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MCRD PARRIS ISLAND
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RESPONSE TO THE U S EPA REGION IV COMMENTS REGARDING THE DRAFT LIMITED
REMEDIAL INVESTIGATION RCRA FACILITY INVESTIGATION WORK PLAN FOR SITE 35
DRMO SALVAGE YARD MCRD PARRIS ISLAND SC
05/27/2014
RESOLUTION CONSULTANTS

RESPONSE TO COMMENTS

Draft — Limited Remedial Investigation/RCRA Facility Investigation Work Plan for Site 35, DRMO Salvage Yard, MCRD Parris Island, South Carolina, dated May 2013

General Response: The *Draft Limited Remedial Investigation/RCRA Facility Investigation Work Plan for Site 35, DRMO Salvage Yard, MCRD Parris Island, South Carolina* (draft work plan), as submitted for regulatory review, included the project-specific *Sampling and Analysis Plan (SAP)* as an appendix. During discussions with the Navy and the United States Environmental Protection Agency (U.S. EPA), it was determined that revising the SAP as a stand-alone work planning document would allow for the most efficient path forward. No revisions will be made to the draft work plan, since a separate work plan document is not necessary to satisfy applicable state and federal requirements or to facilitate project execution. The SAP will be revised based on responses to comprehensive regulatory comments, as presented herein, and submitted for regulatory review and approval.

Responses to Lila Llamas U.S. EPA comments, dated 17 December 2013

I. GENERAL COMMENTS

1. Please clarify what is meant by use of the term “limited” in the title and throughout the document and its appendices. Explain how this differs from a normal RI. If there is no significant difference, please eliminate use of the term for clarity in the work plan.

Response: The term “limited” was used to describe the scope of this study, which was designed to address data gaps associated with the 2010 Site Inspection/Confirmatory Sampling. The goal is to screen potential contamination and assess potential threats to human health and the environment. Thus, as described in Section 11.6, the evaluation is limited to screening comparisons only. As discussed with U.S. EPA, Decision rules in Section 11.6 of the SAP have been revised so that screening will determine chemicals of potential concern for additional investigation and/or risk evaluation. This SAP does not include specifications for such additional activities (i.e., risk assessment and/or sampling and analysis), if required. Such details would be presented via an addendum to the SAP along with corresponding data quality objectives and decision rules. With this understanding, the term “limited” has been removed throughout the document.

2. RIWPs/UFP SAPs – In the future, in order to avoid duplication of information the Navy should submit the Uniform Federal Policy Sampling and Analysis Plan (UFP SAP) as the Remedial Investigation Work Plan (RIWP) for this site and any other given site provided the worksheets include all information as called for in EPA guidance for RIWPs.

Response: Comment noted. Per Resolution Consultants general response provided on page 1 of this Response to Comments memorandum, the SAP has been revised to satisfy U.S. EPA guidance for Remedial Investigation Work Plans, address regulatory comments summarized herein, and ultimately serve as a stand-alone planning document. No additional versions of the work plan will be generated.

3. Section 5.0 (Field Activities) of the Limited Remedial Investigation/RCRA Facility Investigation Work Plan, Site 35, DRMO Salvage Yard, Revision 0, dated May 3, 2013 (RI Work Plan) indicates that details associated with the sampling design and rationale are provided in Sampling and Analysis Plan (SAP) Worksheet #17 (Sampling Design and Rationale) of Appendix A (Sampling and Analysis Plan); however, the specific rationale for each soil boring location and groundwater monitoring well location is not provided. For example, Section 2.3 (Physical Setting) indicates that the single steel drainage grate “presumably discharges to an earthen ditch at the southeast corner of the Site;” however, only three proposed soil borings appear to be located in the vicinity of the drain and earthen ditch to address this data gap (i.e., 35-SB20, 35-SB27, and 35-SB28). Without specific rationale for each soil boring location and groundwater monitoring well location, the ability of the field activities to address data gaps and meet the objectives of the investigation is uncertain. Revise SAP Worksheet #18 (Location-Specific Sampling Methods/SOP Requirements Table) of Appendix A to include the rationale for each soil boring and groundwater monitoring well location.

Response: Worksheet #18 of the SAP has been revised to include the specific rationale for each soil boring and groundwater monitoring well location.

4. Figure 17-1 (Proposed Soil Sampling Locations) of SAP Worksheet #17 (Sampling Design and Rationale) of Appendix A (Sampling and Analysis Plan) indicates that four proposed soil boring locations (i.e., 35-SB29, 35-SB30, 35-SB32, and 35-SB33) will be advanced in the 2004 excavation area, and SAP Worksheet #18 (Location-Specific Sampling Methods/SOP Requirements Table) of Appendix A indicates that soil samples will be collected from 0.0-0.5 feet below ground surface (bgs) and a 0.5 foot interval immediately above the shallow water table in these proposed soil borings. However, Section 10.5 (Previous Studies) of SAP Worksheet #10 (Conceptual Site Model) of Appendix A indicates that the 2004 excavation area was excavated to 0.5 feet bgs and backfilled with clean mulch. As such, it is understood that contamination in the 0.0-0.5 foot bgs soil samples will represent a continuing release from the site based on runoff at these locations and will be considered for human health and leachability to groundwater. As for the samples planned to be taken at .5 feet above the water table, the Navy should ensure the sample is taken from a section of virgin soils (not fill) below the fill but above the water table as appropriate, at whatever depth that may be, to determine that remediation of the site was complete at depth. It is further assumed the subsurface soil samples will be taken at a depth that applies to human health exposure scenarios and will also be considered with respect to leachability to groundwater. Revise the RI Work Plan to clarify this rationale of the sampling depths.

Response: Worksheet #10 of the SAP has been revised to clarify that the low-lying area was not backfilled following historical excavation activities. As stated in Worksheet #18, surface soil samples will be collected from native soil at 0.0 to 0.5 feet below ground surface and subsurface soil samples will be collected from virgin soils approximately 0.5 feet above the water table.

5. While Section 11.4 (Information Inputs) of SAP Worksheet #11 (Project Quality Objectives/Systematic Planning Process Statements) of Appendix A (Sampling and Analysis Plan) provides a detailed discussion of background concentrations, the RI Work Plan text does not. For example, Section 6.0 (Data Evaluation and Reporting) indicates that background comparisons will be used to the maximum extent possible during the screening process using existing data to be provided by the Navy. Further, the RI Work Plan text does not clarify that contaminant background concentrations are not established and will be clearly identified and their acceptability and approval for use shall be coordinated with the Navy, Marine Corps Recruit Depot (MCRD) Parris Island, South Carolina Department of Health and Environmental Control (SCDHEC), and EPA before incorporating the values into the screening process. Revise the RI Work Plan text to include a detailed discussion of contaminant background concentrations or reference the discussion provided in Section 11.4 of SAP Worksheet #11 of Appendix A. In addition, revise the RI Work Plan text to clarify that contaminant background concentrations are not established and will be clearly identified and their acceptability and approval for use shall be coordinated with the Navy, MCRD Parris Island, SCDHEC, and EPA before incorporating the values into the screening process.

Response: The SAP has been prepared as a stand-alone document, thus no revisions were necessary with regards to this comment.

6. Section 4.0 (Project Planning) indicates that sampling locations may be adjusted based on professional judgment in the field; however, the decision criteria to be used by the professional to adjust the sampling locations is not provided. In addition, Section 5.1 (Soil Sampling Program) and Section 17.2 (Soil Sampling Program) of SAP Worksheet #17 (Sampling Design and Rationale) of Appendix A (Sampling and Analysis Plan) indicate that soil samples may be collected from additional locations or depths, based on professional judgment and results of field screening. However, the decision criteria (e.g., field screening results) used to determine that additional soil samples may be collected from additional locations or depths is not provided. Similarly, Section 17.1 (Sampling Approach) of SAP Worksheet #17 of Appendix A states that "Professional judgment may be used to adjust sampling locations and/or depths in the field;" however, the decision criteria to be used by the professional to adjust the sampling locations and depths is not provided. It should be noted that the Global Positioning System Locating subsection of SAP Worksheet #14 (Summary of Project Tasks) in Appendix A states that "If the Resolution Consultants FOL [Field Operations Leader] determines that moving a sampling location more than 10 feet is appropriate, he will contact the Resolution Consultants TOM [Task Order Manager], who will engage the NAVFAC SE [Naval facilities Engineering Command Southeast] RPM [Remedial Project

Manager].” **Revise the** RI Work Plan to provide the decision criteria that will be used during field activities to adjust sampling locations/depths and/or determine sample collection at additional locations or depths. Add text that indicates relocation of field samples needs EPA (and State if desired) approval.

Response: Worksheet #17 has been revised to clearly state that deviations to the sampling program, including sample location and depth, require review and approval by the Navy, MCRD Parris Island, SCDHEC, and U.S. EPA. The process for such approval has been included in Worksheet #6.

7. Standard operating procedures (SOPs) are not referenced in the RI Work Plan text. For example,
 - a. Section 5.1 (Soil Sampling Program) indicates that soil borings will be adequately abandoned in accordance with applicable state and federal protocol; however, the associated SOP [i.e., Section 7.7 (Borehole Abandonment) of Procedure 3-17 (Direct Push Sampling Techniques) of Appendix A (Site Specific Field Standard Operating Procedures and Field Forms) of Appendix A (Sampling and Analysis Plan)] is not referenced.
 - b. Section 5.2 (Groundwater Sampling Program) states that following installation, groundwater monitoring wells will be developed to remove any silt and sediment introduced during drilling; however, the associated SOP [i.e., Procedure 3-13 (Monitoring Well Development) of Appendix A of Appendix A] is not referenced.
 - c. **Section 5.2 states that “To confirm that groundwater samples are representative of the formation being investigated, field measurements of water level/drawdown, temperature, pH, specific conductance, oxidation-reduction potential, dissolved oxygen, and turbidity will be recorded.” However,** the associated SOP [i.e., Section 8.2.5 (Purging Equipment and Use) of Procedure 3-14 (Monitoring Well Sampling) of Appendix A of Appendix A] is not referenced.

For completeness, revise the RI Work Plan to include references to the appropriate SOPs. Furthermore, modify Appendix A of Appendix A and the remainder of the Work Plan where appropriate to reference specific EPA (or other federal) SOPs and Methods to which the Navy and MCRD will comply. If Resolution also wants to include a cross-walk from Federal/EPA SOPs and Methods to Resolution SOPs and Methods which comply with the specified EPA SOPs, that is fine, after specifying which EPA SOPs and **Methods apply. However, EPA’s ultimate approval of this document will be based on** compliance with specified EPA SOPs and Methods. Neither Resolutions protocols/methods nor the cross-walk will be reviewed by EPA. Resolution of this comment will in turn necessitate further review of the specified EPA SOPs and Methods in a revised document or change pages. Please submit these either as part of the Response to Comments or as a redline document version prior to submittal of the D2 document.

Response: The SAP has been revised as a stand-alone document. Text has been revised to reference applicable U.S. EPA technical procedures and state guidance. Appendix A of the SAP has been revised to include such applicable documentation.

8. The Soil Sampling subsection of SAP Worksheet #14 (Summary of Project Tasks) of Appendix A (Sampling and Analysis Plan) states that "Surface and subsurface soil samples will be collected from soil borings advanced via hand tools or direct push technology tooling, in accordance with SOP-3-17 and SOP-3-21." However, the use of hand tools (e.g., hand trowel, hand auger) is not discussed elsewhere in the document. Further, use of hand tools for volatile organic compound (VOC) soil collection may lead to potential loss of volatiles due to agitation of the soils. Therefore, the VOC results may be biased low. Revise the RI Work Plan to discuss the use of hand tools to advance soil boring locations. In addition, revise the RI Work Plan to discuss the potential for low-biased VOC data and whether data usability is affected. Be sure to reference the appropriate EPA SOP.

Response: Resolution Consultants subsurface utility avoidance/safety protocol requires that hand tools be used to clear all soil borings to a minimum of 4-feet below ground surface. We do not anticipate that sample collection via hand tools will compromise data. The SAP has been revised to reference and include the applicable U.S. EPA technical procedure for soil sampling, which lists hand augers as an approved method of soil sampling for VOCs in Section 3.1.

9. A detailed project schedule/timeline is not provided in Figure 7-1 (Limited RI/RFI Site 35 Project Schedule) or SAP Worksheet #16 (Project/Timeline Table) of Appendix A (Sampling and Analysis Plan). For example, the field tasks provided on SAP Worksheet #14 (Summary of Project Tasks) of Appendix A are not included on Figure 7-1 and SAP Worksheet #16. Revise the RI Work Plan to include a updated detailed project schedule/timeline.

Response: Additional details have been included in Worksheet #16 of the SAP, which will serve as a stand-alone planning document.

II. SPECIFIC COMMENTS

1. Section 2.3, Physical Setting, Page 2-5

- a) This section states that three single-story, concrete block buildings support operations at Site 35, yet these buildings are not labeled on any of the figures and a description of the support activities is not provided. To ensure that the nature and extent sampling associated with potential releases from Site 35 are adequately addressed, all physical features should be identified and discussed to include current

and former operational history. In addition, these buildings should be labeled on all appropriate figures. In addition, according to Figure 2-2, it appears that the building to the west of Site 35 is not included within the Site 35 boundary yet Figure 2-3 indicates that this building may be associated with Site 35 operations; further, Figure 10-2 in SAP Worksheet #10 does not show this western most building which suggests that this building is a more recent structure and not part of Site 35 historical activities. Revise Section 2.3 to include a description of the historical and current operations for the three support buildings and identify these three buildings on all figures (including the figures in the SAP). In addition, explain why the building to the west of Site 35 is not associated with Site 35 to promote clarity in the conceptual understanding of Site 35.

Response: Worksheet #10 of the SAP has been revised to state that two single-story, concrete block buildings (Buildings 953 and 953C) support operations at Site 35. Building labels have been added to applicable figures and the text has been revised to include additional details, as requested. Clarification has been included as to why the building to the west (Building 958) is not part of Site 35. Building 958, the Pollution Prevention Facility, was constructed in 2007. Since that time this building has been used to provide temporary storage of textiles, cardboard, electronics, and fluorescent lights, prior to being shipped off-base for recycling. Due to the recent construction date, any spills associated with Building 958 would be handled under RCRA. Building 958 is not included within the Site 35 Site boundary.

- b) Ensure a sample is targeted in the area of noted erosion off the southern edge near the centerline of the site.

Response: Comment noted. Soil boring 35-SB31 has been positioned to target this area of erosion, as depicted on Figure 17-1 of the SAP.

- c) Explain how the investigation will confirm the drainage grate discharges to the earthen ditch. Otherwise, explain how sample locations may change or be added to wherever the grate discharges to.

Response: Via information provided by MCRD Parris Island engineering/public works personnel, Resolution Consultants has verified that runoff received by the drainage grate discharges to the earthen ditch. Formal documentation has been provided in the revised SAP.

- d) The eleventh sentence of the second paragraph states that "Based on hydrogeological information obtained through previous studies (as summarized in Section 10.6), the shallow water table (surficial aquifer) is likely less than 10 feet bgs;" however, the text portion of the RI Work Plan does not include a Section 10.6. Revise Section 2.3 to reference Sections 10.5 (Previous Studies)

and 10.6 (Additional Sites in the Vicinity) of SAP Worksheet #10 (Conceptual Site Model) of Appendix A (Sampling and Analysis Plan) for information obtained through previous studies.

Response: The SAP has been prepared as a stand-alone document, thus no revisions were necessary with regards to this comment.

2. Section 2.4, Previous Environmental Studies and Activities, Page 2-6

The first sentence of Section 2.4 does not provide a formal reference to the Interim Resource Conservation Act Facility Assessment Report, dated 1990 (RFA Report) despite one being included in Section 10.5 (Previous Studies) of SAP Worksheet #10 (Conceptual Site Model) of Appendix A (Sampling and Analysis Plan). In addition, the RFA Report is not included in Section 10.0 (References). For completeness, revise Sections 2.4 and 10 to include a formal reference to the RFA Report.

This section indicates that a limited soil removal occurred at Site 35; however, there is no explanation of which chemicals triggered the need for a removal action. A brief description of why a removal action was warranted, which contaminants triggered the need for a soil removal, and the approximate location and depth of the excavation should be provided in order to support the development of the conceptual site model for Site 35. This comment should also be addressed in Worksheet #10, Conceptual Site Model, to support the proposed sampling design.

Response: The SAP has been prepared as a stand-alone document, thus no revisions were necessary with regards to this comment regarding references associated with the draft work plan. Worksheet #10 of the SAP (Page WS 10-8) has been revised to clarify that the excavation was completed to improve Site drainage and that sampling and analysis was conducted at the direction of the Resident Officer in Charge of Construction. Specifications of the excavation are included in SAP Worksheet #10 and associated figures. The SAP has been revised to formally reference Kemron's *Parris Island MCRD Project Final Completion Report for Interim Remedial Actions for Various Sites*, dated 21 March 2005.

3. Section 3.0, Conceptual Site Model, Page 3-1; Figure 3-1; SAP Worksheet 10, and SAP Figure 10-10

Figure 3-1 (Conceptual Site Model) and Figure 10-10 (Conceptual Site Model) of SAP Worksheet #10 (Conceptual Site Model) of Appendix A (Sampling and Analysis Plan) provides the exposure pathways but does not indicate whether these exposure pathways are complete or incomplete. Additionally, the residential receptor is not shown in the figure(s). Revise the conceptual site models to clarify whether the exposure pathways are complete or incomplete and include a residential receptor.

Response: Figure 10-10 will be revised to clarify that the figure depicts “potentially complete” receptors and exposure pathways. A footnote will be added to state that results of this study will be used to further evaluate potential receptors and exposure pathways and refine this CSM.

Per Section 10.7.3 of the SAP, there are no residences on Horse Island and the closest residences to Site 35 are MCRD Parris Island approximately 1 mile to the northwest and Port Royal approximately 1.5 miles to the south. Based on the industrial nature of the Site and the distance of the Site from the closest residence, residential receptors are not shown on Figure 10-10. At the request of regulators, Figure 10-10 has been revised to include hypothetical future onsite residents as a potential receptor. Text in Worksheet #10 of the SAP has been revised to state that although future residents are not receptors under current or expected future land use, they will be evaluated to provide an indication of potential risks if MCRD Parris Island were to close and be redeveloped for residential use.

4. Section 4.0, Project Planning, Page 4-1, PSQs and Corresponding SAP worksheets [For emphasis and to ensure this is not missed in case the body of the RIWP is eliminated this comment is repeated for WS 11 below]

In order to meet the requirements of a remedial investigation, the nature and extent of contamination should be determined. While PSQs 1 & 2 provide answers regarding the nature of contamination, please explain if the samples planned for and the study questions as drafted are intended to provide answers regarding extent of contamination and how it will be determined if the extent of contamination has been delineated. Otherwise, explain how and when extent of contamination will be determined.

Response: The SAP has been revised to distinguish screening levels versus PALs. While the sampling approach as currently presented in the SAP is designed to provide information on the nature and extent of potentially impacted soil and/or groundwater, if contaminant concentrations exceed screening levels or background, additional sampling may be necessary to satisfy delineation requirements. Per revised decision rules, as included in Worksheet #11, if contaminant concentrations are greater than screening guidelines/background concentrations, the MCRD Parris Island Partnering Team will reconvene to discuss a path forward. Pending results of this study, this path forward may involve additional sampling and analysis and/or risk evaluation. Once agreed upon by the MCRD Parris Island Partnering Team, the approach for such additional efforts would be detailed in an addendum to the SAP and presented for review and approval by the MCRD Partnering Team.

5. Section 4.0, Project Planning, Page 4-1, Decision Rules and Corresponding SAP worksheets (11, etc.) [For emphasis and to ensure this is not missed in case the body of the RIWP is eliminated this comment is repeated for WS 11 below]

While it is not clear if the Navy intends this sampling event to be only a Phase I sampling event or to meet the full requirements of an RI, U.S. EPA is assuming the latter, which results in the following comments:

In Decision Rule 1 modify the text to read "...surface and/or subsurface soils..." At the end of Decision Rule 1 please add "If concentrations in surface and/or subsurface soils exceed background concentrations and pose unacceptable risks, then remedial action will be necessary."

Response: See response to U.S. EPA comment 4. The Navy intends this sampling event to be only a Phase I sampling event, so this comment is not applicable at this time. Additional efforts would be discussed and agreed upon by the MCRD Parris Island Partnering Team and detailed in an addendum to the SAP.

In Decision Rule 2 modify the text to read "...below MCLs and risk based concentrations and poses no unacceptable risk..." At the end of Decision Rule 2 please add "If groundwater concentrations are above MCLs or risk based concentrations or pose unacceptable risk, then remedial action will be necessary."

Response: See response to U.S. EPA comment 4. The Navy intends this sampling event to be only a Phase I sampling event, so this comment is not applicable at this time. Additional efforts would be discussed and agreed upon by the MCRD Parris Island Partnering Team and detailed in an addendum to the SAP.

Delete Decision Rule 3 or decide if a decision rule is needed for delineation and modify as such.

Response: See response to U.S. EPA comment 4. The Navy intends this sampling event to be only a Phase I sampling event, so this comment is not applicable at this time. Additional efforts would be discussed and agreed upon by the MCRD Parris Island Partnering Team and detailed in an addendum to the SAP.

Furthermore, Decision Rule 1 states that if concentrations in surface and subsurface soils contain constituents at concentrations below project action levels (PALs)/background concentrations or pose no unacceptable risk, then no further action is required. A determination of no unacceptable human health risk or ecological risk from soil exposures cannot be made as presented because only the lowest of the human

health, ecological, and protection of groundwater screening levels is presented in Worksheet #15 of the SAP. For example, if the lowest PAL is the level for protecting groundwater and this level is exceeded, this does not necessarily indicate that a PAL based on human health or ecological risk is exceeded. The SAP Worksheet #15 should include a listing of all three screening levels (human health-based, ecological-based and protection of groundwater) for each chemical in order to support the qualitative determination of human health and ecological health risk, or whether soils may be impacting groundwater.

Response: The SAP has been revised to distinguish screening levels versus PALs. Data generated during this study will be screened using applicable human health and ecological screening levels, as defined in revised Worksheet #11 of the SAP. The purpose of Worksheet #15 is to provide a comparison of the PAL (lowest screening level) versus Laboratory Detection Limits to assess whether data quality objectives can be achieved. Uncertainties introduced by limits of detection or limits of quantitation that are greater than screening levels will be described in the Remedial Investigation Report.

6. Section 5.1, Soil Sampling Program, Page 5-1, and Figure 5-1, and Corresponding SAP worksheets

Please add one soil boring (two soil samples) located in the grassy ditch immediately downgradient of the location at which surface water runoff from the grassy area immediately downgradient of the southern edge of the site would intersect the grassy ditch. If funds are limited, one soil boring from the grassy area at the southern edge of the site may be moved to this location, resulting in one less soil boring south of the site and one more soil boring in the grassy ditch.

Also, please clarify the apparent area of depression at the termination point of the ditch as shown in the Worksheet 10 figures. If this is a termination point for the ditch that appears as if contaminants may be allowed to concentrate as at a slow energy area or settling pond, please add a soil boring and groundwater well to this area.

Modify the RIWP/SAP wherever appropriate to address these changes in all related text and figures.

Response: SAP text and figures revised to include additional soil samples in the earthen ditch. The depression area at the termination of the ditch has been removed from the figures, since the ditch has observed to be dry and no settling pond is apparent. No additional monitoring wells are proposed at this time.

7. Section 5.2, Groundwater Sampling Program, Page 5-3 and Corresponding SAP worksheets

Section 5.2 states that "A qualified geologist/engineer will log geologic conditions and ensure that screens are adequately set to intercept the shallow water table." However, additional details regarding the placement of the screen within the borehole are not provided in the RI Work Plan or Appendix A (Sampling and Analysis Plan). Specifically, Procedure 3-12 (Monitoring Well Installation) of Appendix A (Site Specific Field Standard Operating Procedures and Field Forms) of Appendix A (Sampling and Analysis Plan) does not discuss the placement of the screen within the borehole. Revise the RI Work Plan to include details regarding the placement of the screen within the borehole.

Response: Worksheets #14 and #17 of the SAP have been revised to provide additional details concerning placement of the well screen to intersect the water table. Applicable federal and state technical procedures and guidance associated with field activities, including well installation and construction specifications, have been referenced in the SAP and included in Appendix A.

8. Section 5.3, Investigation Derived Waste, Page 5-5, and Corresponding SAP worksheets

Section 5.3 indicates that investigative derived waste (IDW) will be temporarily staged in a secure area provided by the activity in Department of Transportation approved 55-gallon drums, pending transport to an appropriately certified offsite disposal facility. However, the temporary staging area location and offsite disposal facilities are not identified. Revise the RI Work Plan to provide this and any additional information necessary for the remedial action to be field implementable.

Response: Worksheet #14 of the SAP has been revised to reference the U.S. EPA SOP on Management of IDW, which has been included as Appendix A of the SAP. Worksheet #14 has also been revised to specify that IDW will be temporarily staged within the Site's fenced area and to provide details on characterization sampling and analysis. Furthermore, Worksheet #14 has been revised to clarify that IDW will be disposed to an appropriately South Carolina-certified disposal facility, pending results of characterization sampling. Full documentation associated with IDW characterization and disposal will be included in the RI Report.

Furthermore, the list of analytes for IDW does not appear to include pesticides. Please explain the omission or add pesticides to the analyte list.

Response: Pesticides have been added to the analyte list for IDW characterization, as presented in SAP Worksheet #14.

9. Section 5.1, 5.2, and 5.3, Sampling Details, Pages 5-1 through 5-5 and Corresponding SAP worksheets

Since PCBs are included in the analyte lists, the Navy may desire to prepare and hold aliquots of each sample for PCB congener analysis in case concentrations of PCBs are detected and it is determined that congener analysis is necessary. Otherwise, further sampling may be required to fulfill this need in the future. The Navy should allow for this possibility in this work plan in order to avoid the need for a work plan addendum and an additional field event.

Response: Comment noted. No revisions have been made to the SAP with regards to congener analysis. If congener analysis becomes necessary, the approach will be documented in an addendum to the SAP.

10. Appendix A Sampling and Analysis Plan (SAP) Worksheet #2 – Sampling and Analysis Plan Identifying Information, Page WS 2-1

This worksheet indicates that one scoping session occurred in the development of the Work Plan; however, according to Section 2.4 of the Work Plan and SAP Worksheet #9, regulatory comments and feedback were provided during a partnering meeting on April 24, 2012 as well as on February 12, 2013. Revise Worksheet #2 to be consistent with Worksheet #9 and Section 2.4 of the Work Plan.

Response: SAP Worksheet #2 revised to be consistent with Worksheet #9.

11. SAP Worksheet #6 – Communication Pathways, Page WS 6-2

For the first two rows in the table on this page please indicate these changes require regulatory approval.

Response: Worksheet #6 revised accordingly.

12. SAP Worksheet #10 – Conceptual Site Model, Page WS 10-1

This worksheet discusses the summary of analytical results in surface soil; however, the depths of the samples considered surface soil are not identified. Include a description of the sample depths associated with historical samples to promote clarity in the conceptual understanding of the Site.

Response: Additional details regarding depths for historical samples added to Worksheet #10.

13. SAP Worksheet #10 (Conceptual Site Model), Section 10.3, Physical Setting, Page WS 10-5

The text states that "Fluctuation, as a function of recharge, evaporation, and transpiration, has been observed to as much as 6.5 feet (Glowacz, 1980);" however, a formal reference is not included in the References section (page REF-1) of Appendix A. In addition, this statement is not included in Section 2.3 (Physical Setting). Revise the References section of Appendix A to include a formal reference for this reference. In addition, revise Section 2.3 to include this statement.

Response: Reference added to the SAP, which now serves as stand-alone planning document.

14. SAP Worksheet #10 – Conceptual Site Model, Page WS 10-6

Section 10.4 Site and Vicinity Background discuss that support buildings were constructed at the Site; however, it is unclear what types of operations occurred in these buildings. As discussed in a previous comment, there are three structures that are not identified in any of the figures. Section 10.4 should include a description of all physical structures on and adjacent to Site 35 and the types of activities or operations associated with each to promote clarity in the conceptual understanding of Site 35.

Response: Worksheet #10 of the SAP has been revised to state that two single-story, concrete block buildings (Buildings 953 and 953C) support operations at Site 35. Building labels have been added to applicable figures and the text has been revised to include additional details, as requested. Clarification has been included as to why the building to the west (Building 958) is not part of Site 35. Building 958, the Pollution Prevention Facility, was constructed in 2007. Since that time this building has been used to provide temporary storage of textiles, cardboard, electronics, and fluorescent lights, prior to being shipped off-base for recycling. Due to the recent construction date, any spills associated with Building 958 would be handled under RCRA. Building 958 is not included within the Site 35 Site boundary.

15. SAP Worksheet #10 – Conceptual Site Model, Page WS 10-8

The second paragraph of Section 10.5 states that Tables 10-1 through 10-3 compare results to current PALs which are the November 2012 EPA Regional Screening Levels (RSLs) for human health; however, the PALs listed in Worksheet #15 are the April 2012 RSLs. Revise the SAP to ensure consistent listing of the EPA RSLs; it should be noted that the most current version of the RSLs are the November 2013 RSLs.

Response: SAP revised to incorporate most recent (November 2013) RSLs.

Also, Table 10-2 is too small to read. Please provide this table enlarged in a fold out page.

Response: SAP revised accordingly.

16. Figure 10-3 Site Map

This figure shows the basic physical features of Site 35 to include the outline of the grassy ditch on the eastern side of the Site which is V-shaped to the north and is a straight line going south. However, this figure is not consistent with Figures 10-4 through 10-9 which show this feature as a straight line to the south (no V-shape) and then a circular depression to the south. Revise the figures to ensure consistency across the SAP.

Response: SAP figures revised accordingly.

17. Figure 10-9 Historical Analytical Results

This figure lists "NA" for the industrial and residential RSL for total chromium. Unless it can be demonstrated that chromium is not in the hexavalent form, the results should be compared to the more stringent RSL for hexavalent chromium. In addition, the reference for the RSL for the protection of groundwater for total chromium of 180,000 milligrams per kilogram (mg/kg) is the November 2012 RSL tables. According to the November 2012 RSL tables and the most current RSL tables (November 2013) the risk-based RSLs for the protection of groundwater for trivalent and hexavalent chromium are 28,000,000 mg/kg and 0.00059 mg/kg, respectively. Revise Figure 10-9 and associated Table 10-3 to compare detected chromium concentrations to hexavalent chromium RSLs unless it can be demonstrated with additional lines of evidence that hexavalent chromium is unlikely to be present at the Site. Also ensure that the RSLs used in Worksheets #10 and #15 are consistent.

Response: Soil samples will be analyzed for hexavalent chromium during upcoming fieldwork. SAP revised accordingly.

18. Figure 10-10 Conceptual Site Model

Please clarify if this figure is intended to indicate that groundwater is only impacted by off-site releases from an upgradient site or rather from runoff and/or penetration of storm water on site 35. Historical soil data indicate that several chemicals exceed the soil screening levels for the protection of groundwater which supports that Site 35 may have historical releases that may be impacting groundwater. Revise Figure 10-10 to more clearly include potential migration of Site 35 releases from soil to groundwater.

Response: Downward pointing arrows, as shown on Figure 10-10, have been added to depict onsite releases as having the potential to impact surface soil, subsurface soil, and ultimately groundwater via leaching/infiltration.

Additionally, please add the area of depression at the termination point of the dry ditch and clarify its significance as a potential accumulation area such as an intermittent settling pond.

Response: The area of depression has been removed from all figures. The ditch is dry and there is not a retention pond feature present in the vicinity of the Site.

19. Table 10-4 Metals Detected in Groundwater

This table lists the units of measure for groundwater contaminants as micrograms per kilogram ($\mu\text{g}/\text{kg}$) when the values should be in micrograms per liter ($\mu\text{g}/\text{L}$). Although $\mu\text{g}/\text{L}$ is listed in the footnote, the definition is incorrect. Review the data and correct the units in the table and correct the definition of $\mu\text{g}/\text{L}$ in the footnote.

Response: Table 10-4 revised to show correct units for metals in groundwater.

20. SAP Worksheet #10 Section 10.7.3

Please clarify if there is potential terrestrial for use by terrestrial receptors in the area off the pavement south of the site, in the dry ditch area, and in the depressed area at the end of the ditch.

Response: As stated on page WS 10-24, dermal contact with and ingestion of surface and subsurface soil and shallow groundwater by ecological receptors was retained as a potentially complete pathway/exposure route at the Site. Text revised to clarify the potential for ecological receptors in the area to south of the Site and the dry ditch.

21. Worksheet #11 — Project Quality Objectives/Systematic Planning Process Statements, Page WS 11-1 and WS 11-6 (Also see comments above)

In order to meet the requirements of a remedial investigation, the nature and extent of contamination should be determined. While PSQs 1 & 2 provide answers regarding the nature of contamination, please explain if the samples planned for and the study questions as drafted are intended to provide answers regarding extent of contamination and how it will be determined if the extent of contamination has been delineated. Otherwise, explain how and when extent of contamination will be determined.

Response: The SAP has been revised to distinguish screening levels versus PALs. While the sampling approach as currently presented in the SAP is designed to provide information on the nature and extent of potentially impacted soil and/or groundwater, if contaminant concentrations exceed screening levels or background, additional sampling may be necessary to

satisfy delineation requirements. Per revised decision rules, as included in Worksheet #11, if contaminant concentrations are greater than screening levels/background concentrations, the MCRD Parris Island Partnering Team will reconvene to discuss a path forward. Pending results of this study, this path forward may involve additional sampling and analysis and/or risk evaluation. Once agreed upon by the MCRD Parris Island Partnering Team, the approach for such additional efforts would be detailed in an addendum to the SAP and presented for review and approval by the MCRD Parris Island Partnering Team.

While it is not clear if the Navy intends this sampling event to be only a phase I sampling event or to meet the full requirements of an RI, EPA is assuming the latter which results in the following comments:

In Decision Rule 1 modify the text to read "...surface and/or subsurface soils..." At the end of Decision Rule 1 please add "If concentrations in surface and/or subsurface soils exceed background concentrations and pose unacceptable risks, then remedial action will be necessary."

Response: See response to U.S. EPA Comment 21. The Navy intends this sampling event to be only a Phase I sampling event, so this comment is not applicable at this time. Additional efforts would be discussed and agreed upon by the MCRD Parris Island Partnering Team and detailed in an addendum to the SAP.

In Decision Rule 2 modify the text to read "...below MCLs and risk based concentrations and poses no unacceptable risk..." At the end of Decision Rule 2 please add "If groundwater concentrations are above MCLs or risk based concentrations or pose unacceptable risk, then remedial action will be necessary."

Response: See response to U.S. EPA Comment 21. The Navy intends this sampling event to be only a phase I sampling event, so this comment is not applicable at this time. Additional efforts would be discussed and agreed upon by the MCRD Parris Island Partnering Team and detailed in an addendum to the SAP.

Delete Decision Rule 3 or decide if a decision rule is needed for delineation and modify as such.

Response: See response to U.S. EPA Comment 21. The Navy intends this sampling event to be only a Phase I sampling event, so this comment is not applicable at this time. Additional efforts would be discussed and agreed upon by the MCRD Parris Island Partnering Team and detailed in an addendum to the SAP.

Decision Rule 1 states that if concentrations in surface and subsurface soils contain constituents at concentrations below PALs/background concentrations or pose no unacceptable risk, then no further action is required. A determination of no unacceptable human health risk or ecological risk from soil exposures cannot be made as presented because only the lowest of the human health, ecological and protection of groundwater screening levels is presented in Worksheet #15. For example, if the lowest PAL is the protection of groundwater screening level and this level is exceeded, this does not necessarily indicate that a human health or ecological risk is exceeded. SAP Worksheet #15 should include a listing of all three screening levels (human health-based, ecological-based and protection of groundwater) for each chemical in order to determine whether no unacceptable risk is posed from a human health, ecological health or protection of groundwater perspective.

Response: The SAP has been revised to distinguish screening levels versus PALs. Data generated during this study will be screened using applicable human health and ecological screening levels, as defined in revised Worksheet #11 of the SAP. The purpose of Worksheet #15 is to provide a comparison of the PAL (lowest screening level) versus Laboratory Detection Limits to assess whether data quality objectives can be achieved. Uncertainties introduced by limits of detection or limits of quantitation that are greater than screening levels will be described in the Remedial Investigation Report.

22. SAP Worksheet #11 Page WS 11-3 Data Acceptance

Data acceptance by EPA will be determined after the data has been submitted and data validation reports can be reviewed, etc.

Response: Comment noted.

23. SAP Worksheet #11 Page WS 11-4 Background

EPA understands the team has agreed to use the MCAS Beaufort background data set as a more robust representative background data set. Please reference this data and ensure those values have been included for use in the RIWP/SAP throughout and in all applicable Worksheets.

Response: Comment noted. Worksheet #11 revised to state that the use of the current Marine Corps Air Station Beaufort background dataset is currently under discussion by the MCRD Parris Island Partnering Team. In an effort to keep moving forward with regards to the project schedule, the SAP has been revised to state that prior to screening, background values to be used during this study will be clearly identified and the proposed method of screening will be submitted for approval by the Navy, MCRD Parris Island, SCDHEC, and U.S. EPA.

24. SAP Worksheet #11 Section 11.5 Study Area Boundary

The horizontal boundary of Site 35 should clearly exclude the somewhat new 90 day hazardous materials storage building itself containing the bermed storage area inside the building. EPA understands Site 35 to include everything else outside the building as mentioned in the RIWP/SAP. EPA also understands the 90 day temporary facility is currently operational and will be officially closed under RCRA once it is determined that it will no longer be used for this purpose. In the interim, since the RI is being conducted on the remainder of the storage facility area inside the fence, hazardous material should no longer be stored outside of the 90 day storage building. All other materials stored on site should be kept secured, properly contained (inside appropriate containers with no leaks, cracks, etc.) to ensure no further contamination is allowed to be deposited on site. This will ensure this RI may be considered a final determination for Site 35. If it is determined that potentially hazardous substances may have been released on the site after completion of this RI and any subsequent remediation efforts, the site may be revisited for consideration under CERCLA and/or RCRA as appropriate.

Response: Comment noted. All hazardous materials are stored inside Building 953. SAP text and figures revised to clarify that the active 90-day hazardous waste storage facility is not include in the scope of this study.

25. Worksheet #15 — Reference Limits and Evaluation Tables, Pages WS 15-1 to WS 15-9

Decision Rule 1 presented in Section 4.0 and Worksheet #11 cannot be supported without listing the human health-based and ecological-based screening criteria for direct exposure to soil because in nearly all cases the limiting screening level is the soil screening level for the protection of groundwater. An exceedance of the screening level for the protection of groundwater does not necessarily indicate that the soil poses a risk due to direct exposure by human or ecological receptors. Therefore, it is recommended that all three types of screening levels be included in Worksheet #15 in order to qualitatively evaluate human and ecological health risks. Further, the footnote for the term "RSL SSL RISK" should be revised because the values listed in the table as RSL SSL RISK are regional risk-based screening values for the protection of groundwater; the current description does not differentiate whether this value is for the protection of groundwater or for human health direct contact with soil.

Additionally, a number of issues with LOQs and LODs have been noted in the tables. Adjustments may need to be made to ensure acceptance of data.

Response: The SAP has been revised to distinguish screening levels versus PALs. Data generated during this study will be screened using applicable human health and ecological screening levels, as defined in revised Worksheet #11 of the SAP. The purpose of Worksheet #15 is to provide a comparison of the PAL (lowest screening level) versus Laboratory Detection

Limits to assess whether data quality objectives can be achieved. Uncertainties introduced by limits of detection or limits of quantitation that are greater than screening levels will be described in the Remedial Investigation Report.

The footnote for the term "RSL SSL RISK" has been revised for clarity.

26. Worksheet #15 — Reference Limits and Evaluation Tables, Pages WS 15-10 to WS 15-20

Decision Rule 1 presented in Section 4.0 and Worksheet #11 cannot be supported without listing the human health-based screening criteria for tap water for all analytes. Currently the table lists the MCL for a subset of chemicals despite the availability of a tap water RSL. Since MCLs are not purely health-based values, it is recommended that tap water RSLs are listed for all groundwater analytes to support Decision Rule 1.

Additionally, a number of issues with LOQs and LODs have been noted in the tables. Adjustments may need to be made to ensure acceptance of data.

Response: The SAP has been revised to distinguish screening levels versus PALs. Data generated during this study will be screened using applicable human health and ecological screening levels, as defined in revised Worksheet #11 of the SAP. The purpose of Worksheet #15 is to provide a comparison of the PAL (lowest screening level) versus Laboratory Detection Limits to assess whether data quality objectives can be achieved. Uncertainties introduced by limits of detection or limits of quantitation that are greater than screening levels will be described in the Remedial Investigation Report.

27. Figure 17-1 Proposed Soil Sampling Locations

This figure only shows proposed samples and does not show historical sampling locations to provide perspective on sample coverage. Include previous soil sample locations on Figure 17-1 to more clearly illustrate the adequacy of site characterization samples relative to potential release areas. Include the additional sample requested in comments above for the ditch. In addition, it is recommended the surface depression also be included on the figure as was done on Figure 10-4 and an explanation provided in Worksheet #17 why this potential depositional area is not proposed to be sampled; alternatively a sample should be proposed if this area is in fact an area that may accumulate contamination in the depression.

Response: SAP text and figures have been revised to show historical sampling locations. The surface depression has been removed from all figures.

28. Worksheet #18 — Sampling Methods/SOP Requirements Table, Page WS 18-1 thru WS 18-3

Modify Methods and/or SOPs to reference applicable EPA Methods and SOPs.

Response: SAP text and appendices have been revised accordingly.

29. Worksheet #19 — Analytical Methods/SOP Requirements Table, Page WS 19-1 thru WS 19-2

According to page WS 10-18, two polychlorinated biphenyls (PCBs), Aroclor-1254 and -1260 were measured above Industrial, Residential and Protection of Groundwater RSLs as well as ecological screening values (ESVs) in a surface soil sample collected near the storage area. Residential RSLs, protection of Groundwater RSLs and ESVs for the Aroclor 1254 and -1260 were also exceeded at the entry point of the earthen ditch. In addition, total PCB concentrations were detected above Industrial, Residential and Protection of Groundwater RSLs as well as ESVs in a surface soil sample collected at the midpoint of the earthen ditch. Residential and Protection of Groundwater RSLs and ESVs were also exceeded in a surface soil sample collected from the base of the historical excavation completed in the low-lying grassy area to the south of the Site. Additionally, total PCBs were measured above Protection of Groundwater RSLs and ESVs in various surface soil sampling locations positioned at the base of the historical excavation and along the earthen ditch. Finally, the action level established under the Toxic Substances Control Action (TSCA) of 1 mg/kg for residential exposure was also exceeded at two locations.

Although total PCB concentrations and Aroclor-1254 and -1260 exceed all three types of screening levels in soil, Worksheet #19 only includes method SW846-8082A for characterizing PCBs in soil and groundwater. If PCBs are detected again in this round of sampling, PCB congener analysis may be determined to be necessary to ensure that the extent of residual PCB contamination is known. It is possible that the total PCBs based only on Aroclor mixtures may underestimate the concentration of total PCBs due to weathering. It is recommended that a subset of samples for congener analysis using Method 1668B be included in the plan in case they are needed to ensure the extent of total PCB contamination has been adequately characterized and to reduce the uncertainty in the qualitative risk evaluation. The aliquots may be prepped and held according to EPA guidance. Otherwise an addendum to this plan and additional field event may be necessary.

Response: Comment noted. No revisions have been made to the SAP with regards to congener analysis. If congener analysis becomes necessary, the approach will be documented in an addendum to the SAP.

III. MINOR COMMENT

1. **Figure 7-1, Limited RI/RFI Site 35 Project Schedule**

The term 'edays' listed in the Duration column is not defined on Figure 7-1. As such, it is unclear if the term is an error or intended to signify "estimated days." Revise Figure 7-1 to define the term 'edays.' Also provide an updated schedule.

Response: The updated project schedule is included as SAP Worksheet #16.