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EMAIL OF TRANSMITTAL AND U S EPA REGION IV COMMENTS ON REMEDIAL
INVESTIGATION WORK PLAN DATA NEEDS FOR SITE 27 EQUIPMENT PARADE DECK
AREA MCRD PARRIS ISLAND SC
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U S EPA REGION IV

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Subject: ADDITIONAL thoughts on Site 27 RI WP data needs
Date: Friday, December 21, 2007 1:24:16 PM
Attachments: [Thoughts on Site 27 data needs.doc](#)
Importance: High

Hi Folks, In addition to the Borings feedback, we had more general thoughts about the upcoming data report and RI WP Addendum. Thought this might be useful before you get too far down the line. This way we ight eliminate a few comments.

see atached.

P.S. I've copied Katheryn and Dan so someone can get this to Charles, since he cannot access his e-mail today.

Dear PI Partnering Team: (Hi Folks)

EPA has pulled together some thoughts on what we have seen to date at Sites 27/55/9/16. My understanding is that we will get a Preliminary Data Report/RI WP Addendum. Since I am working from home on annual leave, I do not have everything I need to provide comprehensive feedback, but at least I can give you some of our thoughts based on what we have seen to date and identify some of what we think we need in order to minimize comments in the future. These comments pertain to issues other than those provided in response to the request for geotechnical borings. For a more comprehensive set of suggestions, see both. (Comments and conditions regarding the geotechnical borings have been submitted via separate cover.)

So here it goes:

Remedial Investigation preliminary report and revised work plan

The data point to possible groundwater contamination with volatile organic compounds and pesticides. Given that groundwater plumes for 4, 4'-DDT are rare occurrences, further investigation is needed, especially in soils/sediments. An attempt should be made to show contaminant levels indicating migration of pesticides from the surface to below ground, which would be indicative of a spill. Alternatively, it is suggested that ground penetrating radar (GPR) be used to confirm this is NOT a buried container (based on the reportedly near pure product contaminant levels – however, also considering potential turbidity issues with the sample – see below). The quality of the GPR should be planned for such that underground utilities can be differentiated from drums at depth.

Complete delineation of contaminants needs to be planned for, keeping in mind that potentiometric maps to date indicate contaminant sources may be sitting on a hydrogeologic mound, from which contaminants could be migrating in all directions, leaving data gaps to the east and south. Additionally, EPA expects to see more information regarding Facility Use History prior to approving this next round of sampling. Historical information should be used to identify/validate data gaps in your plan.

Originally, fuels were reported floating on the water inside 55. Samples should be obtained in the area which are from the very top of the water table. It appears that samples from shallow wells in the area were screened far enough below the top of the water table that floating fuels might have been missed.

Please follow up on what the higher hits from the OVA North East of Site 9 could mean.

In working with the draft contaminant distribution maps and the other pieces of data, there appears to be some sample locations that have multiple names for the same geographic location. Some of this may be the result of different SI level investigations with overlapping areal coverage. In understanding historical trends, it may be necessary to use data from different reports and that data may have different levels of data quality (screening level data vs. permanent monitoring well data). However, the preliminary RI report should have a table listing the various sampling locations cross-referenced. For example, are the direct push locations FDP13 and FDP20 (from the 2003 Site 55 investigation) the same as MW6 and MW25I (from the 2007 preliminary RI report for Site 27)? If they are, then they can be used for understanding contaminant trends at those locations within the aquifer.

Turbidity in groundwater samples is problematic and may be the source for considerable uncertainty when evaluating groundwater data. The 4, 4'-DDT concentration reported in MW-6 in Table 1 is 1,600 µg/L which is 64 times the solubility limit for 4, 4'-DDT in water. Clearly, a compound cannot be present above its solubility limit but pesticides could have been disposed of in this area. Pesticide plumes are rare and we do not want to proceed towards a remedial decision based upon poor quality analytical data. Upon checking the sampling data sheet, it appears that the turbidity of that specific sample was 65 NTUs. The EPA's Environmental Investigations Standard

Operating Procedures Quality Assurance Manual (EISOPQAM) (1991) sets forth a 10 NTU goal as a minimum standard noting that 1 NTU is readily achievable. Steps to achieve the minimum goal of 10 NTUs include low flow sampling, the use of a fine grained sand pack and smaller slot size well casing during well construction and the use of filtered samples as a last resort.

As a path forward in this Site 27 area, there are several steps to consider. Assuming that the most recent groundwater data is presented in Table 1 (September 2007), the Marine Corps should review the sampling data sheets for all the wells and resample all wells which have turbidity greater than 10 NTUs. The wells should be sampled using low flow sampling techniques and wells that cannot achieve the 10 NTU goal during purging should have their samples field filtered using a 0.45 micron filter. Wells that have elevated turbidity values should be considered candidates for redevelopment during the next field effort. Future well installations should consider the use of finer sand pack and smaller slot size well screen. The use of these materials will reduce the monitoring well's productivity but the water will have a lower turbidity. EPA's EISOPQAM and the ASTM standard D5092, *Design and Installation of Ground Water Monitoring Wells in Aquifers* both provide procedures for the proper selection of sand pack and well screen.

While it might be obvious, the lithologic (boring) logs and construction details for any well, piezometer or soil boring that are included in the figures for the RI report should be included in the appendices of the preliminary RI report.

Additional cross-sections in the vicinity of the potential source areas might prove to be useful.

In reviewing the 2003 DPT data, there were three samples that indicated elevated concentrations of chlorobenzene. Two of the locations, FDP04 and FDP12 were followed by permanent monitoring well installations. Location FDP02 does not appear to have been followed up by a permanent monitoring well installation and it should be. Looking at the water table elevation contours, this location is side gradient from location FDP04 and could represent a separate release point.

There are two minor points of interest. Is the groundwater in this area susceptible to tidal influences? If so, that might make a difference in the evaluation of potentiometric heads between the various aquifers above the Cooper Marl. Are there historical water level data available? Cross correlation of historical potentiometric data and elevated groundwater concentrations is useful in planning groundwater investigations and should be part of future RI work plan development.

Other Issues and Potential Remedies:

In one of the recent cover letters, it stated that Vapor Intrusion (VI) for other on site facilities would be addressed in the future. I would advise that we discuss this sooner, rather than later, just in case there are differences of opinions.

That same cover letter stated that the VI mitigation designs would be provided for public record once the design is final. VI mitigation in facility design will be part of the remedy and will need to be reviewed and approved by EPA and SCDHEC. EPA suggests this be scoped as the facility is designed, rather than, after the design is complete. The Navy/MCRD has stated that this facility's funding and construction is on a critical time frame. Now is not the time to be delaying negotiations and coordination. Even though this needs to be addressed as part of the remedial design, it can be approved in advance and held for the remainder of the remedial design, or processed as a separate interim action, which will also allow it to move forward.

That's all I've got for now. Happy Holidays !!!!!