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

28 March 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: UST 750J Site Investigation Report
Request for Unrestricted Use, No Further Action Approval
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 Underground Storage Tank (UST) 750J (**Figure 1**), located in Parcel 51.

UST 750J Background

UST 750J (without a Registration ID) was a steel 1,000-gallon heating oil UST that was removed in August 2009 (Attachment M in Reference 4 of **Attachment A**). Petroleum contaminated soil and holes in the top of the tank were observed. The contamination was noted to have possibly resulted from historic overfill of the tank. Stained soil was noted along with a sheen on groundwater at 6.5 feet (ft) below ground surface (bgs). In September 2009, approximately 24 cubic yards of soil was removed. Discharge Investigation and Corrective Action Report (DICAR) No. 0908200915-22 was reported to NJDEP in 2009. Five soil samples were collected from the side walls and bottom of the excavation and were analyzed for total petroleum hydrocarbons (TPH). TPH was not detected in any of the soil samples (Figure 4 in Reference 4 of **Attachment A**). NJDEP indicated that a groundwater investigation was warranted at UST 750J (Reference 3 of **Attachment A**).

Recent Investigation Results

To address the data need described above, one temporary well (PAR-51-750J-TMW-01) was installed on 16 November 2017 at the former UST 750J tank location (**Figure 2**). The well was installed with a Geoprobe boring and was completed with a 10 foot well screen from approximately 5 ft bgs to approximately 15 ft bgs. The groundwater sample was collected within 4 hours of the installation of the temporary well from a depth of 11.5 ft bgs. Field notes and the well log are provided in **Attachment B** and **Attachment C**. The sample was analyzed for Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) in accordance with the requirements for No. 2 fuel oil.

The polynuclear aromatic hydrocarbons (PAHs) benzo(a)anthracene, benzo(a)pyrene, benzo(f)fluoranthene, benzo(g,h,i)perylene, benzo(k)flouranthene, chrysene, and indeno(1,2,3-cd)pyrene were detected at concentrations that exceeded the NJDEP ground water quality criteria (GWQC) (**Table 2**). PAHs have also been encountered in groundwater at other FTMM temporary well locations within surficial soils and fill that were unrelated to fuel oil USTs (Department of the Army 2017). Fill including incinerator ash and slag was encountered in multiple soil borings sampled in 2007 within the Building 750 area, including the area of UST 750J (BRAC 2008). Three representative 2007 boring logs located closest to UST 750J are included in **Attachment C**. The PAH exceedances at PAR-51-750J-TMW-01 are most likely the result of entrainment of soil in the groundwater sample resulting from sample turbidity, which is common with temporary well grab groundwater samples. We have observed in similar investigations at other sites at FTMM such as UST 142B and UST 202D that temporary grab water samples have elevated PAH concentrations compared to permanently installed and developed monitoring wells (by an order of magnitude).

Bis(2-ethylhexyl) phthalate was also detected at a concentration that exceeded the GWQC. Phthalates are common field and laboratory contaminants and therefore this exceedance is not indicative of site contamination. Total SVOC TICs were detected at a concentration (636.8 µg/L) that only slightly exceeded the GWQC of 500 µg/L.

Summary

Given that TPH was not detected in any of the post excavation soil samples, and heating oil constituents (such as naphthalene and 2-methylnaphthalene) did not exceed the GWQC in the temporary well sample, an Unrestricted Use, NFA approval is requested for UST 750J. Thank you for reviewing this request; we look forward to your approval and/or comments. Our technical Point of Contact is Kent Friesen at (732) 383-7201; kent.friesen@parsons.com. I can be reached at (732) 380-7064; william.r.colvin18.civ@mail.mil.

Sincerely,

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

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

Reference:

Department of the Army. 2017. *Request for No Further Action at Multiple Parcel 79 Storage Tanks Site Investigation Report Addendum*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. February 8.

U.S. Army Base Realignment and Closure (BRAC). 2008. *U.S. Army BRAC Site Investigation Report, Fort Monmouth*. Final. 21 July.

Figures:

Figure 1 UST 750J Site Location
Figure 2 UST 750 J Site Layout, Sampling Locations, and Results

Tables:

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

Attachments:

A. UST 750J 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. 2017. Letter to the Army, *No Further Action Request Site Investigation Report for the Building 750 Motor Pool Area Including Underground Storage Tanks.* Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. April 4.
   4. Department of the Army. 2016. *No Further Action Request Site Investigation Report for the Building 750 Motor Pool Area Including Underground Storage Tanks.* Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. October 28.

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:

- "UST 750J Site Investigation Report, Request for Unrestricted Use, No Further Action Approval, Fort Monmouth, Monmouth County, Oceanport, New Jersey" (28 March 2018)

PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

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

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

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

Signature: William R. Colvin Date: 28 March 2018

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

Completed form should be sent to:

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

FIGURES

Figure 1 –UST 750J Location

Figure 2 – UST 750J Site Layout, Sampling Locations, and Results

Little Silver Borough

Shrewsbury Borough

Tinton Falls Borough

Eatontown Borough

Oceanport Borough

West Long Branch Borough

Parkers Creek

North Branch Parkers Creek

Lafetra Creek

Mill Creek

Husky Brook (Culvert)

Oceanport Creek

Wampum Lake

Wampum Brook

Husky Brook

Turtle Mill Brook

UST750J

LEGEND:

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

N

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

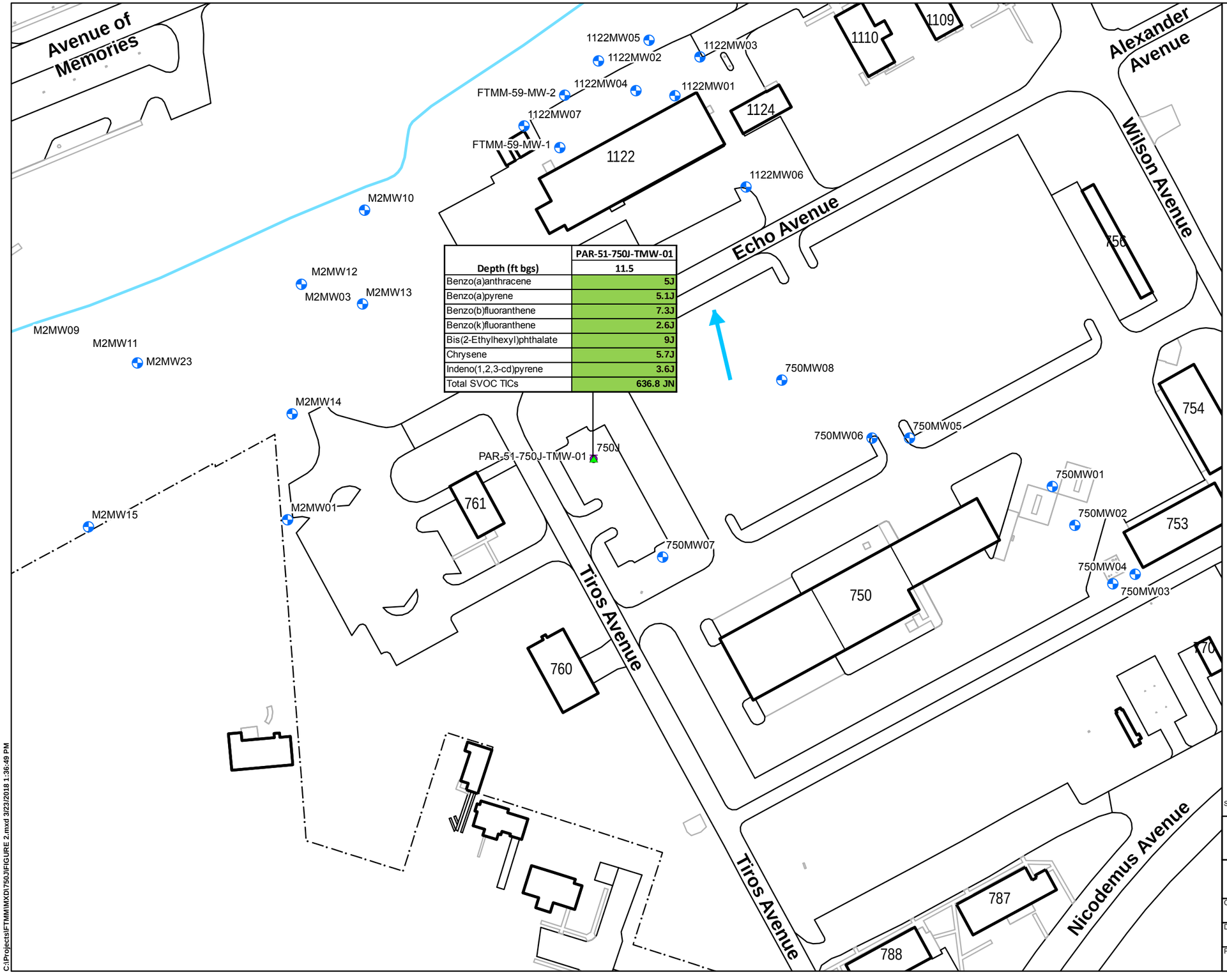
Source: FTMM Supplied CAD, 2013; ESRI Data and Maps, 2011; USGS NHD, 2012.

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

UST750J SITE LOCATION

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

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\2018 Reports\UST 750J\FIGURE 1.mxd 2/20/2018 10:53:41 AM



Depth (ft bgs)	PAR-51-750J-TMW-01 11.5
Benzo(a)anthracene	5J
Benzo(a)pyrene	5.1J
Benzo(b)fluoranthene	7.3J
Benzo(k)fluoranthene	2.6J
Bis(2-Ethylhexyl)phthalate	9J
Chrysene	5.7J
Indeno(1,2,3-cd)pyrene	3.6J
Total SVOC TICs	636.8 JN

LEGEND:

- Groundwater Sample (Temporary Well)
- Shallow Monitoring Well
- Former UST Location
- Installation Boundary
- Estimated Groundwater Flow Direction

Notes:
Results shown in micrograms/liter (µg/l)
J= estimated

Analyte	NJDEP GWQC
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Benzo(b)fluoranthene	0.2
Benzo(k)fluoranthene	0.5
Bis(2-Ethylhexyl)phthalate	3
Chrysene	5
Indeno(1,2,3-cd)pyrene	0.2
Total SVOC TICs	500

N

1 inch = 100 feet

0 50 100 200 Feet

Source: FTMM Supplied CAD, 2013.

PARSONS
401 Diamond Drive NW, Huntsville AL

Fort Monmouth
New Jersey

**UST 750J SITE LAYOUT
SAMPLE LOCATION AND RESULTS**

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

C:\Projects\FTMM\MXD\750J\FIGURE 2.mxd 3/23/2018 1:36:49 PM

TABLES

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

TABLE 1
GROUND WATER SAMPLING RESULTS - COMPARISON TO USEPA/NJ (Insert Action Level Name)
SITE PARCEL 51 750J UST
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	PAR-51-750J-TMW-01
Sample ID		PAR-51-750J-TMW-01-11.5
Sample Date		11/16/2017
Sample Round		
Filtered		Total
Volatile Organic Compounds (µg/l)		
1,1,1,2-Tetrachloroethane	1	< 0.75
1,1,1-Trichloroethane	30	< 0.75
1,1,2,2-Tetrachloroethane	1	< 0.75
1,1,2-Trichloroethane	3	< 0.75
1,1-Dichloroethane	50	< 0.75
1,1-Dichloroethene	1	< 0.75
1,1-Dichloropropene	100	< 0.75
1,2,3-Trichlorobenzene	100	< 0.75
1,2,3-Trichloropropane	0.03	< 2.5
1,2,4-Trichlorobenzene	9	< 0.75
1,2,4-Trimethylbenzene	100	< 0.75
1,2-Dibromo-3-chloropropane	0.02	< 2.5
1,2-Dibromoethane	0.03	< 0.75
1,2-Dichlorobenzene	600	< 0.75
1,2-Dichloroethane	2	< 0.75
1,2-Dichloropropane	1	< 0.75
1,3,5-Trimethylbenzene	100	< 0.75
1,3-Dichlorobenzene	600	< 0.75
1,3-Dichloropropane	100	< 0.75
1,4-Dichlorobenzene	75	< 0.75
2,2-Dichloropropane	100	< 0.75
2-Chlorotoluene	100	< 0.75
Acetone	6,000	**8.5**
Benzene	1	< 0.75
Bromobenzene	100	< 0.75
Bromochloromethane	100	< 0.75
Bromodichloromethane	1	< 0.75
Bromoform	4	< 0.75
Carbon tetrachloride	1	< 0.75
Chlorobenzene	50	< 0.75
Chlorodibromomethane	1	< 0.75
Chloroethane	5	< 0.75
Chloroform	70	< 0.75
Cis-1,2-Dichloroethene	70	< 0.75
Cis-1,3-Dichloropropene	1	< 0.75
Cymene	100	< 0.75
Dichlorodifluoromethane	1,000	< 0.75
Ethyl benzene	700	< 0.75
Hexachlorobutadiene	1	< 3.8
Isopropylbenzene	700	< 0.75
Meta/Para Xylene	1,000	< 1.5
Methyl bromide	10	**0.55 J**
Methyl butyl ketone	300	< 3.8
Methyl chloride	100	< 0.75
Methyl ethyl ketone	300	< 3.8
Methyl isobutyl ketone	100	< 3.8
Methyl Tertbutyl Ether	70	< 0.75
Methylene chloride	3	< 0.75
Naphthalene	300	< 0.75
n-Butylbenzene	100	< 0.75
Ortho Xylene	1,000	< 0.75
p-Chlorotoluene	100	< 0.75
Propylbenzene	100	< 0.75
sec-Butylbenzene	100	< 0.75
Styrene	100	< 0.75
Tert Butyl Alcohol	100	< 12.5
tert-Butylbenzene	100	< 0.75
Tetrachloroethene	1	< 0.75
Toluene	600	< 0.75
Total Xylenes	1,000	< 2.3
Trans-1,2-Dichloroethene	100	< 0.75
Trans-1,3-Dichloropropene	1	< 0.75
Trichloroethene	1	< 0.75
Trichlorofluoromethane	2,000	< 0.75
Vinyl chloride	1	< 0.75

TABLE 1
GROUND WATER SAMPLING RESULTS - COMPARISON TO USEPA/NJ (Insert Action Level Name)
SITE PARCEL 51 750J UST
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	PAR-51-750J-TMW-01
Sample ID		PAR-51-750J-TMW-01-11.5
Sample Date		11/16/2017
Sample Round		
Filtered		Total
Semivolatile Organic Compounds (µg/l)		
1,2,4-Trichlorobenzene	9	< 4.7
1,2-Dichlorobenzene	600	< 4.7
1,2-Diphenylhydrazine	20	< 4.7
1,3-Dichlorobenzene	600	< 4.7
1,4-Dichlorobenzene	75	< 4.7
2,4,5-Trichlorophenol	700	< 14.2
2,4,6-Trichlorophenol	20	< 4.7
2,4-Dichlorophenol	20	< 4.7
2,4-Dimethylphenol	100	< 23.7
2,4-Dinitrophenol	40	< 37.9
2,4-Dinitrotoluene	10	< 4.7
2,6-Dinitrotoluene	10	< 4.7
2-Chloronaphthalene	600	< 4.7
2-Chlorophenol	40	< 9.5
2-Methylnaphthalene	30	**1.7 J**
2-Methylphenol	100	< 4.7
2-Nitroaniline	100	< 4.7
2-Nitrophenol	100	< 9.5
3,3'-Dichlorobenzidine	30	< 14.2
3-Nitroaniline	100	< 9.5
4,6-Dinitro-2-methylphenol	1	< 23.7
4-Bromophenyl phenyl ether	100	< 4.7
4-Chloro-3-methylphenol	100	< 4.7
4-Chloroaniline	30	< 4.7
4-Chlorophenyl phenyl ether	100	< 4.7
4-Nitroaniline	5	< 4.7
4-Nitrophenol	100	< 23.7 UJ
Acenaphthene	400	**1.1 J**
Acenaphthylene	100	< 4.7
Anthracene	2,000	**1.9 J**
Benzidine	20	< 142 UJ
Benzo(a)anthracene	0.1	**5 J**
Benzo(a)pyrene	0.1	**5.1 J**
Benzo(b)fluoranthene	0.2	**7.3 J**
Benzo(ghi)perylene	100	< 4.7
Benzo(k)fluoranthene	0.5	**2.6 J**
Benzyl alcohol	2,000	< 9.5
Bis(2-Chloroethoxy)methane	100	< 4.7
Bis(2-Chloroethyl)ether	7	< 4.7
Bis(2-Chloroisopropyl)ether	300	< 4.7
Bis(2-Ethylhexyl)phthalate	3	**9 J**
Butyl benzyl phthalate	100	**1.3 J**
Carbazole	100	**1 J**
Chrysene	5	**5.7 J**
Cresol	NLE	< 4.7
Dibenz(a,h)anthracene	0.3	< 4.7
Dibenzofuran	100	**0.88 J**
Diethyl phthalate	6,000	< 4.7
Dimethyl phthalate	100	< 4.7
Di-n-butylphthalate	700	< 4.7
Di-n-octylphthalate	100	< 4.7
Fluoranthene	300	**12**
Fluorene	300	**2.3 J**
Hexachlorobenzene	0.02	< 4.7
Hexachlorobutadiene	1	< 4.7
Hexachlorocyclopentadiene	40	< 9.5
Hexachloroethane	7	< 4.7
Indeno(1,2,3-cd)pyrene	0.2	**3.6 J**
Isophorone	40	< 4.7
Naphthalene	300	< 4.7
Nitrobenzene	6	< 9.5
N-Nitrosodimethylamine	0.8	< 9.5
N-Nitroso-di-n-propylamine	10	< 4.7
N-Nitrosodiphenylamine	10	< 9.5
Pentachlorophenol	0.3	< 37.9
Phenanthrene	100	**8.5 J**
Phenol	2,000	< 4.7 UJ
Pyrene	200	**8.9 J**
TIC SVOCs (µg/l)		
Total TICs	500	**636.8 JN**

Footnote:

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

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

3) NLE = no limit established.

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

5) Bold chemical dectection

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

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

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

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

R = Rejected, data validation rejected the results.

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

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

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

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

E (or ER) = Estimated result.

D = Results from dilution of sample.

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

JN = Tentatively identified compound, estimated concentration.

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

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

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

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

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

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

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

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

10) Criteria action level source document and web address.

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

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

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. 2017. Letter to the Army, *No Further Action Request Site Investigation Report for the Building 750 Motor Pool Area Including Underground Storage Tanks.* Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. April 4.
4. Department of the Army. 2016. *No Further Action Request Site Investigation Report for the Building 750 Motor Pool Area Including Underground Storage Tanks.* Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. October 28.

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:

1. Department of the Army. 2015. *Underground Storage Tanks Within Parcel 68, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. April 14.
2. Department of the Army. 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. April 22.
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.
4. Department of the Army. 2016. *Parcel 68 Work Plan Addendum for a Former UST Site, Fort Monmouth, Oceanport, Monmouth County, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. March 2.
5. Department of the Army. 2016. *No Further Action Request, Site Investigation Report Addendum for the Howard Commons Underground Storage Tanks, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. April 26.
6. Department of the Army. 2016. *No Further Action Request, Site Investigation Report Addendum for the Building 750 Motor Pool Area Including Underground Storage Tanks, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. October 28.
7. Department of the Army. 2016. *Clarification of Underground Storage Tanks at Howard Commons, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. December 6.
8. Department of the Army. 2016. *No Further Action Request, Site Investigation Report Addendum, ECP Parcel 72 Underground Storage Tanks, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. December 13.
9. Department of the Army. 2017. *Request for No Further Action at Multiple 800 Area Underground Storage Tanks, Site Investigation Report Addendum, Fort Monmouth, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. January 23.
10. Department of the Army. 2017. *Request for No Further Action at Multiple Parcel 79 Storage Tank Site Investigation Report Addendum, Fort Monmouth, Oceanport, New Jersey*. Prepared by the Office of Assistant Chief of Staff for Installation Management, U.S. Army Fort Monmouth. February 8.

11. New Jersey Department of Environmental Protection (NJDEP). 2007. Letter to the Army, RE: *Underground Storage Tank Closure & Remedial Investigation Reports, 800 Area UST No. 9, 800 Area UST No. 12, Fort Monmouth, NJ.* December 31.

12. New Jersey Department of Environmental Protection (NJDEP). 2010. *Protocol for Addressing Extractable Petroleum Hydrocarbons.* Site Remediation Program. Version 5.0. August 9.

13. 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.

14. New Jersey Department of Environmental Protection (NJDEP). 2015. Letter to the Army, RE: *Underground Storage Tanks Within ECP Parcel 68, 74, and 77 dated April 2015, Fort Monmouth, Oceanport, Monmouth County.* September 24.

15. New Jersey Department of Environmental Protection (NJDEP). 2015. Letter to the Army, RE: *Site Investigation Report Addendum for the 800 Area Including ECP Parcels 55 & 56, Fort Monmouth, Oceanport, Monmouth County.* November 10.

16. New Jersey Department of Environmental Protection (NJDEP). 2016. Letter to the Army, RE: *Parcel 68 Work Plan Addendum and Response to NJDEP's September 24, 2015 Comments on the April 2015 Underground Storage Tanks Within ECP Parcels 68, 74 and 77, Fort Monmouth, New Jersey & Parcel 68 Work Plan Addendum for a Former UST Site (March 2016).* March 29.

17. New Jersey Department of Environmental Protection (NJDEP). 2016. Letter to the Army, RE: *No Further Action Request Site Investigation Report Addendum for the Howard Commons Underground Storage Tanks dated April 2016, Fort Monmouth, Oceanport, Monmouth County.* November 28.

18. New Jersey Department of Environmental Protection (NJDEP). 2016. Letter to the Army, RE: *Clarification of Underground Storage Tanks at Howard Commons dated December 6, 2016, Fort Monmouth, Oceanport, Monmouth County.* December 20.

19. New Jersey Department of Environmental Protection (NJDEP). 2017. Letter to the Army, RE: *No Further Action Request Site Investigation Report Addendum ECP Parcel 72 Underground Storage Tanks dated December 13, 2016, Fort Monmouth, Oceanport, Monmouth County.* February 7.

20. New Jersey Department of Environmental Protection (NJDEP). 2017. Letter to the Army, RE: *Request for No Further Action at Multiple 800 Area Underground Storage Tanks, Site Investigation Report Addendum, Fort Monmouth, Oceanport, Monmouth County.* March 16.

21. New Jersey Department of Environmental Protection (NJDEP). 2017. Letter to the Army, RE: *No Further Action Request Site Investigation Report Addendum for the Building 750 Motor Pool Area Including Underground Storage Tanks, Fort Monmouth, Oceanport, Monmouth County.* April 4.

22. 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, Fort Monmouth, Oceanport, Monmouth County.* May 8.

23. Parsons. 2013. *Final Sampling and Analysis Plan, Remedial Investigation/Feasibility Study/Decision Documents, Fort Monmouth, Oceanport, Monmouth County, New Jersey.* Prepared for the U.S. Army Engineering and Support Center, Huntsville, AL. Revision 0. March.

24. Parsons. 2015. *Final Environmental Condition of Property Supplemental Phase II Site Investigation Work Plan for Parcels 28, 38, 39, 49, 57, 61 and 69.* Prepared for the U.S. Army Engineering and Support Center, Huntsville, AL. Revision 1. August.

25. Parsons. 2016. *Final Accident Prevention Plan, Remedial Investigation/Feasibility Study/Decision Documents, Fort Monmouth, Oceanport, Monmouth County, New Jersey.* Prepared for the U.S. Army Engineering and Support Center, Huntsville, AL. Revision 1. November.

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
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BOB MARTIN
Commissioner

April 4, 2017

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

Re: *No Further Action Request Site Investigation Report Addendum for the Building 750 Motor Pool Area Including Underground Storage Tanks*
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 November 1, 2016 (with Errata Sheet for Attachment D received January 6, 2017), prepared by the Department of the Army's Office of Assistant Chief of Staff for Installation Management relative to the Building 750 Motor Pool Area and associated underground storage tank (UST) sites within Parcel 51 and in response to the NJDEP letter correspondence of July 10, 2012 and June 16, 2015 regarding same. Comments are as follows:

Three Hydraulic Lifts – The three hydraulic lifts located within Building 753 are electrically operated floor jacks with hydraulic oil reservoirs located above grade. No staining is noted. It is agreed no action is necessary.

Floor Drains – The floor drains located with Buildings 753 and 754 are associated only with the rest room and safety shower, and discharge to the sanitary sewer. It is agreed no investigation is necessary.

Wash Rack System/Area – Based upon information contained in the referenced submittal, it is agreed no investigation is necessary.

Service Pits/Trenches in Service Bay Area – The trenches were previously utilized for collected of draining vehicle waste oil, which was transferred via waste oil lines from the service bay trenches to the waste oil UST 750C (see comments below specific to the waste oil UST). The trenches were backfilled to grade and the area currently utilized for parking. There is no evidence sampling of either the trench area or the piping runs between the trenches to within

approximately 20' of the waste oil UST was performed. Therefore, this area remains uncharacterized, and cannot receive a designation of no further action required.

P51_15 - Nine potential USTs/anomalies were identified during performance of the Site Investigation several years ago. Each was subsequently investigated (see below), with all USTs encountered undergoing removal. One anomaly, however, at which no UST was noted, was not characterized via sampling. This anomaly, P51_15, can therefore not be granted a designation of no further action.

USTs and GPR Anomalies Requiring No Additional Action

Following review of the information provided in the referenced submittal, it is agreed no further action is necessary for the following USTs:

UST 750A – 81533-191 – Incident #92-05-07-1600-23 – 15,000 gallon diesel
UST 750B – 81533-192 – 8,000 gallon gasoline
UST 750C – 81533-198 – 1000 gallon waste oil UST (UST and approximately 20' of piping)
UST 750D – Anomaly P51_47 - #09-06-11-1309-09
UST 750E – Anomaly P51_42 - #09-06-22-1402-58
UST 750F – Anomaly P51_20
UST 750G – Anomaly P51_38 - #09-07-16-1341-23
UST 750H – Anomaly P51_31 - #09-07-28-1554-16
UST 750I – Anomaly P51_5
Anomaly P51_1

USTs Requiring Additional Remedial Efforts

UST 750J – Anomaly P51_27 - #09-08-20-0915-22 – Soil was removed to within 2' of the ground water table, and a sheen was noted. As indicated in the original Army notes, a ground water investigation is warranted. Please submit a workplan for performance of same.

Please contact this office if you have any questions.

Sincerely,

Linda S. Range

C: James Moore, USACE
Joseph Pearson, Calibre
Joseph Fallon, FMERA
Rick Harrison, FMERA

DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
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P.O. 148
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October 28, 2016

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

Subject: **No Further Action Request**
Site Investigation Report Addendum for the Building 750 Motor Pool Area Including Underground Storage Tanks, Fort Monmouth, NJ

Attachments:

A. Correspondence
B. Drawings of Building 750 Motor Pool Area
C. ECP and SI Report Excerpts and Supporting Documents
D. Summary Table of Parcel 51/Building 750 Motor Pool Area Underground Storage Tanks
E. UST 750A and UST 750B File Review and Analyses
F. UST 750C Report
G. UST 750D File Review and Analyses
H. UST 750E File Review and Analyses
I. UST 750F File Review and Analyses
J. UST 750G File Review and Analyses
K. UST 750H File Review and Analyses
L. UST 750I File Review and Analyses
M. UST 750J File Review and Analyses
N. Anomaly P51_1 File Review and Analyses
O. Building 750 Area Groundwater Monitoring Supporting Documents

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. NJDEP letter to the Army dated June 16, 2015, re: *Final Environmental Condition of Property Supplemental Phase II Site Investigation Work Plan Addendum for Parcels 34, 50, 51, 52, 66, 80 and 83 dated February 2015, Fort Monmouth, Oceanport, Monmouth County*.

Dear Ms. Range:

The U.S. Army Fort Monmouth (FTMM) has reviewed existing file information for the Building 750 Motor Pool Area and associated underground storage tank (UST) sites, which are located within a portion of Environmental Condition of Property (ECP) Parcel 51. The purpose of this submittal is to provide documentation and request a No Further Action (NFA) determination for all USTs and other areas of potential environmental concern identified at the Building 750 Motor Pool Area. This submittal provides the information for the Building 750 Motor Pool Area USTs as requested by NJDEP in Correspondence 1 (**Attachment A**). Other Motor Pool Area features identified by NJDEP in their comments on Parcel 51 within Correspondence 2 (**Attachment A**) are also addressed within this submittal.

The portion of Parcel 51 designated as the Building 750 Motor Pool Area is located near the south-central edge of the Main Post, and is generally bounded by Echo Avenue to the north, the installation boundary to the west, Vanguard Road to the south, and Wilson Avenue to the east. The layout of this area is presented in Figure 1 of **Attachment B**. The Building 750 Motor Pool Area is currently occupied by the Monmouth County Department of Public Works and Engineering.

1.0 BUILDING 750 MOTOR POOL FEATURES

An evaluation of the environmental condition of the Building 750 Motor Pool Area was initially provided in the 2007 *Environmental Condition of Property Report, Fort Monmouth, Monmouth County, New Jersey* (the ECP Report). Using the results of the ECP Report, recommendations for additional investigations were developed, including geophysical surveys, and sampling and analysis of soil and groundwater. The results of these investigations for Parcel 51 (including the Building 750 Motor Pool Area) were reported in the 2008 *U.S. Army BRAC Site Investigation Report, Fort Monmouth* (the SI Report). Excerpts of both of these documents pertaining to the Building 750 Motor Pool Area are provided in **Attachment C**, along with several 1990's engineering drawings that better describe the features identified in the ECP and SI Reports.

Correspondence 2 (**Attachment A**) included specific concerns identified by NJDEP for the Building 750 Motor Pool Area. The locations of these features are presented in Figure 1 of **Attachment B**. These features are described below in the same order as the Correspondence 2 comments (**Attachment A**).

- A former diesel and gasoline dispensing system associated with UST 750A (also known as UST 191) and UST 750B (a.k.a UST 192) has been evaluated and is described in Section 2.0 and **Attachment E** of this submittal. The 1990 engineering drawing provided in **Attachment C** shows the layout of these two USTs, piping and dispensers. This fuel dispensing system is no longer in use and the USTs, piping and dispensers have been removed.
- Features described as "two outdoor service pits for draining vehicle oil, the pipes from which discharged to a former oil water separator (OWS)…" in Correspondence 2 (**Attachment A**) refers to two concrete-lined trenches used in the former service bay area located adjacent to the Covered Wash Rack (Figure 1 of **Attachment B)**. Drawings presented in **Attachment C** indicate that waste oil lines from the service bays drained to the UST 750C waste oil tank (see Section 2.0 and **Attachment F** of this submittal), and wastewater lines from the service bays drained to the OWS (referred to as the "former OWS" in the ECP Report). Therefore, contrary to Correspondence 2 and the ECP Report, waste oil was not discharged to the OWS but rather to the UST 750C waste oil tank. The area with the former service bays is currently

used for covered parking by Monmouth County, and the service bay trenches have been backfilled to grade with compacted sand and gravel.

- The features described as the "current wash rack previously connected to former OWS, then to new OWS" in Correspondence 2 (**Attachment A**) is the covered wash rack (Figure 1 of **Attachment B)**. A trench drain was present within the vehicle wash rack that originally drained to an OWS (referred to as the "former OWS" in Correspondence 2 and the ECP Report) prior to discharge to the sanitary sewer. As shown in the Recycle Wash System drawing provided in **Attachment C**, an updated OWS and wastewater treatment/recycling system was installed prior to 2006 that included drainage of wash rack wastewater to a new sump pit prior to treatment. This newer collection and treatment system was referred to as the "new OWS system" in Correspondence 2 and the ECP Report. The **Attachment C** drawing indicates that the pre-existing OWS (e.g., the "former OWS") was utilized as the initial plumbing connection for the newer wastewater collection system. Under the newer configuration, wastewater drained through the previous OWS prior to collection in the new sump pit.[1] Therefore the "new OWS system" described in the ECP Report and Correspondence 2 generally refers to the new sump pit and the downstream wastewater treatment system. The "former OWS," which was originally installed when Building 750 was constructed in 1987, remains in place and was integrated into the updated wastewater collection and treatment system. Currently the wash rack trench drain is not actively used by Monmouth County, although rain water periodically accumulates in this trench, and is typically removed by pumping water from the sump pit into a vacuum truck prior to offsite disposal. The wastewater treatment equipment in Building 750 is still present, but Monmouth County is not using this equipment.
- The three hydraulic lifts within Building 753 described in Correspondence 2 and the ECP Report were electrically-operated floor jacks with hydraulic oil reservoirs located above ground level. Therefore subsurface releases from the Building 753 hydraulic lifts are not of concern. Currently Building 753 is used for general storage by Monmouth County. The hydraulic lifts have been de-energized and are no longer in use, and there is no evidence of oil staining from the lifts.
- Floor drains located within both Buildings 753 and 754 consist of rest room floor drains and safety shower drains that were connected to the sanitary sewer, as previously indicated in the ECP Report, and as verified on a 1995 Plumbing Plan (**Attachment C**). Therefore subsurface releases from the Building 753 and 754 floor drains are not of concern. Building 754 is currently used for general storage by Monmouth County.

A secondary containment pad for parking a diesel fuel tanker truck is an additional feature that was also identified in the ECP Report. Fuel dispensing was discontinued from USTs 750A and 750B prior to 2005, and then a secondary containment pad was constructed for parking a tanker truck when not in use; this truck was used for replenishing diesel fuel to various emergency generators around the Main Post. The secondary containment area shows up on recent drawings and aerial photographs including Figure 3.12-2 of the SI Report (**Attachment C**), and was located in close proximity to the former fuel dispensers. There were no indications or reports of a release from the secondary

[1] The use and current existence of both the previous OWS and the newer sump pit was confirmed by Mr. Kevin Courtney, who supervised the Building 750 Motor Pool Area prior to FTMM closure in 2011, and is currently employed with the State maintenance contractor at Fort Monmouth.

containment area; therefore, an environmental assessment of this area is not warranted. Currently the secondary containment pad is used by Monmouth County for parking heavy equipment.

Additional information has been provided herein to support the assessment of various Building 750 Motor Pool features previously identified in the ECP Report and subsequently discussed by NJDEP (Correspondence 2). Analytical soil and groundwater data provided in the SI Report did not identify contaminant releases attributed to these features, and there were no historical reports or records of contaminant releases from the Building 750 Motor Pool features. Therefore, the Army requests NJDEP concurrence that further action is not warranted for the Building 750 Motor Pool features.

2.0 BUILDING 750 MOTOR POOL AREA UNDERGROUND STORAGE TANKS

The locations of the USTs within the Building 750 Motor Pool Area are presented in Figure 1 of **Attachment B**, and a summary table of these USTs is provided in **Attachment D**. All 10 of the USTs identified within the Building 750 Motor Pool Area have been removed. USTs 750A and 750B contained diesel and gasoline for the fuel dispensing system, and UST 750C was used for waste oil collection from motor vehicle servicing and wash rack areas, as described in Section 1.0 above. USTs 750D, 750E, 750F, 750G, 750H, 750I, and 750J were each less than 2,000 gallons in size and used to store heating oil for nonresidential buildings, and were therefore considered unregulated heating oil tanks (UHOTs). None of the Building 750 Motor Pool Area USTs or UHOTs have been previously approved for NFA by NJDEP.

We are submitting the following documentation for the USTs and UHOTs that were previously removed from the Building 750 Motor Pool Area, and we request NFA determinations for each site as explained below:

- UST 750A, UST 750B, and fuel dispensers file review summary and analyses are presented in **Attachment E**, and Figure 2 of **Attachment B** shows soil sample locations and a summary of analytical results.
- UST 750C investigation report is presented in **Attachment F**.
- UST 750D file review summary and analyses are presented in **Attachment G**, and soil sample locations and analyses are presented on Figure 3 of **Attachment B**.
- UST 750E file review summary and analyses are presented in **Attachment H**, and soil sample locations and analyses are presented on Figure 3 of **Attachment B**.
- UST 750F file review summary and analyses are presented in **Attachment I**, and soil sample locations and analyses are presented on Figure 4 of **Attachment B**.
- UST 750G file review summary and analyses are presented in **Attachment J**, and soil sample locations and analyses are presented on Figure 3 of **Attachment B**.
- UST 750H file review summary and analyses are presented in **Attachment K**, and soil sample locations and analyses are presented on Figure 4 of **Attachment B**.
- UST 750I file review summary and analyses are presented in **Attachment L**, and soil sample locations and analyses are presented on Figure 4 of **Attachment B**.
- UST 750J file review summary and analyses are presented in **Attachment M**, and soil sample locations and analyses are presented on Figure 4 of **Attachment B**.

A file review summary and analyses for geophysical anomaly P51_1, where test trenching was performed but an UST was not found, are presented in **Attachment N**. Test trenching was also

performed at geophysical anomaly P51_15, but no UST was found, and no analytical data were collected. The locations of both of these anomalies are shown on Figure 1 of **Attachment B.**

3.0 GROUNDWATER WITHIN THE BUILDING 750 MOTOR POOL AREA

The potential for impacts to groundwater from the Building 750 Motor Pool Area was assessed to support this request for NFA, as presented below. Specific groundwater monitoring analytical results for USTs 750A, 750B, 750D, 750E, 750G, and 750H were presented in the respective attachments as previously described in Section 2.0 of this submittal.

- Figure 3.12-1 of the SI Report is provided in **Attachment C** and shows the lateral coverage of extensive Geoprobe soil and groundwater sampling that was previously performed within the Building 750 Motor Pool Area. There were no exceedances of Ground Water Quality Criteria (GWQC) within this area.
- Groundwater at specific USTs and UHOTs where releases were identified was further monitored by the installation of eight monitor wells designated as 750MW01 through 750MW08, as shown on Enclosure 1 of **Attachment O**. Well construction information for these wells is tabulated in Enclosure 2 of **Attachment O**. The latest (2009) groundwater analyses and the monitoring results for specific individual USTs are presented in **Attachment E** (Enclosure 4) for wells 750MW01 through 750MW04; **Attachment G** for well 750MW05; **Attachment H** for well 750MW06; **Attachment J** for well 750MW08; and **Attachment K** for well 750MW07. These results indicate that there is currently no release of site-related contaminants to groundwater.
- Groundwater typically flows towards the north or northwest in the central and northern portion of the Building 750 Motor Pool Area, and towards the east or southeast in the southern portion of this area (see Enclosures 3 and 4 of **Attachment O**).
- As demonstrated in **Attachments E through M**, soil left in place at individual UST sites was below the 1,000 mg/kg TPH threshold for additional contingency analysis. This threshold was developed by NJDEP with consideration of potential impacts to groundwater from 2-methylnaphthalene, as well as other contaminants (as described in NJDEP's 2010 *Protocol for Addressing Extractable Petroleum Hydrocarbons*). Therefore, there is minimal risk of impact to groundwater from the soils remaining at former UHOT sites within the Building 750 Motor Pool Area.
- Monitor well records including boring logs for wells 750MW01 through 750MW08 are provided in Enclosure 5 of **Attachment O**.

As indicated above, the Building 750 Motor Pool Area (including USTs) has been adequately addressed and the Army requests that NJDEP approve No Further Action.

The technical Point of Contact (POC) for this submittal is Kent Friesen at (732) 383-7201 or by email at kent.friesen@parsons.com. Should you have any questions or require additional information, please contact me by phone at (732) 380-7064 or by email at william.r.colvin18.civ@mail.mil.

Sincerely,

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

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

ATTACHMENT A

Correspondence

Contents:

1. NJDEP letter to the Army dated July 10, 2012, re: *March 2012 Army Response to NJDEP Correspondence Letter Dated October 28, 2008*.
2. NJDEP letter to the Army dated June 16, 2015, re: *Final Environmental Condition of Property Supplemental Phase II Site Investigation Work Plan Addendum for Parcels 34, 50, 51, 52, 66, 80 and 83 dated February 2015, Fort Monmouth.*

Excerpts for Parcel 51 -UST 750J only for brevity

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

July 10, 2012

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

Re: March 2012 Army Response to NJDEP Correspondence Letter Dated October 28, 2008
Fort Monmouth, NJ
PI G000000032

Dear Ms. Green:

A review of the above referenced report, received March 27, 2012 and submitted in response to the Department's comments regarding the Draft Site investigation Report of July 21, 2008 by Shaw Environmental, Inc., has been completed by this office. Many of the parcel comments involved suspected USTs; in addition to that information provided in this submittal and the July 2008 SI, a review and comparison of Appendix G, Appendix O, and Figures 15 and 16 of the January 2007 ECP Report was conducted by this office in an attempt to ascertain the location and status of all tanks located within the parcels. Unless otherwise noted, comments and questions are provided only for each parcel referenced in the submittal and are generally presented by parcel.

Parcel 13 – Former Barracks (Buildings 2004-2016)
Geophysical surveys were performed, and sampling was conducted throughout that area at which USTs were known to or may have been present. No USTs were found; all soils analytical results were below cleanup criteria applicable to the site; no additional action for the parcel is necessary.

Parcel 14 – Former Buildings and Housing Area Northwest Portion of CWA
As indicated in the Department's correspondence of May 30, 2012, the geophysical surveys performed and sampling conducted throughout that area at which USTs were or may have been present were sufficient to adequately characterize the area. No USTs were found; all soils analytical results collected were below cleanup criteria applicable to the site. The parcel was re-categorized from Category 2 to Category 1.

PCBs
Regarding PCBs, a re-sample is currently proposed in the location at which PCBs were noted to exceed the NRDCSCC, sample P49-SS8-A. As no Remedial Action Workplan for this parcel was previously approved, the Soil Remediation Standards (0.2 ppm) apply. As such, PCBs exceed the standard at three locations – P49-SB3-A and P49-SS7-A (which also exhibits the highest levels of BN contamination), in addition to SS8-A. Delineation to the most stringent standard is required.

Arsenic
A review of the site operations and the analytical data, including the horizontal and vertical distribution of the arsenic, the lead to arsenic ratio, as well as the presence of glauconitic soils indicate the arsenic encountered in this area is representative of naturally occurring levels.

Volatile Organics
It is agreed further discussion regarding volatile organics in ground water at the M-18 Landfill is to be discussed in a forthcoming Remedial Investigation Report for the landfill.

USTs
As with the above parcels, although many tanks have received a designation of NFA, several tanks do not have sufficient documentation to be designated same. These include:

UST-293-67 – per Appendix G, report submitted 2/26/96; no Departmental response
UST-290-193 - per Appendix G, report submitted October 1993, no Departmental response
UST 283-59 – per Appendix G, reported Closure Approval 2/24/00; no confirmation available
UST 283-58 - per Appendix G, no sampling was performed
UST 296-69 – per Appendix G, report submitted 2/26/96; no Departmental response

For those USTs which Appendix G indicates reports were previously submitted and not responded to, unfortunately, this office has no record of same and re-submittal is required for comment.

Parcel 50 – IRP Sites FTMM-54, FTMM-55 & FTMM-61
The Army acknowledges the Department's August 14, 2007 letter, the comments of which are to be addressed via Remedial Investigation Report Addendums for FTMM-54 (Site 296), FTMM-55 (Site 290) and FTMM-61 (Site 283). Submittal dates were not indicated. This office will await submittal of same.

Parcel 51 – 750 Area, 500 Area, 600 Area, 1100 Area – Former Buildings
The geophysical survey and sampling conducted at portions of the parcel were insufficient to allow for determination of NFA for the USTs previously/currently located in the parcel. Further investigation conducted north of Building 750 revealed the presence of USTs UHOT 1123B and 1123C at the two northernmost previously identified anomalies. The USTs were subsequently removed, as was affected soil. Although it is indicated all soils were removed to below 1000 ppm TPH, Table 2 at Attachment D appears to indicate soils at sample 1123B East Wall at 8.5-9' contains TPH at 9832.44 ppm. Clarification is needed.

Although it is understood the additional investigation undertaken in June of 2009 revealed the presence of the two above referenced USTs located above Semaphore Ave, it is unclear what efforts were made to investigate the nine potential USTs/anomalies noted on Figure 3.12-2 south of Echo Avenue? Are they all to be included in the Building 750 submittal?

Additional questions regarding USTs within the parcel remain. As above, documentation for closure approval or NFA is not available for confirmation on the following USTs.

No geophysical surveys, sampling or at least reports appear to have been performed or submitted for the following USTs - UST 68, 635, 637, 642, 643, 645, 647, 648, 649, 650, 651, 652, 653, 654, 656-97, 656-98, 657-90, 658-100, 660, 662, 663, 665, 667, 689-102.

Appendix O indicates USTs which do not appear to be "closed" per Appendix G which were/are also present in areas outside the geophysical survey, including those at Building 676, several along Sherrill Avenue north of Building 600, east of Brewer Ave by Buildings 545 and 554, Building 555, and several by Building 557.

Although Appendix G indicates closure reports were submitted, it also indicates no Departmental response was received for the following USTs - UST-682-106, UST 656-104, UST 659-101, UST 114-1, UST 645-78, UST 789-126.

~~USTs 750 – report pending~~
~~UST 501-76 – Appendix G~~ indicates NFAed July 10, 1998, however confirmation unavailable
UST 551-80 – Appendix G indicates NFAed August 29, 2000, however, confirmation unavailable
UST 695 – Appendix indicates NFA August 24, 2000, however, confirmation unavailable

Parcel 52 – Building 699 – Army Exchange Services Gas Station
No comments based on submittal; Army acknowledges Department's March 18, 2011 comments; remedial efforts are ongoing.

Parcel 57 – Former Coal Storage & Railroad Unloading – 800 Area
Three surface soil samples contained B/Ns at concentrations above the NRDCSCC. The Department concurred with the general recommendation to conduct additional sampling, and required the submittal of a Remedial Investigation Workplan. The March 2012 submittal, however, states the exceedences were related to the asphalt pavement under which the samples were collected.

As with Parcel 49, it is agreed elevated levels of BN constituents related to asphalt rather than a discharge may be encountered beneath asphalt paving. However, information has not been submitted to document these sample results are not reflective of site operations, particularly given the nature of operations in the area. Delineation is necessary.

PCBs analyses was required due to the proximity of the railroad tracks/unloading area, as indicated in the Department's June 15, 2007 letter, rather than historical operations at Parcel 57.

Parcel 51/750 Motor Pool issues outlined in red

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

June 16, 2015

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

Re: *Final Environmental Condition of Property Supplemental Phase II Site Investigation Work Plan Addendum for Parcels 34, 50, 51, 52, 66, 80 and 83 dated February 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 March 2, 2015, prepared by Parsons Government Services Inc. (Parsons), on behalf of the U.S. Army Engineering and Support Center, Huntsville (USAESCH). As indicated in the report, activities are to be performed with the goal of Decision Document acceptance in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Contingency Plan (NCP), 40 CFR Part 300, and "to the extent possible to meet the requirements of New Jersey Administrative Code (NJAC) 7:26E Technical Requirements for Site Remediation", as well as support closure of environmental sites to facilitate transfer of real property.

The workplan describes Site Investigation activities to be performed at the ECP Parcels referenced above. Comments and questions are as follows:

Tables 3.1 and 3.2 also will require revision based upon the following comments.

Parcel 34/Building 2567/FTMM-58

Section 2.4.1, Page B4-line 2 – Although this office agrees with the statement "post excavation soil samples were collected…and analyzed for TPHCs, VOCs, and lead", review of historic

information appears to indicate elevated levels of benzene remain in the soil in the area of the dispenser island south of Building 2567. See additional detail under Section 3.2, below.

Section 2.5, Page B-7, line 21 – This statement regarding the removal of piping was amended via email to Wanda Green (copy to Rob Youhas and Joe Pearson) on June 18, 2013 1519 hrs. The report documenting the investigation of the piping, however, as you likely are aware, has not been received by this office.

Section 3.2 Sampling Plan – Although it is agreed the proposal is appropriate for the TBA in ground water, the referenced submittal considers only the issue of TBA in ground water (the proposal for two annual sampling events of monitor wells 2567MW01 and 2567MW03 was approved on July 3, 2014). However, as briefly discussed in a conference call on June 12, 2015, a review of historic information appears to indicate levels of benzene above both the residential and non-residential criteria/standard remain in numerous locations in the vicinity of the dispenser area south of Building 2567. The information was obtained from the October 28, 2005 RIR/RAW, including Figure 2-1 dated 6/9/94, which indicates levels of benzene remain up to 85 ppm. The June 2010 RAPR appears to omit reference to analytical results from the post excavation soil sampling performed in 1993 during removal of USTs 42 through 45, stating only the samples were analyzed for TPHC, VOCs, and lead, however, a copy of the September 2, 2010 PBR Request contained within the submittal's Appendix B referenced benzene remaining to 45 ppm. Pages i, 3-5 and 6-1 of the June 2010 RAPR also indicate the "remaining original UST dispenser island areas" would undergo assessment upon BRAC closure. It is understood available information is currently being evaluated to determine the status of the soils in this area. At this time, however, this office considers the soil in the area an unaddressed area of concern in need of additional delineation.

Parcel 50

Section 2.2.1 - FTMM-54 - Page C-2 lines 39 & 42 reference the year of the eleven tank removals as 2003, while page C-3, line 17 indicates removal of the eleven tanks was 1993, which appears correct.

Section 2.2.2 – FTMM-55 - Page C-5, line 11 – Waste oil UST No. 91533-193 is indicated as being NFAed in a January 10, 2003 letter. Although the tanks referenced on line 15 were found on the January 10, 2003 NJDEP NFA letter, that letter does not appear to reference UST No. 91533-193; no record of a letter of no further action for that tank could be located.

Section 3.2 Sampling Plan – As noted on page C-6, line 37, levels of TPHC remained in soil at the former location of UST No. 81533-64 at 16,200 and 11,900 ppm, at samples A and B, both at a depth of 5.5-6'. The proposal indicates horizontal delineation sampling is to be performed at locations A (16,200 ppm) and F (9,670 ppm), which is acceptable. Vertical delineation is also required. It is unclear, however, why sampling is not proposed at sample location B, as it does not appear to be vertically delineated.

The Department's EPH Protocol, http://www.nj.gov/dep/srp/guidance/srra/eph_protocol.pdf, is to be followed, with contingency samples collected/analyzed as required. As per EPH Methodology Version 3.0, the non-fractionation option is appropriate only if the EPH level is anticipated to be below 1,700 ppm. As this cannot be presumed, the "unfractionated EPH" does not appear to be the appropriate option.

Parcel 51

Section 2.5, Page D-5, line 40 and Page D-6, line 4 - The submittal indicates the UST questions contained in this office's July 10, 2012 letter are to be addressed under the UHOT program. This office looks forward to submittal of same.

Section 3.0 – With receipt of the additional clarification provided on page D-4, as well as the figure received on June 15, 2015, the questions noted in the Department's July 2012 letter relative to USTs 1123B and 1123C have been answered. It is agreed no additional action is necessary for UST 1123B. However, it is not agreed there are no COCs at Parcel 51. As indicated on line 11, 2-methylnaphthalene was found in the ground water at P51-G12 above the Ground Water Quality Standards (GWQS), as reported in the July 2008 SI. TPHC (collected due to elevated field screening readings) was also found in soil at that location at 6-6.5' at 7,487 ppm. Additional sampling is necessary.

Motor Pool Area – Although information regarding the 750 Motor Pool is not contained within this submittal, concerns regarding the area include, but are not limited to, adequate investigation of;

- Building 750 – UST 191 (15,000 gallon diesel) & UST192 (8000 gallon unleaded gasoline)
- two outdoor service pits for draining vehicle oil, the pipes from which discharged to a former oil water separator (OWS), north of garage bays
- current wash rack previously connected to former OWS, then to new OWS
- Building 753 – three hydraulic lifts and floor drain
- Building 754 – floor drain

Is FTMM 68/Building 700 not considered within Parcel 51?

Parcel 52/FTMM-53/Building 699 Gas Station

Section 1.0, Page E-1, line 8 – As many of the parcel narratives include, a listing of NJDEP correspondence by year is provided, which refers the reader back to *Section 5 References* to ascertain which document is being referenced. It does not include, however, this office's January 8, 2014 response to the September 2013 RI/FS Workplan, nor the May 6, 2014 response to the Army's April 22, 2014 response to same, in which delineation sampling was discussed and

the revised proposal accepted. Results of the investigation have not yet been received by this office.

Section 2.4, Previous Investigation and Historical Data – No mention is made of the 2000 gallon #2 fuel UST, 0081533-112, given an NFA designation in January of 2003, nor more particularly, of waste oil UST 0081533-197, a 1000 gallon waste oil UST removed in January of 1992 from east of UST-112, at which analytical results indicate TPHC to 11,600 ppm remains in soil. As acceptably indicated in the Army's April 22, 2014 response letter, Response C4, additional sampling was to be performed.

Section 2.4, Page E-5, lines 21-27 – It appears "IASL" (indoor air screening levels) may have been inadvertently used in the narrative, on lines 22, 26 and 27. These lines reference sub-slab results, the measure of which is against the SGSLs (Soil Gas Screening Levels), accurately referenced on lines 18, 20, 23, 25 and 25.

Section 2.5 Synthesis of Results, Correspondence and Data Gaps – As indicated above, the submittal does not appear to include the activities proposed in the September 2013 RI/FS Workplan, nor the followup communications.

Section 3.2 Sampling Plan – As indicated, above and through previous correspondence, additional delineation sampling is necessary.

Parcel 66

Section 1.0 & Section 2.5, Page F-3, line 15 – No mention appears to be made among the listed correspondence between NJDEP and FTMM of the *August 1, 2012 Proposed Soil Sampling and Delineation Plan for Electrical Substations at Building 2700 (Charles Wood Area) and Building 978 (Main Post)*, nor the September 10, 2012 NJDEP approval letter for delineation of the PCBs.

Section 2.2, Page F-1, line 20 – typo - It is believed FTMM-56 should read FTMM-66.

Section 2.2, Page F-2, lines 2-4 & Section 2.5 – The submittal references the ECP Report's Appendix A, stating, "no release or disposal of hazardous substances or petroleum products has occurred at Parcel 66…", and that Parcel 66 was assigned an ECP Category of 1. This office does not agree with same, as PCBs are noted present up to 0.84 ppm.

Section 3.2 Sampling Plan – The sampling as proposed on pages F-3 and F-4 is acceptable.

Parcel 80

Section 1.0, line 14 – For clarification, per the 2008 ECP Main Post map (Figure 19), FTMM-56 is also known as Parcel 84 (Building 80), a small ¼+ acre area designated within the larger Parcel 83.

Section 2.4 Previous Investigations and Historical Data – As previously indicated, the Weston report was not accepted by the Department as representative of background conditions at Fort Monmouth.

The section also references the July 10, 2012 letter, in which the NJDEP requested additional information regarding the basis for determination of the sample locations, i.e., were as-builts or other plans for the demolished buildings used to assist in locating former floor drains, septic systems, discharge points, etc, and therefore the boring locations. No rationale for sample location selection has been received; therefore a determination remains unavailable regarding the adequacy of the soil sampling performed.

Section 3.2 Sampling Plan – The proposal to further evaluate beryllium in ground water reported in the 2008 SI as indicated is acceptable.

Parcel 83

In October of 2008, the NJDEP requested depiction of all areas of concern (AOCs) on a site figure. Although a structures figure was submitted, no figure designating AOCs has been received.

Section 2.4, Page H-4 - As previously indicated, the Weston "background" report was not accepted by the Department. As regarding the elevated levels of arsenic (SB10A, SB9A), as acknowledged in Section 3.1, this office at this time does not agree these levels of arsenic are representative of naturally occurring conditions. Arsenic is currently considered a contaminant of concern, based on analytical findings at P83-SB9&10. As the NJDEP July 10, 2012 correspondence stated, although Fort Monmouth site soils are often associated with elevated levels of naturally occurring arsenic, the parcel specific soil analytical results, the lead to arsenic ratio, and the decrease of arsenic with depth at those locations exhibiting an elevated level do not appear to indicate the exceedences are naturally occurring, and must be investigated and included in a remedy.

Section 2.5, line 35 – The submittal indicates further information on the various USTs referenced in the July 10, 2012 letter are to be referred to the "UHOT Program". Although not familiar with same, this office looks forward to receipt of additional information regarding the USTs.

Section 3.2 Sampling Plan – Sampling at the former Building 72 area to better define PAH exceedances, as proposed, is acceptable.

Section 3.2, lines 15, 16 – PCBs - Please ensure these delineation samples, include PCBs analyses, for delineation of the 0.8 ppm PCBs noted at P83-B5, 1-1.5'.

Section 3.2 – Building 279 – Although the proposed sampling locations are acceptable, they are inadequate to complete delineation. Arsenic remains undelineated at P83SB10. It is anticipated elevated levels of lead may be present west of P83SB9; what efforts for delineation

are planned? If location FTMM-83-SS-13 is considered a resample of P83SB9, it should be located within 10' feet of the original sample location.

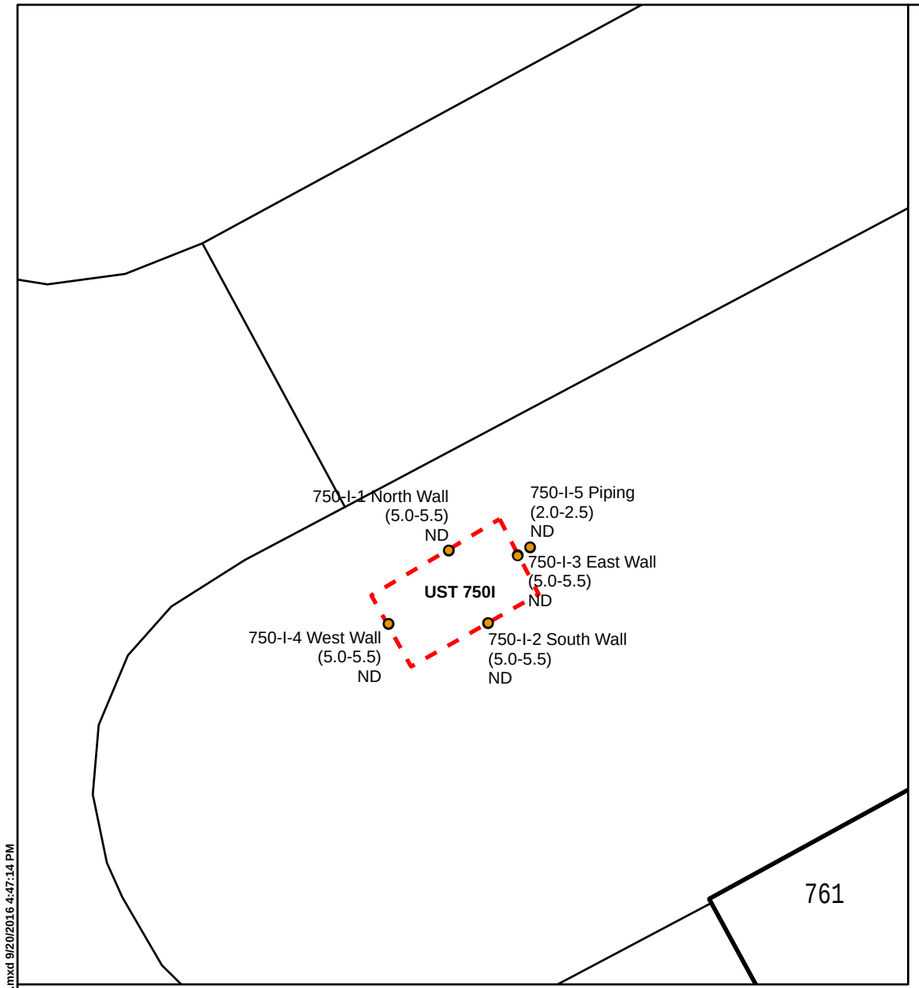
Please contact this office if you have any questions.

Sincerely,

Linda S. Range

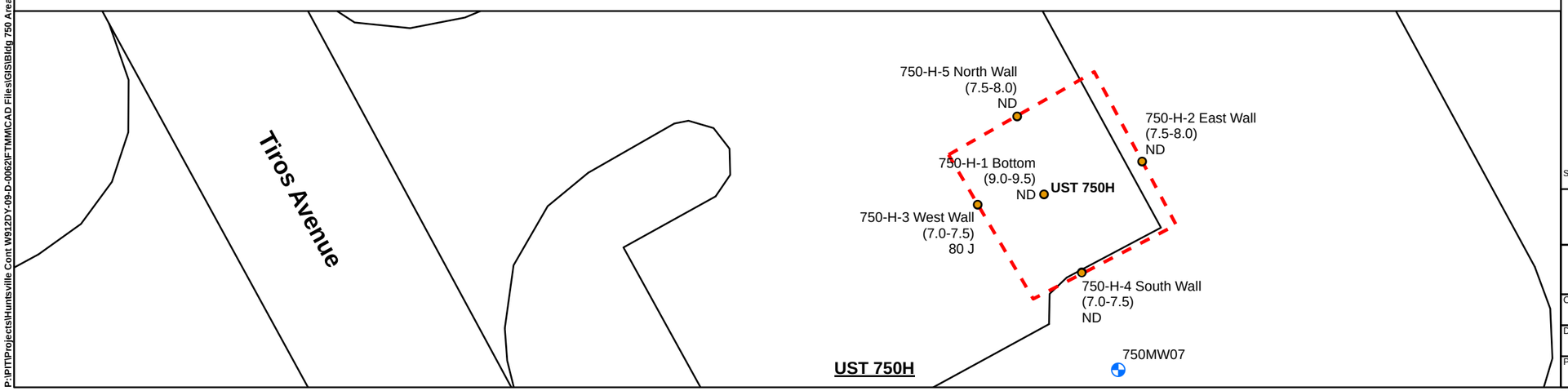
Linda S. Range

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



UST 750I

USTs 750F AND 750J



UST 750H

LEGEND:

- Soil Sample Analyzed for TPH (Removed)
- Soil Sample Analyzed for TPH (Remains In Place)
- Exceeds NJDEP Soil Cleanup Critieria for TPH (5,100 mg/kg)
- Shallow Monitoring Well
- Installation Boundary
- Approximate Limits Of Excavation

EXPLANATION:

750-P6 ——Boring ID
(2.0-2.5) ——Depth (ft.) (bgs)
ND ——TPH Concentration (mg/kg)
26512 ——Exceedance of 5,100 mg/kg TPH Criteria

TPH - Total Petroleum Hydrocarbons

N

1 inch = 15 feet

0 7.5 15 30 Feet

Source: FTMM Supplied CAD, 2013.

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

BUILDING 750 AREA SOIL SAMPLE RESULTS FOR USTS 750F, 750H, 750I, AND 750J

CREATED BY: RR	REVIEWED BY: KF
DATE: SEP. 2016	FIGURE NUMBER: FIGURE 4
PROJECT NUMBER: 748810-06031	FILE: FIGURE 4.mxd

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\Bldg 750 Area\FIGURE 4.mxd 9/20/2016 4:47:14 PM

PARSONS

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

Date: *August 31, 2016* Review Performed By: *Kent Friesen, Parsons*

Site ID: ***750J*** Registration ID: *None*

Recommended Status of Site: ***Change to Case Closed***

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

NJDEP Release No. or DICAR (If applicable): 09-08-20-0915-22

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

Tank Description: [X] Steel [ ] Fiberglass Size: 1000 gals. Contents: No. 2 Fuel Oil

[X] Residential [ ] Commercial/Industrial

Tank Removed? [X] Yes [ ] No If "yes," removal date: 8/25/2009

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

Comparison criteria: 5,100 mg/kg TPH

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

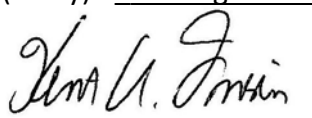
Brief Narrative

UST 750J was initially identified as anomaly P51_27 in the 2008 Environmental Condition of Property (ECP) Site Investigation (SI) Report, and was one of 9 geophysical anomalies located south of Echo Avenue within ECP Parcel 51 that were suspected USTs.

At the anomaly P51_27 location, a steel tank was uncovered on 8/19/09. Petroleum contaminated soils and holes in the top of the tank were observed. The contamination was noted to have possibly resulted from historic overfill of the tank. The tank was removed from the excavation on 8/25/09, and stained soil was observed, as well as a sheen on groundwater at 6.5 feet below ground surface. On 9/2/09 approximately 24 cubic yards of petroleum contaminated soil was removed from the excavation, and then soil samples (750-J-1 through 750-J-5) were collected from the side walls and bottom of the excavation, and analyzed by the Fort Monmouth Environmental Laboratory for total petroleum hydrocarbons (TPH). TPH was not detected (ND) in all of the soil samples. The results were less than 5,100 mg/kg for TPH, which is the current remediation criterion. Therefore, no additional sampling or remedial action was warranted.

In conclusion, the analytical results support changing the UST Case Status to "Case Closed."

Recommendations (if any): Change to "Case Closed", request NFA from NJDEP

Signed: 

Kent A. Friesen, Parsons

Fort Monmouth UST Status Summary Report

UST REGISTRATION INFORMATION SUMMARY

LOCATION	750 J	*NJDEP REG ID*	
RESIDENTIAL?	YES		

UST CONSTRUCTION INFORMATION SUMMARY

SIZE (GALLONS)	1000	*CONSTRUCTION*	STEEL
PRODUCT	#2 FUEL OIL	*YEAR INSTALLED*	

UST REMOVAL/INVESTIGATION SUMMARY

REMOVAL DATE	9/2/2009	*REMOVAL CONTRACTOR*	EVS Inc
SRF SEND DATE		*TMS*	
DICAR NO	09 08 200915 22	*LEAK DETECT*	
REMEDIATION COMMENTS	Discharge to GW approx 24 cuyds of TPH contaminated soil was removed All TPH final assessment samples were less than 5600PPM GW Assessment required		
REGISTRATION COMMENTS	unregulated UST as per BRAC Legal Office		
SAS DONE	NO	*CONSULTANT*	
MWs NEEDED		*MONITORING WELLS*	
SUB-SURFACE EVALUATOR	Frank Accorsi		

CURRENT UST STATUS

UST STATUS	REMOVED RI ON GOING	*CASE STATUS*	Case Open
SUBMITTAL DATE		*APPROVAL DATE*	

US ARMY, SELFM-PW-EV

DAILY UST SUBSURFACE REMOVAL LOG

BLDG # 750-J REG # NA

DATE 8-A-09 TOA 11Am TOD 1145

SSE C Appleby NJDEP CERT # 9971

REMOVAL CONTRACTOR TVS Inc PWS-007

CLOSURE SUPERVISOR Frank Bearsl NJDEP CERT #

WEATHER Hot Humid

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Yes
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	NA
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E G 29CFR)	Yes
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS PLACED ONTO PLASTIC SCRAPED OFF INSPECTED FOR HOLES AND PHOTOGRAPHED	NA
A DISCHARGE WAS REPORTED BT THE DPW TO THE NJDEP (877)927-6337) CASE# ~ to Be done	No
PHOTOS HAVE UST# BLDG # DATE TIME NAME OF SSE AND DESCR WRITTEN ON BACK	NA
GROUNDWATER WAS ENCOUNTERED AT ____ FEET BG, A SHEEN (WAS/WAS NOT) OBSERVED ON GW	NA
IF OVA WAS USED WAS IT CAL AND FOUND TO BE OPERATIONAL (cal data on COC)	NA
IF SAMPLES WERE TAKEN COC SCALED SITE MAP (VERT SOIL HORIZONS AND PLOT PLAN)	NA
ALL SAMPLE COLLECTION ACTIVITIES WERE (AS DESCRIBED IN THE NJDEP FSPM 2005 August	NA
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7 26E-3 6 et seq	NA
ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	NA
THE DPW SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1'' ABOVE GROUNDWATER) AND A BACKFILL AUTH LTR IS ATTACHED	NO
ALL ENVIRONMENTAL SAMPLE POINTS WERE GPS AND LOGGED	NA
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	Yes
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY (CIRCLE EACH) SCRAP TICKET CSE PERMIT ACCIDENT REPORT HAZ WASTE MANIFEST DAILY UST CLOSURE LOG SCALED SITE MAP (SAMPLING) SRF-CLOSURE CHAIN OF CUSTODY SOIL ANALYTICAL RESULTS CLEAN FILL TICKETS(IN YDS^3) PHOTOGRAPHS (UST EXCAVATION SAMPLING POINTS)	None

CHECK ALL BOXES LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N J A C 7 14B-9 2(b)3 and 7 26 et seq I am aware that there are significant penalties for submitting false inaccurate or incomplete information including fines and/or imprisonment

Subsurface Evaluator(print Name) Chas Appleby Date 8-19-09

SIGNATURE

ca\ms\ust\removal\sitessls499 doc

Back

8-19-09 CA

- Site Visit

- UST uncovered to top of UST
  - Steel 1000 gal #2
  - Located in Parking Lot.

- Based on Visual + odors observed, the tank discharged oil to the environment
  - hole in top of UST
  - Possible over fill which resulted in soils above UST Being impacted by fuel oil.

- TTD - Call Discharge into NJDEP

US ARMY, SELFM-PW-EV

DAILY UST SUBSURFACE REMOVAL LOG

BLDG # 750-J REG # NA - - Bo Re Brantley

DATE 8-20-07 TOA NA TOD

SSE Charles Appleby NJDEP CERT # 9974

REMOVAL CONTRACTOR TVS Inc PWS-007

CLOSURE SUPERVISOR Frank Argesi NJDEP CERT #

WEATHER Hot Humid

ACTIVITY - Coil Discharge into NJDEP	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	NA
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	NA
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E G 29CFR)	NA
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF INSPECTED FOR HOLES AND PHOTOGRAPHED	NA
A DISCHARGE WAS REPORTED BT THE DPW TO THE NJDEP (877) 927-6337) CASE# 09-08-20-915-22	Yes
PHOTOS HAVE UST#, BLDG # DATE TIME NAME OF SSE AND DESCR WRITTEN ON BACK	NA
GROUNDWATER WAS ENCOUNTERED AT ~ FEET BG A SHEEN (WAS/WAS NOT) OBSERVED ON GW	NA
IF OVA WAS USED WAS IT CAL AND FOUND TO BE OPERATIONAL (cal data on COC)	NA
IF SAMPLES WERE TAKEN COC SCALED SITE MAP (VERT SOIL HORIZONS AND PLOT PLAN)	NA
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NJDEP FSPM 2005 August	NA
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7 26E-3 6 et seq	NA
ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	NA
THE DPW, SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1 ABOVE GROUNDWATER) AND A BACKFILL AUTH LTR IS ATTACHED	NA
ALL ENVIRONMENTAL SAMPLE POINTS WERE GPS AND LOGGED	NA
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	Yes
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY (CIRCLE EACH) SCRAP TICKET CSE PERMIT ACCIDENT REPORT HAZ WASTE MANIFEST DAILY UST CLOSURE LOG SCALED SITE MAP (SAMPLING) SRF-CLOSURE CHAIN OF CUSTODY SOIL ANALYTICAL RESULTS CLEAN FILL TICKETS (IN YDS³) PHOTOGRAPHS (UST EXCAVATION SAMPLING POINTS)	None

CHECK ALL BOXES LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N J A C 7 14B-9 2(b)3 and 7 26 et seq I am aware that there are significant penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment

Subsurface Evaluator (print Name) Chas Appleby Date 8-20-07

SIGNATURE

5-04-09

Site 750 - J.

- Discharge Called into NJDEP - Charles Appleby
732-532-2692

#2 Fuel oil

1000gal Steel

US Army

Bldg 173

Riverside Ave

Ft Monmouth NJ

07703

Site Location:

Bldg 750

- Nicholson Ave

UST Removal - Approx

~~Scheduled for~~

Not Done today

- No impact to Waterway

- No Assistance Required

Case # 09-08-200915-22.

CA.

US ARMY, SELFM-PW-EV

DAILY UST SUBSURFACE REMOVAL LOG

BLDG # 750-J REG # NA

DATE 8-25-09 TOA 1230 TOD 1300

SSE Charles Appley NJDEP CERT # 9974

REMOVAL CONTRACTOR TVS Inc PWS-007

CLOSURE SUPERVISOR Frank Bacos; TVS NJDEP CERT # _____

WEATHER Sunny Warm

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	NA
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	NA
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E G 29CFR)	YES
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS PLACED ONTO PLASTIC SCRAPED OFF INSPECTED FOR HOLES AND PHOTOGRAPHED	NO
A DISCHARGE WAS REPORTED BT THE DPW TO THE NJDEP (877)927-6337) CASE# _____ Previously Done 8-20-09	
PHOTOS HAVE UST# BLDG # DATE TIME NAME OF SSE AND DESCR WRITTEN ON BACK	NA
GROUNDWATER WAS ENCOUNTERED AT 6.5 FEET BG A SHEEN (WAS/WAS NOT) OBSERVED ON GW	YES
IF OVA WAS USED WAS IT CAL AND FOUND TO BE OPERATIONAL (cal data on COC)	NA
IF SAMPLES WERE TAKEN COC SCALED SITE MAP (VERT SOIL HORIZONS AND PLOT PLAN)	NA
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NJDEP FSPM 2005 August	NA
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7 26E-3 6 et seq	NA
ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	NA
THE DPW SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1 ABOVE GROUNDWATER) AND A BACKFILL AUTH LTR IS ATTACHED	NO
ALL ENVIRONMENTAL SAMPLE POINTS WERE GPS AND LOGGED	NA
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	YES
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY (CIRCLE EACH) SCRAP TICKET CSE PERMIT ACCIDENT REPORT HAZ WASTE MANIFEST DAILY UST CLOSURE LOG SCALED SITE MAP (SAMPLING) SRF-CLOSURE CHAIN OF CUSTODY SOIL ANALYTICAL RESULTS CLEAN FILL TICKETS(IN YDS³) PHOTOGRAPHS (UST EXCAVATION SAMPLING POINTS)	None

CHECK ALL BOXES LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N J A C 7 14B-9 2(b)3 and 7 26 et seq I am aware that there are significant penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment

Subsurface Evaluator(print Name) Charles Appley Date 8-25-09

SIGNATURE _____

BAK

CA. – I Conducted a Site Visit and Observed Free Product & Absorbent Pads on the Groundwater in Excavation – Approx 4 Drums of oil/Water were Removed from the UST Prior to Rolling out

– UST was Removed Some time in morning Hole is Contaminated – oil/water needs to be Removed and Soils need to be Excavated

– No TVS Personal were on Site

CA

US ARMY, SELFM-PW-EV

DAILY UST SUBSURFACE REMOVAL LOG

BLDG # 750 REG # UST J -

DATE 9-2-09 TOA TOD

SSE FRANK ACCORSI NJDEP CERT # 00100042

REMOVAL CONTRACTOR TVS Inc PWS-007

CLOSURE SUPERVISOR FRANK ACCORSI NJDEP CERT #

WEATHER SUNNY, 80°

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E G 29CFR)	Y
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	N/A
THE UST WAS PLACED ONTO PLASTIC SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
A DISCHARGE WAS REPORTED BT THE DPW TO THE NJDEP (609-292-7172) CASE#	Y
PHOTOS HAVE UST# BLDG # DATE TIME NAME OF SSE AND DESCR WRITTEN ON BACK	Y
GROUNDWATER WAS ENCOUNTERED AT 6 FEET BG A SHEEN (WAS/WAS NOT) OBSERVED ON GW	Y
IF OVA WAS USED WAS IT CAL AND FOUND TO BE OPERATIONAL (cal data on COC)	Y
IF SAMPLES WERE TAKEN COC SCALED SITE MAP (VERT SOIL HORIZONS AND PLOT PLAN)	
ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NJDEP FSPM, 1992	Y
ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/PID RECORDED SITES IAW 7 26E-3 6 et seq	Y
ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	Y
THE DPW SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1" ABOVE GROUNDWATER) AND A BACKFILL AUTH LTR IS ATTACHED	
ALL ENVIRONMENTAL SAMPLE POINTS WERE GPS AND LOGGED	
ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	N
THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY (CIRCLE EACH) SCRAP TICKET CSE PERMIT ACCIDENT REPORT HAZ WASTE MANIFEST DAILY UST CLOSURE LOG SCALED SITE MAP (SAMPLING) SRF-CLOSURE CHAIN OF CUSTODY SOIL ANALYTICAL RESULTS CLEAN FILL TICKETS (IN YDS^3) PHOTOGRAPHS (UST EXCAVATION SAMPLING POINTS)	

CHECK ALL BOXES LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N J A C 7 14B-9 2(b)3 and 7 26 et seq I am aware that there are significant penalties for submitting false, inaccurate or incomplete information including fines and/or imprisonment

Closure Tech (print Name) FRANK ACCORSI Date 9-2-09

SIGNATURE Frank Accorsi

US ARMY, FORT MONMOUTH

DAILY UST CLOSURE LOG

BLDG # 750 REG # UST I -

DATE _____ TOA _____ TOD _____

CLOSURE TECH FRANK ACCORSI NJDEP CERT # 0010042

PERSONNEL ANTHONY FORGIONE, MARC TAYLOR

ACTIVITY	YES / NO
THE TECHNICIAN (CLOSURE CERT) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	Y
THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	Y
ALL ON-SITE PERSONNEL HAVE CURRENT TRAINING IAW ALL SAFETY REQ (E G 29CFR)	Y
ALL UTILITIES WERE MARKED OUT PRIOR TO ANY EXCAVATION (VISUAL CONFIRM YES/NO)	Y
HAND EXCAVATION WAS DONE WHEN EXCAVATING WITHIN 4 FT OF ANY UTILITIES	NA
ALL UST PIPING WAS BLOWN BACK AND DRAINED PRIOR TO ANY EXCAVATION WITH BACKHOE	NA
ALL UST PIPING WAS REMOVED PRIOR TO UST EXCAVATION	NA
A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	NA
THE UST WAS CLEANED AND NO RESIDUAL LIQUIDS WERE LEFT IN THE TANK	Y
THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	Y
_____ DRUMS OF WASTE WERE GENERATED AT THIS SITE TODAY (ID CARDS COMPLETED)	
_____ DRUMS OF WASTE WERE TRANSPORTED TO THE (MP CW EV) HWSA	
_____ GALLONS OF _____ WASTE WERE REMOVED (MANIFEST# _____)	
24 CUBIC YARDS OF PETROL CONT SOIL WERE EXCAVATED+TRANS TO (T 80 2624)	
THE DPW WAS NOTIFIED OF ANY DISCHARGE TO THE ENVIRONMENT (WHO) C APPLEBY	Y
ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	Y
THE DPW AUTHORIZED BACKFILLING THE EXCAVATION SSE INITIAL REQUIRED _____	
THE UST WAS TRANSPORTED TO 109 YARD FOR DISPOSAL (ATTACH SCRAP TICKET)	Y
ADDITIONAL NOTES WERE TAKEN AND RECORDED ON THE BACK OF THIS FORM	N
THE FOLLOWING DOCUMENTS WERE GIVEN TO THE SSE TODAY (CIRCLE EACH OR ADD ITEMS) SCRAP TICKET CSE PERMIT ACCIDENT REPORT _____	

CHECK ALL BOXES LEAVE NO BLANKS

I certify under penalty of law that tank decommissioning activities were performed in compliance with N J A C 7 14B-9 2(b)3 I am aware that there are significant penalties for submitting false, inaccurate, or incomplete information, including fines and/or imprisonment

CLOSURE TECH (PRINT NAME) FRANK ACCORSI

SIGNATURE Frank Accorsi DATE 9-2-09

Attachment B
Field Notes

2 30

Location FTMM Date 11-15-17

Project / Client USACE

PAR 83

1415 BEGIN PUSHING AT SB-38.
1430 CREW BACKFILLS OPEN HOLES AND CLEANS AREA.
1445 CREW LOADS TRAILER AND VEHICLE WITH EQUIPMENT
1455 FRANK LEADS CREW TO EGRESS GATE. OBTAIN SAMPLES FOR SB-38 ANALYTICALS.
1520 DEPART RESTORE OFFICE FOR SAMPLE MANAGEMENT.
1600 COLLECT EQUIPMENT BLANK FOR PAH's AND ARSENIC.
1630 DEPART SITE

JLN 11/15/17

Location FTMM Date 11-16-17

31

Project / Client USACE

PAR 83

0730 WEST CREW DISCUSS HAS ISSUES WEATHER PLAN STOP.
0830 CALIBRATE PID 0.0 AIR AND 100 ppm ISO BUTYLENE FOR RING #22588 MINI RAE 3000.
0900 HEAD TO PAR-83-SB-49 TO CONTINUE SOIL BORINGS.
0910 BEGIN PUSHING AT SB-49
0935 BEGIN PUSHING AT SB-47
0935 BEGIN PUSHING AT SB-40
0945 BEGIN PUSHING AT SB-39
1000 BEGIN PUSHING AT SB-41
1030 CREW RELOCATES TO SB-55
1035 BEGIN PUSHING AT SB-55
1050 BEGIN PUSHING AT SB-54
1115 CREW BACKFILLS OPEN HOLES
1130 CREW LOADS TRAILER, CLEANS AREA.
1145 HEAD TO PAR 51-750J-TMW-01
1150 BEGIN PUSHING FOR INSTALLATION OF TEMPORARY WELL, MEASURE DTW IN ADJACENT WELL 750 MW 07, DTW FROM GROUND LEVEL WAS ABOUT 9'. SCREEN WILL BE SET FROM 05-20' WITH RISER TO GRADE. AS LOCATION OF

JLN 11-16-17

Location FTMM Date 11-16-17

Project / Client USACE
PAE83

TMW-01 IS ~ 3' LOWER IN ELEVATION THAN MW-03

1215 DTW IN TMW-01 RISING FROM 11' DEPTH

1230 BREAK FOR LUNCH

1315 CREW LOADS MACHINES TO RELOCATE TO FTMM-66.

1340 BEGIN ADVANCING BORING AT FTMM-66-886-SB-01 TO 12'

1355 BEGIN PUSHING SB-02

1415 BEGIN PUSHING SB-03

1435 BEGIN PUSHING SB-04

1450 CREW BACKFILL OPEN BORINGHOLES

1505 CREW CLEANS AREA AND LOADS VEHICLE. FA REPORTS 8.1' BGS TO GW AT TMW-01

1510 CREW OFFSITE FOR THE DAY

1530 MEET FRANK A. AT TMW-01 TO ASSIST WITH BACKFILLING BORING AFTER REMOVAL OF TEMPORARY 1" PVC WELL POINT SCREEN AND CASING

1545 RETURN TO THE OFFICE TO COMPLETE COC FORMS,

1605 TH off-site.

1720 JC off-site

Location Date

Project / Client

Attachment C
Soil Boring Logs

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM (Parcel) 51
PROJECT NUMBER: 748810-

GROUNDWATER OBSERVATIONS
WATER LEVEL: ≈ 9' BGS
DATE: 11-16-17
TIME: 1150
MEAS. FROM: MW-07 (GROUND LEVEL)

INSPECTOR: TOM HORN
DRILLER: ECDI WELLS REEVE
WEATHER: CLOUDY, 50°F WINDY
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) ~~7822DT~~ 6610 DT
DATE/TIME START: 11-16-17 / 1150
DATE/TIME FINISH: 11-16-17 / 1230
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-51-750J-TMW-01
LOCATION DESCRIPTION: MSP HALT 12 in.
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			48/60	0.0	DRY (ASPHALT) GRAY BLACK M-C ANGULAR GRAVEL, LOOSE		
1					DRY GRAY BLACK (SUBBASE) F-C SILTY SAND DENSE		
2					DRY GRAY BROWN V DENSE SILTY SAND		
3					MOIST V DENSE GRAY-OLIVE-BROWN V. DENSE BLACK-STAINED SILTY SAND		
4					MOIST V DENSE GRAY OLIVE V. DENSE SILTY SAND		
5			48/60		WET V SOFT LT GRAY BROWN SANDY SILT		
6					↓		
7					WET V STIFF OLIVE-GRAY BROWN SANDY SILT		
8							
					WET V DENSE REDDISH-ORANGE TAN SILTY SAND		
9					NO RECOVERY		
10					[illegible]		

Remarks:

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

PARSONS

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - ECP
PROJECT LOCATION: FTMM Parcel 51
PROJECT NUMBER: 748610-

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

INSPECTOR: TOM HORN
DRILLER: ECDI WELLS REEVE
WEATHER: CLOUDY, 50° E WINDY
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) ~~7822DT~~ 6610 DT
DATE/TIME START: 11-16-17 / 1150
DATE/TIME FINISH: 11-16-17 / 1230
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: PAR-51-750J-TMW-01
LOCATION DESCRIPTION: ASPHALT 12in.
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			48/60	0.0	WET, V. STIFF OLIVE GRAY SILT LITTLE CLAY		
				0.0			
1				0.0			
	PAR-51-750J-TMW-01-11.5			0.0			
2				0.0	WET MOTTLED RED ORANGE-TAN AND GRAY-OLIVE BROWN V DENSE SILTY SAND		
				0.0			
3				0.0			
				0.0			
4					NO RECOVERY		
5			60/60	0.0	WET MOTTLED RED-ORANGE-TAN AND GRAY OLIVE-BROWN SOFT SANDY SILT		
				0.0			
6				0.0			
				0.0			
7				0.0			
				0.0			
8				0.0	WET DK GRAY STIFF SANDY SILT, LITTLE CLAY, MICACEOUS		
				0.0			
9				0.0			
				0.0			
10					end of Boring		

Remarks:

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

BORING LOG

BORING NUMBER: P51-M2

SHAW ENVIRONMENTAL & INFRASTRUCTURE

PROJECT: US Army BRAC 2005 Site Investigation

LOCATION: Main Post, FTMM, NJ

CONTRACTOR: TVS

JOB NUMBER: 124976

CLIENT: USACE

DRILLER: Frank Accorsi

FIELD REP: K. Gerdes

	SAMPLER	CASING	CORE BARREL	DEPTH OF GROUNDWATER
TYPE	Geoprobe MacroCore		---	DATE 11/14/07'
SIZE (ID)	2"		---	
HAMMER WEIGHT	NA		---	Groundwater Depth (feet): 5.5'
HAMMER FALL	NA		---	

SAMPLE DEPTH (feet)	SAMPLE No.	SAMPLE DEPTH	REC	USC Symbol	DESCRIPTION OF MATERIALS	PID ppm
0			75%	SP	0-1' Sand with Gravel, Light Brown	
	M2-A	0-0.5'				0.0
1					1-1.5' incinerator slag/ash	
				SP	1.5-3.5' Sand, Light Grey/Brown, little silt	
2	M2-B	1.5-2.0'				0.0
3						
				SM	3.5-4' Sand and Clay, Light Grey Brown	
4						
4			90%	SM	4-5' Sand and Clay, Light Grey Brown	0.0
5				ML	5-7' Clayey Silt, Light Grey/Light Brown, wet	
	M2-C	5-5.5'				
6						
7				SW	7-7.5' Sand, Orange, little gravel, wet	
				SP	7.5-8' Sand, Dark Brown/Dark Grey, trace silt, mottled, wet	
8					End of Exploration	
8						
9						
10						
11						
12						
12						
13						
14						
15						
16						

DRILLING RIG TYPE: Truck-mounted Geoprobe Rig

TEMPORARY WELL INSTALLED: No

RISER FROM: NA TO: NA SCREEN FROM: NA TO: NA

SURFACE ELEVATION:

START DATE: 11/14/2007

END DATE: 11/14/2007

NOTES:

PID measurements were taken in 6" intervals
Depths measured from ground surface
NA=not applicable

BORING LOG

BORING NUMBER: P51-M3

SHAW ENVIRONMENTAL & INFRASTRUCTURE

PROJECT: US Army BRAC 2005 Site Investigation

LOCATION: Main Post, FTMM, NJ

CONTRACTOR: TVS

JOB NUMBER: 124976

CLIENT: USACE

DRILLER: Frank Accorsi

FIELD REP: K. Gerdes

	SAMPLER	CASING	CORE BARREL	DEPTH OF GROUNDWATER
TYPE	Geoprobe MacroCore		---	DATE 11/14/07'
SIZE (ID)	2"		---	
HAMMER WEIGHT	NA		---	Groundwater Depth (feet): 4.5'
HAMMER FALL	NA		---	

SAMPLE DEPTH (feet)	No.	DEPTH	REC	USC Symbol	DESCRIPTION OF MATERIALS	PID ppm
0			75%		0-1' asphalt over gravel	
						0.0
1					1-1.5' incinerator ash/slag	
	M3-A	1-1.5'		SP	1.5-2.5' Sand, Light Brown, little gravel,silt	
2	M3-B	1.5-2.0'				0.0
				SP	2.5-3.5' Sand, Dark Brown, little gravel,silt	
3						
				SP	3.5-4' Sand, Dark Grey, little silt	
4						
4	M3-C	4-4.5'	80%	SP	4-8' Sand, Light Grey/Brown, little silt	0.0
5						
6						
7						
8					End of Exploration	
8						
9						
10						
11						
12						
12						
13						
14						
15						
16						

DRILLING RIG TYPE: Truck-mounted Geoprobe Rig

TEMPORARY WELL INSTALLED: No

RISER FROM: NA TO: NA SCREEN FROM: NA TO: NA

SURFACE ELEVATION:

START DATE: 11/14/2007

END DATE: 11/14/2007

NOTES:

PID measurements were taken in 6" intervals
Depths measured from ground surface
NA=not applicable

BORING LOG

BORING NUMBER: P51-M4

SHAW ENVIRONMENTAL & INFRASTRUCTURE

PROJECT: US Army BRAC 2005 Site Investigation

LOCATION: Main Post, FTMM, NJ

CONTRACTOR: TVS

JOB NUMBER: 124976

CLIENT: USACE

DRILLER: Frank Accorsi

FIELD REP: K. Gerdes

	SAMPLER	CASING	CORE BARREL	DEPTH OF GROUNDWATER
TYPE	Geoprobe MacroCore		---	DATE 11/14/07'
SIZE (ID)	2"		---	
HAMMER WEIGHT	NA		---	Groundwater Depth (feet): 8.0'
HAMMER FALL	NA		---	

SAMPLE DEPTH (feet)	No.	DEPTH	REC	USC Symbol	DESCRIPTION OF MATERIALS	PID ppm
0			75%		0-1' Asphalt over gravel	
						0.0
1					1-1.5' incinerator slag/ash	
	M4-A	1-1.5'		SP	1.5-3.5' Sand, Light Grey Brown, little gravel,silt	
2	M4-B	1.5-2.0'				0.0
3						
				SP	3.5-4' Sand, Light Grey, little silt	
4						
4			100%	SP	4-5' Sand, Light Brown	0.0
5				ML	5-7' Silt, Light Grey Brown	
6						
7				SM	7-8' Sand and Clay, Greenish Grey	
8	M4-C	7.5-8.0'			End of Exploration	
8						
9						
10						
11						
12						
12						
13						
14						
15						
16						

DRILLING RIG TYPE: Truck-mounted Geoprobe Rig

TEMPORARY WELL INSTALLED: No

RISER FROM: NA TO: NA SCREEN FROM: NA TO: NA

SURFACE ELEVATION:

START DATE: 11/14/2007

END DATE: 11/14/2007

NOTES:

PID measurements were taken in 6" intervals
Depths measured from ground surface
NA=not applicable