New Jersey Department of Environmental Protection
Site Remediation Program
Report Certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites

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

Document: "Request for No Further Action Determination for Groundwater at FTMM-04"

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: BRAC Environmental Coordinator
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: 03/21/2017

Name/Title: William R. Colvin / BRAC Environmental Coordinator

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

21 March 2017

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

SUBJECT: Request for No Further Action Determination for Groundwater FTMM-04 Fort Monmouth, Oceanport, Monmouth County. PI G000000032

Attachments:

A. Previous Correspondence (see list below)
B. Figure 1: FTMM-04 Location and Figure 2: Layout of FTMM-04

Previous Correspondence (provided in Attachment A)

1. NJDEP letter to U.S. Army dated 5 February 2015, re: Approval 26 November 2014 Response to Comments on the Final Baseline Groundwater Sampling Report (August 2013)
2. NJDEP letter to U.S. Army dated 3 July 2014, re: Final Baseline Groundwater Sampling Report (August 2013)
3. Tables 2 and 3 Historical Groundwater Analytical Results and 2013 Baseline Groundwater Analytical Detections

Dear Ms. Range:

The Army is requesting a No Further Action (NFA) determination by the New Jersey Department of Environmental Protection (NJDEP) for groundwater at FTMM-04. This request is based on the groundwater data results presented in the Final August 2013 Baseline Groundwater Sampling Report (Baseline Report) which was submitted to the NJDEP in March 2014. The NJDEP agreed with the report's recommendations to discontinue groundwater sampling at FTMM-04 in their 5 February 2015 approval letter (**Attachment A**). The following is a summary of the information provided in the Baseline Report that supports a NFA determination for groundwater at FTMM-04.

Background

FTMM-04 is an approximately 1.4-acre landfill located on Fort Monmouth's (FTMM's) Main Post (MP) and is bounded by the Avenue of Memories to the south, North Drive to the north, and Wilson Avenue to the east (**Attachment B**). FTMM-04 was used as a disposal area for building demolition debris in 1955 and 1956.

A long-term groundwater monitoring program began in 1995. Quarterly groundwater sampling was performed from May 1997 through July 2011 using a network of up to six monitoring wells. Groundwater samples collected from May 1997 to October 2004 were analyzed for Target Analyte List (TAL) metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, and PCBs. In 2000, two additional low-flow sampling rounds were collected in August and October and analyzed for TAL metals. From January 2005 to July 2011 samples were analyzed only for TAL metals since the NJDEP agreed (12 November 2004 email) to reduce the sampling program and discontinue the analysis of VOCs, SVOC, pesticides, and PCB since concentrations were below the NJDEP Groundwater Quality Standards (GWQS).

In August 2013, groundwater sampling was conducted at FTMM-04 to re-establish baseline groundwater conditions following temporary suspension of groundwater sampling in late 2011. Groundwater samples were collected from six monitoring wells using low flow purging and sampling (LFPS) methodology and analyzed for VOCs and TAL metals. The results of the August 2013 baseline sampling and historical data (January 2008 through July 2011) were provided in the 2013 Baseline Report.

Groundwater Chemistry

Groundwater data results from January 2008 through July 2011 and the August 2013 sampling event are presented in the tables in **Attachment A**.

VOCs were not detected above their respective NJDEP GWQS in the groundwater samples collected during the 2013 August sampling event.

Aluminum, antimony, arsenic, beryllium, cadmium, iron, lead, manganese, selenium, and sodium were detected in exceedance of their respective NJDEP GWQS in the most recent eight quarters and the 2013 August sampling event. Only lead, manganese, selenium, and sodium were also detected above their background concentrations for the Main Post established by Weston (1995). The metal concentrations detected in the groundwater are attributed to background conditions and not indicative of historical site use. The NJDEP agreed that the metals were attributed to background conditions in their 3 July 2014 comment letter (**Attachment A**).

Summary

The collective groundwater demonstrated that VOC concentrations are below their respective NJDEP GWQS. Although several metals continued to be detected above their respective NJDEP GWQS, those compounds were attributed to background conditions and not to historical site use.

Based on the groundwater chemistry and the NJDEP approval to discontinue sampling at FTMM-04 in 2014, the Army requests NJDEP concurrence that a NFA determination for groundwater is warranted for FTMM-04.

The technical point of contact for this matter is Cris Grill who can be reached at 617-449-1583 or cris.grill@parsons.com. Should you have any questions or require additional information, please contact me at (732) 380-7064 or by email at william.r.colvin18.civ@mail.mil.

Sincerely,

William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator
OACSIM – U.S. Army Fort Monmouth

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

Attachment A

- **NJDEP letter to U.S. Army dated 5 February 2015*, re: Approval* 26 November *2014 Response to Comments* on the Final Baseline Groundwater Sampling Report (August 2013);**
- **NJDEP letterto U.S. Army dated 3 July 2014, re: Final Baseline Groundwater Sampling Report (August 2013); and**
- **Table 2 and Table 3 of Final Baseline Groundwater Sampling Report (August 2013)**

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
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P.O. Box 420
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CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

BOB MARTIN
Commissioner

February 5, 2015

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

Approval

Re: *November 26, 2014 Response to Comments –on the Final Baseline Ground Water Sampling Report (August 2013)*
Fort Monmouth
Monmouth County
PI # G000000032
Activity Number: RPC000001

Dear Ms. Green:

The New Jersey Department of Environmental Protection (Department) has completed a review of the referenced Response to Comments dated November 26, 2014, submitted in response to the Department's comment letter dated July 3, 2014 regarding the Final Baseline Ground Water Sampling Report.

The *Response to Comments* agrees with or acknowledges the Department's comments for areas FTMM-03, FTMM-04, FTMM-05, FTMM-08, FTMM-12, FTMM-14, FTMM-22, FTMM-25, FTMM-53, FTMM-54, FTMM-55, FTMM-56, FTMM-57, FTMM-58, FTMM-59, FTMM-61, FTMM-64, and FTMM-66.

FTMM-18
The Department had indicated low-flow sampling must also be performed if Passive Diffusion Bag Sampling (PDBS) is conducted, for comparison purposes. The *Response to Comments* submittal contends as low-flow sampling has been historically conducted at this area, PDBS sampling only is appropriate. Based upon this reasoning, the Department agrees the performance via PDBS only is acceptable for the ensuing round of ground water sampling. The PDBS results are to be compared to the previous low-flow sampling results and presented in the forthcoming sampling report.

FTMM-68
The Department had expressed concern regarding the use of PDBS for long-term monitoring. FTMM-68 has not been fully characterized, and the use of PDBS for longer term monitoring is acceptable only for well characterized sites, as per the DEP's Field Sampling Procedures

Manual. As per information provided in the *Response to Comments* submittal, a Remedial Investigation to fully characterize the area is to be conducted in the near future using low-flow sampling methodology, and request approval for the use of PDBS to characterize contaminant concentrations in the interim. This is acceptable based on the stipulation that a full remedial investigation is to be performed. The November '14 *Response to Comments* (Section V), however, indicated the Remedial Investigation Workplan for FTMM-68 was awaiting DEP approval. Although some clarification was requested, the proposed remedial activities, soil and ground water, were approved for the FTMM-68 area via letter dated *January 8, 2014*, which addressed the RI/FS Workplan for FTMM-22, FTMM-53, FTMM-59 & FTMM-68.

If you have any questions, please contact me at (609)984-6606, or via email at Linda.Range@dep.nj.gov.

Sincerely,

Linda Range

Linda Range
Bureau of Case Management

cc: Joe Pearson, Calibre
Rick Harrison, FMERA
Joe Fallon, FMERA
Frank Barricelli, RAB

State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
401 East State Street
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BOB MARTIN
Commissioner

July 3, 2014

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

Re: Final Baseline Groundwater Sampling Report (August 2013)
Remedial Investigation/Feasibility Study/Decision Documents
Fort Monmouth
Oceanport, Monmouth County
PI G000000032

Dear Ms. Green:

The New Jersey Department of Environmental Protection (Department) has completed review of the referenced report, dated March 2014, received on April 7, 2014. The report was prepared by Parsons Government Services Inc. (Parsons), in support of the Remedial Investigation (RI), Feasibility Study (FS), and Decision Documents project at Fort Monmouth.

A baseline ground water sampling event was conducted at 21 "sites" at the Fort Monmouth property in August 2013. The purpose of the sampling event was to re-establish baseline conditions following suspension of ground water sampling in late 2011, as well as to evaluate Fort Monmouth's long-term ground water sampling program, and the current analytical conditions of the ground water at each site. Sampling methodologies used included low-flow and passive diffusion bag samplers (PDBS). At four sites (FTMM-14, 18, 59, 68), only PDBS sampling was conducted. At three sites (FTMM-05, 22, 58) both low-flow and PDBS samples were obtained for comparison purposes. Fourteen (14) sites were only sampled using low-flow. The report states that PDBS concentrations were consistently biased somewhat low compared to the low-flow concentrations. The report concludes, however, that the PDBS results were still similar to the low-flow results and are considered representative of ground water conditions at the sites. Based on this conclusion, the report states that for future ground water sampling, PDBS will be used for all sites where volatile organic compounds (VOCs) are the sole contaminants of concern. Comments are presented below.

Section 3.1; Table 6; Appendices & associated Tables - *The "background concentrations" submitted in the 1995 Weston report were not accepted by the Department as representative of background conditions for Fort Monmouth. The study was not performed in accordance with Departmental protocol and is not a consideration in our evaluations/determinations. As indicated in Section 3.1, background concentrations are evaluated on a site by site basis.*

FTMM-02 Landfill

Historic sampling at this parcel indicated levels of VOCs above the Ground Water Quality Standard (GWQS); metals were previously determined to be reflective of naturally occurring conditions. The August 2013 sampling of wells using low-flow confirmed the continued exceedance of the GWQS for VOCs. The report recommends VOC sampling of wells M2MW03, M2MW11, M2MW21, M2MW22 and M2MW24 for two additional rounds using PDBS. Well M2MW10 will be monitored as a downgradient sentinel well. Although the proposal is acceptable, for wells in which the saturated screen length exceeds 10 feet, the deployment of multiple PDBS will be required. At any point where a decision is made to terminate ground water sampling at this site, confirmatory sampling using low-flow due to PDBS biasing low as compared to low-flow results at the Fort Monmouth site will be required.

FTMM-03 Landfill

Historic sampling at this parcel revealed GWQS exceedances of vinyl chloride and metals. The August 2013 sampling of wells using low-flow confirmed the continued exceedance of the GWQS for vinyl chloride in well 3MW07. Well 3MW02 was not sampled due to low water column and silty conditions, however, Table 4 of Appendix B recommends sampling of 3MW02 for VOCs and metals. The report attributes the presence of vinyl chloride to leaching of PVC piping from well 3MW07. A temporary well point investigation was conducted in 2009 to delineate the vinyl chloride, the results were non-detect, and abandonment of 3MW07 is recommended. The recommendations are acceptable. However, a figure presenting the locations and sampling results from the 2009 temporary well point investigation must be provided to the Department.

FTMM-04 Landfill

Historic sampling at this parcel revealed GWQS exceedances of various metals. The August 2013 sampling of wells using low-flow confirmed the continued exceedance of the GWQS for metals. The metals are attributed to background conditions, and cessation of ground water sampling is recommended. The recommendation is acceptable. Monitoring wells at this parcel shall be properly abandoned if they are no longer subject to sampling or gaging for water elevation data.

FTMM-05 Landfill

Historic sampling at this parcel revealed GWQS exceedances of PCE, TCE and vinyl chloride, which the August 2013 sampling, using low-flow and PDBS, confirmed. The report recommends annual VOC sampling of wells M5MW11, M5MW16, M5MW20 and M5MW23 using PDBS. The Department finds the proposal to be acceptable. At any point where a decision is made to terminate ground water sampling at this parcel, the Department will require confirmatory sampling using low-flow due to PDBS results at this parcel biased low compared to the low-flow results.

FTMM-08 Landfill

Historic sampling at this parcel revealed GWQS exceedances of pesticides, benzene, PCE and lead. The August 2013 sampling of wells using low-flow confirmed the exceedance of the GWQS for PCE and lead. The well with historic pesticide exceedances (697MW01) could not be located and was not sampled. The report recommends annual ground water sampling of well M8MW11 for VOCs and lead, M8MW12, 15, 16 and 24 for VOCs and M8MW17 and 21 for lead only. Monitoring well 697MW01 will be located and sampled for pesticides, lead and VOCs. The recommendation is acceptable.

FTMM-12 Landfill

Historic sampling at this parcel revealed GWQS exceedances of various metals, including arsenic and lead. Historic exceedances of metals except for lead are attributed to background quality. The August 2013 sampling was conducted for lead analysis only. Lead was not detected. The report recommends discontinuing ground water sampling at this parcel. The Department finds the recommendation to be acceptable. Monitoring wells at this parcel shall be properly abandoned if they are no longer subject to sampling or gaging for water elevation data.

FTMM-14 Landfill

Historic sampling at this parcel revealed no GWQS exceedances of VOCs. The August 2013 sampling of wells using PDBS confirmed that there was no exceedance of the GWQS. The report recommends discontinuing ground water sampling at this parcel. The Department finds the recommendation to be acceptable. Monitoring wells at this parcel shall be properly abandoned if they are no longer subject to sampling or gaging for water elevation data. The Department also notes that on Table 1, well M14MW19 is listed as having 10 feet of total screen length. However, the table also lists the saturated screen length as 13.35 feet. This discrepancy should be clarified.

FTMM-18 Landfill

Historic sampling at this parcel revealed GWQS exceedances of benzene and 1,2-DCA. The August 2013 sampling results of wells using PDBS showed the exceedance of the GWQS for 1,2-DCA in well M18MW22. Well M18MW23 could not be located and was not sampled. The report recommends annual ground water sampling using PDBS for M18MW22 and M18MW23 if it can be located. Every reasonable effort, such as reviewing the NJ State Plane Coordinates of the well, must be made to locate M18MW23. The use of M18MW22 as the sole monitoring well at this parcel will not be acceptable due to the vast difference in historical concentrations between M18MW22 and M18MW23. Historic 2011 benzene concentrations for M18MW23 were 775 ppb and 664 ppb while 2011 concentrations for M18MW22 were 1.81 ppb and 1.65 ppb. The Department cannot approve the use of PDBS sampling only for this parcel. Once M18MW23 is located, the Department can approve the use of both PDBS and low-flow sampling for comparison purposes.

FTMM-22 Former Wastewater Treatment Lime Pit

Historic sampling at this parcel revealed GWQS exceedances of TCE. The August 2013 sampling of wells using low-flow and PDBS confirmed the continued exceedance of the GWQS for TCE in ground water. The report recommends quarterly VOC sampling of wells CW1MW27, CW1MW29, CW1MW31 and CW1MW281 using PDBS. The Department finds the proposal to be acceptable. At any point where a decision is made to terminate ground water sampling at this parcel, the Department will require confirmatory sampling using low-flow due to PDBS results biasing low compared to low-flow results at the Fort Monmouth site.

FTMM-25 Landfill

Historic sampling at this parcel revealed GWQS exceedances of various metals. The August 2013 sampling of wells using low-flow confirmed the continued exceedance of the GWQS for metals. The metals are attributed to background conditions. The report recommends discontinuing ground water sampling at this parcel. The Department finds the recommendation to be acceptable. Monitoring wells at this parcel shall be properly abandoned if they are no longer subject to sampling or gaging for water elevation data.

FTMM-53 Building 699

Historic sampling at this parcel revealed GWQS exceedances of benzene, PCE, TCE, TBA, VOC TICs and lead. The August 2013 sampling of wells using low-flow showed the exceedance of the GWQS for benzene, xylenes, PCE, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene and VOC TICs. The report recommends quarterly VOC sampling of wells 699MW01, 699MW04, 699MW06, 699MW09, 699MW16, 699RW03, 699RW05 and 699RW11 using PDBS. The Department finds the proposal to be acceptable. For wells in which the saturated screen length exceeds 10 feet, the deployment of multiple PDBS will be required. At any point where a

decision is made to terminate ground water sampling at this parcel, the Department will require confirmatory sampling using low-flow due to PDBS biasing low compared to low-flow at the Fort Monmouth site.

FTMM-54 Building 296

Historic sampling at this parcel revealed GWQS exceedances of benzene, lead and arsenic. The metals are attributed to background conditions. The August 2013 sampling of wells using low-flow showed an exceedance of the GWQS for benzene. The report recommends annual VOC sampling of wells 269MW04 and 296MW06 using PDBS. The Department finds the proposal to be acceptable. For wells in which the saturated screen length exceeds 10 feet, the deployment of multiple PDBS will be required. At any point where a decision is made to terminate ground water sampling at this parcel, the Department will require confirmatory sampling using low-flow due to PDBS biasing low compared to low-flow at the Fort Monmouth site.

FTMM-55 Building 290

Historic sampling at this parcel revealed GWQS exceedances of arsenic and lead. The August 2013 sampling of wells using low-flow confirmed the continued exceedance of the GWQS for lead. The metals are attributed to background conditions. The report recommends discontinuing ground water sampling at this parcel. The Department finds the recommendation to be acceptable. Monitoring wells at this parcel shall be properly abandoned if they are no longer subject to sampling or gaging for water elevation data.

FTMM-56 Building 80

Historic sampling at this parcel revealed GWQS exceedances of chlordane, arsenic, lead and cadmium. The August 2013 sampling of wells was conducted for lead only using low-flow. There were no exceedances of lead. The report recommends one additional sampling round of well 80MW02 for chlordane and 80MW05 for lead. The Department finds the recommendation for well 80MW02 to be acceptable. The Department disagrees with the recommendation to sample well 80MW05 for lead only. The last low-flow sampling event in August 2011 had lead, arsenic and cadmium exceeding both the GWQS and background concentrations. Well 80MW05 shall be sampled during the next round for TAL metals.

FTMM-57 Building 108

Historic sampling at this parcel revealed GWQS exceedances of lead. In the August 2013 sampling event, there were no exceedances of lead in ground water. The report recommends two additional sampling rounds of well 108MW04 for lead. The Department finds the recommendation acceptable.

FTMM-58 Building 2567

Historic sampling at this parcel revealed GWQS exceedances of TBA in wells 2567MW01 and 2567MW03. The August 2013 sampling results using low-flow and PDBS were below the GWQS for TBA. The report recommends two annual sampling events for TBA analyses of wells 2567MW01 and 2567MW03 using low-flow. The Department finds the proposal to be acceptable.

FTMM-59 Building 1122

Historic sampling at this parcel revealed no GWQS exceedances for VOCs. The August 2013 sampling results of wells using PDBS showed no exceedance of VOCs. The text of the report recommends VOC sampling of well 1122MW07 for one additional sampling round to confirm the 2013 results because August 2013 was the first time this well was sampled. The Department finds the proposal to be acceptable. The Department also notes that there is a discrepancy between the recommendation in the text and the recommendation in Table 7. Table 7 recommends that sampling at this parcel be discontinued. Table 7 shall be amended to indicate well 1122MW07 will be sampled for VOCs using PDBS methodology.

FTMM-61 Building 283

Historic sampling at this parcel revealed GWQS exceedances of metals, benzene and VOC TICs in 283MW02. The August 2013 sampling of wells using low-flow for VOCs and lead showed no exceedances. The report recommends VOC sampling of well 283MW02 for one additional sampling round using PDBS methodology to confirm the 2013 results. The Department finds the proposal to be conditionally acceptable. If the saturated screen length exceeds 10 feet, the deployment of multiple PDBS will be required. If a decision is made to terminate ground water sampling at this parcel based on PDBS results, the Department will require confirmatory sampling using low-flow due to PDBS biasing low compared to low-flow at the Fort Monmouth site.

FTMM-64 Building 812

Historic sampling at this parcel revealed GWQS exceedances of benzene, vinyl chloride and metals. The August 2013 sampling of wells using low-flow for VOCs and lead showed no exceedances. The report recommends VOC sampling of well 812MW04 for one additional sampling round using PDBS methodology to confirm the 2013 results (however Section 5.0 recommends sampling be continued on an annual basis). The Department finds the proposal to be conditionally acceptable. If the saturated screen length exceeds 10 feet, the deployment of multiple PDBS will be required. If a decision is made to terminate ground water sampling at this

parcel based on PDBS results, the Department will require confirmatory sampling using low-flow due to PDBS biasing low compared to low-flow at the Fort Monmouth site.

FTMM-66 Building 886

Historic sampling at this parcel revealed GWQS exceedances of benzene, VOC TICs, arsenic and lead. The August 2013 sampling results from wells using low-flow showed the exceedance of the GWQS for SVOC TICs. The report recommends that sampling at this parcel be discontinued. The Department finds the recommendation unacceptable. Total SVOC TICs exceeded the GWQS of 500 ppb in wells 886RW01 and 886RW06. Ground water monitoring of wells 886RW01, 886RW06 and 886RW08 shall continue for SVOC+TICs using low-flow methodology.

FTMM-68 Building 700

There are no historic sampling results for this parcel. The August 2013 sampling results of wells using PDBS showed the exceedance of the GWQS for PCE, TCE, cis-1,2-DCE and vinyl chloride in wells 565MW01 and 565MW01D. The report recommends quarterly ground water sampling for VOC+TICs using PDBS for these 2 wells. The Department agrees with the recommendation of quarterly sampling, however, has concerns regarding the use of PDBS for long-term monitoring at this parcel. Unlike the other Fort Monmouth parcels, there are no historical ground water sampling data for comparison with the PDBS results. The DEP's Field Sampling Procedures Manual states that "the intended application of Passive Diffusion Bag Samplers (PDBS) is for long-term monitoring of volatile organic compounds (VOCs) in ground water at well-characterized sites." The Department would find long-term sampling of the wells using PDBS acceptable if low-flow sampling is conducted concurrently once or twice for comparison.

Finally, each of the above comments speak only to the ground water findings and recommendations included in the referenced submittal, rather than to the ground water at the entire site.

Please contact this office if you have any questions.

Sincerely,

Linda S. Range

Linda S. Range

C: Joe Pearson, Calibre
Rick Harrison, FMERA
Julie Carver, Matrix
Frank Barricelli
Daryl Clark, BGWPA

Table 2
Historical Groundwater Analytical Results
Site FTMM-04
Fort Monmouth, New Jersey

				M4MW05					M4MW06							
Round No.	**NJDEP GWQS**	**USEPA MCL**	**Weston 1995 Background (Main Post)**	LF1	LF2	LF3	LF4	LF5	LF1	LF2	LF3	LF4	LF5	LF5 Dup	LF6	LF6 Dup
Date Collected				10/6/2010	10/21/2010	2/7/2011	4/6/2011	7/5/2011	8/6/2010	8/20/2010	10/6/2010	2/7/2011	4/6/2011	4/6/2011	7/5/2011	7/5/2011
ANALYTE/Lab ID				1043101	1045301	1103702	1113304	1127804	1033301	1035601	1043006	1103701	1113303	1113302	1127803	1127802
Metals (µg/L)																
Antimony	6	6	20.70	<6.0	<6.0	<6.0	<6.0	<6.0	ND	<4.8	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Arsenic	3	10	89.30	<3.0	<3.0	<3.0	<3.0	<3.0	ND	0.83 ER	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Barium	6000	2000	699.00	<200	<200	<200	<200	<200	23.2	22.3	<200	<200	<200	<200	<200	<200
Beryllium	1	4	2.10	<1.0	<1.0	<1.0	<1.0	<1.0	0.198 ER	0.17 ER	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	4	5	9.50	<3.0	<3.0	<3.0	<3.0	<3.0	ND	<0.5	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Chromium	70	100	191	<10	<10	<10	<10	11.8	1.19 ER	<1.0	<10	<10	<10	<10	<10	<10
Copper	1300	1300	65.6	<10	<10	<10	<10	<10	ND	<1.0	<10	<10	<10	<10	<10	<10
Lead	5	15	22.7	<3.0	<3.0	<3.0	<3.0	<3.0	ND	<2.4	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Mercury	2	2	0.26	NA	NA	<0.20	<0.20	<0.20	ND	<0.05	NA	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	100	NLE	187	10	10.4	11.3	15.2	14.8	7.51	8.67	<10	<10	10.5	12.3	11.8	11.2
Selenium	40	50	29.6	<10	<10	<10	<10	<10	NR	20.1	<10	<10	<10	<10	<10	<10
Thallium	0.5	2	5.5	<2.0	<2.0	<2.0	<2.0	<2.0	ND	<0.53	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0

Notes:

Shaded cells= concentrations exceed the NJDEP GWQS

NJDEP GWQS = Ground Water Quality Criteria as per N.J.A.C. 7:9-6 (July 22, 2010)

USEPA MCL = U.S.Environmental Protection Agency Maximum Contaminant Level (2012)

U.S.Environmental Protection

LF = Low flow sampling method used to collect sample

< = Analyte does not exceed the detection limit shown exceeds the method detection

NA = Not analyzed

ND = Not detected

NLE = No limit established

ER = Estimated Result

J - Estimated concentration exceeds the MDL and is less than the practical quantitation limit (PQL)

DUP = field duplicate sample

MCL = maximum contaminant level

Table 2
Historical Groundwater Analytical Results
Site FTMM-04
Fort Monmouth, New Jersey

				M4MW07																																	
Round No.	**NJDEP GWQS**	**USEPA MCL**	**Weston 1995 Background (Main Post)**	46		46 Dup		47		47 Dup		48		49		50		51		51 Dup		52		52 Dup		53		53 Dup		54		54 Dup		LF1		LF2	
Date Collected				1/8/2008		1/8/2008		4/3/2008		4/3/2008		7/10/2008		10/10/2008		3/12/2009		5/20/2009		5/20/2009		7/20/2009		7/20/2009		11/4/2009		11/4/2009		1/6/2010		1/6/2010		4/6/2010		7/21/2010	
ANALYTE/Lab ID				8001003		8001002		8011003		8011002		8022803		8036103		9010503		9020703		9020702		9030303		9030302		9043603		9043602		1000503		1000502		1012404		1031606	
Metals (µg/L)																																					
Antimony	6	6	20.70	<0.7		<0.7		<0.7		<0.7		<1.2		<1.2		5.24	ER	2.88	ER	1.3	ER	5.21	ER	<4.8		<4.8		<4.8		<4.8		7.58	ER	8.16		10.3	ER
Arsenic	3	10	89.30	<2.7		<2.7		<2.7		<2.7		<2.4		<2.4		9.05		7.36		5.37		5.28		14.8		0.68	ER	<0.62		<0.62		<0.62		<0.62		<0.62	
Barium	6000	2000	699.00	19.5		20.9		12.4		11.4		79.9		68.5		15.7		27.2		29.1		48.4		50.9		54.8		54.1		23.4		24.1		34.2		199	
Beryllium	1	4	2.10	0.326	ER	0.329	ER	0.134	ER	0.122	ER	0.604		0.597		<0.1		0.15	ER	0.154	ER	0.377	ER	0.35	ER	0.29	ER	0.285	ER	0.117	ER	0.108	ER	<0.04		1.28	
Cadmium	4	5	9.50	0.471	ER	0.678	ER	<0.2		<0.2		1.3	ER	0.278	ER	<0.2		<0.2		<0.2		0.906	ER	0.519	ER	<0.5		<0.5		<0.5		<0.5		<0.5		1.51	ER
Chromium	70	100	191	<0.2		<0.2		<0.2		<0.2		0.521	ER	2.56	ER	0.495	ER	1.79	ER	1.26	ER	<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0	
Copper	1300	1300	65.6	<0.5		<0.5		<0.5		<0.5		<0.7		<0.7		<0.7		<0.7		<0.7		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		<1.0	
Lead	5	15	22.7	<0.7		<0.7		<0.7		<0.7		<1.3		<1.3		4.46	ER	2.5	ER	2.39	ER	<2.4		<2.4		<2.4		<2.4		<2.4		<2.4		<2.4		<2.4	
Mercury	2	2	0.26	<0.13		<0.13		<0.13		<0.13		<0.073		<0.073		<0.073		<0.073		<0.073		0.06	ER	0.08	ER	<0.05		<0.05		<0.05		<0.05		<0.05		0.13	ER
Nickel	100	NLE	187	3.91	ER	3.76	ER	1.8	ER	1.79	ER	9.15		7.35		1.28	ER	3.96	ER	4.29	ER	7.86		7.5		8.44		8.44		5.17		5.45		0.672	ER	19.2	
Selenium	40	50	29.6	<2.7		5.43	ER	<2.7		<2.7		8.64	ER	3.68	ER	32.1		<3.1		4.35	ER	21.1		28.8		8.37	ER	<7.0		<7.0		<7.0		NR		83.4	
Thallium	0.5	2	5.5	<1.36		<1.36		<1.36		<1.36		<1.3		<1.3		<1.3		<1.3		<1.3		<1.3		<1.3		<0.53		<0.53		<0.53		<0.53		<0.53		<0.53	

Notes:

Shaded cells= concentrations exceed the NJDEP GWQS

NJDEP GWQS = Ground Water Quality Criteria as per N.J.A.C. 7:9-6 (July 22, 2010)

USEPA MCL = U.S.Environmental Protection Agency Maximum Contaminant Level (2012)

U.S.Environmental Protection

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exceeds the method detection

NA = Not analyzed

ND = Not detected

NLE = No limit established

ER = Estimated Result

J - Estimated concentration exceeds the MDL and is less than the practical quantitation limit (PQL)

DUP = field duplicate sample

MCL = maximum contaminant level

Table 2
Historical Groundwater Analytical Results
Site FTMM-04
Fort Monmouth, New Jersey

	NJDEP GWQS	USEPA MCL	Weston 1995 Background (Main Post)					M4MW08																									
Round No.				LF3	LF4	LF5	LF6	46		47		48		48 Dup		49		49 Dup		50		51		52		53		54		LF1		LF2	
Date Collected				10/6/2010	2/8/2011	4/6/2011	7/6/2011	1/8/2008		4/3/2008		7/10/2008		7/10/2008		10/10/2008		10/10/2008		3/12/2009		5/20/2009		7/20/2009		11/4/2009		1/6/2010		4/6/2010		7/21/2010	
ANALYTE/Lab ID				1043005	1104105	1113308	1128005	8001004		8011004		8022804		8022802		8036104		8036102		9010504		9020704		9030304		9043604		1000504		1012405		1031604	
Metals (µg/L)																																	
Antimony	6	6	20.70	<6.0	<6.0	<6.0	<6.0	48.8		20.7		1.73	ER	2.58	ER	4.1	ER	10.2		18.7		2.28	ER	<4.8		<4.8		4.94	ER	11.6		6.51	ER
Arsenic	3	10	89.30	<3.0	<3.0	<3.0	<3.0	<2.7		<2.7		<2.4		4.05	ER	<2.4		<2.4		109		20.2		24.8		4.36	ER	1.09	ER	3.61	ER	1.23 ER	ER
Barium	6000	2000	699.00	<200	<200	<200	<200	81.1		65.6		150		130		98		207		90.7		77.8		79.6		883		42.3		18.8		34.7	
Beryllium	1	4	2.10	<1.0	<1.0	<1.0	<1.0	0.171	ER	<0.1		<0.1		0.101	ER	0.272	ER	0.591		<0.1		<0.1		<0.04		0.151	ER	<0.04		<0.04		<0.04	
Cadmium	4	5	9.50	<3.0	<3.0	<3.0	<3.0	0.508	ER	0.917	ER	1.78	ER	1.26	ER	<0.2		0.204	ER	<0.2		<0.2		0.914	ER	9.23		<0.5		<0.5		1.56	ER
Chromium	70	100	191	<10	<10	<10	<10	<0.2		<0.2		<0.3		<0.3		1.54	ER	5.56		0.32	ER	<0.3		<1.0		20.5		<1.0		<1.0		<1.0	
Copper	1300	1300	65.6	<10	<10	<10	<10	<0.5		<0.5		<0.7		<0.7		<0.7		3.16	ER	<0.7		<0.7		<1.0		<1.0		<1.0		2.3	ER	<1.0	
Lead	5	15	22.7	<3.0	<3.0	<3.0	<3.0	<0.7		<0.7		<1.3		<1.3		<1.3		<1.3		3.62	ER	2.58	ER	<2.4		31.1		<2.4		<2.4		<2.4	
Mercury	2	2	0.26	NA	<0.20	<0.20	<0.20	<0.13		<0.13		<0.073		<0.073		<0.073		<0.073		<0.073		<0.073		0.07	ER	<0.05		<0.05		<0.05		0.16	ER
Nickel	100	NLE	187	<10	<10	<10	15.9	<0.3		<0.3		<0.5		<0.5		<0.5		<0.5		<0.5		<0.5		1.32	ER	<0.4		3.05	ER	1.71	ER	<0.4	
Selenium	40	50	29.6	<10	<10	<10	<10	<2.7		<2.7		<7.43		<7.38		<3.1		<3.1		84.5		3.55	ER	13.3		<7.0		<7.0		NR		65.1	
Thallium	0.5	2	5.5	<2.0	<2.0	<2.0	<2.0	<1.36		<1.36		<1.3		<1.3		<1.3		<1.3		<1.3		<1.3		<1.3		<0.53		<0.53		<0.53		<0.53	

Notes:

Shaded cells= concentrations exceed the NJDEP GWQS

NJDEP GWQS = Ground Water Quality Criteria as per N.J.A.C. 7:9-6 (July 22, 2010)

USEPA MCL = U.S.Environmental Protection Agency Maximum Contaminant Level (2012)

U.S.Environmental Protection

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< = Analyte does not exceed the detection limit shown exceeds the method detection

NA = Not analyzed

ND = Not detected

NLE = No limit established

ER = Estimated Result

J - Estimated concentration exceeds the MDL and is less than the practical quantitation limit (PQL)

DUP = field duplicate sample

MCL = maximum contaminant level

Table 2
Historical Groundwater Analytical Results
Site FTMM-04
Fort Monmouth, New Jersey

																															M4MW09				
Round No.	**NJDEP GWQS**	**USEPA MCL**	**Weston 1995 Background (Main Post)**	LF3		LF4		LF4 Dup		LF5		LF6		LF6 Dup		46		47		48		49		50		50 Dup		51		52		53		54		LF1	
Date Collected				10/6/2010		2/8/2011		2/8/2011		4/6/2011		7/6/2011		7/6/2011		1/8/2008		4/3/2008		7/10/2008		10/10/2008		3/12/2009		3/12/2009		5/20/2009		7/20/2009		11/4/2009		1/6/2010		4/6/2010	
ANALYTE/Lab ID				1043003		1104103		1104102		1113306		1128003		1128002		8001005		8011005		8022805		8036105		9010505		9010502		9020705		9030305		9043605		1000505		1012403	
Metals (µg/L)																																					
Antimony	6	6	20.70	<6.0		<6.0		<6.0		11.3		<6.0		<6.0		<0.7		<0.7		<1.2		<1.2		15		12		3.71	ER	<4.8		<4.8		<4.8		11.6	
Arsenic	3	10	89.30	<3.0		<3.0		<3.0		<3.0		<3.0		<3.0		<2.7		<2.7		<2.4		<2.4		96		92		18.9		20.8		<0.62		<0.62		<0.62	
Barium	6000	2000	699.00	<200		<200		<200		<200		<200		<200		62.4		50.7		37.2		65.9		63.5		67.3		44.4		63		44		60.2		32	
Beryllium	1	4	2.10	<1.0		<1.0		<1.0		<1.0		<1.0		<1.0		0.196	ER	<0.1		<0.1		0.188	ER	<0.1		<0.1		<0.1		<0.04		<0.04		<0.04		<0.04	
Cadmium	4	5	9.50	<3.0		<3.0		<3.0		<3.0		<3.0		<3.0		0.343	ER	<0.2		0.27	ER	<0.2		<0.2		<0.2		<0.2		<0.5		<0.5		<0.5		<0.5	
Chromium	70	100	191	<10		<10		<10		<10		<10		<10		<0.2		<0.2		<0.3		0.561	ER	0.9	ER	<0.3		<0.3		<1.0		<1.0		<1.0		<1.0	
Copper	1300	1300	65.6	<10		<10		<10		<10		<10		<10		<0.5		<0.5		<0.7		<0.7		<0.7		<0.7		<0.7		<1.0		<1.0		<1.0		<1.0	
Lead	5	15	22.7	<3.0		<3.0		<3.0		<3.0		<3.0		<3.0		<0.7		<0.7		<1.3		1.3		5	ER	6.81		2.02	ER	<2.4		<2.4		<2.4		<2.4	
Mercury	2	2	0.26	NA		<0.20		<0.20		<0.20		<0.20		<0.20		<0.13		<0.13		<0.073		<0.073		<0.073		<0.073		<0.073		<0.05		<0.05		<0.05		<0.05	
Nickel	100	NLE	187	<10		<10		<10		<10		<10		<10		<0.3		<0.3		<0.5		<0.5		<0.5		<0.5		0.993	ER	2.75	ER	0.524	ER	1.21	ER	<0.4	
Selenium	40	50	29.6	<10		<10		<10		<10		<10		<10		<2.7		<2.7		7.62	ER	<3.1		87		73.3		4.73	ER	26.2		17.7	ER	<7.0		NR	
Thallium	0.5	2	5.5	<2.0		<2.0		<2.0		<2.0		<2.0		<2.0		<1.36		<1.36		<1.3		<1.3		<1.3		<1.3		2.02	ER	<1.3		<0.53		<0.53		<0.53	

Notes:

Shaded cells= concentrations exceed the NJDEP GWQS

NJDEP GWQS = Ground Water Quality Criteria as per N.J.A.C. 7:9-6 (July 22, 2010)

USEPA MCL = U.S.Environmental Protection Agency Maximum Contaminant Level (2012)

U.S.Environmental Protection

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NA = Not analyzed

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NLE = No limit established

ER = Estimated Result

J - Estimated concentration exceeds the MDL and is less than the practical quantitation limit (PQL)

DUP = field duplicate sample

MCL = maximum contaminant level

Table 2
Historical Groundwater Analytical Results
Site FTMM-04
Fort Monmouth, New Jersey

																															M4MW10				
Round No.	**NJDEP GWQS**	**USEPA MCL**	**Weston 1995 Background (Main Post)**	LF1 Dup		LF2		LF2 Dup		LF3	LF3 Dup	LF4	LF5	LF6	46		47		48		49		50		51		52		53		54					
Date Collected				4/6/2010		7/21/2010		7/21/2010		10/6/2010	10/6/2010	2/7/2011	4/6/2011	7/5/2011	1/8/2008		4/3/2008		7/10/2008		10/10/2008		3/12/2009		5/20/2009		7/21/2009		11/4/2009		1/6/2010					
ANALYTE/Lab ID				1012402		1031603		1031602		1043002	1043001	1103703	1113305	1127805	8001006		8011006		8022806		8036106		9010506		9020706		9030306		9043606		1000506					
Metals (µg/L)																																			
Antimony	6	6	20.70	8.16	ER	7.78	ER	9.64	ER	<6.0	<6.0	<6.0	<6.0	<6.0	<0.7		<0.7		<1.2		2.52	ER	15.4		2	ER	<4.8		<4.8		<4.8					
Arsenic	3	10	89.30	<0.62		<0.62		0.98	ER	<3.0	<3.0	<3.0	<3.0	<3.0	<2.7		5.11		<2.4		<2.4		61.5		17.6		17.7		<0.62		1.4	ER				
Barium	6000	2000	699.00	34.2		44.2		44.1		<200	<200	<200	<200	<200	1330		346		129		88.7		410		190		112		109		114					
Beryllium	1	4	2.10	<0.04		<0.04		<0.04		<1.0	<1.0	<1.0	<1.0	<1.0	2.65		0.472	ER	0.398	ER	0.342	ER	0.433	ER	0.32	ER	0.096	ER	<0.04		<0.04					
Cadmium	4	5	9.50	<0.5		<0.5		<0.5		<3.0	<3.0	<3.0	<3.0	<3.0	5.74		5.9		2.9		<0.2		<0.2		<0.2		1.22	ER	<0.5		<0.5					
Chromium	70	100	191	<1.0		<1.0		<1.0		<10	<10	<10	<10	<10	0.529	ER	<0.2		<0.3		<0.3		0.833	ER	<0.3		<1.0		<1.0		<1.0					
Copper	1300	1300	65.6	<1.0		<1.0		<1.0		<10	<10	<10	<10	<10	<0.5		<0.5		<0.7		<0.7		<0.7		<0.7		<1.0		<1.0		<1.0					
Lead	5	15	22.7	<2.4		<2.4		<2.4		<3.0	<3.0	<3.0	<3.0	<3.0	<0.7		4.53	ER	2.13	ER	<1.3		11.6		1.78	ER	<2.4		<2.4		<2.4					
Mercury	2	2	0.26	<0.05		0.22	ER	0.47	ER	NA	NA	<0.20	<0.20	<0.20	<0.13		<0.13		<0.073		<0.073		<0.073		<0.073		<0.05		<0.05		<0.05					
Nickel	100	NLE	187	0.672	ER	<0.4		<0.4		<10	<10	<10	<10	<10	<0.3		0.309	ER	<0.5		<0.5		<0.5		<0.5		1.27	ER	<0.4		4.32	ER				
Selenium	40	50	29.6	<7.0		62		72.7		<10	<10	<10	<10	<10	<2.7		<2.7		<3.1		<3.1		52.7		4.61	ER	<7.0		<7.0		<7.0					
Thallium	0.5	2	5.5	<0.53		<0.53		<0.53		<2.0	<2.0	<2.0	<2.0	<2.0	<1.36		<1.36		<1.3		<1.3		<1.3		<1.3		<1.3		<0.53		<0.53					

Notes:

Shaded cells= concentrations exceed the NJDEP GWQS

NJDEP GWQS = Ground Water Quality Criteria as per N.J.A.C. 7:9-6 (July 22, 2010)

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DUP = field duplicate sample

MCL = maximum contaminant level

Table 2
Historical Groundwater Analytical Results
Site FTMM-04
Fort Monmouth, New Jersey

Round No.	NJDEP GWQS	USEPA MCL	Weston 1995 Background (Main Post)	LF1		LF2		LF3	LF4	LF5	LF6
Date Collected				4/6/2010		7/21/2010		10/6/2010	2/8/2011	4/6/2011	7/6/2011
ANALYTE/Lab ID				1012406		1031605		1043004	1104104	1113307	1128004
Metals (µg/L)											
Antimony	6	6	20.70	7.3	ER	9.23	ER	<6.0	<6.0	<6.0	<6.0
Arsenic	3	10	89.30	0.83	ER	1.12	ER	<3.0	<3.0	<3.0	<3.0
Barium	6000	2000	699.00	41.8		53.6		<200	<200	202	<200
Beryllium	1	4	2.10	<0.04		<0.04		<1.0	<1.0	<1.0	<1.0
Cadmium	4	5	9.50	<0.5		1.26	ER	<3.0	<3.0	<3.0	<3.0
Chromium	70	100	191	<1.0		<1.0		<10	<10	<10	<10
Copper	1300	1300	65.6	1.34	ER	<1.0		<10	<10	<10	<10
Lead	5	15	22.7	<2.40		<2.40		<3.0	<3.0	<3.0	<3.0
Mercury	2	2	0.26	<0.05		0.4	ER	NA	<0.20	<0.20	<0.20
Nickel	100	NLE	187	3.54	ER	0.959	ER	<10	<10	<10	<10
Selenium	40	50	29.6	NR		59.8		<10	<10	<10	<10
Thallium	0.5	2	5.5	<0.53		<0.53		<2.0	<2.0	<2.0	<2.0

Notes:

Shaded cells= concentrations exceed the NJDEP GWQS

NJDEP GWQS = Ground Water Quality Criteria as per N.J.A.C. 7:9-6 (July 22, 2010)

USEPA MCL = U.S.Environmental Protection Agency Maximum Contaminant Level (2012)

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NLE = No limit established

ER = Estimated Result

J - Estimated concentration exceeds the MDL and is less than the practical quantitation limit (PQL)

DUP = field duplicate sample

MCL = maximum contaminant level

Table 3
2013 Baseline Groundwater Analytical Detections
Site FTMM-04
Fort Monmouth, New Jersey

SAMPLE ID:			STANDARDS VALUES			FTMM-4-GW-M4MW05		FTMM-4-GW-M4MW06		FTMM-4-GW-M4MW07		FTMM-4-GW-M4MW08		FTMM-4-GW-M4MW09		FTMM-4-GW-M4MW10	
DATE SAMPLED:			NJDEP GWQS[1]	USEPA MCL[2]	Weston 1995 Background (Main Post)	20-Aug-2013		20-Aug-2013		20-Aug-2013		20-Aug-2013		20-Aug-2013		20-Aug-2013	
LAB SAMPLE ID:						R1306058-016		R1306058-014		R1306058-015		R1306058-004		R1306058-017		R1306058-013	
SAMPLE INTERVAL (ft bgs):						5-20		5-20		6-16		4-19		7-22		3-18	
	CAS No.	Unit															
Volatile Organics - SW8260C																	
1,1,1,2-Tetrachloroethane	630-20-6	µg/L	1	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,1-Trichloroethane	71-55-6	µg/L	30	200	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	1	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	79-00-5	µg/L	3	5	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	75-34-3	µg/L	50	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	75-35-4	µg/L	1	7	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloropropene	563-58-6	µg/L	5 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	87-61-6	µg/L	5 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichloropropane	96-18-4	µg/L	0.03	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	120-82-1	µg/L	9	70	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trimethylbenzene	95-63-6	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	96-12-8	µg/L	0.02	0.2	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane (EDB)	106-93-4	µg/L	0.03	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	95-50-1	µg/L	600	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	107-06-2	µg/L	2	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	78-87-5	µg/L	1	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3,5-Trimethylbenzene	108-67-8	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	541-73-1	µg/L	600	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichloropropane	142-28-9	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	106-46-7	µg/L	75	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2,2-Dichloropropane	594-20-7	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Butanone (MEK)	78-93-3	µg/L	300	NLE	--	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ
2-Chlorotoluene	95-49-8	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	591-78-6	µg/L	300 [4]	NLE	--	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Chlorotoluene	106-43-4	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone (MIBK)	108-10-1	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	67-64-1	µg/L	6,000	NLE	--	5.0	UJ	5.0	UJ	**1.4**	J	5.0	UJ	5.0	UJ	5.0	UJ
Benzene	71-43-2	µg/L	1	5	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromobenzene	108-86-1	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromochloromethane	74-97-5	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	75-27-4	µg/L	1	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	75-25-2	µg/L	4	NLE	--	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ
Bromomethane	74-83-9	µg/L	10	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	56-23-5	µg/L	1	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	108-90-7	µg/L	50	100	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	75-00-3	µg/L	5 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	67-66-3	µg/L	70	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	74-87-3	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	156-59-2	µg/L	70	70	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	10061-01-5	µg/L	5 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	124-48-1	µg/L	1	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane (Freon 12)	75-71-8	µg/L	1,000	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	100-41-4	µg/L	700	700	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Hexachlorobutadiene	87-68-3	µg/L	1	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	98-82-8	µg/L	700	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	75-09-2	µg/L	3	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-tert-butyl ether (MTBE)	1634-04-4	µg/L	70	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Naphthalene	91-20-3	µg/L	300	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	**0.28**	BJ
n-Butylbenzene	104-51-8	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
n-Propylbenzene	103-65-1	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
p-Isopropyltoluene	99-87-6	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
sec-Butylbenzene	135-98-8	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	100-42-5	µg/L	100	100	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
tert-Butylbenzene	98-06-6	µg/L	100 [3]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene (PCE)	127-18-4	µg/L	1	5	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Table 3
2013 Baseline Groundwater Analytical Detections
Site FTMM-04
Fort Monmouth, New Jersey

SAMPLE ID:			STANDARDS VALUES			FTMM-4-GW-M4MW05		FTMM-4-GW-M4MW06		FTMM-4-GW-M4MW07		FTMM-4-GW-M4MW08		FTMM-4-GW-M4MW09		FTMM-4-GW-M4MW10	
DATE SAMPLED:			NJDEP GWQS[1]	USEPA MCL[2]	Weston 1995 Background (Main Post)	20-Aug-2013		20-Aug-2013		20-Aug-2013		20-Aug-2013		20-Aug-2013		20-Aug-2013	
LAB SAMPLE ID:						R1306058-016		R1306058-014		R1306058-015		R1306058-004		R1306058-017		R1306058-013	
SAMPLE INTERVAL (ft bgs):						5-20		5-20		6-16		4-19		7-22		3-18	
	CAS No.	Unit															
Toluene	108-88-3	µg/L	600	1,000	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	156-60-5	µg/L	100	100	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	10061-02-6	µg/L	5 [5]	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene (TCE)	79-01-6	µg/L	1	5	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane (Freon 11)	75-69-4	µg/L	2,000	NLE	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	75-01-4	µg/L	1	2	--	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylene (Total)	1330-20-7	µg/L	1,000	10,000	--	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Metals - SW6010C/SW7470A																	
Aluminum	7429-90-5	µg/L	200	NLE	121000	**90.5**	J	**31.3**	J	**125**		25	U	25	U	25	U
Antimony	7440-36-0	µg/L	6	6	20.70	4.0	U	**2.9**	BJ	**2.5**	BJ	**4.4**	BJ	**4.1**	BJ	4.0	U
Arsenic	7440-38-2	µg/L	3	10	89.30	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Barium	7440-39-3	µg/L	6,000	2,000	699.00	**22.2**		**18.4**	J	**16.9**	J	**27.7**		**48.9**		**60.7**	
Beryllium	7440-41-7	µg/L	1	4	2.10	**0.399**	BJ	**0.29**	BJ	0.30	U	0.30	U	0.30	U	0.30	U
Cadmium	7440-43-9	µg/L	4	5	9.50	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Calcium	7440-70-2	µg/L	NLE	NLE	45400.00	**3,010**		**2,760**		**7,040**		**52,200**		**43,900**		**45,500**	
Chromium	7440-47-3	µg/L	70	100	191.00	**1.4**		**1.1**		**0.348**	J	**0.195**	J	1.0	U	1.0	U
Cobalt	7440-48-4	µg/L	NLE	NLE	18.30	**3.9**		**3.5**		**2.0**	J	1.0	U	1.0	U	**0.866**	J
Copper	7440-50-8	µg/L	1,300	1,300 [5]	65.60	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Iron	7439-89-6	µg/L	300	NLE	431000	**201**		**18.1**	J	**3,260**		**19,800**		**5,600**		**9,160**	
Lead	7439-92-1	µg/L	5	15 [5]	22.70	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Magnesium	7439-95-4	µg/L	NLE	NLE	62700	**3,380**		**2,880**		**2,340**		**7,180**		**6,720**		**8,950**	
Manganese	7439-96-5	µg/L	50	NLE	331	**12.3**		**7.8**	J	**32.5**		**272**		**50.6**		**163**	
Mercury	7439-97-6	µg/L	2	2	0.26	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
Nickel	7440-02-0	µg/L	100	NLE	187	**8.0**		**7.2**		5.0	U	5.0	U	5.0	U	5.0	U
Potassium	9/7/7440	µg/L	NLE	NLE	137000	**2,400**		**2,580**		**1,480**	J	**7,510**		**7,520**		**4,220**	
Selenium	7782-49-2	µg/L	40	50	29.60	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	**2.1**	J
Silver	7440-22-4	µg/L	40	NLE	ND	**0.408**	BJ	**0.373**	BJ	**0.363**	BJ	**0.766**	BJ	**0.53**	BJ	**0.734**	BJ
Sodium	7440-23-5	µg/L	50,000	NLE	21500	**4,720**		**3,630**		**78,100**		**22,000**		**5,860**		**58,500**	
Thallium	7440-28-0	µg/L	2	2	5.50	10	U	10	U	10	U	10	U	10	U	10	U
Vanadium	7440-62-2	µg/L	NLE	NLE	108	**0.564**	J	0.60	U	**0.518**	J	**0.822**	J	**0.425**	J	**0.665**	J
Zinc	7440-66-6	µg/L	2,000	NLE	233	**33.7**	B	**40.5**	B	**46.6**	B	4.0	U	4.0	U	**3.7**	BJ

QA NOTES AND DATA QUALIFIERS:

U - Analyte was not detected above the indicated limit of detection (LOD).

J - Analyte detected, estimated concentration.

UJ - Analyte not detected, reported LOD may be inaccurate or imprecise.

B - The analyte was found in an associated blank at concentration above one half the LOQ, as well as in the sample.

BJ - Analyte detected, estimated concentration. Analyte also found in an associated blank at concentration above one half the LOQ.

D**etections are bolded.**

Detections above the NJDEP GWQS are highlighted.

For Detections above the USEPA MCL, the cell border is bolded.

NOTES:

[1] New Jersey Department of Environmental Protection Ground Water Quality Standards Specific Ground Water Quality Criteria - Class IIA and Practical Quantitation Levels. (http://www.state.nj.us/dep/wms/bwqsa/Appendix_Table_1.htm).

[2] USEPA 2012 Edition of the Drinking Water Standards and Health Advisories, Spring 2012. (http://water.epa.gov/action/advisories/drinking/upload/dwstandards2012.pdf).

[3] Interim generic groundwater quality criteria.

[4] Interim specific groundwater quality criteria.

[5] Value is the USEPA Action Level.

NLE - No screening level established.

Attachment B
Figure 1 – FTMM-04 Location, and
Figure 2 – Layout of FTMM-04

Little Silver Borough

Shrewsbury Borough

Shrewsbury Borough

Parkers Creek

Parkers Creek

Oceanport Borough

North Branch Parkers Creek

Oceanport Creek

FTMM-04

Oceanport Borough

Tinton Falls Borough

Lafetra Creek

Husky Brook (Culvert)

Husky Brook Lake

Mill Creek

Wampum Lake

Oceanport Borough

Eatontown Borough

Eatontown Borough

Husky Brook

Turtle Mill Brook

West Long Branch Borough

LEGEND:

- Municipal Boundary
- FTMM-04 Landfill Revised Boundary (2015)
- Installation Boundary
- Surface Water Feature

N

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

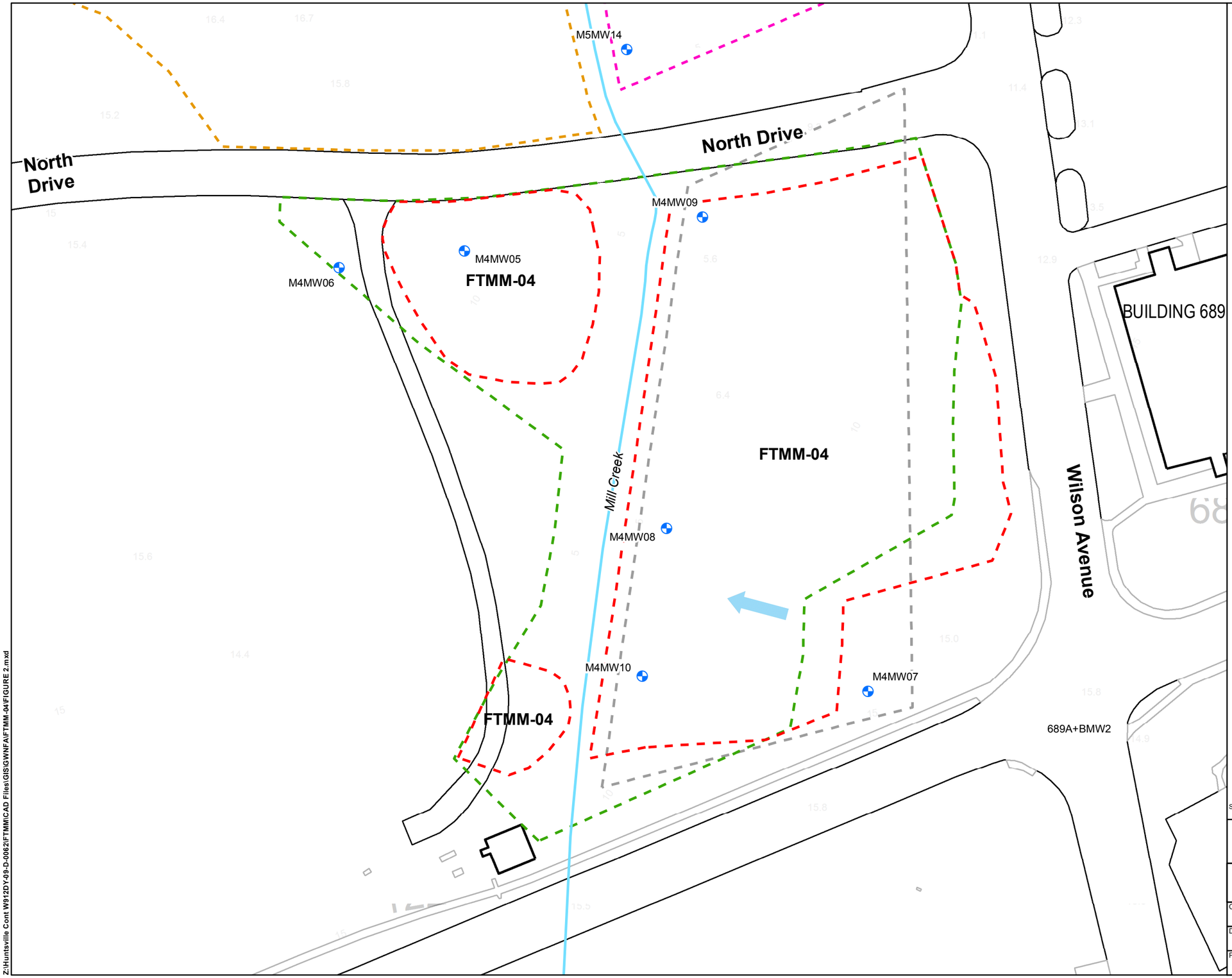
Source: FTMM Supplied CAD, 2013; ESRI Data and Maps, 2011; USGS NHD, 2012.

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

FTMM-04 LOCATION

CREATED BY: RR	REVIEWED BY: RF
DATE: FEB. 2017	FIGURE NUMBER: FIGURE 1
PROJECT NUMBER: 748810-03000	FILE: FIGURE 1.mxd

P:\PIT\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\GWNFA\FTMM-04\FIGURE 1.mxd 2/9/2017 12:08:24 PM p0018397



LEGEND:

- Shallow Monitoring Well
- FTMM-04 Landfill Revised Boundary (2015)
- FTMM-04 Landfill Revised Boundary (2010)
- FTMM-04 Landfill Original Boundary
- FTMM-03 Landfill
- FTMM-05 Landfill
- W Water Line
- S Sanitary Sewer Line
- SW Storm Sewer Line
- G Gas Line
- Estimated Groundwater Flow Direction

N

1 inch = 60 feet

0 15 30 60 90 120 Feet

Source: FTMM Supplied CAD, 2013.

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

LAYOUT OF FTMM-04

CREATED BY:	REVIEWED BY:
RR	RF
DATE:	FIGURE NUMBER:
MAR. 2017	FIGURE 2
PROJECT NUMBER:	FILE:
748810-03000	FIGURE 2.mxd

Z:\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\GWNFA\FTMM-04\FIGURE 2.mxd