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September 17, 2014

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Department of Environmental Protection
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Subject: State of New Jersey Department of Environmental Protection Comments on the Final Landfill Remedial Investigation/Feasibility Study Work Plan for Main Post & Charles Wood Area, Fort Monmouth, New Jersey. PI G000000032

Dear Ms. Range,

Fort Monmouth and Parsons have reviewed the New Jersey Department of Environmental Protection (NJDEP) comments on the Final Landfill Remedial Investigation/Feasibility Study Work Plan as documented in your letter dated November 20, 2013. Responses to your comments are provided below in the order in which they were presented in the comment letter.

A. GENERAL COMMENT/STATEMENT:

The New Jersey Department of Environmental Protection (Department) has completed review of the referenced report, dated July 2013, generated by Parsons Government Services Inc. (Parsons), on behalf of the U.S. Army Engineering and Support Center, Huntsville (USAESCH). As indicated in the report, activities are to be performed with the goal of Decision Document acceptance in compliance with the Comprehensive Environmental Response, Compensation, and Liability act (CERCLA), the National Contingency Plan (NCP), 40 CRF part 300 and "to the extent possible to meet the requirements of New Jersey Administrative Code (NJAC) 7:26E Technical Requirement for Site Remediation".

Although the work plan indicates it describes RI/FS activities to be performed at the nine landfills located on the Main Post and Charles Wood Areas of Fort Monmouth, it goes on to state "extensive RI characterization and RI documents have already been completed for the nine sites", and thus, supplemental RI activities will be limited to FTMM-02. This office is not, at this time, in agreement documentation confirming all RI activities have been completed at each of the remaining eight landfills has been documented. At a minimum, although the additional trenching, approved several years ago to assist in determining the horizontal extent of each landfill, was

apparently performed, there appears to be no record of its submittal to this office; therefore, the horizontal extent of each landfill is considered unconfirmed at this time.

A. RESPONSE: Acknowledged.

B. FTMM-02/M-2 LANDFILL

B1. COMMENT: *Section 1.8.1.8* states no further action is warranted for the near surface soils due to compliance averaging results below RDCSCC, "marginal" exceedences, or the exceedence being of an isolated nature and a de minimis quantity. The Department does not agree, as indicated in the Department's June 26, 2009 response letter regarding near surface soils which stated the averaging policy was incorrectly applied in several instances. Nor is it agreed the contamination is either marginal or de minimis. The letter further states the Army and NJDEP have agreed that a remedial action or engineering control is needed to address the direct contact threat from surface soils at each of the Fort's landfills; this was further reiterated in the Department's letter of November 17, 2010, which indicated landfills containing 12" of cover material with relatively minor contaminant levels may be remediated via capping with an additional 12" of clean soil. Performance of a methane survey was indicated as required, and "hot spot" levels of contamination would require removal. The determination of as to what constituted "hot spots" in need of removal were to be made on a site specific basis.

B1. RESPONSE: With regard to the portion of comment that pertains to the no further action statement about near surface soils, the text in Section 1.8.1.8 will be revised to include NJDEP's position as documented in the June 26, 2009 letter. The following text will be added at the end of the Section 1.8.1.8.: "In a NJDEP comment letter on the Remedial Investigation Report for Near-Surface Soils and four Remedial Action Progress Reports (RAPR) dated June 26, 2009, NJDEP stated that the "averaging policy is applied incorrectly" at the M2-Landfill site. In addition, NJDEP stated in the comment letter dated November 20, 2013 that they did not agree that the near surface soils had "marginal" exceedences and they did not agree that the exceedences were of "an isolated nature and a de minimis quantity."

With regard to the landfills and the need for cover material, it is agreed that engineering control measures by applying a two foot soil cover material will be implemented to provide safety protection for future non-residential use at the FTMM-02/M-2 Landfill, as noted in NJDEP's June 26, 2009 letter and reiterated in the NJDEP letter dated November 17, 2010.

The nine landfill sites were used for the disposal of construction and demolition debris and may also contain domestic and industrial wastes. Eight of the landfills ceased operations between 1956 through 1969 and last landfill ceased operations in 1981. The landfill covers are now stabilized with vegetative grass, and mature trees and brush. Methane gas generation in landfills results from the decomposition of municipal waste. The landfills at the Fort Monmouth facility include a large fraction of demolition debris including bricks, concrete and other inorganic debris which do not contribute to methane generation. There is no history of odors emanating from the landfills which would be indicative to methane resulting from waste decomposition nor, is there any evidence of

compromise of cover soil integrity which would be a result of gas pressure from methane buildup. Therefore, the need for a methane gas survey is not warranted.

In addition, prior to placement of any additional surface soil cover material "hot spots" in soil will be evaluated for removal as requested by the November 17, 2010 NJDEP letter. This evaluation, including determining what constitutes a "hot spot", is expected to be performed during the pre-design phase of the landfill cover material implementation.

B2. COMMENT: *Section 3.1.3*

PAHs are referenced as present in the near surface soils "at a few locations toward the center and eastern portion". Although criteria are exceeded by an order of magnitude at what appear to be the referenced locations, the data (see Figure 5, found on the Master Disk of the March '12 M-2 RAPR, under Appendices/Appendix B/Landfill Cover Report/Figures) do not appear to confirm the statement; analytical results of several dozen locations throughout the surface of the landfill exceed Non-Residential Direct Contact Soil Remediation Standards (indicated as the appropriate criteria in the Department's response letter of June 26, 2009 responding to various M-2 report submittals).

The Department agrees the metals found in ground water are reflective of natural background conditions (see NJDEP letter dated April 19, 2013) rather than constituents of concern associated with the landfill.

B2. RESPONSE: The following sentence in Section 3.1.3 stating: "SVOCs (PAHs) are present in the near surface soils at few locations toward the center and eastern portion of the M-2 Landfill Site" will be replaced by: "Six SVOCs (PAHs) were detected at concentrations exceeding NJDEP criteria in the near surface soils at 39 locations scattered across the M-2 Landfill Site."

The Army agrees with the NJDEP that metals found in groundwater are reflective of natural background conditions.

B3. COMMENT: *Section 3.1.3, 3.2.1.1& Table 3.2*

As regarding delineation efforts along the railroad bed, it is agreed additional information is appropriate. A brief review of historic aerial photographs of the area performed by this office noted the railroad present as early as 1931, continuing beyond the endpoint indicated on Figure 5 (referenced above), and extending along Echo Avenue as indicated on Figure 3.2 of this submittal. Debris was noted as found in many borings and/or trenches performed along the current and former footprint of the track, as portrayed in Figure 6 (as above, Master Disk of the March '12 M-2 RAPR). Boring/trench log information indicated coal and ash were commonly encountered in the historic vicinity of the track. As indicated, research is to be conducted to determine railroad construction date. Information should be submitted further documenting the historic presence of the railroad tracks (and perhaps construction of the residential properties south of the tracks), the possibility (if any) material found in borings/trenches along the tracks is associated with the tracks rather than the landfill, and any need to extend the investigation beyond the tracks. Further sampling is acceptable, and particularly appropriate in areas where horizontal delineation of contamination is incomplete (e.g. B-82, where PAHs exceed standards by an order of magnitude

at 6-12"). Proposed analytical parameters for the collection of samples approximately 15' bgs (equivalent to 5' into the landfill) include PCBs, VOCs and metals. Although previous reports (Versar 2001) narratively indicate no semi-volatile exceedences were noted, please specify where these results may be found? Please contact this office if you wish to discuss further.

B3. RESPONSE: Further historical research will be conducted to determine if the railroad was constructed before or after operations began at FTMM-02 Landfill. The timing of the construction of the railroad relative to the placement of landfill material is critical to providing reasonable evidence for determining the southeastern extent of the landfill, and the need for additional soil sampling. If the railroad and bedding material (whose soil might contain debris and other materials to raise the grade at that time) were emplaced prior to the placement of the landfill material, then the railroad is the reasonable maximum physical extent of the landfill in this area. The work plan currently states as follows: "if the historical research shows that the railroad was installed prior to operations at the M-2 Landfill Site, no soil investigation will be conducted".

In the case of B82 sample, which analytical results were above RDCSCC by an order of magnitude, the sample was collected along the railroad track. If the railroad construction completion is proven to be prior the landfill operations, then the railroad is considered to be the physical boundary of FTMM-02 Landfill and no further delineation is needed. If the railroad was built after the landfill operations, then further soil sampling investigation will be proposed.

With regard to the question about where semi-volatile results can be found, the results can be found in Table 4.1 in the Remedial Investigation Report for Near-Surface Soils (Versar, 2004). This report notes that: "Soil cleanup criteria for SVOCs were exceeded in 15 of the 193 soil boring locations. Seven SVOCs were detected in site soils at concentrations above the RDCSCC."

B4. COMMENT: *Table 3.1*

The second column indicates the landfill size as 6.5 acres, while elsewhere it is reported as 8.1 acres.

The third column requires revision to include the PAH exceedences. Additionally, the Department agreed via correspondence dated April 19, 2013 levels of metals found in the ground water in this area were reflective of naturally occurring conditions.

B4. RESPONSE: FTMM-02 landfill size is historically reported to be 6.5 acres and landfill acreage was verified as 6.5 acres using the M2 Landfill boundary shown on Figure 3.2 of the work plan by Parsons. The reported 8.1 acres is not the correct size. Therefore the work plan text will be updated to be consistent with historical reporting (6.5 acres) and Table 3.1 will remain as is for the second column.

The third column of Table 3.1 will be updated to include the PAH exceedances.

It is noted NJDEP agreed that metal concentrations found in the groundwater in the FTMM-02 Landfill area were reflective of naturally occurring conditions.

B5. COMMENT: *Figure 3.1*

The conceptual site model indicates no pathway to surface water exists as no surface water is present on site. As surface water is immediately adjacent to the landfill, however, and is the recipient of both erosion/runoff and ground water migration, this phrasing appears misleading.

B5. RESPONSE: Figure 3.1 will be revised as recommended in the comment. To include the potential pathway to surface water, the two "pathway not present" symbols will be removed from Figure 3.1 and the receptors table will be reevaluated and updated.

C. FTMM-04/M-4 LANDFILL

C1. COMMENT: Section 1.5.4.3 of the report references the landfill as located within the Navesink-Hornerstown confining unit aquitard, rendering the ground water a Class III-A aquifer. Although it is acknowledged ground water within the Hornerstown Formation is classified as a III-A, in accordance with N.J.A.C. 7:9C-1.7(e), the ground water quality criteria for Class III-A areas shall be the criteria of the most stringent classification for vertically or horizontally adjacent ground waters that are not Class III-A. At this site, the criteria for ground water occurring in the Tinton Formation, which is vertically adjacent to the Hornerstown Formation, is Class II-A. If, however, the Army can demonstrate that ground water contamination has not and most likely will not migrate from the Hornerstown Formation to the underlying Tinton Formation, adherence to the Class II-A Ground Water Quality Standards is not required. Demonstration of same would include the installation of wells in the Tinton Formation, the conductance of slug tests to verify hydraulic conductivity values in the Hornerstown and provide stratigraphic information of the subsurface that demonstrates migration of ground water to the underlying Tinton Formation is unlikely. If information of this type can be demonstrated to the satisfaction of the Department, ground water standards may be based on the Class III-A narrative standards.

C1. RESPONSE: The Army agrees that the FTMM-04 landfill is located within the horizontal limits of the Hornerstown Formation, as is nearly all of the Main Post area at FTMM. It is also agreed that the groundwater within the Hornerstown Formation is classified as Class III-A, in accordance with N.J.A.C. 7:9C-1.5(f). Also, it is agreed the groundwater within the Hornerstown Formation, while classified as Class III-A, is subject to the Class II-A Ground Water Quality Standards, for the reasons provided in your comment. Therefore, the text in this section will be revised to reflect the clarification made by NJDEP in the comment letter. Section 1.5.4.3 will be revised by adding the following text at the end of the second paragraph:

"While the FTMM-04 landfill is located within the horizontal limits of the Hornerstown Formation (an aquitard with a Class-III-A designation as defined in N.J.A.C. 7:9C-1.5(f)), the groundwater criteria for the Hornerstown Formation under FTMM are the Class II-A Ground Water Quality Criteria. If additional investigation work is performed to demonstrate that the criteria in N.J.A.C. 7:9C-1.7(e) are met, groundwater standards may be based on the Class III-A narrative standards."

D. OTHER COMMENT

D1. COMMENT: Please confirm whether a radiation survey been conducted at all landfills located at Fort Monmouth.

D1. RESPONSE: The NJDEP in a letter dated November 15, 2012 concurred and accepted that Fort Monmouth can be released for unrestricted use in accordance with New Jersey Administrative Code (NJAC) 7:28-12.8 based on the documentation contained in the Technical Memorandum titled Estimation of Potential Annual Dose Basis for Fort Monmouth Final Survey Status dated October 9, 2012 and the Nuclear Regulatory Commission (NRC) letter dated October 12, 2012. A copy of the NJDEP letter, the Technical Memorandum and the NRC letter identified above is provided in **Attachment A.**

E. APPENDIX A

The appendix, a Performance Work Statement, includes many parcels unrelated to the landfills; comments and questions regarding same include the following:

E1. COMMENT: Task 5.4.4 – *Parcel 49* – In addition to the referenced delineation of PAHs, as per the Department's July 10, 2012 correspondence, PCBs exceed the RDCSRS at three locations (P49-SB3-A, P49-SS7-A and P49-SS8-A) and require delineation.

E1. RESPONSE: This will be addressed in the Environmental Condition of Property (ECP) Work Plan.

E2. COMMENT: Task 5.4.6 – *Parcel 61* (also referenced on page A-8) – Additional investigation is proposed for delineation of the PAHs found near the door at the southeast corner of the building. The Department previously agreed the PAHs were associated with asphalt paving, rather than contaminants of concern.

E2. RESPONSE: This will be addressed in the ECP Work Plan.

E3. COMMENT: Task 5.4.7 – *Parcel 69* – Soils analyses for PCBs, as indicated in the Department's July 10, 2012 correspondence, is appropriate. Sediment analyses, however, is not required unless the soil sampling indicates a source and pathway trigger same.

E3. RESPONSE: This will be addressed in the ECP Work Plan.

E4. COMMENT: Not discussed are several parcels, many of which were discussed in the Department's August 20, 2012 letter. These include *Parcel 70*, at which it was noted a review of the analytical data associated with the parcel noted exceedences of both PCBs and arsenic, and *Parcel 83*, at which it appears delineation of TCE and PAH constituents is incomplete. Delineation is necessary. If you wish to discuss the status of each ECP parcel or FTMM area to ensure no inconsistencies exist between the Army's and Department's parcel status tracking, please contact this office.

E4. RESPONSE: Acknowledged. The status of each IRP and ECP Site at FTMM is provided in **Attachment B.** If you have any questions regarding the information contained on the attached list please feel free to contact me.

E5. COMMENT: Section 3.7, Task 6.1 – Please refer to the Department's July 27, 2013 comments regarding low flow sampling.

E5. RESPONSE: Low flow purging and sampling was implemented as per the letter during the August 2013 Baseline Groundwater Sampling event.

F. M-2 LANDFILL MAR '12 REMEDIAL ACTION PROGRESS RPT/1st Qtr '09 - 3rd Qtr '10

Comments as relating to ground water aspects of the referenced RAPR were provided in conjunction with the M-2 CEA Biennial Certification Report comments, on April 19, 2013. Notes as regarding other media are as follows:

F1. COMMENT: Surface water was sampled throughout the Main Post. According to the progress report, two locations along Mill Creek were targeted to the M-2 Landfill, as shallow ground water underlying the site flows northwest toward Mill Creek. Sampling point SS-15 was identified as the nearest upstream sampling point from M-2, while SS-24 was identified as the nearest downstream sampling point.

F1. RESPONSE: Acknowledged.

F2. COMMENT: Chlorinated compounds and certain metals exceeded the NJDEP Surface Water Quality Standards. The Department agrees the metals are of natural background origin. The Army states the PCE is from an upstream, offsite source. Although it is agreed the chlorinated compounds are not contaminants of concerns emanating from M-2, it is noted there are other sites on the Main Post where chlorinated compounds are ground water contaminants of concern (e.g. M-5).

F2. RESPONSE: Acknowledged.

G. MISCELLANEOUS

G1. COMMENT: As indicated above, the Department has not at this time received sufficient information to confirm delineation has been adequately completed at each of the landfills. It is agreed, as indicated in *Section 2.2*, an RI/FS report submittal for each, including compilation of data from all previous investigations and reports, and characterization of the nature and extent of contaminants at each site, is appropriate.

G1. RESPONSE: Acknowledged.

Please contact me if you have any questions.

Regards,

Wanda Green

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