DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
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November 23, 2015

Ms. Linda Range
New Jersey Department of Environmental Protection
Case Manager
401 East State Street, 5th Floor
PO Box 420
Trenton, NJ 08625-0028

Subject: State of New Jersey Department of Environmental Protection Comments on the 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 Ms. Range,

Fort Monmouth (FTMM) and Parsons have reviewed the New Jersey Department of Environmental Protection (NJDEP) comments on the Final Environmental Condition of Property Supplemental Phase II Site Investigation Work Plan Addendum for Parcels 34, 50, 51, 52, 66, 80 and 83 as documented in your letter dated June 16, 2015. Responses to your comments are provided below in the order in which they were presented in the comment letter.

A. General

A1. COMMENT: Tables 3.1 and 3.2 also will require revision based upon the following comments.

A1. RESPONSE: Comment noted. Tables 3.1 and 3.2 have been revised based upon the comments and responses.

B. Parcel 34/Building 2567/FTMM-58:

B1. COMMENT: *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.

B1. RESPONSE: Soil sampling data obtained by Weston in 1993 (which indicate elevated levels of benzene in soil) and additional soil data generated by FTMM in 2013 have been reviewed and summarized (in results tables) in the Work Plan Addendum, and an assessment of remaining data gaps has been provided. The additional sampling performed by FTMM in 2013 did not address the benzene in the vadose zone referred to in the comment; therefore, the Work Plan has been revised to include additional soil sampling. See additional details below in responses B2 and B3.

B2. COMMENT: *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.

B2. RESPONSE: The statement referred to in the comment is**: "…**they (NJDEP) stated that it is necessary to remove the piping and dispensing equipment/island." Due to personnel changes over the years this communication could not be located and reviewed. Please provide said communication so that the Army can respond to this comment.

In addition, soil sampling was performed by FTMM in 2013 to assess the potential for contamination along piping from the former fiberglass gasoline USTs (removed in 2008) to the fuel dispensers. The soil was not sampled until 2013 because the piping was used to dispense fuel from the replacement ASTs until Base closure in 2011. Seven soil samples (PSB-1 through PSB-7) were collected along the piping corridor at a depth of 2.5 to 3 feet bgs and analyzed for VOCs+TICs and lead. There were no exceedances of NJDEP direct contact soil remediation standards, and only one slight exceedance of the NJDEP Impact to Ground Water (IGW) screening level (SL) for benzene (0.011 mg/kg versus screening level of 0.005 mg/kg). This additional historical information documenting the investigation of the piping has been added to the ECP Work Plan Addendum (Appendix B).

B3. COMMENT: *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.

B3. RESPONSE: A total of 23 post-excavation soil samples (exact depths unknown, but likely collected at approximately 4 feet bgs) were collected by Weston around the perimeter of the soil excavation for four USTs and the dispenser area in 1993. The samples were designated A through W. The UST removal report prepared by Weston (1995) states that groundwater observed at 4 feet bgs in nearby monitoring wells was not observed during the excavation; therefore the excavation was extended to 7 feet bgs "when necessary". The samples were analyzed for VOCs+TICs, TPHC, and lead. Benzene concentrations exceeded the current

RDCSRS and IGW SL at 9 and 11 locations, respectively. Ethylbenzene and xylenes exceeded the current IGW SL at 5 and 11 locations, respectively. Acetone was also detected above the IGW SL at one location, but was also detected in the associated blank sample and likely represents laboratory contamination. The maximum TPHC and lead concentrations in soil were 4,539 mg/kg and 129 mg/kg, respectively. None of the lead concentrations exceed the current RDCSRS of 400 mg/kg, and there is no NJDEP standard or screening value for total gasoline-range petroleum hydrocarbons. This historical information, including a sample location map and sampling results table, have been added to the ECP Work Plan Addendum (Appendix B).

Four new soil borings will be advanced at four excavation sidewall sample locations that had relatively high BTEX concentrations in 1993 in order to assess current concentrations. The borings will be advanced at the locations of the 1st, 2nd, 3rd, and 5th highest soil benzene concentrations detected in 1993 (locations Q, O, N, and G). Benzene concentrations at these four locations ranged from 14 to 85 J mg/kg. The location of the 4th highest benzene concentration (25 J mg/kg) will not be sampled because it was located approximately 6 feet from the 3rd highest concentration (27 mg/kg) and had a very similar concentration. Soil borings will be advanced to at least 5 feet below the water table (estimated to be present at approximately 4 feet bgs at this site), through and below any fuel smear zone bordering the water-table that may be present. Up to three samples per boring will be collected based on field observations of contamination and PID headspace screening. If there is no indication of contamination at a boring location, then one sample will be collected from 0.5 to 1.0 feet below the bottom of the pavement and one sample will be collected from the 6-inch interval just above the water table. If there is field evidence of contamination (visual, olfactory, PID screening) then the sample intervals will be: 1) the most contaminated 6-inch interval in the top 2 feet of the soil column based on field screening, 2) a 6-inch interval that is below any field evidence of contamination to delineate vertical extent, and 3) the most contaminated intermediate 6-inch interval encountered based on field evidence. Soil samples will be analyzed for VOCs+TICs including 1,2-DBA and 1,2-DCA. This proposed additional soil sampling has been added to Appendix B of the ECP Work Plan Addendum.

C. <u>Parcel 50</u>:

C1. COMMENT: *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.

C1. RESPONSE: Comment noted, Page C-2 lines 39 & 42 have been updated to 1993.

C2. COMMENT: *Section 2.2.2 – FTMM-55 – Page C-5, line 11* – Waste oil UST No. 91533-193 is indicated as being NFA 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.

C2. RESPONSE: The waste oil UST number stated in the referenced Appendix C text is 81533-193. A request for NFA for UST290C (81533-193) was submitted to the NJDEP on January 30, 2015 ("Underground Storage Task within Parcels 49 and 50, Fort Monmouth,

NJ"). NJDEP approved NFA in a letter dated November 16, 2015. The Work Plan text has been revised accordingly.

C3. COMMENT: *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.

C3. Response: Comment noted. Vertical delineation is required at sample locations A, F and B; therefore a new soil boring will be advanced to at least five feet below the water table at the locations of samples A, F and B to assess current concentrations and vertical extent of EPH. Two soil samples will be collected from each boring. Samples will be collected from 5.5-6.0 feet and a deeper 6-inch interval that is below any field evidence of contamination to delineate vertical extent based on field evidence (visual, olfactory, PID screening). Appendix C of the Work Plan Addendum has been updated with this information.

C4. Comment: 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.

C4. RESPONSE: The tank being investigated at Parcel 50 is a fuel oil tank and, based on our review of NJDEP *Protocol for Addressing Extractable Petroleum Hydrocarbons* (Version 5, August 2010), the appropriate category of discharge for this investigation is Category 1. According to the EPH protocols for this category, total EPH results are to be compared to a trigger value of 5,100 mg/kg. With regard to contingency analyses, if EPH is detected in any of the samples over 1,000 ppm then 25% of the samples where EPH exceeds 1,000 mg/kg collected at Parcel 50 will be analyzed for 2-methylnaphthalene and naphthalene. The NJDEP EPH protocol does not specify that the EPH samples related to a No. 2 fuel oil or diesel fuel oil tank (Category 1) need to be fractionated. Based on our reading of the EPH protocol, fractionation is only required for discharges that fall into a Category 2 where EPH is anticipated to be above 1,700 ppm.

D. Parcel 51:

D1. COMMENT: *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.

D1. RESPONSE: Comment noted. A summary of closure and site assessment data for the multiple USTs within Parcel 51 will be provided under separate cover.

D2. COMMENT: *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-Gl2 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.

D2. RESPONSE: During the 2007 SI sampling, fuel-contaminated soil and groundwater were encountered at location P51-G12. A soil sample collected from 6-6.5 feet bgs contained approximately 7,500 mg/kg TPHC, and a groundwater sample collected using a HydroPunch contained 40.5 µg/L of 2-methylnaphthalene; the interim groundwater quality criterion for this SVOC is 30 µg/L. The groundwater grab sampling results for SI location P51-E12, located approximately 200 feet north of P51-G12, bound the groundwater contamination in the downgradient direction (no GWQS exceedances for VOCs or SVOCs). During review of the files associated with Parcel 51, additional information was located. The following is a summary of the new information and proposed sampling program.

<u>New Information</u>

A 2000-gallon No. 2 fuel oil UST (#81533-107) that was located adjacent to the northeast corner of Building 686 was removed in 1995 (*Closure and Site Investigation Report for Underground Storage Tanks in the 600 Area* [Versar, February 2002]). This UST was located approximately 60 feet south (hydraulically upgradient) of 2007 SI sampling location P51-G12. During tank removal, contaminated soil was excavated, and this tank was one of 68 USTs approved for No Further Action by NJDEP via letter dated January 10, 2003.

The following investigation work was performed by the Army at UST #81533-107 in approximately January 2010. Sampling locations are shown on Figure D2:

- Four soil borings (P51-SB-1, P51-SB-2, P51-SB-3, and P51-SB-4) were advanced to the water table near the former UST location; one boring was advanced on each side of the former UST. A single soil sample was collected from each boring at 7.0-7.5 feet bgs and analyzed for BN+15 and VOCs+10.
- One 2-inch diameter PVC temporary monitoring well, screened across the water table, was installed in boring P51-SB-2 and a second temporary well (51-TMP-1, screened from 5-10 feet bgs) was installed immediately north of the former UST; the groundwater samples from temporary well P51-SB-2 was analyzed for BN+15 and VOCs+10, and the groundwater sample from 51-TMP-1 was analyzed for BN+15.
- A soil sample was collected from a depth of 7-7.5 feet bgs during drilling of temporary well 51-TMP-1 and analyzed for BN+15.
- Existing permanent groundwater monitoring well 600MW01, installed in 1994, was sampled for BN+15.
- A new permanent groundwater monitoring well, 600MW04, was installed at the former fuel oil UST location (i.e., the contamination source area), but has not been sampled to date.

The results of the field investigation revealed that fuel hydrocarbon contamination was detected in soil samples from P51-SB-1 and P51-SB-2; naphthalene concentrations in samples from these borings ranged from 6.29 to 19.28 D mg/kg, exceeding the 6-mg/kg RDCSRS. There were no detections of target analytes in soil from P51-SB-3 or P51-SB-4; however, the total SVOC TIC

concentration detected in the soil sample from P51-SB-4 was 931.45J mg/kg. GWQS exceedances in the groundwater sample from temporary well P51-SB-2 included benzo(a)anthracene (0.152 µg/L), and 2-methylnaphthalene (139 µg/L); these concentrations exceeded the interim groundwater quality criteria of 0.1 µg/L and 30 µg/L, respectively. There were no exceedances of GWQS in the groundwater sample from permanent well 600MW01.

The SVOC 2-methylnaphthalene was detected in the groundwater sample from temporary well 51-TMP-1 at a concentration of 85.6 µg/L, which exceeds the NJDEP interim criterion of 30 µg/L. The soil sample collected at a depth of 7 – 7.5 feet bgs during drilling of temporary well 51-TMP-1 contained naphthalene at a concentration of 11.3 mg/kg, exceeding the current RDCSRS of 6 mg/kg, and 2-methylnaphthalene at a concentration of 34.1 mg/kg, exceeding the current IGW SL of 8 mg/kg.

The elevated TPHC concentration detected in soil at SI boring P51-G12 (6-6.5 feet bgs) in 2007 is bounded laterally to the north, south, and west by sampling results for other nearby SI borings installed in 2007, and is bounded above by the TPHC concentration in the sample collected from 4.5 to 5 feet (273 mg/kg) and the non-detect result for the sample from 0-0.5 feet. However, the TPHC contamination is not bounded below a depth of 6.5 feet; this depth interval was likely just above the water table given that the SI groundwater sampling interval for this location is shown as 5-10 feet in the SI report (U.S. Army BRAC, 2008). Deeper soil samples were not collected in 2007.

Proposed Sampling Program

The following new investigation/sampling activities are proposed in the ECP Work Plan Addendum based on the information summarized above:

- A new soil boring will be advanced to at least 5 feet below the water table at the location of P51-G12 to assess current concentrations and vertical extent of EPH. Three soil samples will be collected from this boring. Samples will be collected from 6-6.5 feet, a deeper 6-inch interval that is below any field evidence of contamination to delineate vertical extent, and from the most contaminated intermediate interval encountered (between 6-6.5 feet and the deeper vertical extent sample) based on field evidence (visual, olfactory, PID screening). Soil samples will be analyzed for fractionated EPH, and 25% of the samples having EPH detections exceeding 1,000 mg/kg will be analyzed for naphthalene and 2-methylnaphthalene.
- A second, step-out soil boring will be advanced approximately 50 feet east of P51-G12 to obtain lateral extent information in this direction. The boring, sampling, and analysis details for the step-out boring will be the same as for the boring that will be advanced at P51-G12.
- Existing permanent monitoring wells 600MW04 and 600MW01 will be sampled, with samples analyzed for VOCs+TICs and SVOCs+TICs. Depending on the length and saturation of the well screens, two samples from each well may be collected to obtain vertical profiling information.
- A new permanent monitoring well will be installed approximately 40 feet north of P51-G12 in the hydraulically downgradient direction to assess the northern extent of fuel hydrocarbon concentrations in groundwater exceeding GWQS. The well will have a 10-

foot-long screen that extends two feet above the water table. It will be developed and sampled for VOCs+TICs and SVOCs+TICs.

This proposed additional soil and groundwater sampling has been added to Appendix D of the ECP Work Plan Addendum.

D3. COMMENT: *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

D3. RESPONSE: Comment noted. The Motor Pool Area will be addressed as part of a separate Work Plan.

D4. COMMENT: Is FTMM 68/Building 700 not considered within Parcel 51?

D4. RESPONSE: FTMM-68 is not within Parcel 51; as part of the upcoming property transfer it has been designated as Parcel 96. Environmental investigation at FTMM-68 is being performed under a separate RI/FS Work Plan (already reviewed and approved by NJDEP) that also includes FTMM-22, FTMM-53, and FTMM-59. The RI/FS field work for FTMM-68 was completed in November 2015.

E. <u>Parcel 52/FTMM-53/Building 699 Gas Station:</u>

E1. COMMENT: *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.

E1. RESPONSE: Comment noted, the missing correspondence has been added to the references cited in the Work Plan.

E2. COMMENT: *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.

E2. RESPONSE: Comment noted. The text in the 2nd paragraph of Section 2.4 has been revised to read: "Additionally, four 4,000-gallon steel gasoline USTs (tank Nos. 81533-235 through 238), one 2,000-gallon #2 fuel oil UST (tank No. 81533-112), one 1,000-gallon waste

oil UST (tank No. 81533-197) and their associated piping were removed in the 1990s. A NFA designation was granted by the NJDEP in the letter *UST Closure Reports – Closure Approvals, Fort Monmouth Army Base* dated January 10, 2003 for the gasoline and #2 Fuel Oil USTs (NJDEP, 2003). The waste oil UST has been investigated as described in the March 2015 *Final Remedial Investigation / Feasibility Study Work Plan For Sites FTMM-22, FTMM -53, FTMM -59 and FTMM -68* (Parsons, 2015).

E3. COMMENT: *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.

E3. RESPONSE: Comment noted, Section 2.4, Page E-5, IASL found on lines 22, 26 and 27 have been revised to SGSLs.

E4. COMMENT: *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.

E4. RESPONSE: Comment noted. The following text has been added to Section 2.5: "FTMM-53 is an IRP site and has recently been investigated as described in the *Remedial Investigation / Feasibility Study Work Plan For Sites FTMM-22, FTMM -53, FTMM -59 and FTMM -68* that was initially submitted to NJDEP on September 18, 2013. The objectives of the RI field work at FTMM-53 are as follows:

- Define the extent of soil contamination at the site to the north;
- Determine current concentrations of COPCs in areas where they were elevated in the past;
- Define the extent of chlorinated solvent contamination in shallow groundwater; and
- Determine the hydraulic conductivity of the shallow water-bearing zone that has been impacted by fuel-related contamination.

The RI/FS Work Plan was revised based on NJDEP comments dated May 16, 2014 and resubmitted on March 30, 2015. The revised RI/FS Work Plan was approved by the NJDEP on April 27, 2015. The RI/FS field work at FTMM-53 was completed in November 2015. ."

E5. COMMENT: *Section 3.2 Sampling Plan* – As indicated, above and through previous correspondence, additional delineation sampling is necessary.

E5. RESPONSE: Comment noted. The text in Section 3.2 has been revised as follows: "No additional sampling at Parcel 52 / FTMM-53 is proposed to be performed under this ECP Work Plan Addendum. FTMM-53 is an IRP site and has recently been investigated as described in the *Remedial Investigation / Feasibility Study Work Plan For Sites FTMM-22, FTMM-53, FTMM-59 and FTMM -68* that was approved by NJDEP on April 27, 2015."

ECP Parcel 66:

F1. COMMENT: *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.

F1. RESPONSE: The correspondence referenced in the comment was located and is now referenced in the text in Section 2.5; however the delineation plan proposed in the ECP Work Plan Addendum will be followed.

F2. COMMENT: *Section 2.2, Page F-1, line 20 -typo* - It is believed FTMM-56 should read FTMM-66.

F2. RESPONSE: Comment noted. FTMM-56 has been changed to FTMM-66 in *Section 2.2, Page F-1, line 20.*

F3. COMMENT: *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.

F3. RESPONSE: As part of the upcoming property transfer from the Army to FMERA, the Building 978 electrical substation has now been designated as Parcel 97; this parcel includes the PCB detections. Therefore, Parcel 66 can remain as an ECP Category 1.

F4. COMMENT: *Section 3.2 Sampling Plan* – The sampling as proposed on pages F-3 and F-4 is acceptable. Please note that the NJDEP was informed that sampling of Parcel 97 (formerly Parcel 66) would occur in November 2015 via email dated October 22 by the Army because of the potential environmental impacts associated with this parcel may have an overall impact on the transfer of the FTMM property.

F4. RESPONSE: Comment noted.

Parcel 80:

G1. COMMENT: *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.

G1. RESPONSE: The additional investigation work presented in the ECP Work Plan Addendum is intended to address Parcel 80, not FTMM-56. The line 14 statement "A RI Report for FTMM-56, including Parcel 80, has been approved by stakeholders and finalized." has been removed and replaced with "A Parcel 80 SI Report Addendum has been approved by stakeholders and finalized." All other references to FTMM-56 have been removed.

G2. COMMENT: *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.

G2. RESPONSE:

Due to the age of the buildings and the fact that they were demolished 25 years ago, as-builts including interior floor drains or other potential points of discharge for these buildings are no longer available. Therefore, in lieu of specific building plans, the original SI was set up to provide widespread coverage over the parcel. However two drawings have been located that depict historical operations at former Building 105. One drawing shows the rooms of former Building 105 and the print or photographic processes that occurred in each room. The other drawing shows the exterior sewer, water, and electrical connections associated with former Buildings 104 and 105. Both drawings are provided in Attachment G1.

During review of the files associated with former Buildings 106 and 105, additional information was located. The following is a summary of the new information and newly proposed sampling locations:

New Information

A 2002 Underground Storage Tank Closure and Site Investigation Report for Building 106 was reviewed. The report indicates that on February 2, 1998 during a UST investigation at former Building 106, a concrete-lined pit, suspected to be a former oil-water separator, was discovered and removed. It was determined that the oil-water separator was used in conjunction with a waste oil tank associated with Building 106. However, no evidence of the waste oil tank was observed during the investigation and it was assumed that the tank had been previously removed. The oil-water separator and approximately 246 cubic yards of visually impacted soils surrounding it were removed. While the UST was never located, 10 post-excavation soil samples were collected and submitted for TPH analysis. All 10 post-excavation soil samples were determined to be in compliance with NJDEP's then current cleanup standard for TPH of 10,000 mg/kg, as shown on Table 3 and Figure 3 in **Attachment G1**. TPH concentrations ranged from non detect to 1,517.36 mg/kg. Following receipt of all post-excavation soil sampling results, the excavation was backfilled-to grade.

According to the UST closure report, two groundwater samples were collected from one temporary well point installed within the excavation area, (specific location not documented) on June 8 and July 7, 2001 (Table 4, **Attachment G1**). The groundwater samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and TAL metals. Both groundwater samples were in compliance with the NJDEP's GWQS for VOCs and SVOCs. Concentrations of the pesticides alpha-chlordane and gamma-chlordane exceeded the NJDEP GWQS of 0.5 micrograms per liter (µg/L), at 0.605 µg/L and 0.571 µg/L, respectively, during the June 8, 2001 groundwater sampling event. Total concentrations of the following metals also exceeded their NJDEP GWQS during the June 8, 2001 sampling event:

- Arsenic exceeded the GWQS of 3 µg/L at 24.6 µg/L.
- Aluminum exceeded the GWQS of 200 µg/L at 12,300 µg/L.
- Lead exceeded the NJDEP GWQS of 10 µg/L at 24.4 µg/L.
- Manganese exceeded the GWQS of 50 µg/L at 297 µg/L.

Concentrations of the pesticides alpha-chlordane and gamma-chlordane exceeded the NJDEP GWQS of 0.5 micrograms per liter (µg/L), at 1.71 µg/L and 1.79 µg/L, respectively, during the July 7, 2001 groundwater sampling event. Total concentrations of the following metals also exceeded their NJDEP GWQS during the July 7, 2001 sampling event:

- Arsenic exceeded the GWQS of 3 µg/L at 5.88 µg/L.
- Aluminum exceeded the GWQS of 200 µg/L at 3250 µg/L.
- Manganese exceeded the GWQS of 50 µg/L at 319 µg/L.

No further action was recommended for the former waste oil tank and oil water separator in the 2002 UST closure report. On January 10, 2003 the no further action request for the oil water separator and waste oil tank was granted by the NJDEP (Attachment G1).

In 2010, additional investigations were performed to address the beryllium detections in groundwater samples that exceeded the NJDEP GWQS at the 2007 SI location P80-SB/GW-1, as well as to investigate the source of the pesticides that were detected in groundwater samples collected as part of the Building 106 UST investigation. All 2010 data are provided in Attachment G1.

On January 7, 2010, a 2-inch diameter, PVC temporary monitoring point (0.010-inch slotted PVC screen) identified as TMP-1 was installed at the location of the former sampling point designated as P80-SB/GW-1. According to the scope of work documents prepared by the Army DPW the temporary monitoring point was screened across the water table. Both unfiltered and filtered water samples were collected from the temporary well for beryllium analysis. Beryllium was detected in the unfiltered and filtered groundwater samples at concentrations of 6.58 and 0.595 µg/L, respectively. The GWQS for beryllium is 1 µg/L.

To address the detections of pesticides in groundwater at the UST excavation in 2001, groundwater monitoring well ECP-80MW01 (aka 106MW06) was installed immediately north of the former excavation area in March 2010. In April 2010, the monitoring well was sampled for pesticides and TAL (total only) metals using low-flow methods. The following metals were determined to exceed the NJDEP GWQS: aluminum, arsenic, beryllium, cadmium, iron, lead, and manganese. All pesticides and the remaining metals not listed above were in compliance with the NJDEP GWQS.

On April 5, 2010, 10 soil samples were collected from five locations (CU-1 through CU-5) for analysis of pesticides and TAL metals. Samples were collected at 0.5-1.0 feet below ground surface (bgs) and at a one deeper depth from each location. Results indicate that chlordane and gamma chlordane exceeded the RDCSRS of 0.2 mg/kg at CU-1 (2.03 and 0.38 mg/kg, respectively at 0.5-1.0 feet and 0.32 mg/kg for chlordane at 2.5 to 3.0 feet bgs), CU-2 (0.3692 mg/kg at 0.5-1.0 feet bgs), and CU-4 (0.3584 mg/kg at 0.5-1.0 feet bgs). In addition, arsenic exceeded the RDCSRS of 19 mg/kg at CU-4 (24.8 mg/kg at 0.5-1.0 ft bgs), and vanadium exceeded the RDCSRS of 78 mg/kg at CU-3 (82.7 mg/kg at 3.0-3.5 bgs).

In November 2010, an additional 10 soil samples were collected from 5 locations (CU-6 through CU-10) to further delineate chlordane and arsenic in soil. Laboratory results show that chlordane was detected above the RDCSRS at CU-8 (2.9146 mg/kg) and CU-10 (2.5741mg/kg) within the 0.5-1 feet bgs interval. Arsenic was detected above the RDCSRS at CU-7 (23.3 mg/kg at 2.5 to 3.0 feet bgs).

Additional sampling completed in Parcel 80 includes two test pits (TP-7 and TP-8) that were excavated in 2001. The test pits were completed for an investigation associated with the new credit union which is located north of the parcel. At both test pits three soil samples were collected from the following depths: 0.5, 3.0, and 5.5 feet bgs. Soil samples were analyzed for VOCs, PAHs, and metals. Results show that the PAHs benzo(a)anthracene, benzo(a)pyrene,

benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were detected above the NJDEP RDCSRS in the 0-0.5 foot sample at TP-7. PAHs were not detected in the deeper samples from TP-7, suggesting that the PAH exceedances may be due to asphalt contamination due to its proximity to the road. Metal results show that arsenic and copper were detected above the RDCSRS in the 2.9-3.0 foot sample at TP-7. Additionally one groundwater sample was collected from each of the two test pits and analyzed for VOCs, SVOCs and metals. VOCs and SVOCs were not detected in groundwater at either test pit location. The following metals were detected above the GWQS at both test pit locations: aluminum, arsenic, barium, beryllium, cadmium, chromium, iron, lead, manganese, mercury, nickel and zinc. These samples were collected from a test pit (and are likely to have had elevated turbidities) and are not believed to be representative of the actual groundwater conditions. Test pit locations and data are provided in **Attachment G1**.

Newly Proposed Sampling Locations

Based on Parsons review of the results, the extents of the pesticide chlordane and the metals vanadium, arsenic and copper in soil have not been fully delineated at Parcel 80. However, all results from sampling for pesticides are consistent with levels that would be found from the regular use of properly applied pesticides. Additionally, there is no historic evidence of pesticide storage or a spill within Parcel 80. Therefore, there is no evidence of release of pesticides that is the responsibility of the Army.

Vanadium: Soil borings FTMM-80-SB-03, FTMM-80-SB-04 and FTMM-80-SB-05 will be advanced to delineate the extent of vanadium detected above the RDCSRS at sampling location CU-03. Soil samples will be collected for laboratory analysis at three 6-inch intervals (0.5-1.0 feet and 3.0-3.5 feet and 4.5-5.0 feet bgs). Samples collected at the 4.5-5.0 feet bgs interval at locations FTMM-80-SB-04 and FTMM-80-SB-05 will be submitted to the lab and placed on hold pending the results of the shallow samples. Soil samples will be analyzed for vanadium via method 6010C.

Arsenic and Copper: Soil borings FTMM-80-SB-06, FTMM-80-SB-07 and FTMM-80-SB-08 will be advanced to delineate arsenic and copper detections above the RDCSRS at sampling location CU-07 and TP-7. Soil samples will be collected for laboratory analysis at three 6-inch intervals (0.5-1.0 feet 2.5-3.0 feet and 4.0-4.5 feet bgs). Samples collected at the 4.0-4.5 feet bgs interval at locations FTMM-80-SB-07 and FTMM-80-SB-08 will be submitted to the lab and placed on hold pending the results of the shallow samples. Soil samples will be analyzed for arsenic and copper via method 6010C.

Groundwater: Groundwater samples collected previously from existing monitoring wells ECP-80MW01 (aka 106MW06), P80-SB/GW-1, and P80-SB/GW-2 provide information regarding groundwater quality conditions at this parcel; however, limited additional groundwater sampling is recommended to address data gaps. Historical beryllium exceedences in groundwater from ECP-80MW01 need to be re-evaluated. Therefore, in addition to the installation and sampling of a new monitoring well for beryllium as described in the Work Plan Addendum, existing well ECP-80MW01 will be re-sampled using the low-flow purge and sample methods (to obtain a low turbidity sample). The groundwater sample will be analyzed for total and dissolved concentrations of beryllium via method 6010C.

Sections 2.4, 2.5 and 3.0 of the ECP Work Plan Addendum (Appendix G) have been revised according to information provided above.

G3. COMMENT: *Section 3.2 Sampling Plan* – The proposal to further evaluate beryllium in ground water reported in the 2008 SI as indicated is acceptable.

G3. RESPONSE: Comment noted.

F. <u>Parcel 83</u>:

H1. COMMENT: 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.

H1. RESPONSE: A preliminary identification of AOCs for this parcel will be developed by FTMM and reviewed by Counsel; FTMM will then advise NJDEP of the outcome. Depending on the determination of BRAC Environmental Law Division, a SI report will be issued to the Department for review or for information purposes only.

H2. COMMENT: *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.

H2. RESPONSE: As stated in the 2nd to last paragraph of Section 3.2 (Appendix H) of the ECP Work Plan Addendum, the vertical extent of elevated concentrations of lead and arsenic at SI boring P83-SB9 (1-1.5 feet) and of arsenic at SI boring P83-SB10 (0-0.5 feet) were delineated in 2007 by deeper samples collected at SB9 (4.5-5 feet) and SB10 (5-5.5 and 6.5-7 feet). The current concentrations and lateral extent of elevated lead and arsenic concentrations detected in surface soil next to Building 279 at P83-SB9 in 2007 will be assessed by proposed new borings FTMM-83-SS-12, SS-13, and SS-14 that are already included in the Work Plan Addendum; this is described in the third paragraph of Section 3.2 in Appendix H. However, proposed new confirmation boring FTMM-83-SS-13 will be moved to within 5 feet of 2007 boring P83-SB9 since it will be used to confirm the current concentrations of arsenic and lead previously detected in surface soil at P83-SB9.

The lateral extent of the elevated arsenic concentration detected in surface soil next to Building 279 at P83-SB10 in 2007 will be assessed by proposed new boring FTMM-83-SS-12 that is already included in the Work Plan Addendum. One additional boring (FTMM-83-SS-15) will be added approximately 50 feet north of P83-SB10 to provide more complete lateral delineation information. A second additional boring (FTMM-83-SS-16) will be added between Building 279 and Riverside Avenue for the same purpose. Up to three soil samples from these borings (same as described for borings SS-12 through SS-14 in the Work Plan Addendum) will be analyzed for arsenic and lead. Appendix H of the Work Plan Addendum has been updated to include these additional soil borings.

H3. COMMENT: *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.

H3. RESPONSE: Noted.

H4. COMMENT: *Section 3.2 Sampling Plan* – Sampling at the former Building 72 area to better define PAH exceedances, as proposed, is acceptable.

H4. RESPONSE: Noted.

H5. COMMENT: *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'.

H5. RESPONSE: Soil samples from proposed delineation borings FTMM-83-SS-09, -10, and -11 will also be analyzed for PCBs. The surface soil samples collected from the 0-6 inch interval beneath the asphalt paving will be analyzed for PCBs. If PCBs are detected in any of the surface soil samples, the deeper samples collected at that location will also be analyzed for PCBs. Appendix H of the Work Plan Addendum has been updated to include the PCB analyses. In addition, the sampling plan for these three borings was revised to target lead rather than the full suite of TAL metals because lead was the only metal of concern at P83-B5 identified during the SI sampling in 2007.

H6. COMMENT: *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.

H6. RESPONSE: See response to H2. Proposed new boring FTMM-83-SS-13 has been moved to within 10 feet of P83-SB9. In addition, soil data from SI borings P83-SB10 and P83-SB11, and proposed new borings FTMM-83-SS-12, -SS-14, –SS-15, and –SS16 will be used to delineate the lateral extent of lead at P83-SB9. If elevated lead concentrations are detected in soil west of Building 279 at proposed new boring FTMM-83-SS-16, then SI borings P83-SB14 and P83-SB15 can be used to delineate the lateral extent of lead west of Riverside Avenue.

Should you have any questions or require additional information, please contact me at (732) 383-5104 or by email at john.e.occhipinti.civ@mail.mil.

Regards,

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