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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 DRAFT REMEDIAL INVESTIGATION FOR
SITE 1 AND SITE 41 MCRD PARRIS ISLAND SC

6/1/2001

NAVAL FACILITIES ENGINEERING COMMAND SOUTHERN DIVISION

RESPONSE TO SCDHEC COMMENTS

**DRAFT REMEDIAL INVESTIGATION (RI)/RCRA FACILITIES INVESTIGATION (RFI) FOR
SITE/SWMU 1 – INCINERATOR LANDFILL, AND SWMU 41 – FORMER INCINERATOR**

Comments by Jerry Stamps, Division of Hazardous and Infectious Waste Management

Dated September 27, 2000

1. **Comment:** General. If this investigation was conducted with the intent to implement the presumptive remedy for landfills, please indicate as such within the body of the report.

Response: The following statement will be added to Sections 1.3 and 3.0 and the executive summary.

“The sampling program was developed to support a presumptive remedy for the site that assumed waste materials would be encapsulated under a cover/cap and is consistent with U.S. EPA guidance entitled Presumptive Remedy for CERCLA Municipal Landfill Sites (U.S. EPA, 1993) and Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills (Interim Guidance) (U.S. EPA, 1996a). “

2. **Comment:** General Figures. The yellow line in the figures appears to represent the boundary of the landfill; however, nothing in the legend identifies this line as such. Additionally, the figures should identify the fluctuations in surface water elevations resulting from tidal influences. This is particularly necessary for those figures presenting the surface water and sediment contamination.

Response: The yellow line is labeled in the figures as “APPROXIMATE HIGH WATER SHORELINE”. However, as requested on previous documents, a legend will be added to the figure indicating that the green shading represents the forested/wooded areas, blue shading represents surface water, and brown shading represents highways.

The approximate location of water at low tide location will be added to figures. The low tide line is in the channel to the north of the site. All of the surface water and sediment locations are dry at low tide.

3. **Comment:** Section 2.7. This section includes an inadequate discussion of the site-specific ecology. At a minimum, this section should reference the Ecological Risk Assessment included in Section 7.

Response: A reference to Section 7.0 will be added to this section.

4. **Comment:** Section 3.1, 4th bullet, 6th bullet. This section should discuss the reasons for any deviations from the approved work plan rather than simply stating the deviations.

Response: The following statement will be added to the 4th bullet. "This concrete pad represents field conditions that provide direct evidence of the location of the former incinerator. Therefore, samples collected near this pad would be more representative of the SWMU than more randomly placed samples in the general area."

The following statement will be added to the 6th bullet. "Because of a missed holding time,"

5. **Comment:** Section 3.2.3. This section states that a creosote odor was observed at PAI-01-SB-02 and PAI-01-SB-03. Additionally, several samples had elevated PID readings. Please explain why these samples were not collected for laboratory analysis for the purposes of delineating nature and extent of contamination.

Response: The site was investigated assuming a presumptive remedy. Therefore sample collection was biased toward areas that do not contain visible waste and would not otherwise be addressed by a cover/cap. The samples contain waste and therefore would be addressed by the cover/cap.

6. **Comment:** Section 3.2.5, 1st paragraph, typographical error. The sediment sample locations are illustrated in Figure 3-2 rather than Figure 3-3. Please revise accordingly.

Response: Agreed.

7. **Comment:** Figure 3-3 and Section 3.2.5. It is difficult to decipher what areas were impacted by the debris such as glass and ash. Please clarify the figure.

Response: Figure 3-3 will be modified to show areas where glass and ash are visibly present. Typically, this type of figure is presented in the corrective measures study.

8. **Comment:** Section 3.2.5, last paragraph, typographical. It appears as though the term "representative concentration" should be "representative locations". Please revise accordingly.

Response: Agreed.

9. **Comment:** Section 3.2.6, 1st paragraph. Please incorporate a figure illustrating the location of the picnic area and associated sample locations relative to SWMU 1. Additionally, the first paragraph should clearly state that the samples collected from the picnic area were collected for background purposes.

Response: A figure showing the location of the picnic ground samples will be added to the appendix. The following sentence will be added to Section 3.2.6. Two surface soil samples were collected within the picnic area west of Site 1 “to determine potential levels of pesticides and PAHs that may be attributable to commercial applications of pesticides and other anthropogenic sources of pesticides and PAHs. These two samples are not part of the site background data set.”

10. **Comment:** Section 3.2.12, Holding Times. Please explain why numerous holding times were exceeded.

Response: Holding times were exceeded for 24 sample - analytes. The analytes were salinity, TOC (surface water), TDS, and TSS in surface water and groundwater. The exact reason for the laboratory not achieving the holding time is variable, however, these parameters are not very sensitive to holding times (e.g. the salinity of sea water), and do not directly affect the risk assessments. As a result, the data was not rejected in the validation process. In addition, the salinity, TDS, and TSS results can be semi-quantitatively evaluated from field instrument results obtained during sample collection (e.g. salinity and turbidity). Also, these sample analytes represent less than 0.2% of the analytical data set.

11. **Comment:** Table 3-5. Please explain why sample PAI-01-SW-08-00 was not sampled for surface water quality parameters.

Response: PAI-01-SW-08-00 is not a sample, and reference to it will be deleted from Tables 3-1 and 3-5. During the original planning for the site, the designation SW08 was assigned to a sample location. During subsequent revisions, the SW08 sample was deleted from the field activities. Since renumbering all sample locations could result in quality problems with the field program, it was decided to maintain the previous sampling nomenclature for the rest of the locations.

12. **Comment:** Section 4.1.3. This section states that bis(2-ethylhexyl)phthalate was detected at concentrations exceeding the “background level”; however, there was no discussion of the levels

detected in the blank, if any. For the sake of comparison, please include a discussion of the detections of bis(2-ethylhexyl)phthalate in the blank.

Response: The sentence referencing bis (2-ethylhexyl)phthalate exceeding background will be deleted from this section. Organics detections are not compared to background concentrations in the early sections of the report, but are normally discussed in more detailed sections of the risk assessments.

- 13. Comment:** Section 4.1.4, Figure 4-4. Please be advised that additional sediment samples may be necessary pending the outcome of the ecological subgroup.

Response: Acknowledged, once PRGs are developed for the site, supplemental delineation may be required prior to remediation.

COMMENTS BY DONALD C. HARGROVE, HYDROGEOLOGIST, DATED SEPTEMBER 8, 2000

1. **Comment:** The Division of Hydrogeology found this report technically inadequate. Comments were going to be written concerning field logs, monitoring well development and purging procedures, and Chain of Custody Forms. However, comments generated during this review mirror some of the comments by the EPA (letter: Pope to Cheney, dated 31 August, 2000). The Division does not wish to reiterate comments already generated by another reviewer, and therefore concurs with the EPA's comments. Responses to said comments will be reviewed upon their submittal.

Response: Acknowledged. See responses to EPA comments regarding field logs and chain of custody forms. The EPA did not comment on monitoring well development and purging procedures.

COMMENTS BY SUSAN K. BYRD, RISK ASSESSOR, DATED AUGUST 8, 2000

General Comments

1. **Comment:** Page 3-1 and 3-2, Section 3.1 - Deviations From the Work Plan: Explain in more detail the specific reasons for deviating from the work plan. For example, please provide details for why the two soil sample locations were moved at SWMU 41, and provide information why the sediment samples were not analyzed for hexavalent chromium.

Response: The following statement will be added to the 4th bullet. "This concrete pad represents field conditions that provide direct evidence of the location of the former incinerator."

The following statement will be added to the 6th bullet. "Because of a missed holding time,"

2. **Comment:** Page 3-5, Section 3.2.6 - Surface Water Sampling: Please explain why dioxin samples were not collected during this investigation. SWMU 1 and 41 disposal histories indicate that dioxin samples are warranted. If samples were analyzed for dioxins, please discuss the results and sample locations.

Response: Based on the site history, environmentally significant concentrations of dioxin would not be expected to be present at this site. This determination was based on the type of waste burned (municipal) and the type of ash landfilled (bottom ash). Current research indicates that dioxins form during the combustion of chlorinated organics in the flyash. During the time period that the incinerator was in operation (pre 1959), chlorinated organics (either as liquid wastes or plastics) would not have been common in municipal type wastes. Therefore dioxin precursors would not have been present. The references to dioxin formation during combustion suggest that the dioxins are formed primarily in the flyash, not the bottom ash. This research was discussed with the partnering team. Based on the common confusion with dioxin formation, the team decided to collect a limited number of samples to document the absence of environmental significant levels of dioxins. Therefore, a work plan was developed.

The results of the investigation are provided in Appendix G of the Site 1 RI report, and TCDD equivalents were measured for waste, sediments, and groundwater as well as a remote background location. The TCDD concentrations found were similar to those measured in a background location and were less than or similar to the most stringent of human and ecological screening values. Therefore it was concluded that the TCDD detected were not of site origin and were not of environmental significance.

Specific Comments

1. **Comment:** Page 2-3, Section 2.7 – Ecology: As discussed in the teleconferencing call on July 31, 2000, the RFI report should be written as a stand alone document. In future documents, avoid referring the reader to previously written documents and summarize the pertinent information from the referenced document.

Response: MCRD Parris Island is a complex site with considerable historical information. The amount of historical information to be provided in current reports is subjective. If the requested information is needed by several groups and directly relevant, then it is included in the report. However, for information that is redundant or highly technical and is not directly relevant to the current investigation, it is more appropriate to reference other documents. This approach results in a more focused and efficient reporting of complex issues and results. As discussed, a reference to Section 7.0 will be provided in Section 2.7.

2. **Comment:** Page 3-4, Section 3.2.4 – Surface Water Sampling, Paragraph 2: The text states that elevated turbidity in the surface water samples was unavoidable due to the sampler walking to the sampling location. In order to decrease the amount of turbidity, always enter a sample location from downstream. Time should be allotted to allow for the turbidity to settle and migrate “downstream” prior to filling sample containers.

Response: The surface water at the site is nearly stagnant on the receding tide and very shallow (3 to 6 inches). Therefore, approaching the sample location from the downstream position would not reduce turbidity in the sample. Also, standing water is present at these locations for only 1 to 2 hours after high tide and the sampling procedure requires approximately 30 minutes. Based on the fine grained nature of the sediments at this location and the long time required for sediment to flush or settle, there would not be sufficient water left at the site.

3. **Comment:** Page 6-11, Section 6.2.3.5, Ingestion of Fish: Since the extent of contamination has not been delineated in the surface water and the sediment in relation to the low tide line (not indicated on sample location maps), the rationale presented for excluding this pathway is not justified. If it is determined that contamination has not migrated from the site to the low tidal waters, then this rationale is appropriate.

Response: The investigation was conducted to specifically evaluate the potential for migration of significant contamination from the site. Initially, the samples were collected as near the site as possible to maximize the potential contaminant concentrations. In general, the most significant

chemical concentrations were measured near the site and most of the detected chemical concentrations decreased to below screening levels/background away from the site within the tidal zone.

Based on the physical characteristics of the site, fish cannot live continuously within several hundred feet of the site. Archers Creek in the northwest corner of the map and another a narrow branch of a tidal stream branch located north of the site are the nearest surface water bodies during low tide.

We recognize the potential concern with this pathway and will add this scenario to the human health risk assessment. However, based on the relatively low chemical concentrations detected in surface water, the evaluation will compare the surface water data to ambient water quality criteria for fish consumption only and factor in site averages and home range considerations. If necessary, a conservative fish consumption model will be generated.

4. **Comment:** Page 7-8, Section 7.3.3.7: Response to comments from future reports as well as previous team meetings (April 20, 2000) indicate that smaller wading birds such as the green heron or the little blue heron would be used in ecological risk assessments due to smaller home ranges and greater food ingestion rates in relation to body weight. Since the smaller wading birds are better suited receptors for potential hazardous waste sites, please revise the section and calculations pertaining to the great blue heron.

Response: During the April 2000 team meeting, it was agreed to make this change for future reports. The Site 1 report was issued for review in March 2000. As discussed during the meeting, the impact of the change is very minor (less than 10%). However, for completeness, text will be added to the report to semi-quantitatively note this receptor and potential impacts on the food chain modeling and the green heron calculation will be added to the Appendix.

5. **Comment:** Page 7-26, Section 7.8.1 – Volatile Organic Compounds, Paragraph 2: The text recommend that acetone be dropped from further consideration since it is a common laboratory contaminant. Please include the levels of detections of acetone in the various blank samples in the body of the text of the report.

Response: The following will be added to Section 7.8.1.

“Acetone was detected in laboratory blank samples at concentrations up to 4.2 µg/l in water and 24 µg/kg in soils/sediments.

6. **Comment:** Page 7-27, Section 7.8.1 – Carbon disulfide: The text states that carbon disulfide may not be due to site-related contamination and should be dropped from further consideration. Since the waste disposal practices at the site are not known, and since no ESV is available for carbon disulfide, this compound should be retained unless additional information is provided for its exclusion.

Response: The following text will be added to this section. “Unlike most organic compounds on the TCL list, carbon disulfide is a naturally occurring compound in marsh sediments, therefore its presence in site sediments and associated groundwater would be expected. Carbon disulfide was detected in two of six background sediment samples at concentrations ranging from 2 to 7 µg/kg.”

7. **Comment:** Page 7-30, Section 7.8.2 – PAH Compounds: The text states that various other “sources” may have influenced the PAH detections in sediment samples especially in the vicinity of SD-017-01. Sampling strategies should have been modified and additional “biased” samples should have been collected to control for other influences especially nearby drainage channels.

Response: Once PRGs are established, additional sampling may be considered to further delineate the PAHs in sediments prior to remediation. Additional sampling was not conducted at this time because the need for PAH-based remediation and potential cleanup levels were uncertain.

8. **Comment:** Page 7-47, Section 7.9.1 – Uncertainty: The text states that more than one source may be influencing the site. As stated in specific comment 7, without analytical data controlling for off-site sources, this is not a valid rationale. The samples should have been moved to more suitable locations to determine site influence or used as control samples for the off-site sources.

Response: The discussion is intended to address uncertainty in the results. This type of uncertainty can never be eliminated from an investigation and collecting more samples will not necessary reduce this uncertainty. The sample locations, initial and second round, were developed by the partnering team based on the results and site conditions. Anthropogenic sources of contamination can be further addressed during PRG development, if relevant.