M00263.AR.001650
MCRD PARRIS ISLAND
5090.3a

U S NAVY RESPONSE TO SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL COMMENTS ON THE DRAFT REMEDIAL INVESTIGATION/ RCRA FACILITY INVESTIGATION REPORT SITE/SOLID WASTE MANAGEMENT UNIT 45 (SWMU 45) FORMER MWR DRY CLEANING FACILITY MCRD PARRIS ISLAND SC
06/01/2002
TETRA TECH NUS INC

Responses to SCDHEC Comments on the Draft Remedial Investigation/RCRA Facility Investigation Report
Site/SWMU 45 – Former MWR Dry Cleaning Facility
U.S. Marine Corps Recruit Depot Parris Island, South Carolina
June 2002

GENERAL COMMENTS

1. **Comment:** The RFI Report presents Marine Corps Recruit Depot (MCRD) Parris Island site-specific surface soil background values for inorganic analytes as screening criteria. Please provide information regarding the locations of these samples and a description of the soil type, as well as a brief description of the justification for these sample locations.

   Response: Table 4-1 – Summary of Detected Background Concentrations and Appendix A-12 – Background Sample Description, Locations, and Supporting Collection Data - from the RFI/RI for Site/SWMU 3 is attached to this letter and will be packaged as an attachment to this document. The following discussion of how background samples are comparable to the samples collected at Site/SWMU 45 will be added to Section 3.3 – Site Specific Geology:

   Background samples were originally collected to support the Site/SWMU 3 RI/RFI. For each background sample area, sample locations were visually located in the field to confirm the absence of waste management activities and to represent a range of undisturbed soil and sediment types. Fine sand and silty sand identified at Site/SWMU 45 correlated well with the fine/medium grain sand and silty fine sand soil types at Site/SWMU 3. See Appendix F for a Summary of Detected Background Concentrations and Background Sample Description, Locations, and Supporting Collection Data.

2. **Comment:** The RFI Report mentions a pump and treat system to prevent migration of contaminated groundwater. Please provide information on the operation of this system, it duration and effectiveness. How long has the system been shut down?

   Response: The following discussion will be added to Section 1:

   The groundwater pump and treat system start up occurred in April, 1998. The system operated through early 2000, with increasing downtime for maintenance activity. Finally, following removal from operation sometime in early 2000 for maintenance, the system was simply not restarted. Four submersible pumps operated at 2 to 5 gpm each through variable speed controls linked to water level sensors installed in the sump of each well. Groundwater was pumped from the wells to a multi-tray air stripping unit rated at 6 to 15 gpm. The system operated in fully automatic mode, and featured remote monitoring and control.

SPECIFIC COMMENTS

3. **Comment:** 2.7 Ecology, pp. 2-4
   The text states that "based on approximately 5 years of monitoring data, the groundwater plume is moving slowly, if at all". Where are these data located? Please quantify this statement – how slowly is the groundwater contamination moving?

Response: The referenced data is presented in Section 5.4 and Appendix E of the report. Based on a review of the data, there is no obvious migration of the contamination at the site, and therefore the rate could not be quantified. To address this comment, the referenced sentence will be modified as follows. "Based on approximately 5 years of monitoring data, there is no obvious migration of groundwater contamination. "

4. **Comment:** 4.0 Nature and Extent of Contamination, pp. 4-1
The tag maps for soils present those chemicals that exceed Soil Screening Levels (SSLs) for soil to groundwater using a Dilution Attenuation Factor (DAF) of 20. This is not appropriate for VOCs or SVOCs. SSLs using a DAF of 1.0 must be used for initial screening purposes.

Response: A DAF of 20 was used to select COPCs in accordance with current EPA guidance. The EPA SSL guidance states "EPA has selected a DAF of 20 to account for contaminant dilution and attenuation during transport through the saturated zone to a compliance point (i.e., receptor well). At most sites, this adjustment will more accurately reflects a contaminant's threat to ground water resources than assuming a DAF of 1 (i.e., no dilution or attenuation)." In addition a DAF of 20 was used to selected COPCs in the human health risk assessments that were previously prepared for SMWUs 1, 2, 3, 10, and 15.

5. **Comment:** 4.2 Subsurface Soil, pp. 4-3
Please provide justification for not sampling for metals, pesticides, or PCBs, and only sampling for VOCs and SVOCs.

Response: As described in the Site 45 Work Plan, the soil sampling approach was designed based on knowledge of site operations and history. The site was only investigated because of the historic dry cleaning operations and reported/suspected historic spills. As such, site contaminants are limited to solvents and potentially semi-volatile organic compounds that may been absorbed during the solvent cleaning process. Metals, pesticides, and PCBs would not be present as site related contamination and therefore were not evaluated.

6. **Comment:** 4.4 Summary, pp. 4-7
The text states that field sampling suggest that the inorganic constituents detected in surface soils were similar to background conditions at MCRD. A much more detailed discussion of the background study is necessary in order to justify this conclusion.

Response: See RTC for General Comment number 1.

7. **Comment:** Table 6-2 and Table 6-3
It is not appropriate to screen VOCs and SVOCs in surface soil and subsurface soil against SSLs using a DAF of 20. Please revise the screening criteria to incorporate SSLs using a DAF of 1.0 and recalculate the COPC selection.

Response: A DAF of 20 was used to select COPCs in accordance with current EPA guidance. The EPA SSL guidance states "EPA has selected a DAF of 20 to account for contaminant dilution and attenuation during transport through the saturated zone to a compliance point (i.e., receptor well). At most sites, this adjustment will more accurately reflects a contaminant's threat to ground water resources than assuming a DAF of 1 (i.e., no

dilution or attenuation)." In addition a DAF of 20 was used to selected COPCs in the human health risk assessments that were previously prepared for SMWUs 1, 2, 3, 10, and 15.

Responses to SCDHEC Division of Hydrogeology Comments on the Draft Remedial Investigation/RCRA Facility Investigation Report
Site/SWMU 45 – Former MWR Dry Cleaning Facility
U.S. Marine Corps Recruit Depot Parris Island, South Carolina
June 2002

1. **Comment**: Section 3.2.2, Subsurface Soil Sampling: The reference to Cohen, 1993 should be included in the References Section. Please revise accordingly.

   Response: The document will be added to the Reference Section.

2. **Comment**: Section 3.2.4, Permanent Monitoring Well Installation: This section specifies that for each permanent monitoring well installed, the amount of potable water used during drilling was recorded, and that five times that amount was removed prior to monitoring well development. The text also states that readings were collected until the field parameters stabilized in accordance with the approved work plan.

   a. The volumes of potable water used during construction of each well are not presented in the report. Please revise to include this data.

   b. The amount of water that was removed prior to development is not presented in this report. Please revise to include this data.

   c. Although this section states that development followed the approved work plan, it does not appear that Section 2.3.3 of Volume II of the Master Work Plan (MWP) was followed. The actual recorded field procedures should be compared to the procedures specified in the MWP. Any non-conformances should be appropriately noted in the text.

Response:

a. Water was not used during Hollow Stem Auger drilling. The amount of water used during Mud Rotary drilling was not determined – although potable water was used to fill the augers during drilling and well completion to prevent sand bridging. The sentence "The amount of water used was noted in the field book...." will be deleted.

b. All water was removed during development not prior to development. The sentence "The amount of water used was noted in the field book and five times the amount was removed before development..." will be deleted.

c. There is a discrepancy with regards to how long after a well has been completed when development can start. Section 2.3.3 of the MWP states wells will be developed no sooner than 24 hours after completion then later states that wells will be developed no sooner than 48 hours after completion. Going back through the log book the field Geologist waited approximately 24 hours after the well had been completed to start development. Refer to the attached spreadsheet that shows

proper water volume removal. All but one well, MW11D, reached the required removal volume.

3. **Comment**: Appendix A-3, Well Installation Records:

   a. Please specify the length of time the bentonite was allowed to hydrate prior to the installation of the concrete pad. This can be accomplished by including the daily work logs as part of this appendix.

   b. The use of #2 sand as a filter pack for a screen sized to 0.010 in. is questionable. Please justify the combination.

Response:

   a. The bentonite was allowed to hydrate a minimum of 24-hrs before the installation of the concrete pads. Refer to the Daily Log sheets.
   b. The #2 sand pack used by the drilling company was a 20-30 sieve size sand. This sand was specified in the Work Plan to be used with 0.010 slot screens.

4. **Comment**: Appendix A-4, Well Development Records:

   a. Please discuss the significance of "Blink" in the turbidity readings.

   b. When a well is pumped dry during development, the well should be allowed time to recover. The length of recovery time, and the water level at recovery should both be recorded on these logs. These logs do not convey enough information about the driller's actions when the wells were pumped dry. A more in-depth discussion is needed.

   c. Well development for MW11D did not follow Volume II of the MWP, or what was specified in Section 3.2.4 of this report. The team should discuss the construction of this well, this development record, and the purge log.

Response:

   a. The turbidity meter apparently was not functioning properly, even though it was calibrated. The groundwater was visually described in the remarks column.
   b. For those wells that went dry, the well development logs show the information.
   c. Well MW11D was a "slow" producer due to the material that was encountered at the proposed target depth of the well. Only 5.5 gallons were removed in a two hour period. During the development of MW11D, the well went dry twice and allowed to recover. Care was taken during purging to allow the parameters to stabilize. The well was purged at a slow rate of 40 to 60 mL/min for 2.5 hours and sampled after parameters had stabilized.

Responses to SCDHEC Risk Assessment Comments on the Draft Remedial Investigation/RCRA Facility Investigation Report
Site/SWMU 45 – Former MWR Dry Cleaning Facility
U.S. Marine Corps Recruit Depot Parris Island, South Carolina
June 2002

GENERAL COMMENTS:

1. **Comment:** Analytical data screening for COPC selection includes a comparison to basewide background values. Since the Department is unaware of an approved basewide background study, please include a discussion of the background samples used in the screening process. It is important to include a discussion of how the background samples are comparable to the samples collected at Site/SWMU 45.

   Response: Table 4-1 – Summary of Detected Background Concentrations and Appendix A-12 – Background Sample Description, Locations, and Supporting Collection Data - from the RFI/RI for Site/SWMU 3 is attached to this letter and will be packaged as an attachment to this document. The following discussion of how background samples are comparable to the samples collected at Site/SWMU 45 will be added to Section 3.3 – Site Specific Geology:

   Background samples were originally collected to support the Site/SWMU 3 RI/RFI. For each background sample area, sample locations were visually located in the field to confirm the absence of waste management activities and to represent a range of undisturbed soil and sediment types. Fine sand and silty sand identified at Site/SWMU 45 correlated well with the fine/medium grain sand and silty fine sand soil types at Site/SWMU 3. See Appendix F for a Summary of Detected Background Concentrations and Background Sample Description, Locations, and Supporting Collection Data.

2. **Comment:** Several exposure frequency and duration values used in the intake equations for the various exposure pathways are not consistent with EPA's standard default values. Although the Department agrees that it is not always appropriate to use the standard default values, please include a more thorough site specific discussion in Section 6.0 as a rationale for the exposure values selected.

   Response: EPA standard default exposure frequencies and exposure durations were used for the receptors when available (e.g, commercial worker, child and adult resident). There are no default exposure frequencies and/or exposure durations available for the construction worker, maintenance worker, and adult visitor. The rationale for the values used for these receptors is provided in Sections 6.2.4, 6.2.6 and Table 6-9.

SPECIFIC COMMENTS:

1. **Comment: Section 3, Subsection 3.2.2, Page 3-3:** The surface soil sampling section discusses the eight surface soil samples collected during the "2001 RI/RFA". The text should be modified to say the 2001 RI/RFI. Also, the sample identification for the surface soil samples is listed in this section as PAI-45-SB-01 through PAI-45-SB-08. Table 3-2 and Figure 3-1 show the surface soil sample identification numbers as PAI-45-SS-01 through PAI-45-SS-08. Please clarify.

   Response: The surface soil and soil boring samples were co-located, e.g. surface soil SS01 was collected at soil boring location SB01. The only difference was that the surface soils were collected at the surface, whereas the subsurface soil samples were collected at depth.

2. **<u>Comment</u>: Section 4, Subsection 4.2, Page 4-3**: Please include a discussion of the entire subsurface soil samples collected during the RI/RFI. Section 3 contains a discussion of the 13 subsurface soil samples and locations; however, page 4-3 only mentions contamination detected in the eight on-site samples and not the entire 13 samples.

   <u>Response</u>: Section 4.0 provides a discussion of the Nature and Extent of Contamination and as such references only the eight locations in which samples were collected for chemical analysis to determine the presence of site contamination. Section 3.0 discusses the collection of the five additional soil samples that were used to determine lithology and related hydrogeological parameters down gradient of the site. The downgradient soil samples were not tested for potential site contaminant and as such were not discussed in Section 4.0.

3. **<u>Comment</u>: Section 4, Subsection 4.3, Page 4-6**: Paragraph 5 states that the vertical extent of the chlorinated VOC contamination is limited to approximately 19 feet bgs, where a clay unit confines the surficial from the underlying deep. The paragraph continues to state that low levels of chlorinated VOCs have been detected in the deeper aquifer at concentrations below EPA MCLs. Please clarify how the clay unit is considered a confining unit if contamination has migrated to the deeper aquifer.

   <u>Response</u>: The clay unit is described as a confining unit based on noted physical properties and the observation that contaminant concentrations decrease by several orders of magnitude over a short distance of only a few feet. In general, confining units restrict but do not prevent all migration. Therefore, the detection of some chemicals in the lower aquifer is not unexpected.