7) which was approved by NJDEP (Reference 18) and is the basis of the work described below.

Soil samples will be collected from three borings (SB-01, SB-02, and SB-03) (Figure 14) to support a future NFA request. Two soil samples will be collected from each boring. At each boring, a sample will be collected from approximately 8.0-8.5 ft bgs (or another interval representative of the soil below the removed tank) and from a 6-inch interval just above the water table (approximately 2 ft bgs). One of these two soil samples will be collected from the most contaminated interval encountered based on field evidence (visual, olfactory, or PID screening). If there is no field evidence of petroleum contamination, then the two soil samples will be collected from 8.0-8.5 ft bgs and from just above the water table (approximately 3 ft bgs). Each soil sample will be analyzed for total EPH with additional contingency SVOCs analyses (25 percent) for naphthalene and 2-methylnaphthalene if EPH concentrations exceed 1,000 mg/kg. These soil analyses are consistent with the requirements for No. 2 fuel oil in Table 2-1 of NJAC 7:26E. A letter report will be prepared for UST 3035 that reports the results of this investigation.

14. SUMMARY

We look forward to your review of this Work Plan and approval or comments. The technical Point of Contact (POC) for this matter is Kent Friesen at (732) 383-7201 or by email at kent.friesen@parsons.com. Should you have any questions or require additional information, please contact me by phone at (732) 380-7064 or by email at william.r.colvin18.civ@mail.mil.

Sincerely,

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

cc: Ashish Joshi, NJDEP (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)
Cris Grill, Parsons (e-mail)

REFERENCES CITED:

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3. Department of the Army. 2015. *No Further Action Request, Site Investigation Report Addendum for the 800 Area Including, ECP Parcels 55 and 56, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. June 12.
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State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
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BOB MARTIN
Commissioner

May 8, 2017

William Colvin
BRAC Environmental Coordinator
OACSIM – U.S. Army Fort Monmouth
PO Box 148
Oceanport, NJ 07757

Re: *Request for No Further Action at Multiple Parcel 79 Storage Tanks Site Investigation Report Addendum*
Fort Monmouth
Oceanport, Monmouth County
PI G000000032

Dear Mr. Colvin,

The New Jersey Department of Environmental Protection (Department) has completed review of the referenced report, received February 10, 2017, prepared by the Department of the Army's Office of Assistant Chief of Staff for Installation Management to present the results of additional sampling efforts at numerous above and underground storage tanks located within Parcel 79. Comments are as follows:

ASTs 1 & 2
Based upon soil and ground water analytical results, it is agreed no further action is necessary.

UST 142B
The request for an NFA for the PAHs found in ground water is not acceptable. The concentrations of benzo(a)anthracene is 85 times the Ground Water Quality Standard (GWQS). The concentration of benzo(a)pyrene is 149 times the GWQS, and benzo(b)fluoranthene is 97 times the GWQS. This location must be resampled using a method to reduce turbidity. Given the high concentrations when compared to samples taken from other UST locations, the Department is concerned these ground water concentrations may be indicative of actual ground water conditions, rather than the result of very turbid samples. A permanent well using low flow sampling methodology may be required to address this issue.

UST 444
Soil boring logs indicated odors and elevated PID readings. In addition, benzene, 2-methylnaphthalen and SVOC TICs exceeded the GWQS. As indicated in the submittal, further investigation at this location is necessary.

USTs 202A & 202D
As previously indicated in an email of April 17, 2017, the installation of a permanent well at a location immediately downgradient of UST 202D is recommended. Required analyses include VOs and SOVCs; the collection of SVOCs should be via low-flow.

UST 490
Ground water samples obtained from this location exceed the GWQS for 2-methylnaphthalene, PAHs, and SVOC TICs. The additional ground water investigations proposed must also include analyses for PAHs.

USTs Requiring No Additional Action
Following review of the referenced information, it is agreed no further action is necessary for the following #2 fuel USTs removed from within Parcel 79, as referenced in the above submittal:

- UST 437
- UST 440
- UST 441
- UST 445
- UST 448
- UST 449
- UST 450
- UST 451

Please contact this office if you have any questions.

Sincerely,

Linda S. Range

Linda S. Range

C: James Moore, USACE
Rich Harrison, FMERA
Joe Fallon, FMERA
Joe Pearson, Calibre

DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
U.S. ARMY FORT MONMOUTH
P.O. BOX 148
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08 February 2017

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

Subject: Request for No Further Action at Multiple Parcel 79 Storage Tanks Site Investigation Report Addendum
Fort Monmouth, Oceanport, New Jersey
PIG000000032

Attachments:

A. Figure 1: Layout of Parcel 79
Figure 2: Parcel 79 Area 75 Sample Locations
Figure 3: Groundwater Sample Locations for Multiple USTs at Parcel 79
Figure 4: Parcel 79 UST 142B Sample Locations
Figure 5: Parcel 79 UST 202A and 202D Sample Locations
Figure 6: Parcel 79 UST 490 Sample Locations

B. Table 1: Validated Laboratory Data Results for Groundwater, Parcel 79
Table 2: Validated Laboratory Data Results for Soil, Parcel 79

C. Field Notes

D. Boring Logs

E. Analytical Data

Previous Correspondence (not attached):

1. Army letter to NJDEP dated 22 April 2015, Subject: *Underground Storage Tanks within Parcel 79 Fort Monmouth, New Jersey.*
2. NJDEP letter to the Army dated 25 August 2015, Subject: *Underground Storage Tanks within ECP Parcel 76 dated April 2015 Fort Monmouth.*
3. Army letter to NJDEP dated 10 February 2016, Subject: *Response to NJDEP's August 25, 2015 Comments on the April 2015 Underground Storage Tanks within ECP Parcel 79, Fort Monmouth, New Jersey.*
4. NJDEP letter to Army dated 30 March 2016, Subject: *Response to NJDEP's August 25, 2015 Comments on the April 2015 Underground Storage Tanks within ECP Parcel 79 and Work Plan Addendum for Former Storage Tank Sites, Fort Monmouth, Oceanport, Monmouth County.*

Dear Ms. Range:

The U.S. Army Fort Monmouth (FTMM) Team has prepared this addendum to present the results of additional field sampling at the two Area 75 former Aboveground Storage Tanks (ASTs; designated as AST-1 and AST-2) and thirteen former Underground Storage Tanks (USTs) 142B, 202A, 202D, 437, 440, 441, 444, 445, 448, 449, 450, 451, and 490, all located within Environmental Condition of Property (ECP) Parcel 79 (Figure 1 of **Attachment A**). These USTs were unregulated heating oil tanks (UHOTs) that were identified as requiring additional sampling of groundwater. The Area 75 ASTs and USTs 202A, 202D, and 490 were also identified as requiring additional soil sampling, as described in the 10 February 2016 Parcel 79 Work Plan Addendum (Correspondence 3) and in the following subsection 1.0, 2.0, and 3.0.

One temporary groundwater monitor well was installed with a Geoprobe® rig immediately downgradient of Parcel 79 USTs 142B, 202A, 202D, 437, 440, 441, 444, 445, 448, 449, 450, and 451, and a groundwater sample was collected from each well to determine if a fuel oil release had impacted groundwater. For the Area 75 ASTs, a temporary well was installed immediately downgradient of each former tank. Three temporary wells were installed at UST 490 to delineate the extent of groundwater contamination. Groundwater samples were also collected from three permanent monitor wells (202MW01 at UST 202A, M16MW01 at202D, and 490MW01 at UST 490). Field sampling for temporary wells was completed on 3, 4, and 5 August 2016. Field sampling for permanent wells was completed on 25 May 2016. All groundwater samples were analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) plus tentatively identified compounds (TICs), in accordance with the requirements for No. 2 Fuel Oil in Table 2-1 of the New Jersey Administrative Code (NJAC) 7:26E Technical Requirements for Site Remediation.

Soil samples were also collected from borings advanced with a Geoprobe® rig at the Area 75 ASTs and USTs 202A, 202D, and 490 to assess current concentrations and vertical extent of extractable petroleum hydrocarbons (EPH) in soil. Field sampling was completed on 12 and 13 April 2016. One soil sample from boring PAR-79-490-SB-04 (at UST 490) was also analyzed for the additional contingency SVOC analytes naphthalene and 2-methylnaphthalene due to EPH concentration exceeding 1,000 mg/kg (NJDEP, 2010[1]).

It is important to note that the occurrence of polycyclic aromatic hydrocarbons (PAHs) in Parcel 79 groundwater warrants additional explanation. Exceedances of the NJDEP Ground Water Quality Criteria (GWQC) for multiple PAHs occurred at 12 of the 17 temporary wells during the August 2016 sampling. In contrast, none of the seven groundwater samples collected at permanent monitor wells 290MW01, M16MW01, and 490MW01 had any PAH exceedances. Furthermore, another nearby permanent well within Parcel 79 (430MW01; see Figure 3 of **Attachment A**) had no PAHs detected in samples collected in 1995, as reported in Attachment O of Correspondence 1. These relatively low solubility, high molecular weight PAHs such as benzo(a)pyrene have been

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

encountered at other FTMM locations within surficial soils and fill that are unrelated to fuel oil USTs. Evidence of soil fill including brick and coal fragments were encountered within several Parcel 79 soil borings; please see **Attachment D.** Therefore, the PAH groundwater exceedances at Parcel 79 temporary wells were most likely the result of entrainment of soil resulting in sample turbidity, which is common with temporary well grab groundwater samples. In contrast, fuel oil releases are typically characterized by the specific PAHs naphthalene and 2-methylnaphthalene in groundwater. Therefore, temporary monitor wells with PAH exceedances that were not characteristic of fuel oil (i.e., without signature exceedances of naphthalene and 2-methylnaphthalene) are not considered indicative of a fuel oil release to groundwater.

The locations of the field samples are presented in Figures 1 through 6 of **Attachment A.** The analytical results and exceedances of applicable NJDEP criteria are provided in **Attachment B**. Field notes are provided in **Attachment C**, and boring logs are provided in **Attachment D**. The samples were analyzed by ALS Environmental; analytical data packages are provided in **Attachment E**.

1.0 AREA 75 ABOVE-GROUND STORAGE TANKS

AST-1 and AST-2 were bulk above-ground fuel oil tanks that were removed in 1995 as described in Attachment E of Correspondence 1. Four soil borings were sampled in response to NJDEP comments on the 10 February 2016 Work Plan Addendum (Correspondence 4). Soil samples were analyzed for EPH; additional contingency SVOC analysis for naphthalene and 2-methylnaphthalene was not required due to EPH concentrations not exceeding 1,000 mg/kg (NJDEP, 2010).

Soil analytical results are presented in Table 2 (**Attachment B**). The maximum total EPH concentration encountered in soil was 319 mg/kg, which is below the NJ Residential Direct Contact Soil Remediation Standard (RDCSRS) of 5,100 mg/kg. The results from the soil borings at AST-1 and AST-2 indicate that further soil investigation is not warranted.

Temporary well PAR-79-A75-TMW-01 was installed, sampled, and subsequently abandoned at the location of AST-2, and temporary well PAR-79-A75-TMW-02 was installed, sampled, and subsequently abandoned at the location of AST-1 (see Figure 2 of **Attachment A**). Groundwater was encountered at approximately 3 to 4 feet below ground surface (ft bgs) in the soil borings, and at 4 ft bgs and 9 ft bgs at the two wells; please see **Attachments C and D**. As shown on Table 2 of **Attachment B**, there were seven PAH exceedances of the GWQC (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) in the primary sample and four exceedances (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and indeno[1,2,3-cd]pyrene) in the duplicate sample at PAR-79-A75-TMW01. There were three exceedances (benzo[a]anthracene, benzo[a]pyrene, and benzo[b]fluoranthene) of the GWQC in the groundwater sample at PAR-79-A75-TMW02. As indicated above, the PAH exceedances are attributable to entrainment of soil resulting in sample turbidity associated with the installation of the temporary wells. None of the groundwater samples collected in May 2016 from permanent monitor wells associated with Parcel 79 had any PAH exceedances. Another nearby permanent well within Parcel 79 (430MW01) had no PAHs detected

in samples collected in 1995. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene).

2.0 MULTIPLE PARCEL 79 UNDERGROUND STORAGE TANKS

The results of the sampling and analyses are provided below for each of the ten UHOT sites shown on Figures 3 and 4 in **Attachment A**.

UST 142B

UST 142B was a residential fuel oil tank that was removed in 1994 as described in Attachment H of Correspondence 1. Temporary well PAR-79-142-TMW-01 was installed, sampled, and subsequently abandoned (Figure 4 of **Attachment A**). Groundwater was encountered at approximately 7 ft bgs; please see **Attachment C.** As shown on Table 2 of **Attachment B**, there were seven GWQC exceedances (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene). As previously discussed, the PAH exceedances in this temporary well sample are attributable to entrainment of soil resulting in sample turbidity. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene)

UST 437

UST 437 was a residential fuel oil tank that was removed in 2010 as described in Attachment Q of Correspondence 1. Temporary well PAR-79-MP-TMW-08 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 6 ft bgs; please see **Attachment C.** As shown on Table 2 of **Attachment B**, there were no exceedances of the GWQC.

UST 440

UST 440 was a residential fuel oil tank that was removed in 2010 as described in Attachment R of Correspondence 1. Temporary well PAR-79-MP-TMW-01 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 5 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**, benzo(a)anthracene (0.23 µg/l) and benzo(a)pyrene (0.13 µg/l) slightly exceeded the GWQC (0.1 µg/l) neither of which are indicative of fuel oil. As previously discussed, the PAH exceedances are attributable to entrainment of soil resulting in sample turbidity associated with the installation of the temporary well. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene).

UST 441

UST 441 was a residential fuel oil tank that was removed in 2010 as described in Attachment D of Correspondence 1. Temporary well PAR-79-MP-TMW-07 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 8 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**,

benzo(a)anthracene (0.34 µg/l), benzo(a)pyrene (0.29 µg/l), and benzo(b)fluoranthene (0.31 µg/l) slightly exceeded the GWQC (0.1, 0.1, and 0.2 µg/l, respectively). As previously discussed, the PAH exceedances are attributable to entrainment of soil resulting in sample turbidity associated with the installation of the temporary well. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene).

UST 444

UST 444 was a residential fuel oil tank that was removed in 2010 as described in Attachment V of Correspondence 1. Temporary well PAR-79-MP-TMW-02 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 4 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**, one VOC (benzene) and three SVOCs (2-methylnapthalene, benzo[a]anthracene, and benzo[a]pyrene) exceeded the GWQC. The total sum of SVOC TICs also exceeded the GWQC. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene).

UST 445

UST 445 was a residential fuel oil tank that was removed in 2010 as described in Attachment U of Correspondence 1. Temporary well PAR-79-MP-TMW-06 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 5 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**, there were no exceedances of the GWQC.

UST 448

UST 448 was a residential fuel oil tank that was removed in 2010 as described in Attachment W of Correspondence 1. Temporary well PAR-79-MP-TMW-03 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 4 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**, there were no exceedances of the GWQC.

UST 449

UST 449 was assumed to be a residential fuel oil tank because of information identified during a records review. Soil samples were collected in 2010, and a soil sample for a test trench was excavated in May 2010. The results of the test trench and visual evidence indicated that a release had occurred, but no tank was found. The soils had a strong petroleum odor as described in Attachment X of Correspondence 1. Temporary well PAR-79-MP-TMW-04 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 5 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**, benzo(a)anthracene (0.25 µg/l), benzo(a)pyrene (0.13 µg/l), and benzo(b)fluoranthene (0.22 µg/l) slightly exceeded the GWQC (0.1, 0.1, and 0.2, respectively). As previously discussed, the PAH exceedances are attributable to entrainment of soil resulting in

sample turbidity associated with the installation of the temporary well. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene).

UST 450

UST 450 was a residential fuel oil tank that was removed in 2010 as described in Attachment Y of Correspondence 1. Temporary well PAR-79-MP-TMW-05 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 5 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**, there were no exceedances of the GWQC.

UST 451

UST 451 was a residential fuel oil tank that was removed in 2010 as described in Attachment Z of Correspondence 1. Temporary well PAR-79-MP-TMW-09 was installed, sampled, and subsequently abandoned (Figure 3 of **Attachment A**). Groundwater was encountered at approximately 4 ft bgs; please see **Attachment C**. As shown on Table 2 of **Attachment B**, benzo(a)anthracene (0.18 µg/l) slightly exceeded the GWQC (0.1 µg/l) in this groundwater sample. As previously discussed, the PAH exceedances are attributable to entrainment of soil resulting in sample turbidity associated with the installation of the temporary wells. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene).

3.0 USTS 202A AND 202D

USTs 202A and 202D were residential fuel oil tanks that were removed in 2001 as described in Attachment J of Correspondence 1. Three soil borings (see Figure 5 of **Attachment A**) were sampled in response to NJDEP comments on the 10 February 2016 Work Plan Addendum (Correspondence 4). Soil samples were analyzed for EPH; additional contingency SVOC analyses for naphthalene and 2-methylnaphthalene was not required (NJDEP, 2010). Soil analytical results are presented in Table 2 (Attachment B). The maximum total EPH concentration encountered in soil was 345 mg/kg. The results from the soil borings at USTs 202A and 202D indicate that further soil investigation is not warranted.

Temporary well PAR-79-202-TMW-01 was installed, sampled, and subsequently abandoned (Figure 5 of **Attachment A**). Groundwater was encountered at approximately 2 to 5 ft bgs; please see **Attachments C and D**. Permanent monitor wells 202MW01 and M16MW02 were previously installed at this site, and were also sampled (Figure 5 of **Attachment A**). Well 202MW01 was installed near the former location of UST 202D in August 2011 but apparently was never previously sampled. Well M16MW02 was constructed in March 2011 and is located downgradient of USTs 202A and 202D.

As shown on Table 2 of **Attachment B**, there was one slight PAH exceedance (benzo[a]anthracene at 0.19 µg/l) of the GWQC (0.1 µg/l) in the temporary well sample. There were no exceedances of the GWQC in the permanent well samples. As previously discussed, the PAH exceedances are attributable to entrainment of soil resulting in sample turbidity associated with the installation of

the temporary well. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene).

4.0 UST 490

UST 490 was a residential fuel oil tank that was removed in 1990 as described in Attachment CC of Correspondence 1. Four soil borings were sampled in response to NJDEP comments on the 10 February 2016 Work Plan Addendum (Correspondence 4), and soil samples were analyzed for EPH.

Total EPH concentrations of 1,600 mg/kg in one of the soil samples (the 3.5 to 4 ft bgs interval of boring PAR-79-490-SB-04; see Table 2 of **Attachment B**) exceeded the contingency analysis threshold of 1,000 mg/kg (NJDEP, 2010), and therefore this sample was also analyzed for naphthalene and 2-methylnaphthalene. The 2-methylnaphthalene concentration of 9,000 J µg/kg in this sample exceeded the NJDEP IGW screening level of 8,000 µg/kg, but did not exceed the RDCSRS. Additional Synthetic Precipitation Leachate Procedure (SPLP) analysis of this soil sample was not performed, as prescribed in NJDEP (2010**)**.

Three temporary wells (PAR-79-490-TMW-01, PAR-79-490-TMW-02, and PAR-79-490-TMW-03) were installed, sampled for groundwater, and subsequently abandoned (Figure 6 of **Attachment A**). Existing monitor well 490MW01, installed in August 2011, was also sampled. (**Attachment A**). Groundwater was encountered at approximately 2 to 3.5 ft bgs; please see **Attachments C and D**.

As shown on Table 2 of **Attachment B**, PAH exceedances of the GWQC were encountered at temporary wells PAR-79-490-TMW01 (benzo[a]anthracene) and PAR-79-490-TMW02 (benzo[a]anthracene and benzo[b]fluoranthene). As previously discussed, the PAH exceedances are attributable to entrainment of soil resulting in sample turbidity associated with the installation of the temporary wells. There were no exceedances of the GWQC indicative of fuel oil (i.e., naphthalene or 2-methylnaphthalene). There were no exceedances of the GWQC in the three groundwater samples collected from permanent well 490MW01. However, there were GWQC exceedances for 2-methynaphthalene and the sum of SVOC TICs in the groundwater sample from PAR-79-490-TMW03, which was located downgradient of the former UST 490.

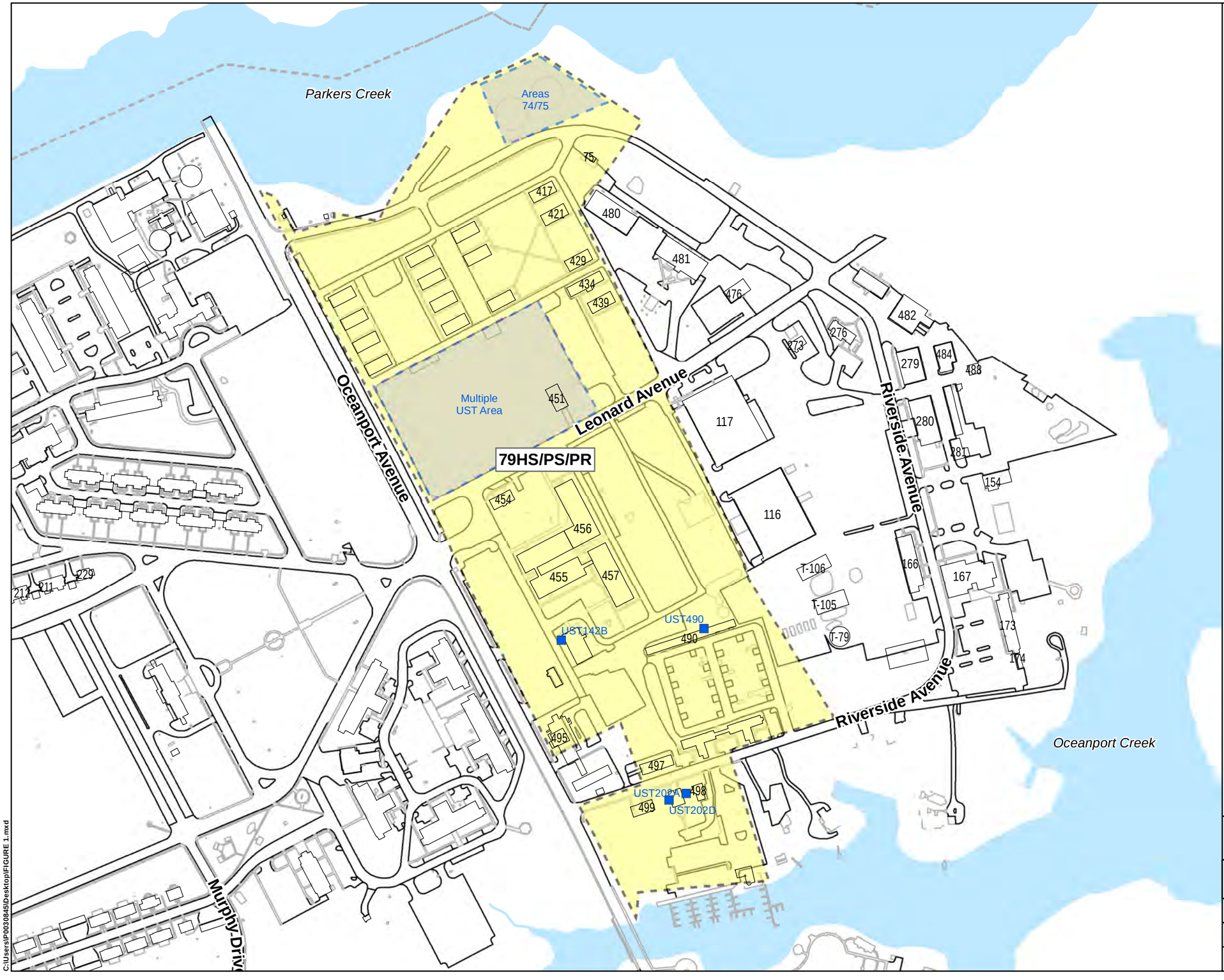
5.0 SUMMARY

No Further Action determinations are requested for soil and groundwater for the two ASTs at Area 75 and USTs 202A and 202D. No Further Action determinations are requested for groundwater for USTs 142 B, 437, 440, 441, 445, 448, 449, 450, and 451.Additional work would be needed for NFA determinations to be made at USTs 490 and 444. 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 william.r.colvin18.civ@mail.mil.

Sincerely,

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

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



LEGEND:

- Parcel 79 Boundary
- Municipal Boundary
- Multiple UST Area
- Surface Water Feature
- UST Location

N

1 inch = 300 feet

0 150 300 600 Feet

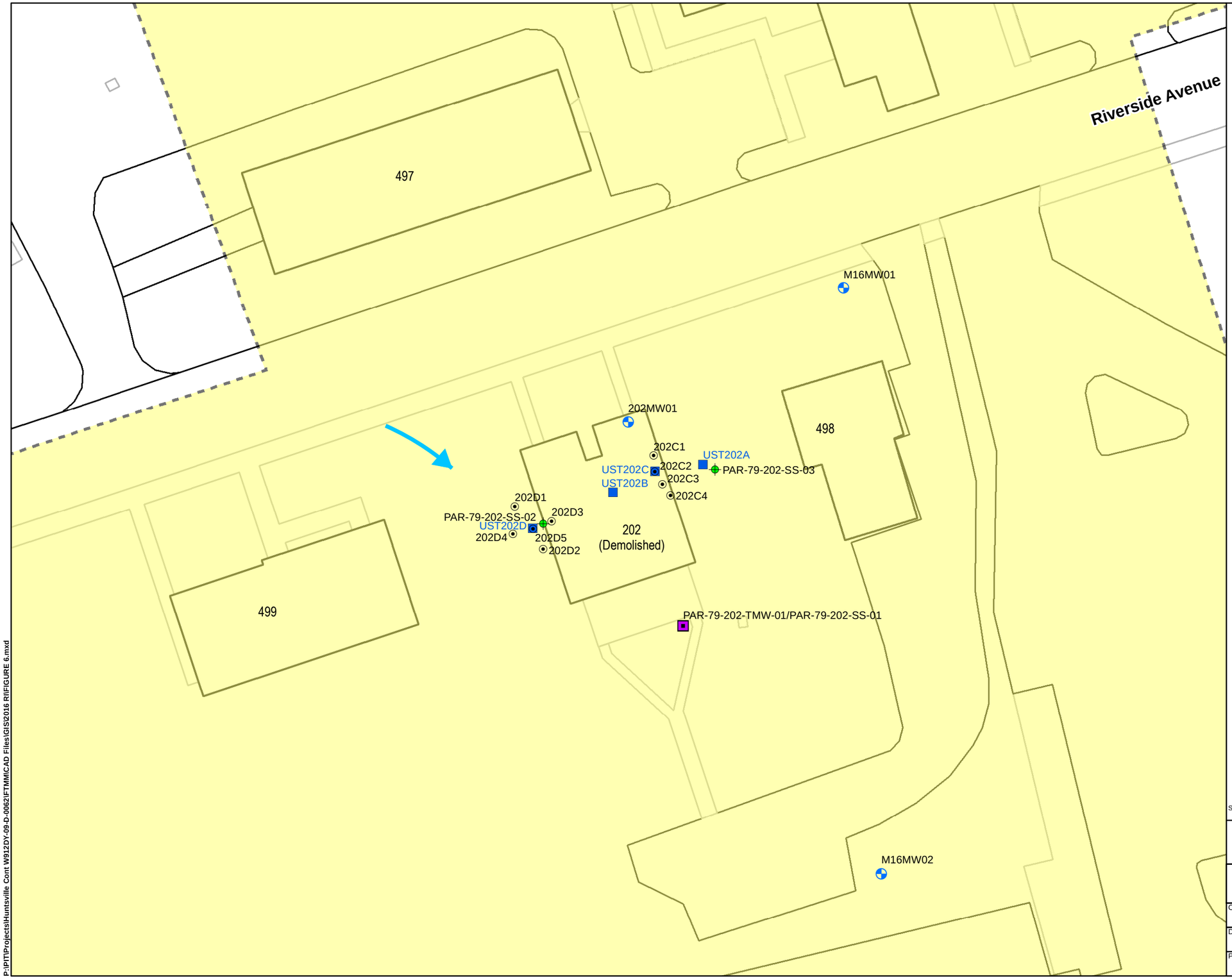
Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008; 2008 SI Report; USGS NHD, 2012.

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

LAYOUT OF PARCEL 79

CREATED BY: RR	REVIEWED BY: KF
DATE: JAN. 2017	FIGURE NUMBER: FIGURE 1
PROJECT NUMBER: 748810-06010	FILE: FIGURE 1.mxd

C:\Users\P0030845\Desktop\FIGURE 1.mxd



LEGEND:

- Parcel 79 Boundary
- Municipal Boundary
- Shallow Monitoring Well
- Former UST Location
- Soil Sample (2016)
- Soil and Groundwater Sample (2016)
- Estimated Groundwater Flow Direction

N

1 inch = 30 feet

0 15 30 60 Feet

Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008; 2008 SI Report; USGS NHD, 2012.

PARSONS
401 Diamond Drive NW,
Huntsville AL

Fort Monmouth
New Jersey

PARCEL 79 UST202A AND UST202D SAMPLE LOCATIONS

CREATED BY:	REVIEWED BY:
RR	KF
DATE:	FIGURE NUMBER:
JUN. 2016	FIGURE 5
PROJECT NUMBER:	FILE:
748810-06010	FIGURE 5.mxd

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\2016 RI\FIGURE 6.mxd

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Areas within rectangle are associated with sampling at UST 202A

Loc ID	NJ Ground Water Quality Criteria	202MW01		490MW01			M16MW02		P79-490-TMW03	P79-MP-TMW01	P79-MP-TMW02
Sample ID		202MW01-14.5	202MW01-9.5	490MW01-14.5	490MW01-19.5	490MW01-9.5	M16MW02-14.5	M16MW02-9.5	PAR-79-490-TMW03	PAR-79-MP-TMW01	PAR-79-MP-TMW02
Sample Date		5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	8/4/2016	8/3/2016	8/3/2016
Filtered		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Volatile Organic Compounds (µg/l)											
1,1,1,2-Tetrachloroethane	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,1,1-Trichloroethane	30	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,1,2,2-Tetrachloroethane	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,1,2-Trichloroethane	3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**2.7 J**	< 0.75	< 0.75 UJ
1,1-Dichloroethane	50	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,1-Dichloroethene	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,1-Dichloropropene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,2,3-Trichlorobenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,2,3-Trichloropropane	0.03	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 2.5 UJ	< 2.5	< 2.5 UJ
1,2,4-Trichlorobenzene	9	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,2,4-Trimethylbenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	**4.7 J**
1,2-Dibromo-3-chloropropane	0.02	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 2.5 UJ	< 2.5	< 2.5 UJ
1,2-Dibromoethane	0.03	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,2-Dichlorobenzene	600	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,2-Dichloroethane	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,2-Dichloropropane	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,3,5-Trimethylbenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	**10.9 J**
1,3-Dichlorobenzene	600	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,3-Dichloropropane	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
1,4-Dichlorobenzene	75	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
2,2-Dichloropropane	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
2-Chlorotoluene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Acetone	6,000	< 5	< 5	**5.7**	**4.8 J**	**5 J**	< 5	< 5	**11.4 B**	**5.5 B**	**6.5 B**
Benzene	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	**1.7 J**
Bromobenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Bromochloromethane	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Bromodichloromethane	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Bromoform	4	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Carbon tetrachloride	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Chlorobenzene	50	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Chlorodibromomethane	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Chloroethane	5	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Chloroform	70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Cis-1,2-Dichloroethene	70	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Cis-1,3-Dichloropropene	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Cymene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	**2.2 J**
Dichlorodifluoromethane	1,000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Ethyl benzene	700	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Hexachlorobutadiene	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Isopropylbenzene	700	< 1	< 1	**0.42 J**	**0.42 J**	**0.46 J**	< 1	< 1	**0.41 J**	< 0.75	**1.3 J**
Meta/Para Xylene	1,000	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 1.5 UJ	< 1.5	**1 J**
Methyl bromide	10	< 1	**0.44 JB**	**0.6 J**	**0.51 J**	**0.52 J**	**0.4 JB**	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Methyl butyl ketone	300	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 3.8 UJ	< 3.8	< 3.8 UJ
Methyl chloride	100	**0.4 J**	< 1	< 1	**0.48 J**	**0.58 J**	**0.35 J**	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Methyl ethyl ketone	300	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 3.8 UJ	< 3.8	< 3.8 UJ
Methyl isobutyl ketone	100	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 3.8 UJ	< 3.8	< 3.8 UJ
Methyl Tertbutyl Ether	70	< 1	< 1	< 1	< 1	< 1	**0.55 J**	**0.51 J**	< 0.75 UJ	< 0.75	< 0.75 UJ
Methylene chloride	3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	202MW01		490MW01			M16MW02		P79-490-TMW03	P79-MP-TMW01	P79-MP-TMW02
Sample ID		202MW01-14.5	202MW01-9.5	490MW01-14.5	490MW01-19.5	490MW01-9.5	M16MW02-14.5	M16MW02-9.5	PAR-79-490-TMW03	PAR-79-MP-TMW01	PAR-79-MP-TMW02
Sample Date		5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	8/4/2016	8/3/2016	8/3/2016
Filtered		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Naphthalene	300	< 1	< 1	**4.2**	**4.3**	**4.4**	< 1	< 1	**7.7 J**	< 0.75	**96.6 J**
n-Butylbenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Ortho Xylene	1,000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	**1.2 J**
p-Chlorotoluene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Propylbenzene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**0.61 J**	< 0.75	< 0.75 UJ
sec-Butylbenzene	100	< 1	< 1	**4.6**	**4.9**	**4.7**	< 1	< 1	**6 J**	< 0.75	**3.9 J**
Styrene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Tert Butyl Alcohol	100	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 12.5 UJ	< 12.5	< 12.5 UJ
tert-Butylbenzene	100	< 1	< 1	**0.85 J**	**0.78 J**	**0.78 J**	< 1	< 1	< 0.75 UJ	< 0.75	**0.46 J**
Tetrachloroethene	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Toluene	600	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Trans-1,2-Dichloroethene	100	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Trans-1,3-Dichloropropene	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Trichloroethene	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Trichlorofluoromethane	2,000	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
Vinyl chloride	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.75 UJ	< 0.75	< 0.75 UJ
TIC VOCs (µg/l)											
Total TICs, Volatile	500	NA	NA	**20.4 JN**	**21.5 JN**	**8.2 JN**	NA	NA	**171 JN**	NA	**134.1 JN**
Semivolatile Organic Compounds (µg/l)											
1,2,4-Trichlorobenzene	9	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
1,2-Dichlorobenzene	600	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
1,2-Diphenylhydrazine	20	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
1,3-Dichlorobenzene	600	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
1,4-Dichlorobenzene	75	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
2,4,5-Trichlorophenol	700	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 2.8	< 2.9	< 2.9
2,4,6-Trichlorophenol	20	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96
2,4-Dichlorophenol	20	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96
2,4-Dimethylphenol	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 4.6	< 4.8	< 4.8
2,4-Dinitrophenol	40	< 14.8 UJ	< 18.6 UJ	< 16.6 UJ	< 16.2 UJ	< 17.3 UJ	< 17.6 UJ	< 16.8 UJ	< 7.4	< 7.7	< 7.7
2,4-Dinitrotoluene	10	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	< 0.055	< 0.053	< 0.93	NA	NA
2,6-Dinitrotoluene	10	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	< 0.055	< 0.053	< 0.93	NA	NA
2-Chloronaphthalene	600	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
2-Chlorophenol	40	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 1.9	< 1.9	< 1.9
2-Methylnaphthalene	30	< 1.9	< 2.3	< 2.1	< 2	< 2.2	< 2.2	< 2.1	**63.5**	< 0.96	**30.6 J**
2-Methylphenol	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96
2-Nitroaniline	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
2-Nitrophenol	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 1.9	< 1.9	< 1.9
3,3'-Dichlorobenzidine	30	< 14.8	< 18.6	< 16.6	< 16.2	< 17.3	< 17.6	< 16.8	< 2.8	< 2.9	< 2.9 UJ
3-Nitroaniline	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 1.9	< 1.9	< 1.9 UJ
4,6-Dinitro-2-methylphenol	1	< 7.4 UJ	< 9.3 UJ	< 8.3 UJ	< 8.1 UJ	< 8.6 UJ	< 8.8 UJ	< 8.4 UJ	< 4.6	< 4.8	< 4.8
4-Bromophenyl phenyl ether	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
4-Chloro-3-methylphenol	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96
4-Chloroaniline	30	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
4-Chlorophenyl phenyl ether	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
4-Nitroaniline	5	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
4-Nitrophenol	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 4.6	< 4.8	< 4.8
Acenaphthene	400	< 0.046	< 0.058	**1.1**	**1.1**	**1.2**	**0.012 J**	< 0.053	< 0.93	**0.012 J**	**0.97 J**
Acenaphthylene	100	< 0.046	< 0.058	**0.14**	**0.14**	**0.17**	< 0.055	< 0.053	< 0.93	**0.022 J**	< 0.038 UJ
Anthracene	2,000	< 0.046	< 0.058	**0.13**	**0.13**	**0.14**	< 0.055	< 0.053	**8.2**	**0.029 J**	**0.39 J**

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	202MW01		490MW01			M16MW02		P79-490-TMW03	P79-MP-TMW01	P79-MP-TMW02
Sample ID		202MW01-14.5	202MW01-9.5	490MW01-14.5	490MW01-19.5	490MW01-9.5	M16MW02-14.5	M16MW02-9.5	PAR-79-490-TMW03	PAR-79-MP-TMW01	PAR-79-MP-TMW02
Sample Date		5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	5/25/2016	8/4/2016	8/3/2016	8/3/2016
Filtered		Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Benzidine	20	< 27.8	< 34.9	< 31.1	< 30.3	< 32.4	< 33	< 31.6	< 27.8 UJ	< 28.7 UJ	< 28.7 UJ
Benzo(a)anthracene	0.1	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	**0.04 J**	< 0.053	< 0.93	**0.23 J**	**0.27 J**
Benzo(a)pyrene	0.1	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	< 0.055	< 0.053	< 0.93	**0.13 B**	**0.14 JB**
Benzo(b)fluoranthene	0.2	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	**0.041 J**	< 0.053	< 0.93	**0.2 J**	**0.2 J**
Benzo(ghi)perylene	100	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	< 0.055	< 0.053	< 0.93	**0.081 B**	**0.082 JB**
Benzo(k)fluoranthene	0.5	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	< 0.055	< 0.053	< 0.93	**0.07 B**	**0.078 JB**
Benzyl alcohol	2,000	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 1.9	< 1.9	< 1.9
Bis(2-Chloroethoxy)methane	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Bis(2-Chloroethyl)ether	7	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Bis(2-Chloroisopropyl)ether	300	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Bis(2-Ethylhexyl)phthalate	3	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Butyl benzyl phthalate	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	**0.15 J**
Carbazole	100	< 7.4	< 9.3	**2.4 J**	**2.6 J**	**2.5 J**	< 8.8	< 8.4	< 0.93	< 0.96	**1.2 J**
Chrysene	5	**0.016 J**	< 0.058	< 0.052	< 0.051	< 0.054	**0.056**	< 0.053	< 0.93	**0.19 J**	**0.2 J**
Cresol	NLE	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96
Dibenz(a,h)anthracene	0.3	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	< 0.055	< 0.053	< 0.93	< 0.038	**0.043 JB**
Dibenzofuran	100	< 7.4	< 9.3	**3.5 J**	**3.6 J**	**3.3 J**	< 8.8	< 8.4	< 0.93	< 0.96	**2.5 J**
Diethyl phthalate	6,000	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	**0.18 J**	< 0.96 UJ
Dimethyl phthalate	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Di-n-butylphthalate	700	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	**0.14 J**	< 0.96 UJ
Di-n-octylphthalate	100	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	**0.099 J**
Fluoranthene	300	**0.02 J**	**0.022 J**	< 0.052	< 0.051	< 0.054	**0.1**	< 0.053	< 0.93	**0.59**	**0.89 J**
Fluorene	300	< 0.046	< 0.058	**2.2**	**2.2**	**2.5**	**0.03 J**	< 0.053	< 0.93	**0.033 J**	**3.2 J**
Hexachlorobenzene	0.02	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Hexachlorobutadiene	1	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Hexachlorocyclopentadiene	40	< 7.4 UJ	< 9.3 UJ	< 8.3 UJ	< 8.1 UJ	< 8.6 UJ	< 8.8 UJ	< 8.4 UJ	< 1.9	< 1.9	< 1.9 UJ
Hexachloroethane	7	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Indeno(1,2,3-cd)pyrene	0.2	< 0.046	< 0.058	< 0.052	< 0.051	< 0.054	< 0.055	< 0.053	< 0.93	**0.11 J**	**0.11 J**
Isophorone	40	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
Naphthalene	300	< 0.046	< 0.058	**0.83**	**0.83**	**0.83**	**0.051 J**	< 0.053	< 0.93	< 0.038	**23.8 J**
Nitrobenzene	6	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 1.9	< 1.9	< 1.9 UJ
N-Nitrosodimethylamine	0.8	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 1.9	< 1.9	< 1.9 UJ
N-Nitroso-di-n-propylamine	10	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96 UJ
N-Nitrosodiphenylamine	10	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 1.9	< 1.9	< 1.9 UJ
Pentachlorophenol	0.3	< 14.8	< 18.6	< 16.6	< 16.2	< 17.3	< 17.6	< 16.8	< 7.4	< 0.96 UJ	< 0.96 UJ
Phenanthrene	100	< 0.046	< 0.058	**0.5**	**0.49**	**0.5**	**0.091**	< 0.053	**72.4**	**0.23 J**	**5.8 J**
Phenol	2,000	< 7.4	< 9.3	< 8.3	< 8.1	< 8.6	< 8.8	< 8.4	< 0.93	< 0.96	< 0.96
Pyrene	200	**0.014 J**	< 0.058	< 0.052	< 0.051	< 0.054	**0.069**	< 0.053	**7.1**	**0.29 J**	**0.69 J**
TIC SVOCs (µg/l)											
Total TICs, Semi-Volatile	500	NA	NA	NA	**38.6 JN**	**36.7 JN**	NA	NA	**1323.1 JN**	414.4 JN	**1757.9 JN**

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	P79-MP-TMW03	P79-MP-TMW04	P79-MP-TMW05	P79-MP-TMW06	P79-MP-TMW07	P79-MP-TMW08	P79-MP-TMW09	PAR-79-142-TMW01	PAR-79-202-TMW01
Sample ID		PAR-79-MP-TMW03	PAR-79-MP-TMW04	PAR-79-MP-TMW05	PAR-79-MP-TMW06	PAR-79-MP-TMW07	PAR-79-MP-TMW08	PAR-79-MP-TMW09	PAR-79-142-TMW01	PAR-79-202-TMW01
Sample Date		8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/5/2016	8/5/2016
Filtered		Total	Total	Total	Total	Total	Total	Total	Total	Total
Volatile Organic Compounds (µg/l)										
1,1,1,2-Tetrachloroethane	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,1,1-Trichloroethane	30	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,1,2,2-Tetrachloroethane	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,1,2-Trichloroethane	3	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,1-Dichloroethane	50	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,1-Dichloroethene	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,1-Dichloropropene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,2,3-Trichlorobenzene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,2,3-Trichloropropane	0.03	< 2.5	< 2.5 UJ	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5 UJ	< 2.5
1,2,4-Trichlorobenzene	9	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,2,4-Trimethylbenzene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,2-Dibromo-3-chloropropane	0.02	< 2.5	< 2.5 UJ	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5 UJ	< 2.5
1,2-Dibromoethane	0.03	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,2-Dichlorobenzene	600	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,2-Dichloroethane	2	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,2-Dichloropropane	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,3,5-Trimethylbenzene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,3-Dichlorobenzene	600	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,3-Dichloropropane	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
1,4-Dichlorobenzene	75	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
2,2-Dichloropropane	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
2-Chlorotoluene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Acetone	6,000	**6 B**	**4.2 JB**	**5.3 B**	**4.2 JB**	< 3.8	**7.8 B**	**3.7 JB**	**7.2 BJ**	< 3.8
Benzene	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Bromobenzene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Bromochloromethane	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Bromodichloromethane	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Bromoform	4	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Carbon tetrachloride	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Chlorobenzene	50	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Chlorodibromomethane	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Chloroethane	5	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Chloroform	70	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Cis-1,2-Dichloroethene	70	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Cis-1,3-Dichloropropene	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Cymene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Dichlorodifluoromethane	1,000	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Ethyl benzene	700	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Hexachlorobutadiene	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Isopropylbenzene	700	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Meta/Para Xylene	1,000	< 1.5	< 1.5 UJ	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5 UJ	< 1.5
Methyl bromide	10	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Methyl butyl ketone	300	< 3.8	< 3.8 UJ	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8 UJ	< 3.8
Methyl chloride	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Methyl ethyl ketone	300	< 3.8	< 3.8 UJ	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8 UJ	< 3.8
Methyl isobutyl ketone	100	< 3.8	< 3.8 UJ	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8 UJ	< 3.8
Methyl Tertbutyl Ether	70	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	**0.48 J**
Methylene chloride	3	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	P79-MP-TMW03	P79-MP-TMW04	P79-MP-TMW05	P79-MP-TMW06	P79-MP-TMW07	P79-MP-TMW08	P79-MP-TMW09	PAR-79-142-TMW01	PAR-79-202-TMW01
Sample ID		PAR-79-MP-TMW03	PAR-79-MP-TMW04	PAR-79-MP-TMW05	PAR-79-MP-TMW06	PAR-79-MP-TMW07	PAR-79-MP-TMW08	PAR-79-MP-TMW09	PAR-79-142-TMW01	PAR-79-202-TMW01
Sample Date		8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/5/2016	8/5/2016
Filtered		Total	Total	Total	Total	Total	Total	Total	Total	Total
Naphthalene	300	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
n-Butylbenzene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Ortho Xylene	1,000	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
p-Chlorotoluene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Propylbenzene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
sec-Butylbenzene	100	< 0.75	**0.34 J**	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Styrene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Tert Butyl Alcohol	100	< 12.5	< 12.5 UJ	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5 UJ	< 12.5
tert-Butylbenzene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Tetrachloroethene	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Toluene	600	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Trans-1,3-Dichloropropene	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Trichloroethene	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Trichlorofluoromethane	2,000	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
Vinyl chloride	1	< 0.75	< 0.75 UJ	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75 UJ	< 0.75
TIC VOCs (µg/l)										
Total TICs, Volatile	500	NA	`1	NA	NA	NA	NA	NA	**1.5 JN**	NA
Semivolatile Organic Compounds (µg/l)										
1,2,4-Trichlorobenzene	9	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
1,2-Dichlorobenzene	600	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
1,2-Diphenylhydrazine	20	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
1,3-Dichlorobenzene	600	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
1,4-Dichlorobenzene	75	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
2,4,5-Trichlorophenol	700	< 3	< 2.9	< 2.8	< 3	< 2.9	< 3.3	< 3.2	< 15 UJ	< 2.9
2,4,6-Trichlorophenol	20	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
2,4-Dichlorophenol	20	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
2,4-Dimethylphenol	100	< 5	< 4.8	< 4.6	< 5	< 4.9	< 5.6	< 5.3	< 25 UJ	< 4.8
2,4-Dinitrophenol	40	< 7.9	< 7.6	< 7.4	< 8	< 7.8	< 8.9	< 8.6	< 40 UJ	< 7.7
2,4-Dinitrotoluene	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	10	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	600	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
2-Chlorophenol	40	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
2-Methylnaphthalene	30	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	**2.9 J**	< 0.96
2-Methylphenol	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
2-Nitroaniline	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
2-Nitrophenol	100	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
3,3'-Dichlorobenzidine	30	< 3	< 2.9	< 2.8	< 3	< 2.9	< 3.3	< 3.2	< 15 UJ	< 2.9
3-Nitroaniline	100	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
4,6-Dinitro-2-methylphenol	1	< 5	< 4.8	< 4.6	< 5	< 4.9	< 5.6	< 5.3	< 25 UJ	< 4.8
4-Bromophenyl phenyl ether	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
4-Chloro-3-methylphenol	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
4-Chloroaniline	30	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
4-Chlorophenyl phenyl ether	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
4-Nitroaniline	5	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
4-Nitrophenol	100	< 5	< 4.8	< 4.6	< 5	< 4.9	< 5.6	< 5.3	< 25 UJ	< 4.8
Acenaphthene	400	< 0.04	**0.012 J**	< 0.037	**0.026 J**	**0.018 J**	< 0.044	< 0.043	**0.27 J**	< 0.038
Acenaphthylene	100	< 0.04	**0.04 J**	< 0.037	< 0.04	**0.2 J**	< 0.044	**0.025 J**	**8.1 J**	**0.2 J**
Anthracene	2,000	< 0.04	**0.096**	< 0.037	< 0.04	**0.081**	< 0.044	< 0.043	**4.5 J**	**0.016 J**

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	P79-MP-TMW03	P79-MP-TMW04	P79-MP-TMW05	P79-MP-TMW06	P79-MP-TMW07	P79-MP-TMW08	P79-MP-TMW09	PAR-79-142-TMW01	PAR-79-202-TMW01
Sample ID		PAR-79-MP-TMW03	PAR-79-MP-TMW04	PAR-79-MP-TMW05	PAR-79-MP-TMW06	PAR-79-MP-TMW07	PAR-79-MP-TMW08	PAR-79-MP-TMW09	PAR-79-142-TMW01	PAR-79-202-TMW01
Sample Date		8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/4/2016	8/5/2016	8/5/2016
Filtered		Total	Total	Total	Total	Total	Total	Total	Total	Total
Benzidine	20	< 29.7 UJ	< 28.6 UJ	< 27.8 UJ	< 29.9 UJ	< 29.4 UJ	< 33.3 UJ	< 32.1 UJ	< 150 UJ	< 28.8
Benzo(a)anthracene	0.1	**0.043 J**	**0.25 J**	< 0.037	**0.021 J**	**0.34 J**	< 0.044	**0.18 J**	**8.5 J**	**0.19 J**
Benzo(a)pyrene	0.1	**0.043 JB**	**0.13 B**	< 0.037	< 0.04	**0.29 J**	< 0.044	**0.081 B**	**14.9 J**	**0.057**
Benzo(b)fluoranthene	0.2	**0.066 B**	**0.22 J**	< 0.037	< 0.04	**0.31 J**	**0.027 JB**	**0.12 B**	**19.4 J**	**0.13 J**
Benzo(ghi)perylene	100	< 0.04	**0.087 B**	< 0.037	< 0.04	**0.17 B**	< 0.044	**0.046 JB**	**12.6 J**	**0.044 J**
Benzo(k)fluoranthene	0.5	**0.028 JB**	**0.073 B**	< 0.037	< 0.04	**0.1 B**	< 0.044	**0.042 JB**	**7.5 J**	< 0.038
Benzyl alcohol	2,000	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
Bis(2-Chloroethoxy)methane	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Bis(2-Chloroethyl)ether	7	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Bis(2-Chloroisopropyl)ether	300	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Bis(2-Ethylhexyl)phthalate	3	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	**0.33 J**
Butyl benzyl phthalate	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	**0.12 J**	**0.65 J**	< 0.96
Carbazole	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	**1.5 J**	< 0.96
Chrysene	5	**0.054**	**0.15**	< 0.037	**0.022 J**	**0.3 J**	**0.029 J**	**0.1**	**13.5 J**	**0.066**
Cresol	NLE	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Dibenz(a,h)anthracene	0.3	< 0.04	**0.023 JB**	< 0.037	< 0.04	**0.048 JB**	< 0.044	< 0.043	**2.9 J**	< 0.038
Dibenzofuran	100	< 0.99	**0.29 J**	< 0.93	< 1	< 0.98	< 1.1	< 1.1	**0.75 J**	< 0.96
Diethyl phthalate	6,000	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	**0.28 J**
Dimethyl phthalate	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Di-n-butylphthalate	700	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	**0.71 J**	**0.28 J**
Di-n-octylphthalate	100	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Fluoranthene	300	**0.464**	**0.74**	**0.637**	**0.35**	**0.78**	**0.488 J**	**0.57**	**17.7 J**	**0.652**
Fluorene	300	< 0.04	**0.13 B**	**0.016 JB**	**0.017 JB**	**0.05 B**	< 0.044	**0.018 JB**	**0.77 J**	**0.024 J**
Hexachlorobenzene	0.02	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Hexachlorobutadiene	1	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Hexachlorocyclopentadiene	40	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
Hexachloroethane	7	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Indeno(1,2,3-cd)pyrene	0.2	< 0.05	**0.099 J**	< 0.046	< 0.05	**0.2 J**	< 0.056	**0.047 JB**	**11.9 J**	**0.042 J**
Isophorone	40	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Naphthalene	300	**0.05**	**0.1**	< 0.037	< 0.04	**0.062**	< 0.044	< 0.043	**3.3 J**	< 0.038
Nitrobenzene	6	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
N-Nitrosodimethylamine	0.8	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
N-Nitroso-di-n-propylamine	10	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
N-Nitrosodiphenylamine	10	< 2	< 1.9	< 1.9	< 2	< 2	< 2.2	< 2.1	< 10 UJ	< 1.9
Pentachlorophenol	0.3	< 0.99 UJ	< 0.95 UJ	< 0.93 UJ	< 1 UJ	< 0.98 UJ	< 1.1 UJ	< 1.1 UJ	< 5 UJ	< 0.96
Phenanthrene	100	**0.061 B**	**0.34 J**	**0.026 JB**	**0.13 J**	**0.2 J**	**0.038 JB**	**0.093 B**	**8.7 J**	**0.075**
Phenol	2,000	< 0.99	< 0.95	< 0.93	< 1	< 0.98	< 1.1	< 1.1	< 5 UJ	< 0.96
Pyrene	200	**0.076**	**0.37 J**	< 0.037	**0.037 J**	**0.45 J**	**0.05 J**	**0.14**	**18.4 J**	**0.083**
TIC SVOCs (µg/l)										
Total TICs, Semi-Volatile	500	NA	**79.6 JN**	**11.9 J**	**33.3 JN**	**45.7 JN**	**19.7 JN**	**96.8 JN**	**253.7 JN**	**144.6 JN**

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	PAR-79-490-TMW01	PAR-79-490-TMW02	PAR-79-A75-TMW01		PAR-79-A75-TMW02
Sample ID		PAR-79-490-TMW01	PAR-79-490-TMW02	PAR-79-A75-TMW01	PAR-79-A75-TMW101	PAR-79-A75-TMW02
Sample Date		8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016
Filtered		Total	Total	Total	Total	Total
Volatile Organic Compounds (µg/l)						
1,1,1,2-Tetrachloroethane	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,1,1-Trichloroethane	30	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,1,2,2-Tetrachloroethane	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,1,2-Trichloroethane	3	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,1-Dichloroethane	50	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,1-Dichloroethene	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,1-Dichloropropene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,2,3-Trichlorobenzene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,2,3-Trichloropropane	0.03	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
1,2,4-Trichlorobenzene	9	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,2,4-Trimethylbenzene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,2-Dibromo-3-chloropropane	0.02	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
1,2-Dibromoethane	0.03	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,2-Dichlorobenzene	600	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,2-Dichloroethane	2	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,2-Dichloropropane	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,3,5-Trimethylbenzene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,3-Dichlorobenzene	600	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,3-Dichloropropane	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
1,4-Dichlorobenzene	75	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
2,2-Dichloropropane	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
2-Chlorotoluene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Acetone	6,000	**19.3 B**	**4.3 JB**	**5.4 B**	< 3.8 UJ	**28.1 B**
Benzene	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Bromobenzene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Bromochloromethane	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Bromodichloromethane	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Bromoform	4	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Carbon tetrachloride	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Chlorobenzene	50	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Chlorodibromomethane	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Chloroethane	5	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Chloroform	70	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Cis-1,2-Dichloroethene	70	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Cis-1,3-Dichloropropene	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Cymene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Dichlorodifluoromethane	1,000	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Ethyl benzene	700	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Hexachlorobutadiene	1	< 0.75	< 0.75	< 0.75 UJ	< 0.75	< 0.75
Isopropylbenzene	700	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Meta/Para Xylene	1,000	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Methyl bromide	10	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Methyl butyl ketone	300	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8
Methyl chloride	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Methyl ethyl ketone	300	**3.2 J**	< 3.8	< 3.8	< 3.8	**4.1 J**
Methyl isobutyl ketone	100	< 3.8	< 3.8	< 3.8	< 3.8	< 3.8
Methyl Tertbutyl Ether	70	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Methylene chloride	3	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	PAR-79-490-TMW01	PAR-79-490-TMW02	PAR-79-A75-TMW01		PAR-79-A75-TMW02
Sample ID		PAR-79-490-TMW01	PAR-79-490-TMW02	PAR-79-A75-TMW01	PAR-79-A75-TMW101	PAR-79-A75-TMW02
Sample Date		8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016
Filtered		Total	Total	Total	Total	Total
Naphthalene	300	< 0.75	**0.51 J**	< 0.75	< 0.75	< 0.75
n-Butylbenzene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Ortho Xylene	1,000	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
p-Chlorotoluene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Propylbenzene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
sec-Butylbenzene	100	< 0.75	**0.51 J**	< 0.75	< 0.75	< 0.75
Styrene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Tert Butyl Alcohol	100	< 12.5	< 12.5	< 12.5	< 12.5	< 12.5
tert-Butylbenzene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Tetrachloroethene	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Toluene	600	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Trans-1,2-Dichloroethene	100	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Trans-1,3-Dichloropropene	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Trichloroethene	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Trichlorofluoromethane	2,000	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
Vinyl chloride	1	< 0.75	< 0.75	< 0.75	< 0.75	< 0.75
TIC VOCs (µg/l)						
Total TICs, Volatile	500	NA	**8.1 JN**	NA	NA	NA
Semivolatile Organic Compounds (µg/l)						
1,2,4-Trichlorobenzene	9	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
1,2-Dichlorobenzene	600	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
1,2-Diphenylhydrazine	20	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
1,3-Dichlorobenzene	600	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
1,4-Dichlorobenzene	75	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
2,4,5-Trichlorophenol	700	< 2.9	< 2.9	< 3.1	< 3.2	< 5
2,4,6-Trichlorophenol	20	< 0.98	< 0.96	< 1	< 1.1	< 1.7
2,4-Dichlorophenol	20	< 0.98	< 0.96	< 1	< 1.1	< 1.7
2,4-Dimethylphenol	100	< 4.9	< 4.8	< 5.2	< 5.3	< 8.4
2,4-Dinitrophenol	40	< 7.8	< 7.7	< 8.3	< 8.5	< 13.4
2,4-Dinitrotoluene	10	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	10	NA	NA	NA	NA	NA
2-Chloronaphthalene	600	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
2-Chlorophenol	40	< 2	< 1.9	< 2.1	< 2.1	< 3.4
2-Methylnaphthalene	30	**0.69 J**	< 0.96	**0.28 J**	< 1.1	< 1.7
2-Methylphenol	100	< 0.98	< 0.96	< 1	< 1.1	< 1.7
2-Nitroaniline	100	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
2-Nitrophenol	100	< 2	< 1.9	< 2.1	< 2.1	< 3.4
3,3'-Dichlorobenzidine	30	< 2.9	< 2.9	< 3.1 UJ	< 3.2	< 5
3-Nitroaniline	100	< 2	< 1.9	< 2.1 UJ	< 2.1	< 3.4
4,6-Dinitro-2-methylphenol	1	< 4.9	< 4.8	< 5.2	< 5.3	< 8.4
4-Bromophenyl phenyl ether	100	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
4-Chloro-3-methylphenol	100	< 0.98	< 0.96	< 1	< 1.1	< 1.7
4-Chloroaniline	30	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
4-Chlorophenyl phenyl ether	100	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
4-Nitroaniline	5	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
4-Nitrophenol	100	< 4.9	< 4.8	< 5.2	< 5.3	< 8.4
Acenaphthene	400	**0.089**	**0.68 J**	**0.32 J**	**0.065 J**	**0.24**
Acenaphthylene	100	**0.028 J**	**0.6 J**	**0.15 J**	**0.02 J**	**0.026 J**
Anthracene	2,000	**0.026 J**	**0.61 J**	**1.1 J**	**0.16 J**	**0.12**

Attachment B - Table 1
Validated Laboratory Data Results for Groundwater
Parcel 79

Loc ID	NJ Ground Water Quality Criteria	PAR-79-490-TMW01	PAR-79-490-TMW02	PAR-79-A75-TMW01		PAR-79-A75-TMW02
Sample ID		PAR-79-490-TMW01	PAR-79-490-TMW02	PAR-79-A75-TMW01	PAR-79-A75-TMW101	PAR-79-A75-TMW02
Sample Date		8/5/2016	8/5/2016	8/5/2016	8/5/2016	8/5/2016
Filtered		Total	Total	Total	Total	Total
Benzidine	20	< 29.4	< 28.7	< 31.1 UJ	< 31.9	< 50.4
Benzo(a)anthracene	0.1	**0.14 J**	**0.26 J**	**5.3 J**	**0.64 J**	**0.43 J**
Benzo(a)pyrene	0.1	**0.023 JB**	**0.061**	**5.6 J**	**0.57 J**	**0.28**
Benzo(b)fluoranthene	0.2	< 0.039	**0.21 J**	**7.5 J**	**0.78 J**	**0.38**
Benzo(ghi)perylene	100	< 0.039	**0.045 J**	**4 J**	**0.4 J**	**0.18**
Benzo(k)fluoranthene	0.5	< 0.039	**0.031 J**	**2.7 J**	**0.26 J**	< 0.067
Benzyl alcohol	2,000	< 2	< 1.9	< 2.1 UJ	< 2.1	< 3.4
Bis(2-Chloroethoxy)methane	100	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Bis(2-Chloroethyl)ether	7	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Bis(2-Chloroisopropyl)ether	300	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Bis(2-Ethylhexyl)phthalate	3	< 0.98	**0.35 J**	< 1 UJ	< 1.1	< 1.7
Butyl benzyl phthalate	100	< 0.98	**0.16 J**	< 1 UJ	< 1.1	< 1.7
Carbazole	100	< 0.98	< 0.96	**0.36 J**	< 1.1	< 1.7
Chrysene	5	**0.048 J**	**0.25 J**	**5.3 J**	**0.52 J**	**0.3**
Cresol	NLE	< 0.98	< 0.96	< 1	< 1.1	< 1.7
Dibenz(a,h)anthracene	0.3	< 0.039	< 0.038	**0.92 J**	**0.094 J**	**0.05 J**
Dibenzofuran	100	**0.22 J**	**0.73 J**	**0.39 J**	< 1.1	< 1.7
Diethyl phthalate	6,000	< 0.98	< 0.96	**1.8 J**	**0.88 J**	**0.48 J**
Dimethyl phthalate	100	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Di-n-butylphthalate	700	< 0.98	**0.33 J**	< 1 UJ	**0.24 J**	**0.38 J**
Di-n-octylphthalate	100	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Fluoranthene	300	**0.379**	**0.9**	**10.3 J**	**1.9 J**	**1.94**
Fluorene	300	**0.13**	**2.2**	**0.33 J**	**0.063 J**	**0.16**
Hexachlorobenzene	0.02	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Hexachlorobutadiene	1	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Hexachlorocyclopentadiene	40	< 2	< 1.9	< 2.1 UJ	< 2.1	< 3.4
Hexachloroethane	7	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Indeno(1,2,3-cd)pyrene	0.2	< 0.049	**0.13 J**	**4.3 J**	**0.45 J**	**0.2**
Isophorone	40	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
Naphthalene	300	**0.12**	< 0.038	**0.44 J**	**0.07 J**	**0.12**
Nitrobenzene	6	< 2	< 1.9	< 2.1 UJ	< 2.1	< 3.4
N-Nitrosodimethylamine	0.8	< 2	< 1.9	< 2.1 UJ	< 2.1	< 3.4
N-Nitroso-di-n-propylamine	10	< 0.98	< 0.96	< 1 UJ	< 1.1	< 1.7
N-Nitrosodiphenylamine	10	< 2	< 1.9	< 2.1 UJ	< 2.1	< 3.4
Pentachlorophenol	0.3	< 0.98	< 0.96	< 1	< 1.1	< 1.7
Phenanthrene	100	**0.29 J**	**1.1 J**	**3.4 J**	**0.47 J**	**0.44 J**
Phenol	2,000	< 0.98	< 0.96	< 1	< 1.1	< 1.7
Pyrene	200	**0.053**	**0.65 J**	**9.2 J**	**1.1 J**	**0.5 J**
TIC SVOCs (µg/l)						
Total TICs, Semi-Volatile	500	**9.9 JN**	**171.7 JN**	**9 JN**	**55 J**	**46.2 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.

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

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.

E (or ER) = Estimated result.

R = Rejected, data validation rejected the results.

D = Results from dilution of sample.

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

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

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

JN = Tentatively identified compound, estimated concentration.

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

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

Attachment B - Table 2
Validated Laboratory Data Results for Soil
Parcel 79

Sample ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				PAR-79-202-SB-01	PAR-79-202-SB-01	PAR-79-202-SB-01	PAR-79-202-SB-02	PAR-79-202-SB-02	PAR-79-202-SB-02 8	PAR-79-202-SB-03	PAR-79-202-SB-03	PAR-79-202-SB-03	PAR-79-490-SB-01	PAR-79-490-SB-01	PAR-79-490-SB-01
Depth				2-2.5	3-3.5	9.5-10	3.5-4	3-3.5	8-8.5	2-2.5	3-3.5	9.5-10	1.5-2	2-2.5	9.5-10
Sample Date				4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016	4/12/2016
Semivolatile Organic Compounds (µg/kg)															
2-Methylnaphthalene	230,000	2,400,000	8,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	6,000	17,000	25,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Extractable/Volatile Petroleum Hydrocarbons (mg/kg)															
C10-C12 Aromatics	NLE	NLE	NLE	**0.86 JB**	< 0.57	**1.3 JB**	**1.7 B**	**1.2 JB**	**0.9 JB**	**0.64 JB**	< 0.55	**0.93 JB**	**0.74 JB**	**0.66 JB**	< 0.59
C12-C16 Aliphatics	NLE	NLE	NLE	< 0.5 UJ	< 0.54 UJ	**1.8 J**	**106**	< 0.54 UJ	< 0.54 UJ	< 0.51	< 0.52	< 0.61 UJ	< 0.46 UJ	< 0.48 UJ	< 0.56 UJ
C12-C16 Aromatics	NLE	NLE	NLE	**0.66 J**	**0.34 J**	**0.81 J**	**33.3**	**1.7**	**0.56 J**	**0.76 J**	**0.32 J**	**0.64 J**	**0.31 J**	**0.24 J**	**0.31 J**
C16-C21 Aliphatics	NLE	NLE	NLE	< 0.49 UJ	< 0.53 UJ	**1.6 J**	**90.2**	**0.72 J**	< 0.53 UJ	**0.51 J**	< 0.51	< 0.6 UJ	< 0.45 UJ	< 0.47 UJ	< 0.55 UJ
C16-C21 Aromatics	NLE	NLE	NLE	**0.44 J**	< 0.21	**0.55 J**	**80.6**	**1.1 J**	**0.56 J**	**0.76 J**	**0.38 J**	**0.25 J**	**0.31 J**	**0.35 J**	**0.54 J**
C21-C36 Aromatics	NLE	NLE	NLE	**2.1 B**	**0.31 J**	**0.86 J**	**9**	**3.9**	**0.7 J**	**1 J**	**0.5 J**	**0.39 J**	**0.67 J**	**1 J**	< 0.31
C21-C40 Aliphatics	NLE	NLE	NLE	**3 JB**	**1.3 JB**	**2.3 JB**	**9.6 J**	**8.2 J**	**1.2 JB**	**1.5 B**	**1.4 B**	**1.9 JB**	**1.1 J**	**0.74 J**	**1.2 J**
C9-C12 Aliphatics	NLE	NLE	NLE	**0.4 J**	**0.52 J**	**0.63 J**	**14.3 J**	**0.46 J**	**0.5 J**	**0.25 J**	**0.23 J**	**0.28 J**	**0.4 J**	**0.33 J**	**0.42 J**
Total Aliphatics	NLE	NLE	NLE	**3.7 J**	**2.5 J**	**6.3 J**	**220 J**	**9.8 J**	**2.3 J**	**2.8 J**	**2.2 J**	**2.8 J**	**2 J**	< 1.6 UJ	**2.2 J**
Total Aromatics	NLE	NLE	NLE	**4 J**	**1.4 J**	**3.5 J**	**125**	**8**	**2.7 J**	**3.2 J**	**1.7 J**	**2.2 J**	**2 J**	**2.3 J**	**1.7 J**
Total EPH	5,100	1,700	NLE	**7.8 J**	**3.8 J**	**9.8 J**	**345**	**17.7**	**5 J**	**6 J**	**3.9 J**	**4.8 J**	**4 J**	**3.7 J**	**3.8 J**
Wet Chemistry - Solids															
Percent Solids (percent)	NLE	NLE	NLE	**85.5**	**77**	**72.8**	**72.4**	**74.6**	**74.6**	**83.5**	**79.8**	**65.9**	**88.5**	**83.7**	**74.9**

Attachment B - Table 2
Validated Laboratory Data Results for Soil
Parcel 79

Sample ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	Soil PAR-79-490-SB-02 2-2.5 4/12/2016		Soil PAR-79-490-SB-02 3.5-4 4/12/2016		Soil PAR-79-490-SB-02 8-8.5 4/12/2016		Soil PAR-79-490-SB-03 2-2.5 4/12/2016		Soil PAR-79-490-SB-03 6-6.5 4/12/2016		Soil PAR-79-490-SB-03 9.5-10 4/12/2016		Soil PAR-79-490-SB-04 2-2.5 4/12/2016		Soil PAR-79-490-SB-04 3.5-4 4/12/2016		Soil PAR-79-490-SB-04 8-8.5 4/12/2016		Soil PAR-79-A75-SB-01 0.5-1 4/13/2016		Soil PAR-79-A75-SB-01 2-2.5 4/13/2016		Soil PAR-79-A75-SB-01 9.5-10 4/13/2016	
Semivolatile Organic Compounds (µg/kg)																											
2-Methylnaphthalene	230,000	2,400,000	8,000	NA		NA		NA		NA		NA		NA		NA		**9,000**	**J**	NA		NA		NA		NA	
Naphthalene	6,000	17,000	25,000	NA		NA		NA		NA		NA		NA		NA		< 86	UJ	NA		NA		NA		NA	
Extractable/Volatile Petroleum Hydrocarbons (mg/kg)																											
C10-C12 Aromatics	NLE	NLE	NLE	< 0.54		**1.6**	**B**	< 0.6		**0.54**	**JB**	**1.5**	**B**	**1.1**	**JB**	**1.3**	**JB**	**19.9**		**0.94**	**JB**	**1.1**	**B**	**0.56**	**JB**	< 0.47	
C12-C16 Aliphatics	NLE	NLE	NLE	< 0.52	UJ	**129**		< 0.58	UJ	**0.51**	**J**	**9.5**	**J**	< 0.54	UJ	**24.6**	**J**	**357**	**J**	< 0.61	UJ	**0.66**	**J**	< 0.47	UJ	< 0.45	UJ
C12-C16 Aromatics	NLE	NLE	NLE	**0.23**	**J**	**46**		< 0.24		**0.58**	**J**	**4.3**		**0.54**	**J**	**13.8**		**309**		**0.74**	**J**	**2.2**		< 0.2		< 0.19	
C16-C21 Aliphatics	NLE	NLE	NLE	< 0.51	UJ	**92.5**		< 0.56	UJ	**15.1**	**J**	**9.5**	**J**	< 0.53	UJ	**21**	**J**	**270**	**J**	< 0.59	UJ	**1.1**	**J**	< 0.46	UJ	< 0.44	UJ
C16-C21 Aromatics	NLE	NLE	NLE	**0.8**	**J**	**109**		**0.69**	**J**	**6.7**		**7.9**		< 0.22		**18.5**		**453**		**0.46**	**J**	**74.5**		**1**	**J**	**0.43**	**J**
C21-C36 Aromatics	NLE	NLE	NLE	**0.65**	**J**	**10.2**	**J**	**0.39**	**J**	**108**		**1.6**		**0.4**	**J**	**2.7**		**43.3**		**0.66**	**J**	**233**	**J**	**0.38**	**J**	< 0.25	
C21-C40 Aliphatics	NLE	NLE	NLE	**1.9**	**J**	**9.3**	**J**	< 0.66	UJ	**246**		**6.5**	**JB**	**1.9**	**JB**	**3.5**	**JB**	**41.1**	**J**	**1.6**	**JB**	**5.1**	**J**	< 0.53	UJ	< 0.51	UJ
C9-C12 Aliphatics	NLE	NLE	NLE	**0.5**	**J**	**15.8**	**J**	**0.25**	**J**	**0.39**	**J**	**2.4**	**J**	**0.64**	**J**	**5.8**	**J**	**104**	**J**	**0.44**	**J**	**0.33**	**J**	**0.33**	**J**	**0.14**	**J**
Total Aliphatics	NLE	NLE	NLE	**2.9**	**J**	**246**	**J**	< 2	UJ	**262**	**J**	**27.9**	**J**	**3.3**	**J**	**55**	**J**	**772**	**J**	**2.9**	**J**	**7.2**	**J**	< 1.6	UJ	< 1.5	UJ
Total Aromatics	NLE	NLE	NLE	**2**	**J**	**166**		**1.6**	**J**	**116**		**15.3**		**2.2**	**J**	**36.3**		**825**		**2.8**	**J**	**311**		**2.1**	**J**	< 1.1	
Total EPH	5,100	1,700	NLE	**4.9**	**J**	**413**		< 3.3		**378**		**43.2**		**5.5**	**J**	**91.4**		**1,600**		**5.6**	**J**	**318**		**3.2**	**J**	< 2.6	
Wet Chemistry - Solids																											
Percent Solids (percent)	NLE	NLE	NLE	**79.2**		**84.7**		**71.8**		**86**		**77.8**		**74.1**		**70.9**		**75.5**		**71**		**90.6**		**90.3**		**90.8**	

Attachment B - Table 2
Validated Laboratory Data Results for Soil
Parcel 79

	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Sample ID				PAR-79-A75-SB-101		PAR-79-A75-SB-02		PAR-79-A75-SB-02-		PAR-79-A75-SB-02		PAR-79-A75-SB-03		PAR-79-A75-SB-03		PAR-79-A75-SB-03		PAR-79-A75-SB-04		PAR-79-A75-SB-04		PAR-79-A75-SB-04	
Depth				2-2.5		0.5-1		3.5-4		9.5-10		0.5-1		3-3.5		9.5-10		0.5-1		3-3.5		9.5-10	
Sample Date				4/13/2016		4/13/2016		4/13/2016		4/13/2016		4/13/2016		4/13/2016		4/13/2016		4/13/2016		4/13/2016		4/13/2016	
Semivolatile Organic Compounds (µg/kg)																							
2-Methylnaphthalene	230,000	2,400,000	8,000	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Naphthalene	6,000	17,000	25,000	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Extractable/Volatile Petroleum Hydrocarbons (mg/kg)																							
C10-C12 Aromatics	NLE	NLE	NLE	**0.48**	**JB**	**0.88**	**JB**	**1.4**	**B**	**0.75**	**JB**	**0.87**	**JB**	**1**	**JB**	**0.79**	**JB**	**1.1**	**BJ**	**1.2**	**BJ**	**1.6**	**BJ**
C12-C16 Aliphatics	NLE	NLE	NLE	< 0.45	UJ	**0.76**	**J**	**0.63**	**J**	< 0.47	UJ	< 0.45	UJ	**0.69**	**J**	< 0.49	UJ	**0.47**	**J**	**0.9**	**J**	< 0.53	UJ
C12-C16 Aromatics	NLE	NLE	NLE	**0.2**	**J**	**1.4**		**3.7**		**0.33**	**J**	**1.8**		**2**		< 0.2		**1.3**	**J**	**0.97**	**J**	**1.6**	**J**
C16-C21 Aliphatics	NLE	NLE	NLE	< 0.44	UJ	**0.92**	**J**	**1.3**	**J**	< 0.46	UJ	**1.6**	**J**	**1.6**	**J**	< 0.48	UJ	**0.74**	**J**	< 0.48	UJ	**1.4**	**J**
C16-C21 Aromatics	NLE	NLE	NLE	**0.63**	**J**	**27**		**77**		**0.21**	**J**	**21.9**		**77.3**		**0.42**	**J**	**2.8**	**J**	**11.1**	**J**	**5.5**	**J**
C21-C36 Aromatics	NLE	NLE	NLE	**0.26**	**J**	**117**	**J**	**192**	**J**	**1.4**	**J**	**61.1**	**J**	**232**	**J**	**2.3**	**J**	**6.6**	**J**	**19.9**	**J**	**15.8**	**J**
C21-C40 Aliphatics	NLE	NLE	NLE	**1.8**	**J**	**4.1**	**J**	**15.8**	**J**	**1.8**	**JB**	**2.1**	**J**	**4.9**	**J**	**0.7**	**J**	**4.3**	**JB**	**12.7**	**J**	**19**	**J**
C9-C12 Aliphatics	NLE	NLE	NLE	**0.37**	**J**	**0.89**	**J**	**0.67**	**J**	**0.39**	**J**	**0.4**	**J**	**0.41**	**J**	**0.48**	**J**	**0.79**	**J**	**0.66**	**J**	**0.48**	**J**
Total Aliphatics	NLE	NLE	NLE	**2.6**	**J**	**6.7**	**J**	**18.4**	**J**	**2.6**	**J**	**4.5**	**J**	**7.6**	**J**	**1.7**	**J**	**6.3**	**J**	**14.7**	**J**	**21**	**J**
Total Aromatics	NLE	NLE	NLE	**1.6**	**J**	**146**		**275**		**2.6**	**J**	**85.7**		**312**		**3.7**	**J**	**11.9**	**J**	**33.2**	**J**	**24.4**	**J**
Total EPH	5,100	1,700	NLE	**4.1**	**J**	**152**		**293**		**5.2**	**J**	**90.2**		**319**		**5.4**	**J**	**18.2**		**47.9**		**45.5**	
Wet Chemistry - Solids																							
Percent Solids (percent)	NLE	NLE	NLE	**90.9**		**77.7**		**87.1**		**86.8**		**89.8**		**88**		**86.1**		**87.1**		**83.6**		**77.9**	

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.

5) **Bold** = chemical dectection

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

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.

J = estimated detected value due to a concetration below the reporting limit or due to discrepancies in meeting

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

7)

- 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. ###

  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 Impact to GW Soil Screening Level ###

Remediation Standard. ###

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

8) Criteria action level source document and web address.

- The NJ Residential Direct Contact Soil Remediation Standard refers to the NJDEP's May 7, 2012 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 May 7, 2012 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

DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
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February 10, 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 August 25, 2015 Comments on the April 2015 *Underground Storage Tanks Within ECP Parcel 79, Fort Monmouth, New Jersey*
PI G000000032

Dear Ms. Range:

Fort Monmouth and Parsons have reviewed the New Jersey Department of Environmental Protection (NJDEP) comments on the subject submittal for ECP Parcel 79, as documented in your letter dated August 25, 2015. We appreciate this opportunity to work with you on Parcel 79. Responses to your comments are provided below, for your review and concurrence or further comments.

A. <u>Attachment E – Areas 74 and 75, Aboveground Storage Tanks and Associated Piping</u>

A1. COMMENT: *Area 75 – Aboveground Storage Tanks: Two 210,000 gallon aboveground storage tanks, utilized from the 1940s through the 1980s, were removed in May of 1995. Based upon a review of the analytical results and chain of custody (COC) as well as a conversation with Joe Fallon this date, who collected the samples, it appears 13 samples were collected in the proximity of AST A - all analytical results were below 1000 ppm, and 15 samples in the proximity of AST B. Per Mr. Fallon, the samples would have been collected both at/along the perimeter and within the footprint/center of the former ASTs, mainly at 0-6", but also at deeper intervals (as indicated on the COCs). Although it appears sampling frequency and location may have been adequate, it is unclear the analytical parameter requirements, either those in effect at the time of sampling or currently in effect, were met as regarding contingency analysis for AST B. Of the 15 samples apparently collected for AST B, 5 exceeded the trigger for additional analyses on 25% of those exceeding 1000 ppm (VOs+ 10 at the time of sampling, 2-methylnaphthalene and naphthalene per current guidance). It is also unclear where the ground water sampling points referenced for Area 74 were located relative to the former ASTs of Area 75?*

A1. RESPONSE: Additional soil and groundwater sampling is proposed at Area 75 as described in the attached ***Parcel 79 Work Plan Addendum***. Soil sample results from 1995 were reported in the April 2015 ***Underground Storage Tanks Within ECP Parcel 79*** submittal; however, there is some uncertainty regarding the sample locations because a sample map was not located. For example, the highest Total Petroleum Hydrocarbons (TPH) concentrations in soil were encountered in samples labeled as "AST-B," but it is unclear to which of the two ASTs these sample designations referred. Further, there was uncertainty regarding the locations of groundwater samples collected for adjoining

Area 74. Therefore, soil and groundwater from both former AST locations (AST-1 and AST-2 as described in the attached ***Parcel 79 Work Plan Addendum***) will be re-sampled to characterize the current concentration of TPH constituents in this area and, if necessary, the need for any contingency analyses in soil. Soil samples from 4 boring locations within the vicinity of the former ASTs, and groundwater samples from two of these four locations, will be collected as described in the attached ***Parcel 79 Work Plan Addendum***.

A2: COMMENT: *Area 74 -Associated Piping: As per Enclosure 4 of Attachment E, the underground piping was previously NFAed.*

A2: RESPONSE: Agreed.

B. <u>Underground Storage Tanks</u>

B1. COMMENT: *In addition to those USTs previously granted a designation of NFA, it is agreed no further action is necessary for the following #2 fuel USTs:*

***UST 29-1** – 1000 gallon steel*
***UST 142A** – 1000 gallon steel; C93-3714*
***UST 401-26** – 1000 gallon steel*
***UST 416-32** – 1000 gallon steel*
***UST 430B-45** – 550 gallon tank*; C93-3987*
**note – page 1, Section 1.1 and scrap receipt each indicate UST was steel; Att B states fiberglass*
***UST 443-49** – 1080 gallon steel*
***UST 474** – 1000 gallon steel*

B1. RESPONSE: Agreed. File photographs of UST 430B-45 confirm that it was a steel tank.

B2. COMMENT: *Although the 2008 Site Investigation previously performed did include ground water sampling, a review of the sampling points did not indicate they were placed within distances sufficient to allow for adequate evaluation of the USTs referenced below. Based upon soil contamination extending to within 2' of, and in many cases, into the ground water table (GWT), a ground water investigation is necessary at the following UST locations (the elimination of the sheen via excavation, as referenced for USTs 441, 444 is insufficient):*

***UST 142B** (Attachment H)*
***UST 437** (Attachment Q)*
***UST 440** (Attachment R)*
***UST 441** (Attachment S)*
***UST 444** (Attachment U)*
***UST 448** (Attachment W); please specify if well P79-E2 is sufficiently proximate to comply with regulations/guidance*
***UST 449** (Attachment X)*
***UST 450** (Attachment Y)*
***UST 451** (Attachment Z)*

B2. RESPONSE: Additional groundwater sampling is proposed to assess the potential for impacts to groundwater from each of the UST sites listed above, as described in the attached ***Parcel***

79 Work Plan Addendum. The 2008 SI sample P79-E2 was slightly displaced from the former UST 448 location and so additional sampling near this UST location will be performed. Also, UST 445 has been added to this list (see Response B3 below). A total of 10 groundwater samples will be collected from temporary well locations downgradient of these former USTs.

B3. COMMENT: *Though it is understood no evidence was found of a tank remaining in the below referenced locations during geophysical or trenching activities, a tank was noted as present in historic Army material, e.g. 1956 Fuel Storage Map, while Attachment 1 indicates heating oil USTs may remain between Tilly Avenue and Leonard Avenue. No soil sampling was apparently performed in any of these locations. Unless all tanks, former or current, have been evaluated in accordance with the applicable Departmental regulations and guidance documents, the NJDEP cannot comment as to the absence or presence of a petroleum discharge. The request on page 7 of 7 for designation of an NFA for the following USTs cannot be granted unless the necessary sampling is performed at each:*

UST/Bldg. No. 168 (Attachment I)
UST/Bldg. No. 169 (Attachment I)
UST/Bldg. No. 407
UST/Bldg. No. 415
UST/Bldg. No. 424
UST/Bldg. No. 425
UST/Bldg. No. 435 (Attachment P)
UST/Bldg. No. 438
UST/Bldg. No. 442
UST/Bldg. No. 455 (Attachment V)
UST/Bldg. No. 456 (Attachment AA consisted of only analytical data, from a single sample – 6-12"; information provided is insufficient for evaluation/comment)
USTs/Bldg. No.s 457 through 467
UST/Bldg. No.s 469 through 473
UST/Bldg. No. 476
UST/Bldg. No. 488
UST/Bldg. No. 489

B3. RESPONSE: As discussed in the April 2015 ***Underground Storage Tanks Within ECP Parcel 79*** submittal, the Army has conducted adequate due diligence to assess the presence of USTs within Parcel 79, including the use of geophysical survey techniques, historical maps and metal detectors to locate USTs. Since there were no indications of USTs at these sites, the Army is not proposing additional assessment work at the above locations.

Note that Attachment V in the April 2015 ***Underground Storage Tanks Within ECP Parcel 79*** submittal provides analytical data for UST 445, not UST 455 as noted above. There was no tank removed or analytical data collected at the Building 455 location; however, the Army removed an UST and collected analytical data in support of closure at UST 445. Therefore, we request that NJDEP re-evaluate UST/Bldg. No. 445 as described in Attachment V of the April 2015 ***Underground Storage Tanks Within ECP Parcel 79*** submittal. In anticipation of NJDEP's request to address a potential data need, one additional groundwater sample is proposed from a location

downgradient of UST 445 to assess the potential for impact to groundwater, as described in the attached ***Parcel 79 Work Plan Addendum***.

Although Building 433 was not specifically mentioned in the above comment, the Army has no record or geophysical evidence of an UST at former Building 433, and therefore the Army is not proposing additional assessment work at the Building 433 location.

B4. COMMENT: *While not indicated as present on the 1956 Fuel Storage map, nor found during geophysical survey activities, the 2014 ECP UHOT Report indicates a potential for the presence of an UST at several additional locations. Although no tank was found, insufficient information (sampling) has been submitted to allow for comment as to the presence or absence of a discharge for the following:*

UST/Bldg. No. 170 (Attachment I)
UST/Bldg. No. 171 (Attachment I)
UST/Bldg. No. 408
UST/Bldg. No. 436
UST/Bldg. No. 468

B4. RESPONSE: Comment acknowledged. As discussed in the April 2015 ***Underground Storage Tanks Within ECP Parcel 79*** submittal, the Army has conducted adequate due diligence to assess the presence of USTs within Parcel 79, including the use of geophysical survey techniques, historical maps and metal detectors to locate USTs. Since there were no indications of USTs at these sites, the Army is not proposing additional assessment work at the above locations. If the Army has creditable evidence of a potential release, then we will evaluate these locations to achieve regulatory acceptance and site/parcel closure. However, in absence of any new evidence, we believe that the Army has done an adequate level of due diligence.

C. <u>Attachments J, K & L – USTs at Former Building 202</u>

C1. COMMENT: *Four USTs were noted as present, and removed (although the ECP UHOT report indicates high potential for the continued presence of two USTs), at the former building, the specific locations of which two (202A & 202B), were not indicated. Although apparently no discharge was associated with USTs 202B or 202C (the submittal implies no soils were removed at either UST prior to the sampling which indicated non-detect TPH levels), discharges were associated with both USTs 202A and 202D.*

The affected soils at UST 202A were removed to 5.5', likely extending to within 2' of or into the ground water table, in this area, and contained almost 8,000 ppm TPHC, the level referenced in the Department's guidance (http://www.nj.gov/dep/srp/guidance/rs/#phc) as the residual product/free product limit. As such, it is possible former UST 202A could have contributed to the levels of ground water contamination noted at UST 202D. An NFA at this time is, therefore, not appropriate.

As indicated in the submittal, ground water was found to contain benzene at low levels, 2-methylnaphthalene, and BN TICs in a sampling event performed in June of 2011 at UST 202D. An NFA of the soils, as requested, is not appropriate at this time. Insufficient information is known relative to the ground water contamination in the area, including the current extent or levels of contamination.

C1. RESPONSE: Additional soil and groundwater sampling is proposed at former USTs 202A and 202D to assess the potential for impacts to groundwater, as described in the attached ***Parcel 79 Work Plan Addendum***. This will include sampling from existing well 202MW01, which was installed in August 2011 but apparently not yet sampled. Soil samples from 3 boring locations near the former USTs 202A and 202D, and groundwater samples from one of these borings and two existing monitor wells, will be collected as described in the attached ***Parcel 79 Work Plan Addendum***.

We respectfully request that NJDEP reconsider approving NFA for USTs 202B and 202C based on the soil results previously submitted (Attachments K and L of the April 2015 ***Underground Storage Tanks Within ECP Parcel 79***). Following tank removals, there was no requirement for contaminated soil excavation, and all TPH soil results were nondetected for each of these tank sites.

D. <u>Attachment CC/UST 490- aka UST 490-58</u>

D1. COMMENT: *Although a Site Assessment Compliance Statement and Standard Reporting Form for tank removal are reported in Attachment CC as submitted to the DEP in 1991, as indicated in the submittal, there is no record of NFA approval from the NJDEP; no soil sampling had been performed at that time.*

Soil sampling collected from the 6-6.5' interval was performed in 2005, indicating levels of TPH ranged from 2981 to 8762 ppm, with VOs below criteria. Ground water samples were below the Ground Water Quality Standards (GWQS) in effect at the time, however, no report was submitted; 2-methylnapthalene was found at 32.13 ppb. Additional sampling (actual locations of which are unclear) performed in May of 2010 (prior to phase-in of EPH), at the 3.5-4' interval – the rationale for selection of that interval is unreported – found TPH ranging from ND to 5941.76 ppm. Although the required contingency sampling was reported as exhibiting no exceedences in the submittal, the Impact to Ground Water Standard for 2-methylnaphthalene of 8 ppm was exceeded in Sample B4, with a result of 30.32 ppm. Ground water sampling conducted in May and July of 2010 found elevated levels of 2-methylnaphthalene, as well as elevated BN TICs.

No figure identifying the location of the May 2010 sampling was provided, however, it appears contamination above the 5100 ppm criterion may be present from at least the 3.5 to the 6.5' interval, and deeper. TPH/EPH cannot exceed the residual product/free product limit of 8,000 mg for No. 2 fuel; 2-methylnaphthalene above standard in the soil as well as the ground water is present. Compliance averaging of the soils is not appropriate. Additional characterization of the ground water contamination is required. The current conditions of the ground water and the extent of any contamination must be determined, at which time further decisions regarding remedial requirements may be determined.

D1. RESPONSE: Additional soil and groundwater sampling is proposed at former UST 490, as described in the attached ***Parcel 79 Work Plan Addendum***. This will include sampling from existing well 490MW01, which was installed in August 2011 but not yet sampled. Soil samples from 3 boring locations near the former UST 490, and groundwater samples from these three borings and one existing monitor well, will be collected as described in the attached ***Parcel 79 Work Plan Addendum***.

We look forward to your review of these responses and approval or additional comments. The technical Point of Contact (POC) for this matter is Kent Friesen at (732) 383-7201 or by email at kent.friesen@parsons.com. Should you have any questions or require additional information, please contact me by phone at (732) 380-7064 or by email at william.r.colvin18.civ@mail.mil.

Sincerely,

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

Attachment:
Parcel 79 Work Plan Addendum for Former Storage Tank Sites

cc: 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)

Fort Monmouth
Oceanport and Monmouth County, New Jersey
Parcel 79 Work Plan Addendum for Former Storage Tank Sites
Date: February 2016

1.0 PURPOSE

The purpose of this Parcel 79 Work Plan is to outline the site-specific Scope of Work (SOW) for the investigation of former underground storage tank (UST) and above-ground storage tanks (AST) sites within Parcel 79 at Fort Monmouth. In general, the scope consists of supplemental soil and groundwater sampling at select UST and AST sites to assess the potential for impacts to groundwater, as requested by the New Jersey Department of Environmental Protection (NJDEP) in their comment letter dated August 25, 2015. The field activities will involve:

- Advancement of approximately 10 shallow soil borings using a Geoprobe rig to depths below shallow groundwater, and collection of soil samples from select boring intervals for chemical analysis of petroleum constituents.
- Installation of temporary monitor wells within approximately 16 Geoprobe borings, and collection of "grab" groundwater samples for chemical analysis of petroleum constituents.
- Re-development and sampling of 3 existing monitor wells for chemical analysis of petroleum constituents.

Additional details on the rationale for the proposed work are provided in Parsons response to NJDEP's comment letter dated February 9, 2016.

2.0 REFERENCE DOCUMENTS

HEALTH AND SAFETY - All Site personnel are required to read, understand, and comply with the safety guidelines in the Accident Prevention Plan (APP) including the Site Health and Safety Plan (SHASP), which is included as Appendix A of the APP.

FIELD PROCEDURES – The detailed field procedures to be used for the activities described in this sampling plan are described in the March 2013 Final Sampling and Analysis Plan (SAP).

3.0 SITE BACKGROUND

Parcel 79 is located within the eastern portion of the Main Post at Fort Monmouth, just east of Oceanport Avenue (**Figure 1**). Available information for multiple USTs at Parcel 79 was previously provided to NJDEP in the Army's submittal dated April 22, 2015 and entitled *Underground Storage Tanks Within ECP Parcel 79, Fort Monmouth, New Jersey*. The NJDEP responded in their letter dated August 25, 2015 approving No Further Action (NFA) for some USTs, but requiring assessment of groundwater at other UST sites prior to determining if NFA was appropriate. NJDEP's rationale for requiring additional

groundwater assessment included the potential for soil contamination extending to within 2 ft of or into groundwater.

One round of depth-to-water measurements was previously collected from multiple existing monitor wells within Parcel 79 in October 2015 to support this supplemental field evaluation (see **Figure 2**). Groundwater flow directions are interpreted to be towards the northeast in the northern portion, towards the southeast in the southern portion, and towards the east in the central portion of Parcel 79.

4.0 SAMPLING LOCATIONS

General locations for additional sampling were identified in the Army's recent responses to NJDEP comments, and are shown on **Figure 1**. A description of the field sampling and analytical activities to be performed is presented below. A summary of the field sampling and analytical activities is presented in **Table 1**.

4.1 Area 75 Above-Ground Storage Tanks

The NJDEP (2010) guidance entitled "*Protocol For Addressing Extractable Petroleum Hydrocarbons*" specifies contingency analysis for naphthalene and 2-methylnaphthalene in the event that extractable petroleum hydrocarbon (EPH) concentrations exceed 1,000 mg/kg. In their comment letter dated August 25, 2015, NJDEP noted that contingency analysis was not previously performed for soil samples from "AST-B" that had TPH concentrations in excess of 1,000 mg/kg. Therefore, soil and groundwater from two former AST locations (AST-1 and AST-2) in Area 75 will be re-sampled to characterize the current concentrations of constituents in these areas. Additional samples are proposed at four locations (four borings and two temporary wells) as shown on **Figure 3**.

Soil samples will be collected from four Geoprobe® borings (two from the former tank centers, and two downgradient) completed to at least 4 feet below the water table to assess current concentrations and vertical extent of extractable petroleum hydrocarbons (EPH). Three soil samples will be collected from each boring. Previous surface soil samples were collected from 0 to 0.5 ft bgs, but slightly deeper near-surface soil samples will be collected to allow for the potential that some backfill was placed over the site during tank demolition. Samples will be collected from 0.5-1.0 ft bgs, from a deeper 6-inch interval that is below any field evidence of contamination to delineate vertical extent, and from the most contaminated intermediate interval encountered (between 0.5-1.0 ft bgs and the deeper vertical extent sample) based on field evidence (visual, olfactory, [photoionization detector [PID] screening). Each soil sample will be analyzed for EPH and, if necessary, for any contingency analyses (naphthalene and 2-methylnaphthalene) required by Table 2.1 of the Technical Requirements for Site Remediation.

Groundwater samples will be collected from the two Geoprobe® borings located north (downgradient) of the former AST locations, as shown on **Figure 3**. Groundwater from these locations will be sampled using temporary wells within the Geoprobe borings, and then the borings will be abandoned. Each groundwater sample will be analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) plus tentatively identified compounds (TICs), as specified in Table 2-1 of the NJAC 7:26E Technical Requirements for Site Remediation.

4.2 Multiple Parcel 79 Underground Storage Tanks

NJDEP noted that groundwater assessment was not performed for USTs 437, 440, 441, 444, 445, 448, 449 (where no tank was found), 450, and 451 (**Figure 4**), and for UST 142B (**Figure 5**). Therefore, additional sampling of groundwater is proposed from immediately downgradient of each of these former tank locations. A Geoprobe® boring will be completed to approximately 4 feet below the water table. Groundwater from these locations will be sampled using temporary wells within the Geoprobe borings, and then the borings will be abandoned. Each groundwater sample will be analyzed for VOCs and SVOCs plus TICs.

4.3 USTs 202A and 202D

NJDEP noted that groundwater assessment was not performed for USTs 202A and 202D. Therefore, additional sampling of groundwater is proposed from the vicinity of each former tank location. Soil sampling will also be performed because NJDEP commented that soil contamination encountered at UST 202A could have contributed to impacts to groundwater.

Additional Geoprobe soil sampling is proposed for three locations as shown on **Figure 6**. Each Geoprobe boring will be completed to at least 4 feet below the water table to assess current concentrations and vertical extent of EPH. Three soil samples will be collected from each boring. Samples will be collected from approximately 3.0-3.5 ft bgs (or another interval representative of clean overburden), from a deeper 6-inch interval that is below any field evidence of contamination to delineate vertical extent, and from the most contaminated intermediate interval encountered (between 3.0-3.5 ft bgs and the deeper vertical extent sample) based on field evidence (visual, olfactory, PID screening). Each soil sample will be analyzed for EPH, with additional contingency SVOC analysis for naphthalene and 2-methylnaphthalene in the event that EPH concentrations exceed 1,000 mg/kg.

Groundwater from one downgradient boring location will be sampled using a temporary well within the Geoprobe boring, and then the boring will be abandoned. This groundwater sample will be analyzed for VOCs and SVOCs plus TICs.

Existing monitor well 202MW01 was constructed by the Army at this site in 2011 to monitor groundwater contamination from the UST 202D site, but was never sampled. Well 202MW01 and downgradient well M16MW02 will be re-developed and sampled using the NJDEP low-flow purge and sample method, and analyzed for VOCs and SVOCs plus TICs.

4.4 UST 490

NJDEP noted that groundwater assessment was not performed for UST 490, and that TPH in soil exceeded the residential standard. Therefore, additional sampling of soil and groundwater is proposed at this former tank location.

Additional Geoprobe soil and groundwater sampling is proposed for three locations as shown on **Figure 7**. The purpose of the two Geoprobe locations north of Building 490 is to supplement the existing soil and groundwater analyses for delineation of TPH contamination in excess of soil and groundwater comparison criteria towards the east and north. The purpose of the third Geoprobe location south of Building 490 is for delineation of petroleum contamination in the downgradient direction (south). Each Geoprobe boring will be completed to at least 4 feet below the water table to assess current concentrations

and vertical extent of EPH. Three soil samples will be collected from each boring. Samples will be collected from approximately 2.0-2.5 ft bgs (or another interval representative of clean overburden), from a deeper 6-inch interval that is below any field evidence of contamination to delineate vertical extent, and from the most contaminated intermediate interval encountered (between 2.0-2.5 ft bgs and the deeper vertical extent sample) based on field evidence (visual, olfactory, PID screening). Each soil sample will be analyzed for EPH, with additional contingency SVOC analysis for naphthalene and 2-methylnaphthalene in the event that EPH concentrations exceed 1,000 mg/kg.

Groundwater samples from these three boring locations will be sampled using temporary wells within the Geoprobe borings, and then the borings will be abandoned. Each groundwater sample will be analyzed for VOCs and SVOCs plus TICs.

Existing monitor well 490MW01 was constructed by the Army at this site in 2011 to monitor groundwater contamination from the UST 490 site, but was never sampled. Well 490MW01 will be re-developed and sampled using the NJDEP low-flow purge and sample method, and analyzed for VOCs and SVOCs plus TICs.

5.0 OTHER ITEMS

Additional sampling of soil or groundwater may be performed to further delineate the extent of contamination in excess of applicable regulatory levels, based on the results of the sampling proposed in Section 4.0.

TABLE 1
SAMPLING SUMMARY FOR PARCEL 79 WORK PLAN ADDENDUM
FORT MONMOUTH, NEW JERSEY

Parcel	Location	Field Meter Readings [a/]	VOCs + TICs by Method 8260C [b/]	SVOCs + TICs by Method 8270D [c/]	Non-Fractionated EPH [d/]
Soil					
79	Area 75 ASTs (Figure 3) - 4 soil borings, 3 samples each (assume 1 sample in each boring requires contingency SVOC analysis) [e/]	4	0	4	12
79	USTs 202A and 202D (Figure 6) - 3 soil borings, 3 samples each (assume 1 sample in each boring requires contingency SVOC analysis) [e/]	4	0	3	9
79	UST 490 - 3 soil borings, 3 samples each (assume 1 sample in each boring requires contingency SVOC analysis) [e/]	3	0	3	9
Groundwater					
79	Area 75 ASTs - 2 groundwater samples (Figure 3)	2	2	2	0
79	USTs 437, 440, 441, 444, 445, 448, 449, 450, and 451 (Figure 4) - 1 groundwater sample each	9	9	9	0
79	UST 142B (Figure 5) - 1 groundwater sample	1	1	1	0
79	USTs 202A and 202D (Figure 6) - 3 groundwater samples	3	3	3	0
79	UST 490 - 4 groundwater samples	4	4	4	0
QA/QC samples (see SAP for additional details) [f/]					
Field Duplicates (5% Sampling Frequency per media)		NA [g/]	1	2	2
Matrix Spike (5% Sampling Frequency per media)		NA	1	2	2
Matrix Spike Duplicate (5% Sampling Frequency per media)		NA	1	2	2
Trip Blank (1 per cooler of VOCs per media)		NA	1	0	0
QA Split (5% per media)		NA	1	2	2
Equipment Blank (5% Sampling Frequency per media)		NA	1	2	2
	TOTAL	**NA**	**25**	**39**	**40**

Notes:

NA = not applicable.

TBD = to be determined.

[a/] Field meter readings include, in soil samples: photoionization detector (PID) readings along entire soil column; and in groundwater: PID h pH, temperature, electrical conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity.

[b/] VOCs = volatile organic compounds; TICs = tentatively identified compounds.

[c/] SVOCs = semivolatile organic compounds; TICs = tentatively identified compounds.

[d/] EPH = extractable petroleum hydrocarbons.

[e/] If any EPH concentrations in soil exceed 1000 mg/kg in any of the site samples, then minimum 25% of the samples where EPH exceeds 1

[f/] QA/QC = quality assurance/quality control; SAP = Sampling and Analysis Plan.

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
401 East State Street
P.O. Box 420/Mail Code 401-05F
Trenton, NJ 08625-0028
Phone #: 609-633-1455
Fax #: 609-633-1439

BOB MARTIN
Commissioner

August 25, 2015

John Occhipinti
BRAC Environmental Coordinator
OACSIM – U.S. Army Fort Monmouth
PO Box 148
Oceanport, NJ 07757

Re: *Underground Storage Tanks Within ECP Parcel 79 dated April 2015*
Fort Monmouth
Oceanport, Monmouth County
PI G000000032

Dear Mr. Occhipinti:

The New Jersey Department of Environmental Protection (Department) has completed review of the referenced report, received April 28, 2015, prepared by Department of the Army Office of Assistant Chief of Staff for Installation Management to provide responses to NJDEP letters of July 10, 2012 and May 30, 2013, and to provide a comprehensive documentation of the location and "closure status" of USTs identified within ECP Parcel 79.

Identification of the USTs in the submittal was made based upon review of historic records as well as the past performance of various geophysical/magnetometer surveys. As indicated in the report (and substantiated in Attachment D), twenty nine (29) USTs have previously received a designation of No Further Action (NFA) necessary from the Department. The submittal (page 7 of 7) proposes sufficient activity has taken place to allow for NFA of the entire Parcel 79 with the exception of an unused UST at Building 446 (which apparently did not undergo sampling) and the ground water at two of the USTs (UST 202D and UST 490), however, this office does not agree with same, and additional comment is warranted.

Attachment E -Areas 74 & 75 – Aboveground Storage Tanks & Associated Piping

Area 75 – Aboveground Storage Tanks

Two 210,000 gallon aboveground storage tanks, utilized from the 1940s through the 1980s, were removed in May of 1995. Based upon a review of the analytical results and chain of custody

(COC) as well as a conversation with Joe Fallon this date, who collected the samples, it appears 13 samples were collected in the proximity of AST A – all analytical results were below 1000 ppm, and 15 samples in the proximity of AST B. Per Mr. Fallon, the samples would have been collected both at/along the perimeter and within the footprint/center of the former ASTs, mainly at 0-6", but also at deeper intervals (as indicated on the COCs). Although it appears sampling frequency and location may have been adequate, it is unclear the analytical parameter requirements, either those in effect at the time of sampling or currently in effect, were met as regarding contingency analysis for AST B. Of the 15 samples apparently collected for AST B, 5 exceeded the trigger for additional analyses on 25% of those exceeding 1000 ppm (VOs+10 at the time of sampling, 2-methylnaphthalene and naphthalene per current guidance). It is also unclear where the ground water sampling points referenced for Area 74 were located relative to the former ASTs of Area 75?

Area 74 – Associated Piping
As per Enclosure 4 of Attachment E, the underground piping was previously NFAed.

Underground Storage Tanks

In addition to those USTs previously granted a designation of NFA, it is agreed no further action is necessary for the following #2 fuel USTs:

UST 29-1 – 1000 gallon steel
UST 142A – 1000 gallon steel; C93-3714
UST 401-26 – 1000 gallon steel
UST 416-32 – 1000 gallon steel
UST 430B-45 – 550 gallon tank*; C93-3987
*note – page 1, Section 1.1 and scrap receipt each indicate UST was steel; Att B states fiberglass
UST 443-49 – 1080 gallon steel
UST 474 – 1000 gallon steel

Although the 2008 Site Investigation previously performed did include ground water sampling, a review of the sampling points did not indicate they were placed within distances sufficient to allow for adequate evaluation of the USTs referenced below. Based upon soil contamination extending to within 2' of, and in many cases, into the ground water table (GWT), a ground water investigation is necessary at the following UST locations (the elimination of the sheen via excavation, as referenced for USTs 441, 444 is insufficient):

UST 142B (Attachment H)
UST 437 (Attachment Q)
UST 440 (Attachment R)
UST 441 (Attachment S)
UST 444 (Attachment U)
UST 448 (Attachment W); please specify if well P79-E2 is sufficiently proximate to comply with regulations/guidance
UST 449 (Attachment X)

UST 450 (Attachment Y)
UST 451 (Attachment Z)

Though it is understood no evidence was found of a tank remaining in the below referenced locations during geophysical or trenching activities, a tank was noted as present in historic Army material, e.g. 1956 Fuel Storage Map, while Attachment 1 indicates heating oil USTs may remain between Tilly Avenue and Leonard Avenue. No soil sampling was apparently performed in any of these locations. Unless all tanks, former or current, have been evaluated in accordance with the applicable Departmental regulations and guidance documents, the NJDEP cannot comment as to the absence or presence of a petroleum discharge. The request on page 7 of 7 for designation of an NFA for the following USTs cannot be granted unless the necessary sampling is performed at each:

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UST/Bldg. No. 169 (Attachment I)
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UST/Bldg. No. 424
UST/Bldg. No. 425
UST/Bldg. No. 435 (Attachment P)
UST/Bldg. No. 438
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UST/Bldg No. 456 (Attachment AA consisted of only analytical data, from a single sample - 6-12"; information provided is insufficient for evaluation/comment)
USTs/Bldg. No.s 457 through 467
UST/Bldg. No.s 469 through 473
UST/Bldg. No. 476
UST/Bldg. No. 488
UST/Bldg. No. 489

While not indicated as present on the 1956 Fuel Storage map, nor found during geophysical survey activities, the 2014 ECP UHOT Report indicates a potential for the presence of an UST at several additional locations. Although no tank was found, insufficient information (sampling) has been submitted to allow for comment as to the presence or absence of a discharge for the following:

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UST/Bldg. No. 408
UST/Bldg. No. 436
UST/Bldg. No. 468

Attachments J, K & L – USTs at Former Building 202

Four USTs were noted as present, and removed (although the ECP UHOT report indicates high potential for the continued presence of two USTs), at the former building, the specific locations of which two (202A & 202B), were not indicated. Although apparently no discharge was associated with USTs 202B or 202C (the submittal implies no soils were removed at either UST prior to the sampling which indicated non-detect TPH levels), discharges were associated with both USTs 202A and 202D.

The affected soils at UST 202A were removed to 5.5', likely extending to within 2' of or into the ground water table, in this area, and contained almost 8,000 ppm TPHC, the level referenced in the Department's guidance (http://www.nj.gov/dep/srp/guidance/rs/#phc) as the residual product/free product limit. As such, it is possible former UST 202A could have contributed to the levels of ground water contamination noted at UST 202D. An NFA at this time is, therefore, not appropriate.

As indicated in the submittal, ground water was found to contain benzene at low levels, 2-methylnaphthalene, and BN TICs in a sampling event performed in June of 2011 at UST 202D. An NFA of the soils, as requested, is not appropriate at this time. Insufficient information is known relative to the ground water contamination in the area, including the current extent or levels of contamination.

Attachment CC/UST 490- aka UST 490-58

Although a Site Assessment Compliance Statement and Standard Reporting Form for tank removal are reported in Attachment CC as submitted to the DEP in 1991, as indicated in the submittal, there is no record of NFA approval from the NJDEP; no soil sampling had been performed at that time.

Soil sampling collected from the *6-6.5' interval* was performed in 2005, indicating levels of TPH ranged from 2981 to 8762 ppm, with VOs below criteria. Ground water samples were below the Ground Water Quality Standards (GWQS) in effect at the time, however, no report was submitted; 2-methylnapthalene was found at 32.13 ppb. Additional sampling (actual locations of which are unclear) performed in May of 2010 (prior to phase-in of EPH), at the *3.5-4' interval* – the rationale for selection of that interval is unreported - found TPH ranging from ND to 5941.76 ppm. Although the required contingency sampling was reported as exhibiting no exceedences in the submittal, the Impact to Ground Water Standard for 2-methylnaphthalene of 8 ppm was exceeded in Sample B4, with a result of 30.32 ppm. Ground water sampling conducted in May and July of 2010 found elevated levels of 2-methylnaphthalene, as well as elevated BN TICs.

No figure identifying the location of the May 2010 sampling was provided, however, it appears contamination above the 5100 ppm criterion may be present from at least the 3.5 to the 6.5' interval, and deeper. TPH/EPH cannot exceed the residual product/free product limit of 8,000 mg for No. 2 fuel; 2-methylnaphthalene above standard in the soil as well as the ground water is

present. Compliance averaging of the soils is not appropriate. Additional characterization of the ground water contamination is required. The current conditions of the ground water and the extent of any contamination must be determined, at which time further decisions regarding remedial requirements may be determined..

Please contact this office if you have any questions.

Sincerely,

Linda S. Range

C: Joe Pearson, Calibre
Rich Harrison, FMERA
Joe Fallon, FMERA
James Moore, USACE
Frank Barricelli, RAB

DEPARTMENT OF THE ARMY

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

April 22, 2015

Ms. Linda Range
New Jersey Department of Environmental Protection
Case Manager
Bureau of Southern Field Operations
401 East State Street, 5th Floor
PO Box 407
Trenton, NJ 08625

Re: Underground Storage Tanks within Parcel 79
Fort Monmouth, NJ

Attachments:

A. Correspondence
B. Summary Table of Parcel 79 Underground Storage Tanks
C. Site Layout Drawings of Parcel 79 (Recent and Historical)
D. No Further Action Letters from NJDEP
E. Areas 74 and 75 ASTs File Review and Analyses
F. UST 29 File Review
G. UST 142A Report
H. UST 142B Report
I. Bldgs. 168, 169, 170 and 171 File Review
J. UST 202A File Review
K. UST 202B File Review
L. USTs 202C and 202D File Reviews and Report
M. UST 401 Report
N. UST 416 Report
O. UST 430B Report
P. UST 435 Notes
Q. UST 437 File Review and Analyses
R. UST 440 File Review and Analyses
S. UST 441 File Review and Analyses
T. UST 443 Report
U. UST 444 File Review and Analyses
V. UST 445 File Review and Analyses
W. UST 448 File Review and Analyses
X. UST 449 File Review and Analyses
Y. UST 450 File Review and Analyses
Z. UST 451 File Review and Analyses
AA. Bldg. 456 Analyses
BB. UST 474 File Review and Analyses
CC. UST 490 File Review, Report and Analyses

DD. Geophysical Survey Report

Previous Correspondence (provided in Attachment A):

1. NJDEP letter to the Army dated July 10, 2012, re: *March 2012 Army Response to NJDEP Correspondence Letter Dated October 28, 2008*.
2. Army letter to NJDEP dated January 31, 2013, re: *NJDEP's Response to Army Correspondence (Dated March 16, 2012).*
3. NJDEP letter to the Army dated May 30, 2013, re: *Army's January 31, 2013 Correspondence – Miscellaneous USTs.*

Dear Ms. Range:

The U.S. Army Fort Monmouth (FTMM) has reviewed existing file information for underground storage tank (UST) sites at Fort Monmouth within Environmental Condition of Property (ECP) Parcel 79. One purpose of this review was to provide a comprehensive response to NJDEP's previous comments on Parcel 79 (Correspondence 1); these responses (Attachment A) supplement the information previously provided in Correspondence (2) and (3). In addition, this submittal provides comprehensive documentation of the location and closure status of all USTs identified within this parcel, which we believe will be useful for the future Phase II property transfer.

Responses to NJDEP's comments concerning Parcel 79 in Correspondence (1) are provided in Attachment A, as well as the previous correspondence concerning Parcel 79 (Correspondence 1 through 3). The majority of the removed and potential USTs were used for residential heating oil, or were less than 2000 gallons in size and used to store heating oil for nonresidential buildings, and are therefore considered unregulated heating oil tanks (UHOTs). A summary table of UHOTs identified within Parcel 79 is provided as Attachment B, and the locations of these UHOTs within Parcel 79 are presented in Attachment C. All but one of the UHOTs that have been positively identified within Parcel 79 have been removed; the exception is UST 446, which was left in place as described further below. Additional "potential" UHOTs associated with former barracks (as shown on historical drawings; see Attachment C) are also described in this summary that have not been located. The table of UHOTs in Attachment B describes which UHOTs were identified by each of the relevant sources of information, including the Addendum ECP UHOT Report (Parsons, 2014), the 1956 fuel storage tanks map (presented in Attachment C; also previously provided as Appendix O of the 2007 ECP Report, and within Appendix G of the ECP Site Investigation Report), and NJDEP's July 10, 2012 letter (Correspondence 1).

Multiple UHOTs within Parcel 79 have been identified that were previously approved for No Further Action (NFA) by NJDEP; documentation of this approval is provided in Attachment D, and referenced below for specific UHOTs. In these cases, there is generally a supporting investigation report that was previously submitted to NJDEP and that describes the basis for closure. For the sake of brevity, we have not included these reports for UHOTs where NFA has already been approved. However, these reports are available within the FTMM environmental records.

In the Attachment B table, the term "Case Closed" has been used (consistent with previous FTMM procedures) to indicate the Army determined that no further sampling or remedial actions were warranted for a specific UST site. "Case Open" indicates the Army determined that

ongoing monitoring, reporting or possibly even remedial action was warranted. In contrast, "No Further Action" has been reserved for NJDEP approval that no further sampling or remedial actions are warranted. “Case Open” sites previously identified within Parcel 79 in Attachment B can now be considered as “Closed” by this submittal.

The Parcel 79 area generally includes that portion of Fort Monmouth bounded by Parker Creek to the northwest, Oceanport Avenue to the southwest, Oceanport Creek to the southeast, and Burns Avenue (and its southerly extension) to the northeast (see Attachment C). Several discrete areas that are designated as Installation Restoration Program (IRP) sites or as separate ECP parcels are also located within the same general area as Parcel 79, but are excluded from this submittal. These excluded sites are shown on Attachment C and include:

- FTMM-15 Water Tank, also known as Parcel 78.
- FTMM-16 Former Pesticide Storage Area (Bldg. 498), also known as Parcel 81.
- Parcel 80 Former Bldgs. 105 and 106.
- Parcel 82 Residential Communities Initiative (RCI) 400 Area.
- Parcel 95 PCB Transformer Leak near Bldgs. 454 and 456.

These excluded IRP sites and ECP Parcels will be addressed under separate cover as needed.

Bulk fuel oil aboveground storage tanks (ASTs) were previously located in the northeastern portion of Parcel 79 (see the current layout drawing in Attachment C). The two 210,000 gallon fuel oil ASTs were removed in 1995, and associated piping was removed in 1997. Soil samples were collected both for the AST site (designated as Area 75) and the associated piping (designated as Area 74), as well as groundwater samples for Area 74. A file review summary and the results of the investigations are presented in Attachment E. Based upon the results of the analyses, we request No Further Action for this Area 74 and 75 AST site.

Regarding the multiple USTs that were previously removed from Parcel 79, we are submitting the following documentation, and we request a No Further Action determination for each site (site that have been previously approved by NJDEP are highlighted in green):

- UST 29 File Review summary and analyses is presented in Attachment F.
- UST 104 NFA was approved by NJDEP on 1/10/2003 (Attachment D).
- UST 142A investigation report is presented in Attachment G.
- UST 142B investigation report is presented in Attachment H.
- Bldgs. 168, 169, 170 and 171 File Review is presented in Attachment I; these are demolished buildings where USTs are not likely to be present.
- UST 197-2 NFA was approved by NJDEP on 2/24/2000 (Attachment D).
- UST 202A File Review is presented in Attachment J.
- UST 202B File Review is presented in Attachment K.
- UST 202C File Review and Report are presented in Attachment L.
- UST 202D File Review summary, report and additional analyses are presented in Attachment L. NFA for soils at this site is warranted. Benzene and 2-methylnaphthalene in groundwater exceeded the NJDEP Ground Water Quality Criteria.
- UST 400 NFA was approved by NJDEP on 2/24/2000 (Attachment D).
- UST 401 investigation report is presented in Attachment M.
- Bldg. 407 is a demolished building where there were no geophysical survey indications of an underground storage tank found.

- Bldg. 408 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- UST 410 NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- UST 411 NFA was approved by NJDEP on 5/30/2013 (Attachment D).
- UST 412 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- UST 413 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- UST 414 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- Bldg. 415 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- UST 416 investigation report is presented in Attachment N.
- UST 417 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- UST 418 NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- UST 419 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- UST 420 NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- UST 421 NFA was approved by NJDEP on 5/30/2013 (Attachment D).
- UST 422 NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- UST 423 NFA was approved by NJDEP on 5/30/2013 (Attachment D).
- Bldg. 424 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 425 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- UST 426 NFA was approved by NJDEP on 1/10/2003 (Attachment D).
- UST 427 NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- UST 428 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- UST 429 NFA was approved by NJDEP on 10/23/2000 (Attachment D).
- UST 430A NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- UST 430B investigation report is presented in Attachment O.
- UST 430C NFA was approved by NJDEP on 2/24/2000 (Attachment D).
- Bldg. 433 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- UST 434 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- Bldg. 435 is a demolished building where there were no geophysical survey indications of an underground storage tank found; test trenching was performed as described in Attachment P; no tank was found.
- Bldg. 436 is a demolished building where there were no geophysical survey indications of an underground storage tank found; field studies were performed that discovered USTs at other locations in this general area, but no tank was found at this location.
- UST 437 File Review and Analyses is presented in Attachment Q.
- Bldg. 438 is a demolished building where there were no geophysical survey indications of an underground storage tank found; field studies were performed that discovered USTs at other locations in this general area, but no tank was found at this location.
- UST 439 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- UST 440 File Review and Analyses is presented in Attachment R.
- UST 441 File Review and Analyses is presented in Attachment S.

- Bldg. 442 is a demolished building where there were no geophysical survey indications of an underground storage tank found; field studies were performed that discovered USTs at other locations in this general area, but no tank was found at this location.
- UST 443 investigation report is presented in Attachment T.
- UST 444 File Review and Analyses is presented in Attachment U.
- UST 445 File Review and Analyses is presented in Attachment V.
- UST 446 is a steel 1000 gallon fuel oil tank that was partially excavated in 2010, but was left in place because it was partially covered by the existing Bldg. 451 foundation, and therefore could not be removed without damaging the overlying structure.
- UST 447 NFA was approved by NJDEP on 8/29/2000 (Attachment D).
- UST 448 File Review and Analyses is presented in Attachment W.
- UST 449 File Review and Analyses is presented in Attachment X.
- UST 450 File Review and Analyses is presented in Attachment Y.
- UST 451 File Review and Analyses is presented in Attachment Z.
- UST 453 NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- UST 454 NFA was approved by NJDEP on 7/10/1998 (Attachment D).
- Bldg. 455 is a demolished building where there were no geophysical survey indications of an underground storage tank found. Note that this is a different location than existing Bldg. 455.
- Bldg. 456 is a demolished building where there were no geophysical survey indications of an underground storage tank found. Note that existing Bldg. 456 partially overlies this former Bldg. 456. A single soil sample was collected at Bldg. 456 as presented in Attachment AA.
- Bldg. 457 is a demolished building where there were no geophysical survey indications of an underground storage tank found. Note that existing Bldg. 455 partially overlies this former Bldg. 457.
- Bldg. 458 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 459 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Former Bldg. 460 is a demolished building where there were no geophysical survey indications of an underground storage tank found. Note that existing Bldg. 456 partially overlies this former Bldg. 460.
- Bldg. 460 is an existing building where there were no geophysical survey indications of an underground storage tank found.
- Former Bldg. 461 is a demolished building where there were no geophysical survey indications of an underground storage tank found. Note that existing Bldg. 457 overlies this former Bldg. 461.
- Former Bldg. 462 is a demolished building where there were no geophysical survey indications of an underground storage tank found. Note that existing Bldg. 457 partially overlies this former Bldg. 462.
- Bldg. 463 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 464 is a demolished building where there were no geophysical survey indications of an underground storage tank found.

- Bldg. 465 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 466 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 467 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 468 is a demolished building where there were no geophysical survey indications of an underground storage tank found. Further, there is no tank shown on the 1956 fuel storage drawing (Attachment C).
- Bldg. 469 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 470 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 471 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 472 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 473 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- UST 474 File Review and Analyses is presented in Attachment BB.
- UST 475 NFA was approved by NJDEP on 10/23/2000 (Attachment D).
- Bldg. 476 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 488 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- Bldg. 489 is a demolished building where there were no geophysical survey indications of an underground storage tank found.
- UST 490 File Review, Report and Analyses is presented in Attachment CC. NFA for soils at this site is warranted. 2-Methylnaphthalene in groundwater exceeded the NJDEP Ground Water Quality Criteria.
- UST 491 NFA was approved by NJDEP on 1/10/2003 (Attachment D).
- UST 492 NFA was approved by NJDEP on 8/29/2000 (Attachment D).

Many of the Parcel 79 UHOTs were steel fuel oil tanks associated with former barracks that have been demolished. Geophysical surveys were performed to locate potential USTs that may have remained after the buildings were removed, as described in Attachment DD. A combination of the geophysical surveys as well as the historical maps and metal detectors were used to locate multiple UHOTs within the Parcel 79 area, which were subsequently removed in 2010. However, for multiple building numbers listed in the Attachment B summary table (for example, 407, 408, etc.), there were no geophysical anomalies identified that were potentially related to underground tanks, and consequently no tanks were found at multiple locations.

Groundwater samples were collected from multiple petroleum tank sites during site investigation activities, including the Area 74 bulk fuel oil AST piping area, and USTs 29, 401, 416, and 430B. Groundwater VOC and SVOC analytes from these sites were either non-detected or detected at concentrations below the NJDEP Ground Water Quality Criteria. Groundwater samples were also collected from 8 locations within Parcel 79 during the ECP Site

Investigation (SI; Shaw, 2008); all VOC and SVOC analytes from these samples were also either non-detected or detected at concentrations below the NJDEP Ground Water Quality Criteria. An oily sheen on groundwater was observed within the tank excavations at USTs 441, 444, and 448 during 2010 removal activities; soil remediation was completed at each of these sites, which eliminated the source of the oily sheen. At UST 202D, benzene (1.61 µg/L) and 2-methylnaphthalene (233 µg/L) were present in groundwater at concentrations that exceeded the NJDEP interim Ground Water Quality Criteria (1 and 30 µg/L, respectively). At UST 490, 2-methylnaphthalene was present in groundwater at concentrations up to 115 µg/L, which exceeded the NJDEP interim Ground Water Quality Criteria of 30 µg/L. In summary, the results of previous investigations do not indicate the presence of widespread groundwater contamination at Parcel 79, although two localized areas with exceedance of NJDEP Ground Water Quality Criteria have been identified at USTs 202D and 490.

This information supports the conclusion that UST contamination issues identified within Parcel 79 have been adequately addressed by previous environmental activities. Numerous UHOT sites were identified within this Parcel and were addressed under the FTMM tank removal and assessment program over the past approximately 20 years. Three unresolved issues remain:

- One fuel oil UHOT was partially uncovered and then left in place at former Bldg. 446 due to structural concerns with the overlying Bldg. 451 foundation.
- Groundwater at UST 202D exceeded the NJDEP Ground Water Quality Criteria for benzene and 2-methylnaphthalene.
- Groundwater at UST 490 exceeded the NJDEP Ground Water Quality Criteria for 2-methylnaphthalene.

In summary, we submit that the Army has provided adequate due diligence with regards to the environmental condition of this Parcel, and we request that NJDEP approve No Further Action for Parcel 79, with the exception of the UHOT remaining at Bldg. 446, and groundwater at UST 202D and UST 490. Should you have any questions or require additional information, please contact me at (732) 380-7064 or by email at wanda.s.green2.civ@mail.mil.

Sincerely,

Wanda Green

Wanda Green
BRAC Environmental Coordinator

cc: Delight Balducci, HQDA ACSIM
Joseph Pearson, Calibre
James Moore, USACE
Cris Grill, Parsons

Attachments not related to UST 202A have been omitted.

ATTACHMENT J

UST 202A File Review

PARSONS

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

Date: *February 19, 2015* Review Performed By: *Kent Friesen, Parsons*

Site ID: ***Bldg. 202A*** Registration ID: *90010-21*

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

UST Probability (from May 2014 "Addendum 1 ECP UHOT Report"): ***High (see below)***

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

NJDEP Release No. or DICAR (If applicable): *None*

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

Tank Description: [ ] Steel [X] Fiberglass Size: 1000 gals. Contents: Heating Oil

[X] Residential [ ] Commercial/Industrial

Tank Removed? [X] Yes [ ] No If "yes," removal date: 10/1/2001

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

Comparison criteria: 5,100 mg/kg TPH; RDCSRS

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

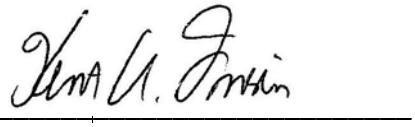
Brief Narrative

Bldg. 202 was formerly civilian quarters according to FTMM real property records. Two fiberglass (202A and 202B) and two steel (202C and 202D) tanks were removed from Bldg. 202.

Following tank 202A removal in October 2001, 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 were non-detected (ND) to 7974 mg/kg for TPH. Contaminated soil was then removed from the west sidewall, and final soil samples results were ND to 239 mg/kg. The final results were less than 5,100 mg/kg for TPH, which is the current TPH remediation criterion. The samples with highest TPH concentrations were also analyzed for volatile organic compounds (VOCs); ethyl benzene, xylenes, 1,3-dichlorobenzene, vinyl acetate, chlorobenzene, and dibromochloromethane, were detected, but at concentrations below the respective NJDEP Residential Direct Contact Soil Remediation Standard (RDCSRS). Therefore, no additional sampling or remedial action was warranted.

In conclusion, the analytical results support the UST Case Status of "Case Closed." Although the ECP UHOT Addendum indicates a high probability of a tank being present, this seems unlikely since a steel tank was already removed (see file reviews for UST 202C and 202D).

Recommendations (if any): Request NFA from NJDEP

Signed: 

Kent A. Friesen, Parsons

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, NYSDOH #11699

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

Bldg. 202A

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
202A-A/North Wall 3.5-4'	1648301	Soil	01-Oct-01 13:10	10/01/01
202A-B/South Wall 3.5-4'	1648302	Soil	01-Oct-01 14:30	10/01/01
202A-C/East Wall 3.5-4'	1648303	Soil	01-Oct-01 13:25	10/01/01
202A-D/West Wall 3.5-4'	1648304	Soil	01-Oct-01 14:15	10/01/01
202A-E/Piping 1.5-2'	1648305	Soil	01-Oct-01 14:50	10/01/01
202A-F/Piping 2.5-3'	1648306	Soil	01-Oct-01 13:50	10/01/01
202A-G/Duplicate 3.5-4'	1648307	Soil	01-Oct-01 14:15	10/01/01
Trip Blank	1648308	Methanol	01-Oct-01	10/01/01

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

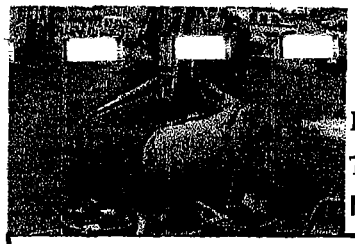
ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

(QC and raw data not included for brevity)

10-19-01

Daniel Wright/Date
Laboratory Director

Table of Contents



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 / NYDOH Certification #11699

Chain of Custody Record

Customer: Dinker Desai
Phone #: X21475
( )DERA (X)OMA UST Assessment

Project No: 01-0001
Location: BLDG. 202A
UST# 90010-21

Samplers Name / Company : Frank Accorsi/TVS

Analysis Parameters

Lab Sample I.D.	Sample Location	Depth	Date	Time	Sample Type	# Bottles	TPHC	% SOLIDS	VOA+10 #	VOA ID #	PID Reading	Remarks / Preservation Method
16483 01	202A-A, NORTH WALL	3.5-4.0	10-1-01	1310	SOIL	2	X	X	X	2848	3.2	ICE
02	202A-B, SOUTH WALL	3.5-4.0		1430		2	X	X	X	2849	0	
03	202A-C, EAST WALL	3.5-4.0		1325		2	X	X	X	2850	2.0	
04	202A-D, WEST WALL	3.5-4.0		1415		2	X	X	X	2851	22.8	
05	202A-E, PIPING	1.5-2.0		1430 ~~1350~~		2	X	X	X	2852	0	
06	202A-F, PIPING	2.5-3.0		1350		2	X	X	X	2853	0	
07	202A-G, DUPLICATE	3.5-4.0		1415		2	X	X	X	2854	30.0	
08	TRIP BLANK	—		—		1			X	2855	—	

* = Samples Kept <4°C

OVM sn#580U-64455.343 was calibrated with zero air & w/ 245 ppm Isobutylene read 246 ppm. 1010 10-1-01 FA (time/date & initial)

Relinquished by (signature):	Date/Time:	Received by (signature):
Frank Accorsi	10-1-01 1536	J. Wright
Relinquished by (signature):	Date/Time:	Received by (signature):

Comments: * VO+10 ON 25% > 1,000 PPM TPHC, ON HIGHEST, MIN. ONE

Report Type: ( )Full, (X)Reduced, ( )Standard, ( )Screen / non-certified, ( )EDD
Turnaround time: ( )Standard 2 wks, (X)Rush 1 Days, ( )ASAP Verbal ___ Hrs.

Remarks: Dedicated Sampling Tools Used
All sample points have been GPS? ( )YES ( )NO ( )NA

000002

print legibly

USTcoc.xls6/22/01

Change of Chain of Custody

Lab Project ID#: 16483 Site/Project Name: Bldg 202A

Date Received: 10/1/01 Date of Change: 10/3

Requested by: *print* Hamer Sign: Hamer

Turnaround Time: 0 Stand.

1. Were the correct containers and/or preservatives used for the tests indicated? Yes No
2. Was a sufficient amount of sample sent for the tests indicated? Yes No
3. Are samples Within Holding time for new analysis? Yes No
4. Was the change documented in the sample receipt log book? Yes No

Received by: *print* Sign:

Sample ID#	New Analysis		Sample ID#	New Analysis	
164830 4	VOA +15			10.39	1945
07	"			10.41	21.84
08	"			—	—
	Reduced				

Comments: _____

Method Summary

NJDEP Method 8260
Gas Chromatographic Determination of Volatiles in Soil

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

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

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.
Twenty-five milliliters (25mL) Methylene Chloride is added to the flask and it is secured on a orbital shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is the removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL-autosampler vial.
The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.
The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

Laboratory Chronicle

Lab ID: 16483

Site: Bldg. 202A

	Date	Hold Time
Date Sampled	10/01/01	NA
Receipt/Refrigeration	10/01/01	NA
Extractions		
1. TPHC	10/02/01	14 days
Analyses		
1. Volatile Organics	10/05,09/01	14 days
2. TPHC	10/03/01	40 days

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

Indicate Yes, No, N/A

1. Chromatograms labeled/Compounds identified (Field samples and method blanks) — Yes
2. Retention times for chromatograms provided — Yes
3. GC/MS Tune Specifications
   a. BFB Meet Criteria — yes
   b. DFTPP Meet Criteria — NA
4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series — yes
5. GC/MS Calibration – Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series — yes
6. GC/MS Calibration requirements
   a. Calibration Check Compounds Meet Criteria — yes
   b. System Performance Check Compounds Meet Criteria — yes
7. Blank Contamination – If yes, List compounds and concentrations in each blank: — yes
   a. VOA Fraction Chlorobenzene 3J
   b. B/N Fraction NA
   c. Acid Fraction NA
8. Surrogate Recoveries Meet Criteria — yes

   If not met, list those compounds and their recoveries, which fall outside the acceptable range:
   a. VOA Fraction
   b. B/N Fraction NA
   c. Acid Fraction NA

   If not met, were the calculations checked and the results qualified as "estimated"?
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range) — NO
   a. VOA Fraction Chlorobenzene % Rec low RPD high
   b. B/N Fraction NA
   c. Acid Fraction NA

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

Indicate
Yes, No, N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria — NO
(If not met, list those compounds, which fall outside the acceptable range)

a. VOA Fraction IS3 high
b. B/N Fraction NA
c. Acid Fraction NA

11. Extraction Holding Time Met — NA

If not met, list the number of days exceeded for each sample: _____

12. Analysis Holding Time Met — Yes

If not met, list the number of days exceeded for each sample: _____

Additional Comments:

Laboratory Manager: _____ Date: 10-19-01

TPHC Conformance/Non-conformance Summary Report

		Indicate Yes, No, N/A
1.	Method Detection Limits provided.	yes
2.	Method Blank Contamination – If yes, list the sample and the Corresponding concentrations in each blank.	no
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	Yes
4.	Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	yes
5.	IR Spectra submitted for standards, blanks and samples.	NA
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	yes
7.	Analysis holding time met. (If not met, list number of days exceeded for each sample).	Yes

Additional comments: _____

_____

_____

_____ 10-19-01

Laboratory Manager Date

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461

Definition of Qualifiers

MDL	:	Method Detection Limit
J	:	Compound identified below detection limit
B	:	Compound found in blank
D	:	Results are from a dilution of the sample
U	:	Compound searched for but not detected
E	:	Compound exceeds calibration limit
PQL	:	Practical Quantitation Limit
NLE	:	No limit established
RT	:	Retention time

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 10/05/01

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007190.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/5/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	700	U
107131	Acrylonitrile	700	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	300	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	300	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	300	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-35-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	300	U
78-93-3	2-Butanone	300	U
	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
75-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
126-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	32	J
100-41-4	Ethylbenzene	200	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 10/05/01

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007190.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/5/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	300	U
1330-20-7	o-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	1,3-Dichlorobenzene	300	U
106-46-7	1,4-Dichlorobenzene	300	U
95-50-1	1,2-Dichlorobenzene	300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

MB 10/05/01

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007190.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/5/01

GC Column: Rtx502.2 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

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 10/09/01

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007224.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	700	U
107131	Acrylonitrile	700	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	300	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	300	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	300	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-35-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	300	U
78-93-3	2-Butanone	300	U
	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
75-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
126-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	200	U

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

MB 10/09/01

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007224.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	300	U
1330-20-7	o-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	1,3-Dichlorobenzene	44	J
106-46-7	1,4-Dichlorobenzene	45	J
95-50-1	1,2-Dichlorobenzene	300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

MB 10/09/01

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

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

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007224.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/9/01

GC Column: Rtx502.2 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

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-D

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648304

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007195.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 19.45 Date Analyzed: 10/5/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	830	U
107131	Acrylonitrile	830	U
75650	tert-Butyl alcohol	1500	U
1634044	Methyl-tert-Butyl ether	360	U
108203	Di-isopropyl ether	240	U
75718	Dichlorodifluoromethane	480	U
74-87-3	Chloromethane	120	U
75-01-4	Vinyl Chloride	360	U
74-83-9	Bromomethane	240	U
75-00-3	Chloroethane	360	U
75-69-4	Trichlorofluoromethane	240	U
75-35-4	1,1-Dichloroethene	120	U
67-64-1	Acetone	240	U
75-15-0	Carbon Disulfide	120	U
75-09-2	Methylene Chloride	240	U
156-60-5	trans-1,2-Dichloroethene	240	U
75-35-3	1,1-Dichloroethane	120	U
108-05-4	Vinyl Acetate	360	U
78-93-3	2-Butanone	360	U
	cis-1,2-Dichloroethene	120	U
67-66-3	Chloroform	120	U
75-55-6	1,1,1-Trichloroethane	120	U
56-23-5	Carbon Tetrachloride	240	U
71-43-2	Benzene	120	U
107-06-2	1,2-Dichloroethane	240	U
79-01-6	Trichloroethene	120	U
78-87-5	1,2-Dichloropropane	120	U
75-27-4	Bromodichloromethane	120	U
110-75-8	2-Chloroethyl vinyl ether	240	U
10061-01-5	cis-1,3-Dichloropropene	120	U
108-10-1	4-Methyl-2-Pentanone	240	U
108-88-3	Toluene	120	U
10061-02-6	trans-1,3-Dichloropropene	240	U
79-00-5	1,1,2-Trichloroethane	240	U
127-18-4	Tetrachloroethene	120	U
591-78-6	2-Hexanone	240	U
126-48-1	Dibromochloromethane	240	U
108-90-7	Chlorobenzene	120	U
100-41-4	Ethylbenzene	26	J

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-D

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648304

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007195.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 19.45 Date Analyzed: 10/5/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	110	J
1330-20-7	o-Xylene	74	J
100-42-5	Styrene	240	U
75-25-2	Bromoform	240	U
79-34-5	1,1,2,2-Tetrachloroethane	240	U
541-73-1	1,3-Dichlorobenzene	46	J
106-46-7	1,4-Dichlorobenzene	360	U
95-50-1	1,2-Dichlorobenzene	360	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID. **202A-D**

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648304

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007195.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 19.45 Date Analyzed: 10/5/01

GC Column: Rtx502.2 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: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown hydrocarbon	25.96	10000	J
2.	unknown hydrocarbon	29.00	35000	J
3.	unknown hydrocarbon	30.06	16000	J
4.	unknown hydrocarbon	30.45	11000	J
5.	unknown hydrocarbon	30.53	10000	J
6. 002847-72-5	Decane, 4-methyl-	30.90	11000	JN
7.	unknown	31.93	14000	J
8. 001678-93-9	Cyclohexane, butyl-	32.17	16000	JN
9. 000135-01-3	Benzene, 1,2-diethyl-	33.37	14000	JN
10. 000493-02-7	Naphthalene, decahydro-, trans-	33.67	16000	JN
11. 000934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	34.44	15000	JN
12. 000527-84-4	Benzene, 1-methyl-2-(1-methylet	34.69	15000	JN
13.	unknown	34.86	19000	J
14. 002958-76-1	Naphthalene, decahydro-2-methyl	34.95	17000	JN
15.	unknown	35.22	9700	J

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-D DL

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648304

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007226.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 19.45 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 10.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	8300	U
107131	Acrylonitrile	8300	U
75650	tert-Butyl alcohol	15000	U
1634044	Methyl-tert-Butyl ether	3600	U
108203	Di-isopropyl ether	2400	U
75718	Dichlorodifluoromethane	4800	U
74-87-3	Chloromethane	1200	U
75-01-4	Vinyl Chloride	3600	U
74-83-9	Bromomethane	2400	U
75-00-3	Chloroethane	3600	U
75-69-4	Trichlorofluoromethane	2400	U
75-35-4	1,1-Dichloroethene	1200	U
67-64-1	Acetone	2400	U
75-15-0	Carbon Disulfide	1200	U
75-09-2	Methylene Chloride	2400	U
156-60-5	trans-1,2-Dichloroethene	2400	U
75-35-3	1,1-Dichloroethane	1200	U
108-05-4	Vinyl Acetate	3600	U
78-93-3	2-Butanone	3600	U
	cis-1,2-Dichloroethene	1200	U
67-66-3	Chloroform	1200	U
75-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	2400	U
71-43-2	Benzene	1200	U
107-06-2	1,2-Dichloroethane	2400	U
79-01-6	Trichloroethene	1200	U
78-87-5	1,2-Dichloropropane	1200	U
75-27-4	Bromodichloromethane	1200	U
110-75-8	2-Chloroethyl vinyl ether	2400	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
108-10-1	4-Methyl-2-Pentanone	2400	U
108-88-3	Toluene	1200	U
10061-02-6	trans-1,3-Dichloropropene	2400	U
79-00-5	1,1,2-Trichloroethane	2400	U
127-18-4	Tetrachloroethene	1200	U
591-78-6	2-Hexanone	2400	U
126-48-1	Dibromochloromethane	2400	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	2400	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-D DL

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648304

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007226.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 19.45 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 10.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	3600	U
1330-20-7	o-Xylene	2400	U
100-42-5	Styrene	2400	U
75-25-2	Bromoform	2400	U
79-34-5	1,1,2,2-Tetrachloroethane	2400	U
541-73-1	1,3-Dichlorobenzene	3600	U
106-46-7	1,4-Dichlorobenzene	3600	U
95-50-1	1,2-Dichlorobenzene	3600	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-G

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648307

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007196.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 21.84 Date Analyzed: 10/5/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	860	U
107131	Acrylonitrile	860	U
75650	tert-Butyl alcohol	1600	U
1634044	Methyl-tert-Butyl ether	370	U
108203	Di-isopropyl ether	250	U
75718	Dichlorodifluoromethane	490	U
74-87-3	Chloromethane	120	U
75-01-4	Vinyl Chloride	370	U
74-83-9	Bromomethane	250	U
75-00-3	Chloroethane	370	U
75-69-4	Trichlorofluoromethane	250	U
75-35-4	1,1-Dichloroethene	120	U
67-64-1	Acetone	250	U
75-15-0	Carbon Disulfide	120	U
75-09-2	Methylene Chloride	250	U
156-60-5	trans-1,2-Dichloroethene	250	U
75-35-3	1,1-Dichloroethane	120	U
108-05-4	Vinyl Acetate	65	J
78-93-3	2-Butanone	370	U
	cis-1,2-Dichloroethene	120	U
67-66-3	Chloroform	120	U
75-55-6	1,1,1-Trichloroethane	120	U
56-23-5	Carbon Tetrachloride	250	U
71-43-2	Benzene	120	U
107-06-2	1,2-Dichloroethane	250	U
79-01-6	Trichloroethene	120	U
78-87-5	1,2-Dichloropropane	120	U
75-27-4	Bromodichloromethane	120	U
110-75-8	2-Chloroethyl vinyl ether	250	U
10061-01-5	cis-1,3-Dichloropropene	120	U
108-10-1	4-Methyl-2-Pentanone	250	U
108-88-3	Toluene	120	U
10061-02-6	trans-1,3-Dichloropropene	250	U
79-00-5	1,1,2-Trichloroethane	250	U
127-18-4	Tetrachloroethene	120	U
591-78-6	2-Hexanone	250	U
126-48-1	Dibromochloromethane	97	J
108-90-7	Chlorobenzene	18	JB
100-41-4	Ethylbenzene	250	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-G

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648307

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007196.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 21.84 Date Analyzed: 10/5/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	370	U
1330-20-7	o-Xylene	250	U
100-42-5	Styrene	250	U
75-25-2	Bromoform	250	U
79-34-5	1,1,2,2-Tetrachloroethane	250	U
541-73-1	1,3-Dichlorobenzene	370	U
106-46-7	1,4-Dichlorobenzene	370	U
95-50-1	1,2-Dichlorobenzene	370	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

202A-G

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648307

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007196.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 21.84 Date Analyzed: 10/5/01

GC Column: Rtx502.2 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: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown hydrocarbon	28.11	8400	J
2.	unknown hydrocarbon	28.53	8600	J
3.	unknown hydrocarbon	29.00	24000	J
4.	unknown hydrocarbon	30.06	9300	J
5. 000095-63-6	Benzene, 1,2,4-trimethyl-	31.92	13000	JN
6. 000526-73-8	Benzene, 1,2,3-trimethyl-	33.04	9300	JN
7. 000141-93-5	Benzene, 1,3-diethyl-	33.37	15000	JN
8.	unknown	33.55	15000	J
9. 000493-02-7	Naphthalene, decahydro-, trans-	33.67	17000	JN
10.	unknown	33.77	8000	J
11. 001074-55-1	Benzene, 1-methyl-4-propyl-	33.98	10000	JN
12. 000933-98-2	Benzene, 1-ethyl-2,3-dimethyl-	34.45	15000	JN
13.	unknown	34.69	13000	J
14. 002050-24-0	Benzene, 1,3-diethyl-5-methyl-	34.87	13000	JN
15.	unknown	34.95	12000	J

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-G DL

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648307

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007227.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 21.84 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 10.0

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

CONCENTRATION UNITS:

CAS NO. COMPOUND (ug/L or ug/Kg) UG/KG Q

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	8600	U
107131	Acrylonitrile	8600	U
75650	tert-Butyl alcohol	16000	U
1634044	Methyl-tert-Butyl ether	3700	U
108203	Di-isopropyl ether	2500	U
75718	Dichlorodifluoromethane	4900	U
74-87-3	Chloromethane	1200	U
75-01-4	Vinyl Chloride	3700	U
74-83-9	Bromomethane	2500	U
75-00-3	Chloroethane	3700	U
75-69-4	Trichlorofluoromethane	2500	U
75-35-4	1,1-Dichloroethene	1200	U
67-64-1	Acetone	2500	U
75-15-0	Carbon Disulfide	1200	U
75-09-2	Methylene Chloride	2500	U
156-60-5	trans-1,2-Dichloroethene	2500	U
75-35-3	1,1-Dichloroethane	1200	U
108-05-4	Vinyl Acetate	3700	U
78-93-3	2-Butanone	3700	U
	cis-1,2-Dichloroethene	1200	U
67-66-3	Chloroform	1200	U
75-55-6	1,1,1-Trichloroethane	1200	U
56-23-5	Carbon Tetrachloride	2500	U
71-43-2	Benzene	1200	U
107-06-2	1,2-Dichloroethane	2500	U
79-01-6	Trichloroethene	1200	U
78-87-5	1,2-Dichloropropane	1200	U
75-27-4	Bromodichloromethane	1200	U
110-75-8	2-Chloroethyl vinyl ether	2500	U
10061-01-5	cis-1,3-Dichloropropene	1200	U
108-10-1	4-Methyl-2-Pentanone	2500	U
108-88-3	Toluene	1200	U
10061-02-6	trans-1,3-Dichloropropene	2500	U
79-00-5	1,1,2-Trichloroethane	2500	U
127-18-4	Tetrachloroethene	1200	U
591-78-6	2-Hexanone	2500	U
126-48-1	Dibromochloromethane	2500	U
108-90-7	Chlorobenzene	1200	U
100-41-4	Ethylbenzene	2500	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

202A-G DL

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648307

Sample wt/vol: 10.4 (g/ml) G Lab File ID: VC007227.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 21.84 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 10.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	3700	U
1330-20-7	o-Xylene	740	JD
100-42-5	Styrene	2500	U
75-25-2	Bromoform	2500	U
79-34-5	1,1,2,2-Tetrachloroethane	2500	U
541-73-1	1,3-Dichlorobenzene	3700	U
106-46-7	1,4-Dichlorobenzene	3700	U
95-50-1	1,2-Dichlorobenzene	3700	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648308

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007225.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
107028	Acrolein	700	U
107131	Acrylonitrile	700	U
75650	tert-Butyl alcohol	1300	U
1634044	Methyl-tert-Butyl ether	300	U
108203	Di-isopropyl ether	200	U
75718	Dichlorodifluoromethane	400	U
74-87-3	Chloromethane	100	U
75-01-4	Vinyl Chloride	300	U
74-83-9	Bromomethane	200	U
75-00-3	Chloroethane	300	U
75-69-4	Trichlorofluoromethane	200	U
75-35-4	1,1-Dichloroethene	100	U
67-64-1	Acetone	200	U
75-15-0	Carbon Disulfide	100	U
75-09-2	Methylene Chloride	200	U
156-60-5	trans-1,2-Dichloroethene	200	U
75-35-3	1,1-Dichloroethane	100	U
108-05-4	Vinyl Acetate	300	U
78-93-3	2-Butanone	300	U
	cis-1,2-Dichloroethene	100	U
67-66-3	Chloroform	100	U
75-55-6	1,1,1-Trichloroethane	100	U
56-23-5	Carbon Tetrachloride	200	U
71-43-2	Benzene	100	U
107-06-2	1,2-Dichloroethane	200	U
79-01-6	Trichloroethene	100	U
78-87-5	1,2-Dichloropropane	100	U
75-27-4	Bromodichloromethane	100	U
110-75-8	2-Chloroethyl vinyl ether	200	U
10061-01-5	cis-1,3-Dichloropropene	100	U
108-10-1	4-Methyl-2-Pentanone	200	U
108-88-3	Toluene	100	U
10061-02-6	trans-1,3-Dichloropropene	200	U
79-00-5	1,1,2-Trichloroethane	200	U
127-18-4	Tetrachloroethene	100	U
591-78-6	2-Hexanone	200	U
126-48-1	Dibromochloromethane	200	U
108-90-7	Chlorobenzene	100	U
100-41-4	Ethylbenzene	200	U

1A

FIELD ID.

VOLATILE ORGANICS ANALYSIS DATA SHEET

Trip Blank

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648308

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007225.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/9/01

GC Column: Rtx502.2 ID: 0.25 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
1330-20-7	m+p-Xylenes	300	U
1330-20-7	o-Xylene	200	U
100-42-5	Styrene	200	U
75-25-2	Bromoform	200	U
79-34-5	1,1,2,2-Tetrachloroethane	200	U
541-73-1	1,3-Dichlorobenzene	300	U
106-46-7	1,4-Dichlorobenzene	300	U
95-50-1	1,2-Dichlorobenzene	300	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

Trip Blank

Lab Name: FMETL NJDEP # 13461

Project: 010001 Case No.: 16483 Location: 202A SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: 1648308

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VC007225.D

Level: (low/med) MED Date Received: 10/1/01

% Moisture: not dec. 0 Date Analyzed: 10/9/01

GC Column: Rtx502.2 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

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 # :**	16483
		Location :	Bldg.202A
		UST Reg. # :	90010-21
Analysis :	OQA-QAM-025	**Date Received :**	01-Oct-01
Matrix :	Soil	**Date Extracted :**	02-Oct-01
Inst. ID. :	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	03-Oct-01
Injection Volume :	1uL	**Analyst :**	B.Patel

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
1648301	202A-A	**1.00**	15.93	75.66	188	**ND**
1648302	202A-B	**1.00**	15.85	86.51	165	**ND**
1648303	202A-C	**1.00**	16.73	78.54	172	**239.64**
1648304	202A-D	**1.00**	14.92	80.55	188	**6642.99**
1648305	202A-E	**1.00**	16.51	97.01	141	**ND**
1648306	202A-F	**1.00**	16.16	83.61	168	**ND**
1648307	202A-G	**2.00**	16.13	78.16	180	**7974.87**
METHOD BLANK	MB-011002	**1.00**	15.00	100.00	151	**ND**

ND = Not Detected

MDL = Method Detection Limit

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

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

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

Laboratory Manager or Environmental Consultant's Signature _____

Date 12 / 19 / 01

Laboratory Certification #13461

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

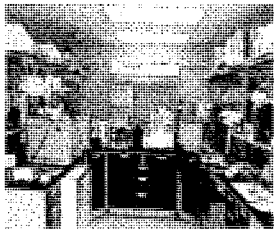
Laboratory Authentication Statement

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

Daniel K. Wright
Laboratory Manager

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, NYSDOH #11699



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

Bldg. 202A

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time Of Collection	Date Received
202A-PX1/West Wall (N) 4-4.5'	1648901	Soil	03-Oct-01 14:10	10/03/01
202A-PX2/West Wall (S) 4-4.5'	1648902	Soil	03-Oct-01 14:30	10/03/01
202A-PX3/Bottom 5.5-6'	1648903	Soil	03-Oct-01 15:00	10/03/01
202A-PX4/Duplicate 4-4.5'	1648904	Soil	03-Oct-01 14:10	10/03/01

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL LAB
TPHC, %SOLIDS

ENCLOSURE:
CHAIN OF CUSTODY
RESULTS

18-12-01
Daniel Wright/Date
Laboratory Director

Table of Contents

Method Summary

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

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask. 15g anhydrous sodium sulfate is added to dry sample. Surrogate standard spiking solution is then added to the flask.
Twenty-five milliliters (25mL) Methylene Chloride is added to the flask and it is secured on a orbital shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is the removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL-autosampler vial.
The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including Pristane and Phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.
The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration.

TPHC Conformance/Non-conformance Summary Report

		Indicate Yes, No, N/A
1.	Method Detection Limits provided.	Yes
2.	Method Blank Contamination – If yes, list the sample and the Corresponding concentrations in each blank.	NO
3.	Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	YES
4.	Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	YES
5.	IR Spectra submitted for standards, blanks and samples.	NA
6.	Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	YES
7.	Analysis holding time met. (If not met, list number of days exceeded for each sample).	YES

Additional comments: _____

Laboratory Manager

10-12-01
Date

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 / NYDOH Certification #11699

Chain of Custody Record

Customer: Dinker Desai
Phone #: X21475
( )DERA (X)OMA UST Assessment

Project No: 01-0001
Location: BLDG. 202A
UST# 900/0-21

Samplers Name / Company : Frank Accorsi/TVS

Analysis Parameters

Lab Sample I.D.	Sample Location	Depth	Date	Time	Sample Type	# Bottles	TPHC	% SOLIDS	* VOA+10	VOA ID #	PID Reading	Remarks / Preservation Method
16489 01	202A-PX1, WEST WALL(N)	4-4.5	10-3-01	1410	SOIL	2	X	X	X	2863	0	4° ICE
02	202A-PX2 WEST WALL(S)	4-4.5		1430		2	X	X	X	2864	0	
03	202A-PX3, BOTTOM	5.5-6		1500		2	X	X	X	2865	2.0	
04	202A-PX4, DUPLICATE	4-4.5		1410		2	X	X	X	2866	0	
05	TRIP BLANK	-		-	AQ.	1			X	2867	-	

* = Samples Kept <4°C

OVM sn#580U-64455.343 was calibrated with zero air & w/ 245 ppm Isobutylene read 245 ppm. 10-1-01 FA (time/date & initial)

Relinquished by (signature):	Date/Time:	Received by (signature):
Frank Accorsi	10-3-01 1525	Jackie Dolmen
Relinquished by (signature):	Date/Time:	Received by (signature):

Comments: * VO+10 on 25% > 1,000 ppm TPH, on highest, min. one

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

Remarks: Dedicated Sampling Tools Used
All sample points have been GPS? (X)YES ( )NO ( )NA

000003

print legibly

USTcoc.xls6/22/01

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

Client :	U.S. Army	**Project # :**	16489
	DPW. SELFM-PW-EV	**Location :**	Bldg.202A
	Bldg. 173	**UST Reg. # :**	90010-21
	Ft. Monmouth, NJ 07703		
Analysis :	OQA-QAM-025	**Date Received :**	03-Oct-01
Matrix :	Soil	**Date Extracted :**	04-Oct-01
Inst. ID. :	GC TPHC INST. #1	**Extraction Method :**	Shake
Column Type :	RTX-5, 0.32mm ID, 30M	**Analysis Complete :**	05-Oct-01
Injection Volume :	1uL	**Analyst :**	B.Patel

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
1648901	202A-PX1	**1.00**	15.37	77.31	191	**ND**
1648902	202A-PX2	**1.00**	15.02	82.99	182	**ND**
1648903	202A-PX3	**1.00**	15.17	81.58	183	**ND**
1648904	202A-PX4	**1.00**	15.10	76.12	197	**ND**
METHOD BLANK	MB-011004	**1.00**	15.00	100.00	151	**ND**

ND = Not Detected

MDL = Method Detection Limit

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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

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

Laboratory Manager or Environmental Consultant's Signature _____

Date 10/12/01

Laboratory Certification #13461

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

Laboratory Authentication Statement

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

Daniel K. Wright
Laboratory Manager

Attachment B
Field Notes

GW + Soil Sampling Nov 1 2017

Personnel: F. Accorsi, B. Dietert, ECDI
Task: GW+Soil Investigations at 12 UHOT sites, 4 parcel sites, & 2 IRP sites
Weather: clear, 40-65°, some clouds
0730: ECDI onsite, H&S meeting
0830: Prep bottleware, load equipt, calibrate PID
0850: Mob to 202A & 202D
0905: Start drilling 202D-TMW-02 (PAR81)
0935: Begin PID every 6" on ~~0-5~~ BD 4' recovery (0-5')
0940: Record soil boring log PAR-81-202D TMW-02
Set Temp Well at 11 ft, screen 3-11 ft.
WL: 1.5 ft bgs
1020: Start drilling 202D-TMW-03 PAR81
1030: Collect VOC+TICS 202D-TMW-02-6.5 PAR81 sample
1030: Collect SVOC+TICS 202D-TMW-02-6.5 PAR81 sample
1035: Record Soil Boring Log TMW-03
1055: Set Temp Well TMW-03 (202D), 10 ft, screen 2-10 ft.
1105: Start drilling 202A-TMW-04
~~1110~~ 1115 BD: Collect sample VOCs+TICS 202D-TMW-03-6.5 PAR81
1115: Collect sample SVOC+TICS 202D-TMW-03-6.5 PAR81
1120: Record Soil Boring Log 202A-~~TMW~~TMW-04
1130: Set Temp Well 202A-TMW-04 at 10 ft, screen 2-10 ft.
~~1140~~ 1145 BD: Collect sample VOCs+TICS, 202A-TMW-04-6.5 PAR81
1145: Collect sample SVOCs+TICS, 202A-TMW-04-6.5 PAR81

Nov 1 2017 (cont.)

1145: Start drilling PAR-81-202D-SCREEN 1
1200: PID screening on 202D-SCREEN 1, record soil boring log. - no sample
1215: Begin drilling 202D-TMW-05 (replacing 202D-MW02 on SOW)
1222: Record PID every 6", record soil bore log.
~~1355~~ 1400 BD: Collect sample VOCs+TICS, 202D-TMW-05-6.5 PAR81
1400: Collect sample SVOC+TICS, 202D-TMW-05-6.5 PAR81
1410: 202 MW01: 4.54 ft. BTOC
M16-MW-01: 1.70 ft BTOC
M16-MW-02: 3.88 ft BTOC
1450: Mob back to office - Begin COCs, clean-up, Quality Control Report, Unpack cooler - refrigerate

11/1/17
BD

Attachment C
Soil Boring Logs

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM (Parcel) 81
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: 2.5'
DATE:
TIME:
MEAS. FROM:

INSPECTOR: F. ACCORSI
DRILLER: J. BARNEK
WEATHER: PT. CLDY, 50's
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 11-1-17 1100
DATE/TIME FINISH: 11-1-17 1148
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-81-202A-TMW-04
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			60/53	0	0-4" TOPSOIL 4"-30" moist, Brown cmf SAND, Little Silt, coal fragments	FILL	
				0			
1				0			
				0			
2				0			
				0	30"-44" wet Brn-GraBrn cmf SAND and mf Gravel	SW	
3				0			
				0	44"-53" wet yelbrn-brn cmf SAND and Silt	SW	
4				0			
				~~0~~ FA			
5		~~60~~	60/60	0	(SAME as above)		
				0			
6				0			
	PAR-81-TMW-04	202A-6.5		0			
7				0			
				0			
8				0			
				0			
9				0			
				0			
10				~~0~~	END OF BORING @ 10 FT.		

Remarks:
TMW (10FT. SCREEN) SET FROM 0-10FT

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: ~2.5
DATE: 4/12/16
TIME:
MEAS. FROM: GLS

INSPECTOR: GW
DRILLER: JOE BARNAK
WEATHER: 50°F RAIN
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 4/12/16 1420
DATE/TIME FINISH: 4/12/16 1430
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAP-79-202-SB-03
LOCATION DESCRIPTION: Parcel 79
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			6/49	0	0-16" Brown, mf SAND, little silt, trace f gravel		
1					16"-49" Saturated, mf, M. Dense SAND, some silt, trace clay, trace f gravel		
1430 2	2-2.5						
1435 3	3-3.5						
4							
5			60/60	0	0-3" SAA 3"-60" Saturated, light gray/orange/Brown, mottled mf SAND, little silt		
6							
7							
8							
9							
1440	9.5-10						
0							

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: 8-16	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