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MCRD PARRIS ISLAND
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U S NAVY RESPONSES TO SOUTH CAROLINA DEPARTMENT OF HEALTH AND
ENVIRONMENTAL CONTROL COMMENTS ON FEASIBILITY STUDY/CORRECTIVE
MEASURES STUDY FOR SITE 1 INCINERATOR LANDFILL MCRD PARRIS ISLAND SC
1/11/2002
NAVAL FACILITIES ENGINEERING COMMAND SOUTHERN DIVISION

**SCDHEC COMMENT ON DRAFT FEASIBILITY STUDY / CORRECTIVE MEASURES STUDY
SITE/SWMU 1 – INCINERATOR LANDFILL (7/01), MARINE CORP RECRUIT DEPOT,
PARRIS ISLAND, SC6 170 022 762**

ENGINEERING COMMENTS, JULY 31, 2001

1. **Comment:** General. In accordance with RCRA guidance concerning the development of a Corrective Measures Study, this document should discuss viable remedial alternatives and propose a corrective measure most appropriate for this SWMU. The Department is aware that this varies from the CERCLA guidance pertaining to the development of a Feasibility Study. Therefore, the proposed corrective measure may be discussed in the cover letter for this document.

Response: Acknowledged. The recommended remedy for this site has been discussed in several partnering team meetings. As previously discussed, the recommended alternative will be provided in a transmittal letter in the future.

2. **Comment:** General. The Department's preferred alternative is what may best be described as a modified Alternative 2a. The Department maintains that alternative 2a with the addition of the excavation of the PAH contaminated area is most appropriate for this site. The consolidation of the PAH contaminated sediments would result in more timely remediation of the sediments rather than relying on a lengthy natural attenuation process which has not been demonstrated to be occurring at this site. Furthermore, it does not appear as though site-specific modeling has been conducted to establish the length of time required for contaminant concentrations to decrease to RGOs. Consequently, please modify the document to include a modified 2a remedial alternative.

Response: The Navy acknowledges SCDHECs preference for the selected remedy. However, the Navy would prefer to maintain the FS in its current format and not create additional alternatives. As long as the relevant issues are addressed, the Proposed Plan and ROD can, and commonly does, select a remedy that is not separately detailed in an FS.

3. **Comment:** General. The use of a CAMU is inappropriate for this site. The purpose of the CAMU is to treat, store, or dispose of hazardous remediation waste without triggering Land Disposal Restrictions (LDR). Data should be compiled, if it exists, or collected to determine if these sediments are considered characteristically hazardous (i.e., TCLP data). If the results demonstrate that the sediments are not hazardous, then LDRs do not apply, and activities may proceed as planned without the use of a CAMU. Should the sediments prove to be hazardous,

then the Navy must comply with LDRs and may want to consider another course of action since the Department can not approved the use of a CAMU without a permit, corrective action order, or other enforceable mechanism in place.

Response: The CAMU was considered primarily as a relevant and appropriate ARAR under CERCLA, and presented in the event that some of the materials be classified as hazardous, and the action of consolidation triggers the definition of disposal. As requested, the use of a CAMU under South Carolina LDRs will be eliminated from the FS. Compliance with LDRs will be addressed during the remedial design.

4. **Comment:** Section 4.5.1.2, Institutional Controls (Land Use Controls) and Monitoring, Page 4-6. This section states that the cost for land use controls are low, when in fact, the cost of land use controls are considerably high over the long term. The land use controls are to remain in effect in perpetuity or until such time as residential standards are met. This should be reflected in the cost discussion. Furthermore, Land Use Controls should not be evaluated as a technology in the remediation of contaminated sites. They are to be implemented in conjunction with a selected corrective action in cases where residential standards are not met and are not intended to be a stand-alone remedy. Consequently, this discussion should be removed from the document.

Response: The cost of land use controls are low relative to other technologies considered, such as excavation, containment, and incineration. The Navy acknowledges that land use control costs will continue to be incurred indefinitely.

In accordance with EPA guidance, Land Use Controls are specifically addressed as an institutional control. The Navy considers Land Use Controls to be an important part of any remedy that leaves waste on site. However, because of site conditions, the Conclusion statement for Institutional Controls “as a stand-alone option” will be deleted.

5. **Comment:** Section 4.5.1.2, Institutional Controls and Monitoring, Page 4-13. See comment #4.

Response: The cost of land use controls are low relative to other technologies considered, such as excavation, containment, and incineration. The Navy acknowledges that land use control costs will continue to be incurred indefinitely.

In accordance with EPA guidance, Land Use Controls are specifically addressed as an institutional control. The Navy considers Land Use Controls to be an important part of any

remedy that leaves waste on site. However, because of site conditions, the Conclusion statement for Institutional Controls “as a stand-alone option” will be deleted.

6. **Comment:** Section 4.6, Page 4-18; Table 4-1 and 4-2. See comment #4

Response: The cost of land use controls are low relative to other technologies considered, such as excavation, containment, and incineration. The Navy acknowledges that land use control costs will continue to be incurred indefinitely.

In accordance with EPA guidance, Land Use Controls are specifically addressed as an institutional control. The Navy considers Land Use Controls to be an important part of any remedy that leaves waste on site.

7. **Comment:** Section 5.1.2, Component 2, Page 5-4. This section should be modified to reflect the modified 2a approach which would include the excavation of the PAH contaminated sediments.

Response: The FS was developed to provide a range of alternatives. The Proposed Plan and ROD will select a final remedy based on one or more of the alternatives. As such, the Navy is not planning on revising the FS.

8. **Comment:** Section 5.1.2, Component 4, 4th paragraph, Page 5-5. This section discusses installing sumps within the interior of the landfill, if necessary, to control the migration of contaminated ground water. Such contingency may negatively impact the effectiveness of the low permeability cap. If such action is necessary, the Navy must ensure that a preferential pathway for infiltration through the cap is not created. Upon the completion of the contingency measure, if necessary, a demonstration must be made to the Department that the effectiveness if the cap is maintained.

Response: The installation of the sumps is a contingency remedy in the event that groundwater continues to be adversely impacted. The sumps would only be installed after the cap has been in place and long term monitoring demonstrates the need for further addressing the groundwater. If implemented, standard engineering practices would be used to reseal the cap.

9. **Comment:** Section 5.1.2, Component 6, Page 5-6. Upon completion of the sediment excavation, the Department recommends re-grading the area to prevent the creation of a “moat” adjacent to the landfill. Furthermore, this section states that remaining sediment contamination may be covered by soils. Given the dynamic nature of the site, the soils used as a cover may

only be temporary as they may be eroded away with tidal fluctuations. As such, the Navy should make all reasonable efforts to ensure that sediment contamination does not remain in place upon completion of the excavation activities.

Response: The description of the drainage channel around the landfill as a “moat” during the partnering team meeting was not accurate. In practice drainage channels would be established around the landfill and fill added as needed to establish a viable wetland.

The Navy concurs that all reasonable efforts will be taken to ensure that sediment contamination is placed within the clay capped area. The covering of residual sediments with soil is only presented as a contingency, in the event that excavation become impractical.

- 10a. Comment:** Section 5.1.2, Component 7, 2nd paragraph, Page 5-7. This section states that after the first year of quarterly ground water monitoring, the frequency will be reduced to annual monitoring. It is inappropriate to make this determination at this point in time. This section should be revised to state that after the first year of sampling, the data will be evaluated to determine an appropriate monitoring frequency. A change in frequency may be proposed by the Navy in the form of an annual report submitted to the regulatory agencies for review and concurrence.

Response: The actual frequency of groundwater monitoring will be developed in the Groundwater Monitoring Plan. The description presented is only for the cost estimate. The working will be revised as follows.

After the first year, “the groundwater data will be evaluated. This evaluation will consider seasonal variability in results, positive detections relative to groundwater and surface water criteria, and any data trends. Based on this evaluation, the need and frequency for continuing long groundwater monitoring will be determined. For the purposes of the CMS cost estimate, annual monitoring beyond the first year is assumed. “

- 10b. Comment:** The discussion relating to the natural attenuation of the PAHs should be removed in accordance with the modified 2a approach.

Response: The FS was developed to provide a range of alternatives. The Proposed Plan and ROD will select a final remedy based on one or more of the alternatives. As such, the Navy is not planning on revising the FS.

- 10c. **Comment:** The 3rd paragraph should state that unrestricted reuse of this property would be ensured via the Land Use Control Assurance Plan (LUCAP) and the Base Master Work Plan.

Response: Agreed. The first sentence will be revised as follows.

... unrestricted reuse of the site would not be allowed “via Land Use Control Assurance Plan (LUCAP) and the Base Master Plan.”

11. **Comment:** Section 5.1.3, Component 2; Section 5.1.2, Component 3. Section 5.1.2 pertains to alternative 2a which involves excavating the pesticides and inorganic sediment contamination; whereas, Section 5.1.3 pertains to alternative 2b which involves the excavation of pesticide, inorganic, and PAH sediment contamination. One would expect the volume of excavated material to be greater for alternative 2b since the PAH contamination would also be excavated. However, alternative 2a states that 11,600 cubic yards of sediment/waste will be excavated while alternative 2b states that 9,000 cubic yards will be excavated. This is contrary to what one would expect based on the target contaminants for excavation.

Response: The volumes estimates are accurate as presented. Under Alternative 2b, the landfill will be larger than under Alternative 2a, and therefore less of the waste surrounding the landfill will have to be moved. Please note that Alternative 2b also includes 6,500 cubic yards of sediment addressed under Component 1. Therefore the total estimated volume for consolidation is actually; Alternative 2a: 11,600 cubic yards and Alternative 2b: 14,500 cubic yards.

12. **Comment:** Section 5.1.3, Component 3, 4th paragraph, Page 5-10. See Comment #8

Response: The installation of the sumps is a contingency remedy in the event that groundwater continues to be adversely impacted. The sumps would only be installed after the cap has been in place and long term monitoring demonstrates the need for further addressing the groundwater. If implemented, standard engineering practices would be used to reseal the cap.

13. **Comment:** Section 5.1.3, Component 5, Page 5-11. See Comment # 9

Response: The description of the drainage channel around the landfill as a “moat” during the partnering team meeting was not accurate. In practice drainage channels would be established around the landfill and fill added as needed to establish a viable wetland.

The Navy concurs that all reasonable efforts will be taken to ensure that sediment contamination is placed within the clay capped area. The covering of residual sediments with soil is only presented as a contingency, in the event that excavation become impractical.

14. **Comment:** Section 5.1.3, Component 6, Pages 5-11 and 5-12. See Comment # 10 with the exception of the PAH comment.

Response: The actual frequency of groundwater monitoring will be developed in the Groundwater Monitoring Plan. The description presented is only for the cost estimate.

Agreed. The first sentence will be revised as follows.

... unrestricted reuse of the site would not be allowed "via Land Use Control Assurance Plan (LUCAP) and the Base Master Plan."

15. **Comment:** Section 5.1.4, Component 4. See Comment # 9.

Response: The description of the drainage channel around the landfill as a "moat" during the partnering team meeting was not accurate. In practice drainage channels would be established around the landfill.

The Navy concurs that all reasonable efforts will be taken to ensure that sediment contamination is placed within the clay capped area. The covering of residual sediments with soil is only presented as a contingency, in the event that excavation become impractical.

16. **Comment:** Section 5.3.2.1, Page 5-22. The discussion of the natural attenuation of the PAH area should be removed in accordance with the modified alternative 2a.

Response: The FS was developed to provide a range of alternatives. The Proposed Plan and ROD will select a final remedy based on one or more of the alternatives. As such, the Navy is not planning on revising the FS.

17. **Comment:** Section 6.0. This section should be modified to be consistent with the modified 2a alternative.

Response: The FS was developed to provide a range of alternatives. The Proposed Plan and ROD will select a final remedy based on one or more of the alternatives. As such, the Navy is not planning on revising the FS.

18. **Comment:** Section 6.2.9, Page 6-5. The 30-year present worth of alternative 2a is \$2,000 less than the capital cost; whereas, the 30-year present worth of alternative 2b is \$316,000 greater than the capital cost. Please verify the cost estimates.

Response: Acknowledged. The cost estimates were revised just prior to the report being issued and the correct cost estimates were not consistently presented in the report. The cost estimates are being revised and will be presented in the final report.

DCH, 30 JULY 2001

1. **Comment:** Title: The title of this document should include SWMU 41. Please revise accordingly.

Response: Agreed. The title will be revised to include SWMU 41.

2. **Comment:** Section 2.2, Site-Specific Geology And Hydrogeology: This section specifies the top and bottom of the waste was delineated using soil borings. The figures in this CMS state that the depth of the waste was estimated using aerial photographs. It is unclear how aerial photographs can be utilized to determine waste thickness since the difference in elevation would be insignificant when photographed from an altitude of 20,000 feet. Additionally, it has not been shown that aerial photographs exist that show this area prior to the addition of waste at SWMU 1. Either the text or the figures should be revised to reflect the method(s) used to calculate waste thickness. If aerial photographs were, in fact, used, please describe the methodology for these calculations.

Response: The section states that the top and bottom of waste were approximately using several factors including soil borings. Soil borings were not the only data used in estimating waste thickness.

The figures will be revised to delete reference to aerial photographs. Also, the following text will be added to the report.

“The estimated bottom of the waste assumes that the tidal mud flat that is present on either side of the site and that stretches for several miles in either direction, remains flat through the site. The estimate also assumes that waste materials have not migrated much beyond the surface of the underlying sediments. These assumptions are supported by the soil boring data around the edge of the landfill and historical aerial photographs that do not indicate the presence of any significant depressions in this area.”

Note that based on a 1945 aerial photograph, a small tidal stream did run through the site.

3. **Comment:** Table 2-1, Results of April 2001 Sediment Investigation: The abbreviation “NR” used for the arsenic-Eco PRG is not defined. Please revise the table.

Response: Since arsenic is not an ecological PRG, the NR will be replaced with a “--”. However, the “--” will be defined as “No ecological preliminary remediation goals.”

4. **Comment:** Figure 2-1, Site Layout: This figure shows a single location for SWMU 41. The conclusions drawn in the RI/RFI report for SWMUs 1 and 41 do not surmise that only the northern-most location be addressed in the future. Included below is part of an aerial photograph from 1955 that shows an incinerator with a smokestack at the southern location. This location must be included in all the figures in this CMS.

[Photo enclosed in original]

Response: The possible southern location for SWMU 41 was specifically addressed in the RCRA Facility Investigation. The conclusion was “either incineration never occurred in this area or that potential impacts from historical operation have been remediated. “

The purpose of the CMS is to develop options for remediating contaminated areas. Since this area was not found to be contaminated, it is not addressed in the FS. The Site ROD will document the absence of environmental impact at this location.

5. **Comment:** Figures 2-3 through 2-7, Cross Sections: Comment #2 applies to these figures.

Response: The figures will be revised to delete reference to aerial photographs.

6. **Comment:** Figure 3-2, Contaminated Sediment Delineation Map: The arsenic result for PAI-01-SD-021-01 should be marked with an “H”. Please revise the figure accordingly.

Response: Agreed. Please note that during validation of the data, it was discovered that the arsenic results for SD21 and SD22 were reversed. The figure will be revised.

7. **Comment:** Section 4.4, identification And Screening Of Technologies And Process Options: Institutional Controls should not be included as a separate remedial measure. Institutional Controls should be evaluated as PART OF a remedy, but not as a stand-alone remedy. Please revise the text accordingly. This comment applies to all subsequent sections of this CMS which list Institutional Controls as a stand-alone remedy.

Response: The Navy disagrees. In accordance with EPA guidance, institutional controls are considered as both stand alone technologies and as part of remedies as needed.

8. **Comment:** Section 5.1.2, Component 7 – Implementation of land use controls, long-term monitoring, 5-year reviews, and operation and maintenance: It is not appropriate to specify quarterly monitoring

for one year only. Automatic reductions in groundwater monitoring frequency is not prudent. The text should be revised to say that quarterly monitoring will continue until such a time that the State and EPA approve a reduction in monitoring frequency.

Response: The actual monitoring frequency will be determined during the development of the groundwater monitoring plan. The discussion in the FS is presented as the basis of the cost estimates only. To address this comment, the text will be revised as follows (Sections 5.1.2 and 5.1.3).

After the first year, “the groundwater data will be evaluated. This evaluation will consider seasonal variability in results, positive detections relative to groundwater and surface water criteria, and any data trends. Based on this evaluation, the need and frequency for continuing long groundwater monitoring will be determined. For the purposes of the CMS cost estimate, annual monitoring beyond the first year is assumed. “