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LETTER REGARDING U S EPA REGION IV CONDITIONAL APPROVAL OF REMEDIAL  
INVESTIGATION WORK PLAN ADDENDUM PHASE 2 PRELIMINARY DATA ANALYSIS FOR  
SITE 27 EQUIPMENT PARADE DECK MCRD PARRIS ISLAND SC  
11/21/2008  
U S EPA REGION IV



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, Georgia 30303-8960**

November 21, 2008

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

4SD-FFB

Naval Air Station, JAX  
Navy Facilities Engineering SE  
Installation Restoration, SC IPT  
Attn: Charles Cook  
PO Box 30  
North Ajax Street, Bldg 135  
Jacksonville, FL 32212-0030

And

Commanding General  
Marine Corps Recruit Depot  
Natural Resources & Environmental Affairs  
Attn: Tim Harrington  
PO Box 5028  
Parris Island, SC 29905-9001

SUBJ: EPA Review of the Site 27 RI WP Addendum for Site 27 - Phase 2 Preliminary Data Analysis  
(October/November 2008)

Dear Sirs:

The U.S. Environmental Protection Agency (EPA) understands this document applies to OUs 7, 8, 9, and 10 (Sites 9, 16, 27, and 55 respectively.) EPA also understands the data analysis reported in this tech memo is preliminary. The Navy/MCRD has expressed an interest in receiving feedback on the preliminary data analysis, particularly with respect to determining if additional data will be needed before the RI Report is drafted. This letter is to provide the requested feedback. A formal Response To Comments is not expected, nor necessary.

Based on EPA's review of this document, EPA offers the following feedback to assist the Navy/MCRD in determining a pathforward. EPA reminds the Navy/MCRD that this data was gathered when the Navy/MCRD proceeded at risk without regulatory approval of the workplan. Scoping, review and comments, and negotiation and comment resolution are all critical parts of

the CERCLA process as outlined by the Federal Facilities Agreement (FFA), by design and for a purpose. The main purpose is to facilitate agreements between the FFA parties so that the regulatory Agencies can agree to the data obtained from investigation efforts, therefore making it easier to agree to the findings and conclusions which come from the analysis of that data in the form of an approvable document.

EPA presented the Agency's view point with respect to proceeding at risk and the shortcomings of the draft Workplan upon which the Navy/MCRD proceeded. Please see EPA's letter dated September 29<sup>th</sup>, 2008, for those details.

In that same letter, conditions for approval of the RI Workplan Addendum for Phase 2 were identified. While EPA recognizes this is only a preliminary analysis of the Phase 2 data, it may be worthwhile to first examine if conditions for approval of the workplan have been met.

### **CONDITIONS FOR APPROVAL:**

**1) The Navy/MCRD should present their justification for elimination of analytes from the previously approved sampling and analysis plan in the Approved Site 27 RIWP – Phase 1 document prior to completion of the investigation while knowing there was evidence of a previously unidentified floating fuel type material on top of the water at the Fiber Optic Vault.**

*Not Yet Addressed:* The Tech Memo does not speak to any justification for not analyzing for SVOCs and does not mention any shortcomings in the data as a result of not analyzing for SVOCs. Nor does it appear to recognize that other COCs could be present in the LNAPL at levels below the extremely inflated detection limits, which could certainly still be levels of concern. The Navy/MCRD should present their position on the analysis of SVOCs and present a pathforward resolution to this issue before moving forward with any additional sampling or data gathering efforts which may be necessary and before drafting the RI report.

**2) The Navy/MCRD should sample the LNAPL fuel-type material and identify it. Sample locations, as well as sampling procedures and analytical methods used when sampling and analyzing this waste material must be approved by EPA and DHEC.**

*Not Yet Fully Addressed:* While the text mentions sampling of the LNAPL in a manner which appears to be sufficient, the analysis does not appear to be complete, given the reporting limits. Most recent information obtained indicated that analysis of LNAPL follows a rather complex process referred to as "fingerprinting". Completion of this analysis may or may not be necessary in this case, depending on the Navy's / MCRD's willingness to stipulate that other COCs may be present in the LNAPL at levels of concern, and therefore, should be monitored for in future sampling of the various media at certain locations. However, it appears that at some point in the process a more detailed analysis of the LNAPL would be needed anyway. So the Navy/MCRD should determine at what point it becomes necessary and/or prudent to complete the analysis. Additionally, the results are confusing in that they are reported as mg/kg, etc., which would be indicative of a media sample such as soil, rather than a liquid LNAPL sample. Please address these issues as you finalize your analysis and develop a proposed pathforward.

**3) Preliminary results should be presented to EPA and DHEC for consideration.**

*Completed:* However, Comments are included herein which should be addressed in any future sampling, data gathering, and/or associated documents and activities.

**4) The Navy/MCRD should present information to EPA and DHEC for review and approval which convinces the regulatory agencies that:**

**I) sufficient samples of the waste material were taken;**

*See #2 above. Also, additional samples may become necessary as the conceptual site model is refined in order to determine if multiple sources may be on site.*

**II) proper procedures were followed when sampling and analyzing the waste material;**

*See #2 above with respect to analyzing.*

**III) no questions remain as to what the material is and what contaminants should be looked for in the groundwater and soils; and**

*See #1 and #2 above.*

**IV) based on the results of the waste material analysis there was no need to analyze for any of the analytes eliminated without regulatory approval.**

*See #1 and #2 above.*

**V) Otherwise the Navy/MCRD should submit a plan for revising the Addendum based on regulatory comments and reimplementing the affected portions of the investigation (final details of which are to be approved by the regulatory agencies as well).**

*See #1 above and propose a pathforward from here.*

The following are EPA's feedback comments regarding the preliminary analysis of the Phase 2 data results with respect to data gaps and needs:

### **TECHNICAL REVIEW COMMENTS**

1. The first paragraph in Section 1.0, Objective, on Page 1 of the Technical Memorandum, Preliminary RI Data Evaluation, Site 27-Equipment Parade Deck (Tech Memo) indicates that the preliminary evaluation of the data generated to date is being conducted to determine if additional sampling in the area of Site 27 is needed before the remedial investigation (RI) report for Site 27 can be prepared. It should be noted that the Tech Memo only provided data and information pertaining to light non-aqueous phase liquids (LNAPL) and soil sampling and analysis. Therefore, this review only evaluated whether data gaps exist in the current extent of LNAPL and soil contamination based on the available data. **A determination of whether data gaps exist in the current monitoring well network was not addressed.**

2. The text in the second paragraph in Section 1.0, Objective, Page 1, of the Tech Memo indicates previous investigations have identified the presence of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and pesticides in groundwater in the area around Site 27. The surface and subsurface soil samples collected during the last field sampling effort were submitted for the analysis of VOCs and pesticides only. Laboratory analysis of surface and subsurface soil indicated VOC and pesticide contamination at concentrations exceeding screening criteria. Results of LNAPL analysis indicated the presence of pesticides, chlorobenzenes and hydrocarbons. The text further indicates the hydrocarbons detected in the LNAPL are likely indicative of diesel oil, fuel oils or motor oils due to the presence of 1,1-biphenyl and benzo(k)fluoranthene. However, the soil samples were not submitted for analysis of SVOCs. Although it is recognized that the elevated concentrations of pesticides will be the risk driver for soil remedial action, **elimination of SVOCs as COCs in soil will require justification based on sampling and analysis.** Based on the soil results, remedial action objectives (RAOs) for SVOC(s) and soil remedial action may need to be established along with the appropriate cleanup levels.
  
3. **Based on the surface and subsurface soil sampling results the extent of soil contamination has not been delineated by the available data.** Data gaps include, but may not be limited to: 1) Soil samples collected from the 0-1 foot interval and in the subsurface above the clay layer and saturated zone indicate levels exceeding screening criteria. However, it is not clear based on the available soil results if the vertical extent of soil contamination occurs from the ground surface down to the saturated zone since no soil samples from between this interval were collected and submitted for analysis; 2) It is also not clear if the two soil contamination areas identified at monitoring well cluster PAI-27-MW-6 located at the fiber optic vault and monitoring well cluster PI055MW11 located approximately 100 feet to the west are connected. No soil sampling and analysis data from between these two areas are presented in the Tech Memo to address this issue; and 3) the horizontal extent of surface and subsurface soil contamination has not been defined. With the currently available data only a very rough approximation of the geometry and volume of soil contamination can be made which results in an uncertainty by possibly over or under estimating the amount of contaminated soil requiring remedial action. **Therefore, additional soil sampling/analysis, and/or MIP type data gathering, will be required to fully characterize and define the vertical and horizontal extent of soil contamination.**
  
4. **The horizontal extent of LNAPL was not clearly defined by the available data presented in the Tech Memo.** Table 5, LNAPL/Sheen Detections – August 2008, indicates 0.77-feet of LNAPL was measured in shallow zone well PI055MW11 with “sheen and odor” indicated in five existing wells and one newly installed well PAI-27-MW-64S. An amount of as little as .01 would be indicative of the presence of LNAPL. Also, “sheen and odor” were detected in intermediate wells PI055MW07I and PI055MW12I and deep zone wells PI055MW08D and PI055MW13D. However, these wells are screened below the water table and it is currently uncertain whether floating LNAPL would be present at these well locations if the screened interval intersected the water table. **The measured amounts of product should be reported for all wells with evidence of product, including those indicating a “sheen”.** Additionally, Table 1, LNAPL Detections, indicates a membrane interface probe/electrical conductivity

(MIP/EC) soil field screening investigation was conducted in July 2002, which indicated the presence of petroleum fuels in the soil primarily between 7 and 10 feet below the ground surface (bgs). **However, the MIP/EC screening results were not included in the Tech Memo and it is currently not clear if, nor to the extent which, these results indicate LNAPL at 7 to 10 feet bgs. Presentation of the MIP data may reveal information which could determine how much additional investigation will be needed. The horizontal extent and volume of the LNAPL contamination is uncertain. Therefore, additional investigation will be required to fully define the horizontal extent of LNAPL contamination. EPA is consulting with experts to gather suggestions for most efficiently and effectively accomplishing this. EPA expects the Navy/MCRD will do the same. Preliminary discussions have pertained to MIP and /or Fluorescence techniques.**

5. As mentioned above, in general the soil data only allows a rough estimate of contamination areas. **Additionally, delineation of soils in the westerly edge is even more in doubt.** The surface and subsurface soil **results for the planned boring location SB029 were not discussed** nor included in Tech Memo Table 6, Surface Soil Analytical Results in the Area of the Fiber Optic Vault, nor Table 7, Subsurface Soil Analytical Results in the Area of the Fiber Optic Vault. Soil boring SB029 is the western-most soil sample location relative to the fiber optic vault and absent the soil results the western extent of soil contamination is most uncertain. **Results of the geotechnical boring event should be provided.** Additionally, given the results of the most westerly reported value at 6 feet bgs exceeding 300,000 ppb DDX, **additional sampling will be needed before delineation of the western edge will be considered complete.** This is especially important given the Navy's/MCRD's desire to construct a Motor-T facility on this portion of the Site.
6. The United States Environmental Protection Agency (EPA) Regional Screening Table (RSL) was not utilized for screening soil results. The RSL replaces the Region 3 risk-based concentration (RBC) table, the Region 6 medium-specific screening level (MSSL) table, and the Region 9 preliminary remediation goal (PRG) table. **The RSL should be utilized as screening criteria for all future soil and groundwater sample results,** and is available at: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/)
7. Table 3, Comparison of Water Level Measurements and Monitoring Well Screened Intervals, provides a comparison of water level measurements and monitoring well screened intervals elevations. **However, the table does not include the water level and screened interval elevation for the July 2002 field screening investigation for the PAI-55-FDP-series wells.** Table 1, LNAPL Detections, indicates free product was observed in direct push technology (DPT) location PAI-55-FDP-13. **However, it is uncertain if the well screens for the DPT groundwater sample locations intersected the water table since this information was not included in the Tech Memo.** (Also, given many years have passed between these sampling events, water table levels may have changed significantly.) And finally, this table is virtually unreadable in any format other than enlarged electronic, and even more so with such dark highlighting. This makes for difficult reviewing. Please try to avoid presenting data as such in the future.

8. **EPA had requested additional cross-sections, showing the saturated zone from boring logs, as well as water levels in the wells (assuming some have an artesian effect and some may not) and screening depths for these wells.**
9. **LNAPL tag maps are needed to show delineation to date (depending upon results of the measured amounts in wells with sheens).**
10. **Please include historical/current oil water separators and USTs on future tag maps.**
11. **Discuss fate and transport of not only VOC and pesticides, but also PAHs/SVOCs with respect to typical LNAPL behavior.**
12. **Refine the CSM to include all necessary pathways and current data findings. (See ASTM E 2531 – 06). Base your proposed pathforward on the CSM and data gaps still identified. Be specific in what technologies are to be used. Also, EPA assumes previous VI estimates will be updated based on the presence of LNAPL.**
13. **Also be sure to revisit comments made on the RI WP Addendum and RTCs to ensure all issues are addressed in your pathforward proposal.**
14. **Ensure that presentation of the proposed pathforward is made in a timely manner to allow sufficient review, comment, and response prior to any additional field work taking place.**
15. Be aware the outstanding comments still need to be addressed in change pages to the RI WP Addendum D2 and/or the eventually forthcoming RI Report, as well as any interim pathforward or Phase 3 document.

EPA is available for any questions regarding this letter. If there are any questions, please do not hesitate to contact me at (404) 562-9969.

Sincerely,

Lila Llamas  
Senior RPM

cc: Meredith Amick, SCDHEC  
Sommer Barker, SCDHEC  
Mark Sladic, TtNUS