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U S EPA REGION IV COMMENTS ON DRAFT REMEDIAL INVESTIGATION WORK PLANS FOR SITE 1, SITE 2, SITE 3, SITE 15 AND SITE 41 MCRD PARRIS ISLAND SC
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U S EPA REGION IV

Received from Allison Humphrey, U.S. EPA Region 4; 2/97 03.01.00.0014
e-mailed to Mark Sprenza

# COMMENTS FROM U.S.EPA REGION 4 FEDERAL FACILITIES BRANCH DRAFT REMEDIAL INVESTIGATION WORK PLANS FOR SITES 1, 41, 2, 15 and 3 MCRD PARRIS ISLAND, SOUTH CAROLINA

**Site 1 (Incinerator Landfill) and Site 41 (Former Incinerator)**

1. Page 1-3, Figure 1-1:
Given the title and purpose of this figure, Site 1 (Incinerator Landfill) should be clearly depicted on the map.

2. Page 2-1, Section 2.1, Paragraph 2:
The text should also briefly describe the level and type (if applicable) of activity that took place at the site between 1965 and present.

3. Page 2-10, Section 2.3.2, Paragraph 1, Bullet 2:
This section recommends that action be taken to determine if chloroform is present at greater depths in the surficial aquifers. However, the text on page 2-6 states that no organic compounds were detected in the groundwater samples collected during the 1990 verification study. The text should present further rationale for determining the presence of chloroform at greater depths in the surficial aquifer.

4. Pages 3-1 through 3-2, Section 3.0:
This section repeatedly mentions Archer's Creek as a potential receiving media for Site 1 contaminants. It may thus be helpful to modify the scale of all figures showing landfill boundaries (e.g. Figures 2-2 and 7-1) to include this surface water body.

5. Page 3-1, Section 3.3, Sentence 3:
The text states that the marsh deposits underlying the landfill are assumed to be a barrier to the deeper aquifer. This statement appears to contradict Figure 3-1 (Site Conceptual Model), which depicts these deposits as providing a partial barrier to the shallow aquifer. Please clarify and revise as needed.

6. Page 4-1, Section 4.1:
Given the relatively low numbers and concentrations of contaminants detected during previous investigations of this site, a primary sampling rationale for each media should be to characterize worst-case site conditions for that media. The text should be modified to include this objective.

7. Page 4-6, Table 4-2:
The body of the table does not appear to include a reference to footnote number 1. Please check and revise as needed.

8. Page 4-7, Section 4.2.2.2:
Based on the site description provided in Section 2.1 of the SAP, this landfill appears to consist primarily of incinerated Municipal Landfill (MLF)-type wastes and cover an area in excess of 29,000 cubic yards. Given these site characteristics, wholesale excavation of Site 1 landfill contents would seem unlikely (see EPA/OSWER Quick Reference Fact Sheet: Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills (June 27, 1995)). Toxicity Characteristic Leaching Procedure (TCLP) analyses of subsurface soil and sediment samples to determine if waste material/fill is a characteristic RCRA waste (presumably for purposes of off-site disposal) should therefore be delayed until a determination regarding the need to excavate these materials has to be made. For example, if hot spots are identified during the RI/RFI, these may require further characterization to determine if removal and/or treatment is warranted.

Also, depending on RI/RFI results, a second type of leach test which may prove helpful is RCRA Method 1312: Synthetic Precipitation Leach Test for Soils. This method is designed to determine the mobility of organic and inorganic contaminants in soils.

9. Page 4-7, Section 4.2.2.3:
For use in assessing effects on ecological receptors, it is recommended that temperature and secchi disk readings also be collected for surface water.

10. Page 5-1, Section 5.0, Paragraph 4:
Unless the groundwater beneath Parris Island is determined not to be potable, the following exposure routes must also be included under the "Future Resident" receptor group heading for groundwater: ingestion and inhalation. These exposure routes should also be considered for future construction workers, and/or maintenance workers.

11. Page 6-1, Section 6.3:
The inner diameter of the augers should be at least 6.25 inches.

12. Page 6-5, Section 6.4.1:
The grout seal should be cored, not drilled, to prevent shattering.

13. Page 6-6, Section 6.8, Paragraph 2:
The acronym FOL is not defined here. All acronyms should either be defined in text (first occurrence only), or in an acronym list to be included with the document.

14. Page 7-1, Section 7.2.1:
In order to ensure that the sediment samples collected reflect worst-case conditions, sediments should be collected from at least two depth intervals at each location. Recommend that samples be collected from the top few inches, to reflect recent off-site migration, and from some greater depth interval (suggest 1 foot) to reflect historical accumulations. Visual inspection, or other available information, should be used to ensure sample collection from the depth interval with the greatest potential for contamination.

15. Page 7-1, Section 7.2.2:

A. Surface soil samples should be collected from the depression observed during the October 15-17 1996 base tour and from any other areas where contaminants are likely to have preferentially accumulated (e.g. based on visual inspection of existing site conditions, aerial photographs, historical information, etc.). A reasonable effort should also be made to locate the former incinerator and collect samples near it.

B. Per Region 4 Supplemental Guidance to RAGS, all surface soil samples should also be collected from the 0-1 foot interval, or biased to reflect worst-case conditions. For example, if historical records, visual inspection or aerial photographs indicate that the soil/fill layer on top of the landfill is less than 1 foot thick in any area, a surface soil sample should be collected from the ash/waste layer contained within the top foot of the landfill.

16. Page 7-11, Section 7.2.3:
Given the Site 1 characteristics mentioned previously (e.g. primarily incinerated MLF-type wastes, size: >29,000 cubic yards), engineering controls, such as containment, would appear to be a more likely remedy than treatment (see Section 300.430(a)(iii)(B) of the NCP and EPA/OSWER Quick Reference Fact Sheet: Presumptive Remedy for CERCLA Municipal Landfill Sites (Directive No. 9355.0-49FS, June 27, 1995)). For this reason, the RI should initially focus on characterizing (i) on-site exposure pathways for direct contact (e.g. surface soil contamination) and (ii) all off-site exposure pathways (e.g. off-site contamination of surface water, sediment and groundwater). EPA recommends that a decision regarding the need to characterize landfill contents (i.e. source characterization) be delayed until this initial round of data becomes available. Evaluation of this data for purposes of determining whether source characterization is appropriate should include consideration of such factors as: (i) magnitude and risk-level of detected off-site contamination (ii) presence/absence and nature of any hot spots and (iii) length of time for which contaminants have been available for off-site transport (in this case between 32 and 76 years).

Use of the above approach makes it critical that the locations and numbers of samples collected during this first round of activities provide adequate characterization of worst-case site conditions. To this end, specific justification/rationale must be provided for each sample collected. Care should also be taken to ensure that the number of samples collected provides coverage of all areas where significant potential for off-site migration and/or concentration of contamination exists.

17. Page 7-11, Section 7.2.4:
Given that metals were the only contaminants detected in groundwater samples during earlier Site 1 investigations, it is important that the current RI use sampling methods which will facilitate the collection of clear ground water samples and reduce the likelihood of false positives. The Navy should use the ground water sampling techniques provided in the Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM), May 1, 1996 and summarized in the final paragraph of Section 3.1.1 (Groundwater Sampling) of the Draft Volume II Master Work Plan.

18. Page 7-12, Section 7.3.2:
This section stipulates that the last two digits of the sample number will specify the middle of

the sample interval, yet the sample numbers in Table 7-1 specify the bottom of the sample interval. This discrepancy in sample nomenclature should be addressed.

19. Page 10-1, Section 10.2:
A number of needed field QA/QC blanks are missing. Grout, sand, bentonite, and preservative blanks should also be collected.

**SITE 2 (Borrow Pit Landfill) and Site 15 (Dirt Roads)**

1. The following comments made for Sites 1 and 41 above are also generally applicable to the Draft RI Work Plan for Sites 2 and 15: comments 2, 8, 9, 11, 12, 13, 14, 15B, 16 and 19.

2. Page 2-11, Section 2.3.3:
Comparison of the Region 4 Waste Management Division Saltwater Surface Water Screening Values and Sediment Screening Values with the values shown in Figure 2-5 revealed exceedences of chronic screening values for several metals, as listed below, in the one surface water and sediment sample collected:

| Metal | SW Screening Value (ug/L) | Sediment Screening Value (ppm) |
|---|---|---|
| Arsenic | (NE)* | 7.24 |
| Cadmium | 9.3 | (NE)* |
| Chromium | 103 | (NE)* |
| Lead | 8.5 | (NE)* |

* NE - Region 4 screening value not exceeded

Please revise the text as needed. Region 4's surface water screening values are based on the chronic Ambient Water Quality Criteria (AWQC) for the protection of aquatic life. South Carolina State Water Quality Standards would be at least as stringent as AWQCs, and would likely be ARARs.

3. Figure 7-1, p. 7-8:
Surface water and sediment samples should be collected from the small marshy area nearest the landfill.

4. Figure 7-3, p. 7-10:
One shallow well should be place on the southwest border of the landfill, nearest the marshy area.

**SITE 3 (Causeway Landfill)**

1. The following comments made for Sites 1 and 41 above are also generally applicable to the Draft RI Work Plan for Site 3: comments 2, 5, 8, 9, 11, 12, 13, 14 and 19.

2. Page 2-11, Section 2.3.3:
Comparison of the Region 4 Waste Management Division Saltwater Surface Water Screening Values and Sediment Screening Values with the values shown in Figure 2-4 revealed exceedences of chronic screening values for several metals, as listed below:

| Metal | SW Screening Value (ug/L) | Number of Exceedences | Sediment Screening Value (ppm) | Number of Exceedences |
|---|---|---|---|---|
| Cadmium | 9.3 | 2 | 1 | - |
| Chromium | 103 | - | 52.3 | - |
| Lead | 8.5 | 5 | 30.2 | - |
| Mercury | 0.025 | 2 | 0.13 | 8 |
| Selenium | 71 | - | - | - |

Please revise the text as needed. Region 4's surface water screening values are based on the chronic Ambient Water Quality Criteria (AWQC) for the protection of aquatic life. South Carolina State Water Quality Standards would be at least as stringent as AWQCs, and would likely be ARARs.

3. Page 2-11, Section 2.3.4:
The document should be expanded to include the results of this fish/shellfish study. In addition to providing detected contaminant concentrations, information on the types of tissues sampled (e.g. whole body vs. fillet/edible tissue) and basic parameters on the specimens collected (e.g. weight, length) should also be provided.

4. Page 2-15, Section 2.4:
The existing data and information for this site (e.g. fish/shellfish data, magnitude and exceedences of Region 4 screening values) should be used to revise and expand this section. As discussed in the Supplemental Guidance to RAGS: Region 4 Bulletins, Ecological Risk Assessment Bulletin No. 1 - Preliminary Risk Evaluation, after comparing available data with screening values, a Preliminary Problem Formulation should be conducted to "identify categories of potential ecological receptors that may exist in the site area, to identify contaminants which may pose unacceptable risks to those receptors, and to determine contaminant fate/transport and toxicity mechanisms."

5. Pages 3-1 through 4-1, Sections 3.0 and 4.1:
The results of the Preliminary Problem Formulation should be used to revise and expand the information provided in these sections, particularly the general rationale for the proposed Site 3 sampling.

6. Page 5-2, Section 5.2:
This section should also be expanded to include the results of the Site 3 Preliminary Problem Formulation and to further identify, in a more site-specific manner, the approach that will be used to assess ecological risk for this site.

7. Pages 7-1 through 7-15 , Section 7.2:

More specific justification for the numbers and locations of samples proposed should be presented. In general, it may be appropriate to bias samples towards the southeastern end of the causeway, where "both solid waste and fill dirt" (p. 2-1) were deposited.