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U S NAVY RESPONSES TO U S EPA REGION IV COMMENTS ON REMEDIAL
INVESTIGATION WORK PLAN FOR SITE 27 EQUIPMENT PARADE DECK MCRD PARRIS
ISLAND SC
2/1/2007
NAVAL FACILITIES ENGINEERING COMMAND SOUTHEAST

**RESPONSES TO EPA COMMENTS ON THE EQUIPMENT PARADE DECK - SITE 27
REMEDIAL INVESTIGATION WORK PLAN, REVISION 0
FEBRUARY 2007**

**MARINE CORPS RECRUIT DEPOT
PARRIS ISLAND, SOUTH CAROLINA**

I. GENERAL COMMENTS

1. Comment: These comments are written based on the following, derived from Partnering Team decisions:

- Sites 9 and 16 will have soils excavated under the CERCLA Remedial process, as opposed to Removal Process, based on current levels exceeding Preliminary Remediation Goals (PRGs) used as soil screening levels (SSLs) and referenced in previous investigation and scoping documents.
- EPA has not agreed that the current sampling is sufficient to completely delineate Sites 9 and 16 soils.
- EPA has agreed to defer the delineation portion of this investigation for Sites 9 and 16 soils until the Site 9, 16, 27, and 55 Remedial Action Work Plan (RAWP), provided agreement can be reached on all issues necessary to produce the Remedial Investigation (RI) Report, Feasibility Study (FS), Proposed Plan (PP), and Record of Decision (ROD).
- The Navy/MCRD has agreed to submit as part of the forthcoming RAWP for Sites 9, 16, 27, and 55, a plan for just-in-time delineation and confirmation sampling at Sites 9 and 16, to be conducted just prior to, during and immediately after excavation.

If the Navy/MCRD does not agree that these statements are accurate, then a majority of these comments are no longer accurate and will need to be revised by EPA. Please notify EPA immediately if this is the case, so that resolution can be sought and the comments redrafted.

Response: Navy agrees with EPA's bullet items 1 and 2 above.

Regarding the third bullet, Navy is not completely sure about EPA's agreements/intentions, except that in the 25 October 2002 review comments on the July 2002 SI/CS report, the EPA concurred that 'excavation is likely to be the most effective approach to risk reduction and management for this site', and instructed Navy to proceed with a focused Feasibility Study for this purpose. In that same document, the Navy's response to an EPA comment regarding 'complete delineation of soil contamination' states that 'Based on the small size of the combined sites, the additional assessment activities should be documented in a design document.' At that time the Navy will propose an appropriate design document, either an RD and RAWP, or a combined RD/RAWP, which will complete delineation of soils for Sites 9 and 16.

For the fourth bullet, we are aware of the Navy's documented agreements regarding a recommendation that soils be excavated at Sites 9, 16, and 27 in the SI/CS Report, and that a forthcoming Focused FS will be needed to support a PP(s) and ROD(s) for these sites. It logically follows that a design document will be necessary prior to excavation. At that time the Navy will propose an appropriate design document and will address complete delineation of soils at Sites 9 and 16. An assumption of an RAWP for Site 55 may be preliminary prior to completion of the investigation described in this Work Plan. However, it does seem that a RAWP for Sites 9 and 16 including just-in-time delineation would be appropriate.

2. Comment: The Title of the document indicates this is only for Site 27, however, the text of the document implies this is also for Sites 9, 16, and 55 as well, to a limited degree. If the intent is for this

to cover investigations at all four sites, given the deferral of Site 9 and 16 Soils investigation (see above) please so state and modify the document title to reflect that clearly. Remove/clarify all confusing language and references throughout the document.

Response: We don't have objection to changing the document title and making this an RIWP for all four sites. We're just not sure what is appropriate in light of EPA and Navy's previous concurrence that no groundwater contamination was detected at Sites 9 and 16 (based on SI/CS testing). Therefore, it doesn't seem that an RI would be required for these sites for groundwater, although this investigation could certainly lead back to them. The Site 55 PA does recommend an RI, so at least Site 55 could be worked into the title, as well as Site 9 and 16 for soils, in order to document the agreement to defer complete delineation of soils at these sites until the point at which a design document can be developed to address this. Navy is amenable to hearing specific recommendations from EPA.

3. **Comment:** This work is being planned for under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) "remedial" action process and document requirements. The CERCLA "removal" process is different. In order to avoid confusion, please refer to soil actions as "excavations" rather than removals.

Response: We will search the document and replace 'removal(s)' with 'excavation' where appropriate.

4. **Comment:** The Equipment Parade Deck - Site 27 Remedial Investigation Work Plan, Revision 0 dated February 2007 (RI Work Plan) indicates that sufficient information exists to support a "removal" action at Site 9 - Paint Waste Storage Area and Site 16 - Pesticide Rinsate Disposal Area. It was not clearly indicated in the RI Work Plan how the proposed real-time excavation action will be conducted within the context of the remedial action. Additionally, the age of the soil data (collected in 1988 and 1995) along with the limited suite of analysis performed for three of the six soil samples collected at the sites lends an uncertainty to the quality of the soil data. The current soil data sets for Sites 9 and 16 do not meet the data requirements necessary to support an excavation action in the CERCLA remedial program or the removal program. Data Quality Objectives (DQOs) and final Remedial Action Objectives (RAOs) will need to be defined and a sampling and analysis plan (SAP) will need to be developed to fill the data needs to facilitate an excavation, even if it is to be deferred until submittal of the RAWP. Revise the RI Work Plan to address these issues.

Response: The excavation at Site 9 and Site 16 follows EPA's agreement on RTC for the July 2002 SI/CS Report. The document recommends excavation and disposal for soils at these sites. For clarification, the recommended excavation will be conducted via a CERCLA remedial action, as opposed to removal action. Furthermore, in that same SI/CS report, the Navy's response to an EPA comment regarding 'complete delineation of soil contamination' states that 'Based on the small size of the combined sites, the additional assessment activities should be documented in a design document.' At that time the Navy will propose an appropriate design document, either an RD and RAWP, or a combined RD/RAWP, which will complete delineation of soils for Sites 9 and 16, and will include DQOs for the RAOs, and an SAP. As always, timing for this type of activity is dependent on availability of funds.

5. **Comment:** The RI Work Plan does not contain a conceptual site model (CSM) that adequately describes the conceptual understanding of the environmental and contaminant conditions at the Equipment Parade Deck site. The CSM should be the basis for selecting sample locations and should drive the DQOs for the investigation. Revise the RI Work Plan to present a CSM which describes, in both narrative and graphical form, the anticipated/known sources of contamination, release mechanisms, contaminant migration pathways, receptors and points of exposure for the site to the degree possible at this time. Additionally, the CSM will likely need modifying after the first

round of temporary wells and sampling, in order to support selection of locations for permanent monitoring wells.

Response: The source(s), extent, and magnitude of contamination are currently not known, and therefore production of a meaningful CSM is not possible. Navy agrees to provide a CSM after the round of temporary well installations and sampling.

II. **SPECIFIC COMMENTS**

1. **Comment: Section 1.1, Scope and Objective, Page 1-2**

The second paragraph in Section 1.1 (Page 1-2) of the RI Work Plan indicates that as a result of previous investigations at these sites, several objectives have been developed to support the remedial investigation (RI) and a "removal" action. Since the details of the "removal" action were not discussed in the RI Work Plan, it is assumed that it will be addressed in the RAWP for these sites (refer to General Comment No. 1 for additional discussion). Please change "removal" to "excavation".

Response: The reference to "removal action" will be deleted where appropriate.

2. **Comment: Section 1.1, Scope and Objective, Page 1-2**

The extent of groundwater contamination on Site 27 from Site 55 COCs and plume must be determined. Modify the first bullet to add ", 27," after 9. It needs to be determined whether any releases at Site 27 have impacted groundwater (see TW-41S and TW421 in Table 3-1). Modify the second bullet to add "and/or Site 27" after "Site 16" and add ", and if so, to what extent." After this bullet, add another bullet that states, "Determine the sources of groundwater contamination at any/all of these sites." As a last bullet, add a note that determining the extent of soil contamination associated with Sites 9 and 16 will be deferred until the RAWP for these sites. Use language similar to that in the third bullet of General Comment #1 above.

Response: We will make the revisions as described by EPA.

3. **Comment: Section 2.1, Description and History, Page 2-1, Site 27**

The text in the first paragraph in Section 2.1 (Page 2-1) indicates the location of the former PCB transformer storage area. However, EPA understood that the exact location is unknown. Please revise the next to last sentence to read as follows; "Additionally, transformers containing PCB oils were stored in approximately the northeastern portion of the Equipment Parade Deck, however, the exact location is not known."

Response: We will make the revision as described by EPA.

4. **Comment: Section 2.1, Description and History, Page 2-1, Site 9**

The text in the second paragraph in Section 2.1 (Page 2-1) indicates that in 1984, 6 inches of soil were removed at Site 9, the Former Paint Waste Storage Area, and the area was subsequently covered with a concrete cap. The text does not clearly indicate if the purpose of the concrete cap was to limit exposure to contaminated soil (i.e., remaining contamination greater than industrial screening levels), to prevent erosion of the remaining soil or to prevent infiltration of rainfall. For clarity and completeness, revise the RI Work Plan to address this issue. Also, add a

discussion/description of pipes and drains in the Site area which may have contributed to Site 55 groundwater contamination.

Response: The following will be added as text to the end of the paragraph: "It is not known specifically what the intent was of the 1984 concrete cap although it is speculated that the concrete was installed to improve the site's functionality as a storage area (e.g. providing a hard surface for access by material handling equipment, forklifts, pallet jacks, etc.) rather than achieving some remedial objective. However, Section 6.2.3 of the the SI/CS Report states that 'Based on a review of past publications, they concluded that prior remediation at Site 9 adequately addressed site concerns...'"

Also, a new figure, Figure 2-2a, will be developed which will be a utility map overlay of existing Figure 2-2. In addition, sewers, pipes, and drains across the entire Site 9, 16, 27 and 55 Areas will be mapped during the RI field event and described in the summary of the temporary well samples. The original releases may have originated from underground conduits, however, there are no ongoing releases and the plume has apparently migrated significantly from any such starting point. Based on the shallow site groundwater, the Navy concurs that mapping the underground utilities is vital to characterizing the site.

5. Comment: Section 2.1, Description and History, Page 2-1, Site 16

The third paragraph in Section 2.1 (Page 2-1) discusses Site 16, the Former Pesticide Rinsate Disposal Area, and provides an estimate on the approximate amount of pesticide rinsate that was disposed of at the site. The text in this section does not clearly indicate if the rinsate solution originating from the pest control spray containers and equipment consisted only of water, or solutions of solvents and/or other volatiles (e.g., petroleum hydrocarbons). Additionally, the liquid material used in the pesticide formulation is not discussed. Revise this section of the RI Work Plan to address these issues. Also, add a discussion/description of pipes and drains in the Site area which may have contributed to Site 55 groundwater contamination.

Response: The rinsate estimate data was copied from the July 2002 SI/CS report and was based on the best and most complete information available at that time. An objective of the RI will be an attempt to clarify our understanding of the operations and waste disposal practices that occurred on-site. No new information or details have been identified.

6. Comment: Section 2.1, Description and History, Page 2-2, Site 55

The first paragraph on Page 2-2 references buildings 401 and 405. It should also reference building 852 to the north and the concrete pads to the southeast. For each of these buildings/locations, please describe their historical activities, as well as associated spills or releases. Be sure to include any drains, or pipes which could be potential preferential pathways for site contaminants. Revise the RI Work Plan to address this issue.

Response: The following paragraph will be footnoted to the first paragraph on Page 2-2 and additional text will be added to the paragraph:

Detailed historical building use data is not known to exist. MCRD reports that Bldg 401 is a RCRA/TSCA/FIFRA compliant pest control facility that was constructed in the early 90s and that Bldg 405 is a small warehouse that has been used by 3rd Battalion and MCCS over the past 10 years or so. Building 852 (approximately 200 feet to the north) has housed administrative functions for at least the past 30 years, with no pesticide handling activity known at any time. No records have been located to date, however, research for records and anecdotal history will continue and be reported in the RI.

In addition, a new figure, Figure 2-2a, will be developed which will be a utility map overlay of existing Figure 2-2.

A new section 4.11 (Miscellaneous) will be inserted in the work plan with the following requirement: Manholes and catch basins will be inspected (without entry) for standing water and structural integrity during the first field event. In addition, as available, anecdotal history of area structures will be assembled.

7. Comment: Section 2.1, Description and History, Page 2-2, Site 55

The first paragraph on Page 2-2 indicates that an underground sewer line is located approximately 70 feet to the northeast of Site 55, Fiber Optic Vault. The trend of the sewer line was not discussed. Also, its location was not depicted in any of the RI Work Plan figures. Since the sewer line is a potential preferential pathway for groundwater contamination, the relative location and trend of the sewer line, as well as other drains, or pipes mentioned in the preceding comments, should be discussed in the text and depicted in a figure. Revise the RI Work Plan to address this issue.

Response: A new figure, Figure 2-2a, will be developed which will be a utility map overlay of existing Figure 2-2. In addition, sewers, pipes, and drains across the entire Site 9, 16, 27 and 55 Areas will be mapped during the RI field event and described in the summary of the temporary well samples. The original releases may have originated from underground conduits; however, there are no ongoing releases and the plume has apparently spread significantly from any such starting point. Based on the shallow site groundwater, the Navy concurs that mapping the underground utilities is vital to characterizing the site.

8. Comment: Section 2.2.1, Site 27, Page 2-3

Section 2.1 describes the former PCB transformer storage area to be located in the northeast portion of Site 27, the Equipment Parade Deck. However, according to Figure 2-2, the area investigated is not fully in the northeast corner of the parade deck. Please explain.

Response: The original discussion of the PCB transformer storage area suspected location and 1999 sampling was provided in the July 2002 SI/CS Report. The location is based on anecdotal information and sampling was biased toward areas of staining and cracking in the asphalt. The description will be corrected to refer to the northern portion of the site.

9. Comment: Section 2.2.1, Site 27, Page 2-3

Section 2.2.1 discusses the soil sampling results from the former transformer storage area of Site 27. Soil sampling results indicated that the transformer storage area "has not impacted the soil with polychlorinated biphenyls (PCBs)." However, concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides and metals were greater than human health and ecological screening criteria. Additionally, arsenic levels in one soil sample exceeded the Region 9 industrial use Preliminary Remediation Goal (PRG). An unknown amount of hazardous materials were handled at Site 27 which may include waste petroleum products and metals, and the exact location of the PCB transformer storage area is not known. The RI Work Plan indicates that the vertical and horizontal extent of soil contamination at Site 27, Equipment Parade Deck, will be determined. However, it is not clearly indicated if the remaining 1-acre area of Site 27 has already been investigated, nor are there any soil samples proposed for the remaining Site 27 area. Therefore, it is not known if it has previously been determined that the remaining areas do not require additional investigation. Revise the RI Work Plan to address this issue. The required changes may be wide-spread throughout this document.

Also revise the first sentence of the second paragraph of Section 2.2.1 to add "in the limited area sampled" to the end of the sentence. Also, in the middle of the second paragraph "4,4'-DDE is duplicated. Should one of them be "DDD"?"

Response: The Navy/MCRD has agreed to additional sampling along the downgradient sides of the parking lot at Site 27 in accordance with the revised Draft Final RIWP.

The first sentence of Section 2.2.1 will be revised as suggested. In the second paragraph, the text was copied from the SI/CS report, but it does appear that one 'DDE' should in fact be 'DDD'. The change will be made here.

10. Comment: Section 2.2.2, Site 9, Page 2-3

The third paragraph in Section 2.2.2, second sentence, indicates groundwater samples collected at Site 9, Paint Waste Storage Area, were analyzed for VOCs and inorganic constituents (fractions that are associated with paint-type wastes). The text does not clarify which inorganic fractions were analyzed. Additionally, Appendix A.4, Soil and Groundwater Figure for Sites 9 and 16, Table 6-1, Summary of Groundwater Samples Collected, Site 9 - Paint Waste Storage Area, indicates the two Site 9 groundwater samples were analyzed for target compound list (TCL) VOCs, target analyte list (TAL), metals (total) and cyanide. One of the two groundwater samples included additional tin and Appendix IX VOC analyses. For clarity, revise Section 2.2.2 to address the discrepancy in the reported laboratory analyses of Site 9 groundwater samples.

Response: The Work Plan Section 2.2.2 text was copied from the SI/CS report. However, the second sentence in the second paragraph of Section 2.2.2 will now be updated as follows: The groundwater samples were analyzed for target compound list (TCL) VOCs, target analyte list (TAL), metals (total) and cyanide. One of the two groundwater samples included additional tin and Appendix IX VOC analyses.

11. Comment: Section 2.2.2, Site 9, Page 2-3

The text in the third paragraph in Section 2.2.2 discusses that groundwater analytical results indicated past paint storage activities had not impacted groundwater at Site 9. As such, groundwater was not recommended for further investigation at Site 9. It is not clear why the Site 9 surface soil samples were analyzed for SVOC constituents, but the groundwater samples were not. The text in the first paragraph on Page 2-4 discusses the analytical soil results and indicates that except for minor exceedances of the SVOC benzo(a)pyrene and the inorganics arsenic and lead, all detected concentrations were less than the United States Environmental Protection Agency (EPA) Region 9 industrial use soil PRGs. However, Site 9 groundwater samples were not submitted for SVOC analysis. The source of the benzo(a)pyrene exceedances in soil is not known. It is also not known whether past paint storage activities involved materials consisting of benzo(a)pyrene (e.g., waste oils, diesel). Revise the RI Work Plan to discuss the adequacy of the characterization of groundwater contamination if no groundwater SVOC analytical data are available.

Response: Additional groundwater characterization is being conducted at Site 9 and 16. Therefore, questions about the adequacy of previous groundwater sampling may be irrelevant. However, please note that the 1999 sampling was conducted following an EPA-approved workplan, and the results were provided in the SI/CS report. EPA's 25 October 2002 comment specifically on Site 9 (and 16) was that a focused Feasibility Study, Proposed Plan, and ROD are now required in order to support closure of this unit, which would indicate to Navy that, at that time, EPA supported the adequacy of the characterization of groundwater contamination.

A footnote will be added to the text for clarification. It will read "Although SVOCs were not previously analyzed for in groundwater at the site, current sampling plans do call for SVOC analysis and groundwater is being further investigated with respect to Site 55 groundwater contamination."

12. Comment: Section 2.2.3, Site 16, Page 2-4

The second paragraph in Section 2.2.3 indicates the soil samples were only submitted for a limited number of analyses and included priority pollutant pesticides, arsenic, cadmium, chromium and lead. It is not clearly presented in the text why the full suite of analyses (i.e., TCL organics and TAL inorganics) was not performed. The absence of this analytical data results in uncertainty regarding the adequacy of the characterization of the soil contamination at Site 16. Revise the RI Work Plan to address this issue.

Response: See the previous RTC.

A footnote will be added which reads "EPA's comments on the SI/CS Report called for complete delineation of the soils at Sites 9 and 16 in a design document. Even though a full suite of analysis was not performed on soils at these sites, the Navy will consider doing so in future design document sampling and analysis plans in order to fill soil data gaps."

13. Comment: Section 2.2.3, Site 16, Page 2-5

The last sentence in Section 2.2.3 (Page 2-5) indicates a summary of the contaminants detected in soil and groundwater at Sites 9 and 16 is presented in Appendix A, Analytical Data. The 1988 soil test results for Site 16 were not presented in Appendix A in Table format, nor were they indicated on the associated Figures. Revise the RI Work Plan to provide the 1988 soil test results for Site 16.

Response: The 1988 soil test results will be provided for Appendix A.

14. Comment: Section 2.2.4, Site 55, Page 2-6

The chart of 2002 Groundwater data from DPT Borings does not include a column for FDP13. Please include it and indicate the presence of free product. Please include and reference in this RI Work Plan, Figure 3-1 from the Site 55 SI/CS Report and/or overlay the FDP locations onto this RI Work Plan Figure 2-2.

Response: A note will be added to the text which explains, "FDP13 was not analyzed onsite, likely because of the detrimental potential to the mobile lab from the free product identified. However, FDP20 was installed immediately adjacent and sample was analyzed by the mobile laboratory."

Also, Figure 3-1 from the Site 55 PA will be included in Appendix A.

15. Comment: Section 2.2.4, Site 55, Page 2-7

The second paragraph under Site 55 July 2003 Groundwater Investigation indicates that free product was found in MW-06 in 2002. It then goes on to state that free product was not found in 2003. However, MW-06 was not sampled in the 2003 sampling event. Please revise the RI Work Plan to clarify this.

Response: Free product was identified at the time of water level testing, however the well was not sampled. The following will be added to the end of the first and last sentence in the second

paragraph under the Site 55 July 2003 Groundwater Investigation subtitle: "...during static water level measurements."

16. Comment: Section 2.5.1, Statement of Problem, Page 2-11

The text in Section 2.5.1 makes several references to Sections 2.4.2, 2.4.3, and 2.4.4. However, these sections were not found in the RI Work Plan. Revise this section of the RI Work Plan to clarify this issue.

Response: The references should be to Sections 2.2.2, 2.2.3, and 2.2.4 and will be corrected in the Work Plan revisions.

17. Comment: Section 2.5.1, Statement of Problem, Page 2-11

Revise Item #1 to add ", as well as the source of any groundwater contamination which may be revealed at Sites 9, 16, or 27." to the end of the sentence.

Response: The revision will be made as suggested by EPA.

18. Comment: Section 2.5.1, Statement of Problem, Page 2-11

Revise Item #2 to read as follows: "The nature of groundwater contamination has been determined for Site 55; however, the extent of the contamination has not been determined." Add a new Item #3 which reads as follows: "The nature of groundwater contamination at Site 9 has been determined, except for SVOCs. The nature of groundwater contamination at Sites 16 and 27 has not been determined. The nature of groundwater contamination at Site 9 (for SVOCs), Site 16 and Site 27 must be determined. If the groundwater is found to be contaminated, the horizontal and vertical extent of groundwater contamination must be determined." Renumber the remaining Items.

Response: The revisions will be made as suggested by EPA.

19. Comment: Section 2.5.1, Statement of Problem, Page 2-11

Revise the current Item #4 to read as follows: "The nature of soil contamination at Site 27 has been determined for a limited area; however, the extent has not been determined. The horizontal and vertical extent of soil contamination at Site 27 must be determined." Modify this even further if it is found that the remainder of Site 27 needs to be characterized. EPA believes it does, based on the limited data provided thus far in the RI Work Plan. (See comments on Section 2.2.1, Site 27, Page 2-3.)

Response: The Navy/MCRD has agreed to additional soil sampling at the perimeter of Site 27 as stated in the Draft Final RIWP. The specific revision language used in EPA's comment above will be incorporated into the Work Plan.

20. Comment: Section 2.5.1, Statement of Problem, Page 2-11

Revise the current Item #5 to read as follows: "The nature of soil contamination at Sites 9 and 16 was determined in the SI/CS. The extent of contamination has not been determined. However, sufficient evidence exists to indicate the necessity of soil excavation. Based on a request from the Navy/MCRD, the Partnering Team has agreed to defer the investigation of the extent of soils contamination at Sites 9 and 16, until the RAWP, provided necessary agreements can be reached in

the documents which come before the RAWP. Within the RAWP a plan will be submitted which describes the process for conducting just-in-time delineation for soils excavation."

Response: We are not aware that the above discussion of the path forward for these sites has ever been documented, although the EPA previously suggested that this was the appropriate path forward, and stated that a focused Feasibility Study is required. Item #5 will be revised per EPA's suggested language.

21. Comment: Section 2.5.2, Decisions, Page 2-12

In Decision #1, if it is found that drains or pipes are a source for contamination, describe how this statement allows for addressing that scenario. For Decision #4, clarify if the "equipment storage pad" refers to just a small portion of the paved area at Site 27, or the entire paved area at Site 27.

Response: For Decision #1: Upon completion of the temporary well sampling results, permanent wells will be located. If the isoconcentration curves of the contaminants identified during the temporary well sampling and analysis support a drain or pipe release, then some permanent well(s) can be located for confirmation.

A new figure, Figure 2-2a, will be developed which will be a utility map overlay of existing Figure 2-2. In addition, sewers, pipes, and drains across the entire Site 9, 16, 27 and 55 Areas will be mapped during the RI field event and described in the summary of the temporary well samples. The original releases may have originated from underground conduits, however, there are no ongoing releases and the plume has apparently spread significantly from any such starting point. Based on the shallow site groundwater, the Navy concurs that mapping the underground utilities is vital to characterizing the site.

For Decision #4: "Equipment storage pad" refers to the portions of Site 27 agreed to be sampled in the Draft Final RIWP. Therefore, the 4th decision will remain unchanged.

22. Comment: Section 2.5.4, Conceptual Site Model and Risk Assessment, Page 2-13

The text in Section 2.5.4 indicates that there is little or no ecological habitat on site that would require an ecological risk assessment (ERA). The text further indicates the erosion of contaminated surface soil would not impact the pond. As such, the RI Work Plan concludes that an ecological risk assessment will not be included in the RI. The RI, not the RI Work Plan, is the appropriate phase of the remedial response process for determining the relative significance of ecological risk posed by a site or facility. Therefore, to meet the requirements of the RI for a federal facility, an ERA must be performed in accordance with the EPA (1997) document entitled Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. This document presents eight steps which may be used in evaluating risks to ecological receptors at hazardous waste sites. At a minimum, as defined in the EPA guidance (1997 and 2001), a Screening Level Ecological Risk Assessment (SLERA); Steps 1 and 2 of the eight-step process, is required to be conducted to support a scientific management decision point (SMDP). The SMDP may provide a basis for no further action, remedial action, or further evaluation in the form of a more detailed ecological risk analysis. The detailed ecological risk analysis is referred to as the baseline level ERA (BERA), which consists of steps 3 through 8 of the eight-step ERA process. At a minimum the RI Work Plan must include the performance of a SLERA to address this issue. Please revise. Also, please include a figure which shows the proximity of Sites 9, 16, 27, and 55 to surface water bodies.

Response: The fifth sentence of Section 2.5.4 can be replaced with the following more precise language: While a screening level ecological risk assessment (SLERA) is required, it is anticipated that only steps 1 and 2 will be required to support a scientific management decision point. A Figure will be added as requested.

23. Comment: Table 2-1, Site 55 – Fiber Optic Vault Groundwater – July 2003

The "Notes" section of Table 2-1 indicates that the table references the EPA Region 9 PRGs, November 2000 and the National Primary Drinking Water Standards, EPA, March 2001. However, there is a more recent EPA Region 9 PRG reference dated October 2004 and a more recent publication of the National Primary Drinking Water Standards, dated Summer 2002. Verify that the most recent references and screening criteria including ecological criteria are utilized and revise the table as appropriate.

Response: The Work Plan table will be updated. As this table occurs in the Work Plan, it is for information only, and sometimes summary tables from prior reports are utilized for this purpose. However, all tables in the RI would certainly confirm that the most recent references were incorporated.

24. Comment: Section 3.0, Investigation Scoping, Page 3-1

Clarify in the first paragraph of Section 3.0 that field investigation activities will be conducted in a phased approach. This is specifically mentioned in Section 3.2, Investigation Summary, at the bottom Page 3-1. However, this should also be stated up front, in Section 3.0. Revise the text in Section 3.0 accordingly. Also include a discussion of the deferred scope for soils at Sites 9 and 16.

Response: The second sentence in the first paragraph will be revised as follows: Based on the results of data from temporary wells, permanent wells will be installed at selected locations in a second phase. A new last sentence will be added: However, additional sampling to complete delineation of Site 9 and 16 soils will be deferred, to be addressed in a design document for those sites, provided the current data is sufficient to support development of the FS, PP, and ROD.

25. Comment: Section 3.1, Investigation Rationale, Page 3-1

Add a bullet to address Groundwater Flow Direction investigation rationale.

Response: The following will be inserted as a new first bullet: **Groundwater Flow Direction:** Previous investigations have provided inadequate information to assess groundwater flow direction. The first phase of this investigation will confirm the local groundwater flow direction to assist in placement of the permanent wells in the second phase.

26. Comment: Section 3.1, Investigation Rationale, Page 3-1

Plume Extent: Section 3.1 indicates the deeper aquifer zone had detected minimal contaminant concentrations and only the shallow intermediate depth aquifer zones will be investigated where previous data indicate contamination or to verify that the edge of the plume has been reached. Because downward hydraulic gradients exist at the site as indicated in Section 2.4, Hydrogeology (Page 2-10), a deep aquifer zone sample should be collected and analyzed to confirm that downward migration has not occurred. Revise the RI Work Plan to address this issue.

Response: One deep interval temporary well will be installed in the vicinity of proposed TMW30S and TMW31I, and will be sampled for the same analytical fractions as those wells. Tables and figures will be updated as necessary.

27. Comment: Section 3.1, Investigation Rationale, Page 3-1

Releases to Groundwater: Modify the statement to read as follows: "... (Building 401), next to the concrete pads, and near sites 9, 16, and 27 to determine..."

Response: The revision will be made as requested by EPA.

28. Comment: Section 3.2, Investigative Summary, Page 3-1

Please modify the next to last sentence on page 3-1 to read as follows: "... will be provided by the Navy/MCRD at the appropriate time, and will be reviewed and approved by EPA and DHEC prior to proceeding."

Response: The revision will be made as requested by EPA.

29. Comment: Section 3.2.1, Nature and Extent Sampling Activities for Groundwater – Sites 9/16, Site 27 and Site 55, Page 3-2

Section 3.2.1 indicates that the intermediate monitoring wells will be screened on top of the clay unit found earlier at approximately 24 to 25 feet below the ground surface (bgs). Due to the variability in the depth at which the clay unit may occur, revise the RI Work Plan to indicate how the top of the clay unit will be determined in the field.

Response: The following text will be inserted prior to the final sentence in the first paragraph of Section 3.2.1: The top of the clay unit will be determined by visually describing changes in lithology observed in split-spoon samples collected during drilling operations. Once the clay unit is encountered, a few continuous split spoon samples will be taken to confirm the thickness of the clay unit.

30. Comment: Section 3.2.1, Nature and Extent Sampling Activities for Groundwater – Sites 9/16, Site 27 and Site 55, Page 3-2

The second paragraph identifies the number of samples to be taken. After addressing all comments, correct these numbers if they have changed.

Response: After addressing all comments from EPA and SCDHEC, the numbers will be updated as necessary.

31. Comment: Section 3.2.1, Nature and Extent Sampling Activities for Groundwater – Sites 9/16, Site 27 and Site 55, Page 3-2

Modify the last sentence in this Section to read, "... for review and approval before proceeding."

Response: The revision will be made as requested by EPA.

32. Comment: Section 3.2.2, Sampling Activities for Soil at Site 27, Page 3-2

The text in Section 3.3.2 indicates the vertical extent of the investigation will be determined at each location by visual observation of soil staining, odor and/or photoionization detector (PID) readings indicating the presence of VOCs. The text further indicates that the samples which exhibited the most likelihood of contamination (visual, PID, etc.) will be submitted to a fixed-base laboratory for PCBs, pesticides and metals analyses. It is not clearly presented in the RI Work Plan why VOC and

SVOC analysis are not conducted since the likelihood of contamination as defined by the criteria used in this section (visual, PID, etc.) may indicate VOC and/or SVOC contamination. Also, Section 2.2.1, Site 27, indicates that soil data collected in 1995 and 1999 indicates VOCs and SVOC in exceedance of human health and/or ecological screening criteria. Revise the RI Work Plan to provide additional justification and rationale for why VOC and SVOC analyses for soil at Site 27 are not warranted. If it is agreed that they are warranted, modify this Section and Table 3-1.

Response: This section and Table 3-1 will be updated to include VOC and SVOC analyses, as requested.

33. Comment: Section 3.2.2, Sampling Activities for Soil at Site 27, Page 3-3

The current data set regarding Site 27 soils presented in the RI Work Plan does not meet the data requirements for a remedial investigation. Either data which clears the remainder of the Site 27 acreage is missing or this is a data gap that needs to be filled by this RI. Revise the RI Work Plan to address this issue. If it is determined that composite samples just off each side of the Site 27 paved area would be beneficial, add a brief discussion of the composite approach to be proposed. (See Table 3-1 comments below.) If it is determined that additional samples are needed across Site 27, modify this Section and Table 3-1, Table 5-1, and Figure 5-1. (See comments regarding Table 3-1, Table 5-1 and Figure 5-1 for suggested sampling if this is determined to be a data gap.)

Response: The Navy/MCRD has agreed to additional soil sampling as indicated in the Draft Final RIWP and the necessary changes to text, tables and figures have been incorporated.

34. Comment: Section 3.2.2, Sampling Activities for Soil at Site 27, Page 3-3

The last sentence in Section 3.2.2 indicates that no additional soil sampling activities are anticipated at this time for Sites 9/16 and 55. Add a sentence here that states that investigation of the extent of soil contamination at Sites 9 and 16 is being deferred and will be addressed in a Remedial Action Work Plan. Revise the RI Work Plan to address this issue.

Response: Please see response to comment 20.

35. Comment: Section 3.3, Project Schedule, Page 3-3

EPA will attempt to meet the 30 day review request; however, it is dependent upon the availability of contractors. EPA suggests this might be accomplished most efficiently through a face to face meeting, if notice can be given far enough in advance to accommodate other schedules.

Response: Navy will work with EPA and SCDHEC, as necessary, to facilitate expedited reviews.

36. Comment: Table 3-1

Please answer the following regarding specific samples:

- TW-24S - How does this differ from MW1? **ANSWER: MW1 has been abandoned and is no longer available for sampling.**
- TW-25I - How does this differ from MW7I? **ANSWER: MW7I has been abandoned and is no longer available for sampling.**
- TW-28S and 29I - Why do we need these if 30/31 were in an elevated area? How are they different from MW-17 and 18I? **ANSWER: As shown on Table 3-1, TW-28S and TW-29I were located to provide confirmation about the plume edge, while TW-30S and TW-31I are**

located to specifically confirm a chlorobenzene hot-spot. However, after further review, we believe more value will be added if 28/29 are shifted approximately 100 feet to the south. MW 17 and MW18I have been abandoned and are no longer available for sampling.

- TW-30S – How is this different from MW-19? **ANSWER: MW 19 has been abandoned and is no longer available for sampling.**
- TW-35S and 36I – Should we add to the rationale, "and/or Site9" ? **ANSWER: 'and/or Site 9' will be added to the rationale.**
- TW-37S and 38I – Should we add to the rationale, "and/or Site9" ? **ANSWER: 'and/or Site 9' will be added to the rationale.**
- TW- 41S and 42I – Should we move these east to align more downgradient of the NW corner of the pad? Also should we add PCBs to the analytes list? **ANSWER: The temporary wells will be moved approximately 50 feet ENE. PCB will be added to the analyte list for this location only.**
- Additional wells. Do we need some TWs WestSW of the FOV between contours 9.5 and 9.0? **ANSWER: We will add a shallow/intermediate temporary well pair about 50 feet west of approximately halfway between TW26S / TW27I and existing MW9.**
- For all Site 27 soil samples, should we add VOCs and SVOCs to the analyte list? **ANSWER: VOC and SVOC will be added to the Site 27 soil samples.**
- Should we add and/or move samples to cover more of the remainder of Site 27? **ANSWER: As previously discussed in this RTC, the Navy/MCRD has agreed to additional soil sampling at Site 27 as indicated in the Draft Final RIWP.**
- Should we add a composite sample just off of and along each side of the Site 27 paved area? **ANSWER: See bullet above this one.**

37. Comment: Section 4.4, Permanent Monitoring Well Installation, Page 4-3

The text in Section 3.2 indicates that the Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM) procedures will be followed during the field investigation activities. However, Section 4.4 (Page 4-3) of the RI Work Plan states that the permanent monitoring wells will be constructed with PVC screen and riser. EISOPQAM Section 6.6.2 states that stainless steel materials are the preferred choice where the analytical program is designed to analyze for organic compounds. Furthermore, in the next paragraph, the RI Work Plan specifies the sand and screen slot size that will be used to complete the wells. EISOPQAM Section 6.6.3 indicates that the filter pack (and screen size) materials should be based on the results of a sieve analysis. Both of these approaches are not compliant with the EISOPQAM. Revise the RI Work Plan to address these issues.

Response: Though stainless steel materials are preferred, they are not required; PVC wells have been widely utilized across MCRD without incident. The lower cost of PVC allows the Navy to increase the total number of sampling locations.

The sand and screen slot size determinations have been made based on experience with other MCRD site investigations.

38. Comment: Section 4.4, Permanent Monitoring Well Installation, Page 4-4

It is not clear in the second paragraph on Page 4-4 if the RI Work Plan stabilization parameters (pH, temp, turbidity) refer to well development (which is mentioned in the first sentence) or well purging activities (which is not discussed at all in this paragraph). Also, conductivity is not included as a stabilization parameter. Revise the RI Work Plan to address this issue.

Response: The discussion in this section pertains exclusively to well development. A similar discussion, addressing well purging, is provided in Section 4.6.

39. Comment: Section 4.4, Permanent Monitoring Well Installation, Page 4-4

The third paragraph on Page 4-4 contains a discussion on how the slug tests will be conducted. However, how the slug tests will be analyzed was not indicated in the text. Revise the RI Work Plan to address this issue.

Response: The following text will be added at the end of Section 4.4: Prior to testing, newly installed wells will be thoroughly developed and allowed to stabilize in order to obtain accurate results. Once the water level within the well has stabilized, it will be quickly raised or lowered using a PVC slug or equivalent. The rate of recovery will be measured using pressure sensitive transducers and electronic data loggers. Once the water levels have recovered to within +/- 10 percent of the static water levels, the tests may be terminated. The PVC slug will be decontaminated between wells.

Field data (e.g., water level measurements) will be documented on Hydraulic Conductivity Testing Data Sheets prior to moving to the next well. Data analysis methods will be based on the testing conditions occurring, and candidates would include Hvorslev or Bouwer and Rice, in addition to recommendations from US Department of Interior's Ground Water Manual.

40. Comment: Section 4.7, Permanent Monitoring Well Installation, Page 4-5

Modify these numbers of samples and location information if it is determined a change is needed based on other comments. Also describe the composite sampling approach if it is to be used along the edges of the Site 27 paved area.

Response: Based on Navy responses to EPA comments in this letter, revision of the number of soil samples at Site 27 is required. However, no composite sampling is anticipated.

41. Comment: Section 5.2.1, Soil Sampling, Page 5-1

In Section 5.2.1, the RI Work Plan states that all soil sampling methodologies will comply with the Master FSP and TiNUS SOPs. However, it is not clear if these comply with the EISOPQAM procedures—especially with regard to “quartering” the samples (EISOPQAM Section 5.13.8) and the use of Teflon, stainless steel, or glass sampling tools (EISOPQAM Section 5.13.7). Revise the RI Work Plan to address this issue.

Response: Soil samples will be collected directly from the in-situ matrix, and therefore only the required volume to fill the sample jar needs to be collected.

The third sentence in Section 5.2.1 will be revised to insert 'Teflon' between 'disposable' and 'trowels'.

42. Comment: Section 5.2.1, Soil Sampling, Page 5-1

Describe the composite sampling procedures to be used along the edges of the Site 27 paved area, if this is determined to be used.

Response: No composite sampling is anticipated.

43. Comment: Section 5.3.2, Sample Nomenclature, Page 5-2

Provide nomenclature for the composite samples if they are to be used.

Response: No composite sampling is anticipated.

44. Comment: Table 5-1

- Add PCBs to TW-41S and 42I if appropriate (see previous comments Table 3-1).
- Add VOCs and SVOCs to all Site 27 soil samples if determined to be needed.
- Add composite samples if determined to be needed.
- Add any additional samples as determined to be necessary based on previous comments.

Response: Table 5-1 (and all tables/figures) will be updated based on the ultimate resolution of all EPA and SCDHEC work plan review comments.

45. Comment: Figure 2-2, Site Layout and Previous Investigation Locations Map, Sites 9, 16, 27 and 55, and Figure 5-1, Proposed Sampling Location Map, Sites 9, 16, 27 and 55

The shallow, intermediate and deep aquifer zone monitoring wells depicted in Figure 2-2 are not included in Figure 5-1. For clarity and completeness in determining the extent of groundwater contamination, all shallow, intermediate and deep aquifer zone monitoring wells available should be indicated on an additional Figure, Figure 5-2, Comprehensive Well Location Map.

Response: The remaining, available wells are shown on Figure 5-1. Wells that are shown on Figure 2-2 that have been abandoned and are therefore no longer available for sampling, are not shown on Figure 5-1, mostly to avoid confusion.

46. Comment: Comment: Figure 7-1

Remove "Koroma-" from my name.

Response: EPA RPM's name will be updated.

47. Comment: Figure 7-2

Please provide an updated schedule with the draft final document.

Response: We will provide an updated schedule with the draft final document.