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LETTER OF TRANSMITTAL AND U S NAVY RESPONSES TO REGULATOR COMMENTS ON
DRAFT REMEDIAL INVESTIGATION WORK PLANS FOR SITE 2 BORROW PIT LANDFILL
AND SITE 15 DIRT ROADS MCRD PARRIS ISLAND SC
7/1/1997
BROWN AND ROOT ENVIRONMENTAL



Brown & Root Environmental

A Division of Halliburton NUS Corporation

Foster Plaza VII
661 Andersen Drive
Pittsburgh, PA 15220-2745

(412) 921-7090
FAX: (412) 921-4040

C-49-7-7-005
July 1, 1997
Project Number 7394

Commanding Officer
Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Art Sanford (Code 1862)
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: Clean III Contract No. N62467-94-D-0888
Contract Task Order No. 020

Subject: Parris Island, Marine Corps Recruit Depot; South Carolina
Final Remedial Investigation Work Plan for Sites 2/15 and 3

Dear Mr. Sanford:

Enclosed please find two copies, each, of the Final Remedial Investigation Work Plans for Sites 2/15 and 3. These documents have been revised to incorporate comments from the U.S. Environmental Protection Agency - Region 4, the South Carolina Department of Health and Environmental Control, and the Navy. All comments and comment responses have been bound within the Work Plans. Additionally, the Work Plans have been revised to follow investigation guidance provided in the Presumptive Remedy for CERCLA Municipal Landfill Sites.

Please call me at 412-921-8916 or Jason Brown at 412-921-8401 with any questions.

Very truly yours,

Mark P. Speranza

Mark P. Speranza, P.E.
Task Order Manager

MPS/dt
Enclosure

c: D. Evans-Ripley, SOUTHDIV (w/o enclosure)
T. Harrington, MCRD Parris Island (one copy)
D. Bradley, MCRD Parris Island (one copy)
A. Humphris, U.S. EPA (two copies)
D. Hargrove, SCDHEC (one copy)
S. Peterson, SCDHEC (one copy)
K. Atchley, Bechtel Environmental, Inc. (one copy)
D. Wroblewski, B&R Environmental (w/o enclosure)
M. Perry, B&R Environmental (w/o enclosure)
J. Brown, B&R Environmental (one copy)
G. Wagner, B&R Environmental (one copy)
File 7394

**RESPONSE TO SCDHEC COMMENTS TO
DRAFT REMEDIAL INVESTIGATION WORK PLANS
SITE 2 (BORROW PIT LANDFILL) AND (SITE 15 - DIRT ROADS) FOR
MCRD PARRIS ISLAND, SOUTH CAROLINA**

(S. PETERSON, REVIEWER)

1. Comment: Overall

This document was reviewed to meet the requirements of an RFI Work Plan. Please change the title to reflect this.

Response:

The title of the work plan will be changed to RCRA Facility Investigation/Remedial Investigation Work Plan for Site 2 - Borrow Pit Landfill and Site 15 - Dirt Roads.

2. Comment: Section 1.1, Scope and Objective

a) The 1st sentence should be deleted. This is information already stated in Section 1.0 and has nothing to do with Scope and Objective; and

b) The objective of this investigation is less specific than that of the Master Work Plan. The scope and objective should be specific since this is a site specific work plan. Please rewrite to give the reader a clear statement of the specific objectives of the investigation. In some cases, the objectives of the study may be to generate data to justify a "no-further action" decision. Describe fully the objectives of Site 2 and 15.

Response:

In accordance with this comment and the response to U.S. EPA Comment Number 16 to the Draft SAP for Site 1/41, the scope and objective has been rewritten to clearly state the objectives of the investigation and to reflect the presumptive remedy approach.

3. Comment: Section 2.0, SITE BACKGROUND

Based on this sentence, it would be logical to either rename section 2.1 to Site Description and History or rename Section 2.1 to Site History and add a Section 2.2 named Existing Site Conditions (and of course renumbering the following sections).

Response:

Section 2.1 will be renamed to "Site Description and History."

4. Comment: Section 2.1, Site Description

As mentioned above, you could consider renaming the section Site Description and History. Due to the status of the landfill, the description is history.

Response:

Section 2.1 will be renamed to "Site Description and History".

5. Comment: Section 2.1.1, Site 2 - Borrow Pit Landfill

a) Only from verb tenses does the reader know that this landfill is no longer in operation. The reader's beliefs are confirmed with the last sentence of the 2nd paragraph. Consider replacing the first words "Site 2 is" with "**Borrow Pit Landfill is a former landfill that was in operation from 1965 to 1968. There is currently no activity in this area. It is located...**" This lets the reader know immediately that "there is currently no activity in this area," and the time frames of those activities.

Response:

The first words of Section 2.1.1 Site 2 - Borrow Pit Landfill, "Site 2", will be replaced with "Borrow Pit Landfill is a landfill that was in operation from 1965 to 1968. There is currently no activity in this area. It is located..."

b) The paragraphs are not in chronological order and should be corrected. You could combine the paragraphs (if you choose to not add a separate section for Site History). Suggested wording: **Borrow Pit Landfill began as a pit that had been dug...**

Response:

The second and third paragraphs will be combined and rearranged chronologically. The suggested wording will be incorporated into this revision of this section.

c) Suggested wording: From historical aerial photographs taken in _____ and _____, and

Response:

The reference to aerial photographs was taken from the 1986 NEESA Initial Assessment Study. This document does not include the photographs in question and the photographs can not be located at the base. This statement is referenced to the 1986 NEESA IAS in the text of Section 2.1.1.

d) Aerial photographs should be referenced in the text and therefore included in the REFERENCES section. Include a Xerox copy of the photographs in the work plan.

Response:

Please refer to the response to comment 5c of this section.

6. **Comment: Section 2.1.2: Dirt Roads**

Refer to Section 2.3.1.2: Site 15 - Dirt Roads. That section contains some information that is not included in Section 2.1.2. For clarification, include in this section the number of gallons of waste oils and other liquids the two roads accessing Elliott's Beach and the Borrow Pit Landfill received.

Response:

The following change will be made to the first paragraph of Section 2.1.2.

"...were paved in the 1940s. However, from the early 1940s to 1966 approximately 16,200 gallons of waste oils and hydraulic fluids continued to be applied to the two dirt roads accessing Elliott's Beach and the Borrow Pit Landfill."

7. **Comment: Section 2.2.3: Floridan Aquifer**

This section confirms the existence of a public water supply well within 1/4 of a mile radius of the MCRD. This public supply well should be identified in Figure 2.1.

Response:

Figure 2-1 will be revised to indicate the exact location of the public water supply well. However, it will be noted that the well is currently not in use but has not been abandoned.

8. **Comment: Section 2.3.1.2 Site 15 - Dirt Roads**

Refer back to Section 2.1.2. That section contains some information that is not included in Section 2.3.1.2. For clarification, include in this section the estimated gallons sprayed from 1918-1940.

Response:

The following sentence will be included in Section 2.3.1.2. "From 1918 to 1940, the two roads accessing Elliott's Beach and the Borrow Landfill received an estimated 11,000 gallons of waste oils and other liquids, and from 1940 to 1966, the roads were coated with a total of 16,200 gallons of the mixture.

9. **Comment: Figure 2.1**

This quadrangle is 18 years old. Is there anything that has changed that would warrant additions or deletions?

Response:

Variations in current surface features and those shown in Figure 2-1 are not believed to be significantly different and will not affect the investigation activities outlined in the Work Plans; however, differences will be noted during the field investigation and when the areas are surveyed, the differences will be incorporated into the Investigation Report.

10. **Comment: Section 6.2, Site Restoration**

This paragraph states "the site will be restored to its original condition prior to investigation activities." It should be explained what "original condition" means, and why the site will be restored prior to the investigation activities and then will be disturbed again to do the investigation. The paragraph is vague and should be more specific and/or correct the proposed approach.

Response:

Section 6.2 will be changed to read "If investigation activities (e.g., monitoring well installation) disturb or alter the landscape, vegetation, or other features of Site 2 or 15, the site(s) may require restoration to conditions prior to the investigation. If vegetation is stressed or damaged as a result of investigation activities, the affected area will be reseeded. Portions of Site 2 and 15 will be regraded if investigation activities alter the natural contour of the site. Additionally, all equipment used during the investigation and investigation-derived waste will be removed from the site.

(D. HARGROVE, REVIEWER)

1) **Comment: Section 4.1, Investigation Rationale, page 4-1:**

Note that as per R.61-68.(H) of the Water Classifications and Standards, "...all South Carolina groundwater is classified GB effective on June 28, 1985." Groundwater classified as "GB" is considered a potential underground source of drinking water.

Response:

To satisfy CERCLA requirements, all groundwater that is suitable for use as a drinking water source based on water quality parameters such as salinity and turbidity must undergo a risk assessment. The text of Section 4.1 will be revised to indicate that groundwater will be evaluated as a practical drinking water source according to CERCLA in the human health risk assessment. The text of Section 5.1 will also be revised accordingly.

2) **Comment: Section 4.2.2.1, Target Compound List (TCL) and Target Analyte List (TAL) Parameters, page 4-6:**

This work plan proposes using the TCL and TAL parameters specified under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The State has expressed its need to recognize and follow the Resource Conservation and Recovery Act (RCRA).

Given the ongoing CERCLA/RCRA discussions in the negotiation of a Federal Facilities Agreement (FFA) among Navy, Marine Corps, U.S. EPA, and SCDHEC representatives, the combination of the analytes identified under CERCLA and RCRA should be used as a starting point for investigation. This could eliminate the possibility of resampling depending on the outcome of the FFA negotiations.

In order to accomplish this, R.61-79.261 Appendix VIII constituents should be studied for soils and R.61-79.264 Appendix IX constituents should be studied for groundwater. Please revise the text accordingly.

Response:

As agreed upon during the February 28, 1997 and March 6, 1997 conference calls of the MCRD Parris Island Tier I Partnering Team, the following decisions were made to satisfy RCRA requirements.

- *Four groundwater samples will be collected and analyzed for Appendix IX constituents. Of the four samples, one will be collected at each of the following three sites: Site 1 - Incinerator Landfill, Site 2 - Borrow Pit Landfill, and Site 3 - Causeway Landfill. The remaining sample will be a background sample collected from PAI-02-GW02. PAI-02-GW02 is an existing monitoring well located upgradient of Site 2. The four samples will be collected at locations previously proposed in the Draft Work Plans. The remaining proposed groundwater samples will be analyzed using SW-846 methodologies on the parameters specified by the TCL/TAL.*
- *Soil samples will not be analyzed for Appendix VIII constituents because there is a lack of established methodologies for analyzing these compounds.*

The additional groundwater analytical requirements will be incorporated into the text of Section 4.2.2.

3) **Comment: Section 6.0, Field Operations, page 6-1:**

Note: It is good you have specified that a state certified geologist will be present for the field operations. However, all monitoring wells must still be installed by a state-certified well driller. This includes direct push groundwater sampling activities.

Response:

Section 6.0, Field Operations, will be revised to indicate that all well installation activities will be performed under the direction of a state-certified Professional Geologist and will be installed by a state-certified well driller.

4) **Comment: Section 6.4, Monitoring Well Installation and Construction, page 6-3:**

a) Note decision criteria for using different slot sizes at different depths. Is this assumed due to local geology or will this be determined upon drilling activities? Please revise to include the methodology used for making this determination.

Response:

There is sufficient history from existing wells to conclude that the upper wells would be screened in fine-grained material (silts and fine sand) and the deeper wells would be screened in more coarse-grained sands. Therefore, the anticipated well slot size is determined to be 0.010 and 0.020 inches accordingly.

b) It is suggested that bentonite chips not be used for placement of the bentonite seal. Chips take longer to hydrate than pellets and full hydration is not guaranteed. If chips are used, hydration times greater than eight (8) hours are warranted.

Response:

Section 6.4 Monitoring Well Installation and Construction will be revised as follows. "A minimum 2-foot-thick seal of 100 percent sodium bentonite pellets will be installed above the primary filter pack and allowed to hydrate as per the manufacturer's recommendations."

6) **Comment: Figure 6-1, Typical Monitoring Well Detail, page 6-5:**

Include ID plate in monitoring well detail. Note that as per R.61-71.6(H), the information listed on the identification plate must include:

- a) Well identification number
- b) Date of construction
- c) Driller name and certification number.
- d) Screened interval
- e) Static water level

Response:

The identification plate information listed above will be included in Figure 6-1.

- 7) **Comment: Figure 7-2, Proposed Soil Sample Locations, page 7-9:**

Additional sample points are needed in the area within the center of the landfill in order to get better coverage within the confines of the landfill. Please revise the work plan to include extra samples.

Response:

Two surface soil sample locations will be added in the center of the landfill. However, as discussed in the response to U.S. EPA Comment Number 16 to the Draft SAP for Site 1/41, subsurface soil samples within the landfill will not be a component of investigation activities.

- 8) **Comment: Figure 7-3, Proposed Groundwater Sample Locations, page 7-10:**

The well cluster containing PAI-02-GW04, PAI-02-GW05, and PAI-02-GW06 should be shifted to southeast in order to intercept groundwater flow from the central portion of the landfill rather than the edge.

Response:

The well cluster containing PAI-02-GW04 and PAI-02-GW05 will be shifted to the southeast as far as the surface features of the site will permit. The southwest border of the landfill is a marsh and it would not be feasible to construct a monitoring well in this area. In response to U.S. EPA Comment Number 16 to the Draft SAP for Site 1/41, PAI-02-GW06 has been removed. Figure 7-3 will be revised accordingly.

**RESPONSE TO SCDHEC COMMENTS TO
DRAFT REMEDIAL INVESTIGATION WORK PLANS
SITE 3 (CAUSEWAY LANDFILL) FOR
MCRD PARRIS ISLAND, SOUTH CAROLINA**

(S. PETERSON, REVIEWER)

1. Comment: Overall

This document was reviewed to meet the requirements of an RFI Work Plan. Please change the title to reflect this.

Response:

The title of the work plan will be changed to RCRA Facility Investigation/Remedial Investigation Work Plan for Site 3 - Causeway Landfill.

2. Comment: Section 1.1, Scope and Objective

a) The 1st sentence should be deleted. This is information already stated in Section 1.0 and it has nothing to do with Scope and Objective; and

b) The objective of this investigation is less specific than that of the Master Work Plan. The scope and objective should be specific since this is a site specific work plan. Please rewrite to give the reader a clear statement of the specific objectives of the investigation. In some cases, the objectives of the study may be to generate data to justify a "no-further action" decision. Describe fully the objectives of Site 3.

Response:

In accordance with this comment and the response to U.S. EPA Comment Number 16 to the Draft SAP for Site 1/41, the scope and objective has been rewritten to clearly state the objectives of the investigation and to reflect the presumptive remedy approach.

3. Comment: Section 2.0, Site Background

Based on this sentence, it would be logical to either rename Section 2.1 to Site Description and History or rename Section 2.1 to Site History and add a Section 2.2 named Existing Site Conditions (and of course renumbering the following sections).

Response:

Section 2.1 will be renamed to "Site Description and History."

4. Comment: Section 2.1, Site Description

a) As mentioned above, you could consider renaming the section Site Description and History. Due to the status of the landfill, the description is history.

Response:

Section 2.1 will be renamed to "Site Description and History."

b) Section 2.1, Site Description

The paragraphs are not in chronological order and should be corrected. This could be accomplished by making the 1st paragraph the 3rd, the 2nd the 1st, and the 3rd the 2nd (if you choose not to add a separate section for Site History).

Response:

The paragraphs will be chronologically arranged as suggested.

c) Paragraph 1 (existing)

State what year the former landfill began functioning as a causeway.

Response:

The causeway was completed in 1972. This information will be incorporated into Section 2.1.

d) Paragraph 1 (existing)

State the year of the causeway's completion (4th line). This sentence gives the impression that work (therefore time) was necessary to complete the construction of the causeway after the 2 sections met (supposedly in 1972).

Response:

The causeway was completed in 1972. This information will be incorporated into Section 2.1.

e) Paragraph 1 (existing)

Clarify the material of the road surface at the time of its completion. You describe it as dirt in this section however in Section 3.5 it is described as gravel.

Response:

The cover of the road surface will be described as gravel in all appropriate sections.

f) Paragraph 1 (existing)

State the existing road covering material. Is it dirt, gravel, or pavement as it appears in the enclosed photographs. This is a present tense paragraph and this information needs to be included.

Response:

The existing road cover is gravel and will be described as such in Section 2.1.

g) Paragraph 2 (existing)

Consider this wording: The Causeway Landfill (Site 3) functioned as the major Depot disposal area...

Response:

The above wording will be incorporated into Section 2.1.

h) Paragraph 2 (existing)

Inform the reader as to when Site 3 ceased to function as a landfill. Clarify with a sentence if operations stopped after 1972.

Response:

Landfill activities ceased in 1972. This will be incorporated into Section 2.1.

l) Paragraph 2 (existing)

"Also between 1969 and 1972, other solid and hazardous constituents..." If what is bolded is not the case, clarify. If so, include.

Response:

The following change has been made to the text in question.

"Between 1960 and 1965, this landfill received approximately 75 percent of the solid waste generated by the Depot. The remainder was disposed at Site 1, Incinerator Landfill, which was also in operation during that period. The site was inactive between 1966 and 1968. Between 1969 and 1972, the site received all of the Depot's solid waste. The solid waste disposed at the site included"

j) Questions:

During its years operating as a landfill, was it ever used as a causeway?

Was this an excavated pit that was slowly filled up and tamped down until solid enough to support traffic?

Response:

The causeway serves as an alternative traffic route to Malecon Drive. Because the two sections of the causeway did not come together until 1972, traffic would not have been able to traverse the distance from the southern end of Talasea Street to Horse Island. The causeway was constructed over existing marsh deposits.

k) **Paragraph 3 (existing)**

Is your only means of determining when the 2 sections of causeway met the aerial photographs? This raises some doubts in the mind of the reader as to the actual (or general) date.

Response:

Aerial photographs from 1972 illustrate that the sections of the causeway had met although the exact date of the completion of the causeway can not be stated for certain.

l) **Paragraph 3 (existing)**

Be more explicit with the years of the aerial photographs. For example, **Examination of aerial photos taken in 1959, 1963, 1969, and 1972 showed...**

Response:

The years that the aerial photographs were taken will be specified in Section 2.1 and reproductions included in Appendix A.

m) **Paragraph 3 (existing)**

Aerial photograph should be referenced in the text and therefore included in the REFERENCES section. Include a Xerox copy of the photographs in the work plan.

Response:

The aerial photographs will be included in the References section. Additionally, copies of the aerial photographs will be included in Appendix A.

5. **Comment: Figure 2.1**

This quadrangle is 18 years old. Is there anything that has changed that would warrant additions or deletions?

Response:

Variations in current surface features and those shown in Figure 2-1 are not believed to be significantly different and will not affect the investigation activities outlined in the Work Plans; however, differences will be noted during the field investigation and when the areas are surveyed, the differences will be incorporated into the Investigation Report.

6. **Comment: Section 6.2, Site Restoration**

This paragraph states "the site will be restored to its original condition prior to investigation activities." It should be explained what "original condition" means, and why the site will be restored prior to the investigation activities and then will be disturbed again to do the investigation. The paragraph is vague and should be more specific and/or correct the proposed approach.

Response:

Section 6.2 will be changed to read "If investigation activities (e.g., monitoring well installation) disturb or alter the landscape, vegetation, or other features of Site 3, the site may require restoration to conditions prior to the investigation. If vegetation is stressed or damaged as a result of investigation activities, the affected area will be reseeded. Portions of Site 3 will be regraded if investigation

activities alter the natural contour of the site. Additionally, all equipment used during the investigation and investigation-derived waste will be removed from the site.

(D. HARGROVE, REVIEWER)

1) **Comment: Section 2.1, Site Description:**

The text describes the pipes installed through the causeway for tidal flow as "two corrugated metal pipes". During a site tour, I recall seeing two separate tidal culverts each with two concrete pipes. Please verify and revise as necessary.

Response:

The text of Section 2.1 will be revised to indicate that there are two culverts along the causeway. Each culvert contains three concrete pipes as verified with MCRD Parris Island.

2) **Comment: Section 3.3, Groundwater:**

This section states that "The causeway was constructed across a tidal marsh and the surficial groundwater is anticipated to be shallow and tidally influenced. However, the marsh deposits underlying the landfill [causeway] are anticipated to be a barrier to the deeper aquifer." The marsh deposits discussed are not previously described. There is no discussion about the thickness of the marsh deposits or evidence showing that the marsh deposits are continuous and have not been adversely impacted during installation of the causeway. These deposits cannot be anticipated as a barrier if thickness, continuity, and hydrologic characteristics have not been assessed. Please revise the text to address this data gap.

Response:

At the present time, there is a lack of data characterizing the layer of marsh deposits; however, the thickness, continuity, and hydrologic characteristics of this layer will be verified during the remedial investigation. The last sentence of Section 3.3 Groundwater will be revised to "However, the marsh deposits underlying the landfill including the clay comprising the Hawthorn Foundation may act as a partial barrier to the deeper aquifer and will be determined during the field investigation."

3) **Comment: Section 4.1, Investigation Rationale, page 4-1:**

a) Groundwater: Note that as per R.61-68 of the Water Classification and Standards, "...all South Carolina groundwater is classified GB effective on June 28, 1985." Groundwater classified as "GB" is considered a potential underground source of drinking water. The analysis proposed to determine if the groundwater is "...suitable for use as a drinking water source" is not necessary. All groundwater in the state is classified as a potential drinking water source. Please revise the text to either justify this analysis better or omit this analysis altogether.

Response:

To satisfy CERCLA requirements, all groundwater that is suitable for use as a drinking water source based on water quality parameters such as salinity and turbidity must undergo a risk assessment. The text of Section 4.1 will be revised to indicate that groundwater will be evaluated as a practical drinking water source according to CERCLA in the human health risk assessment. The text of Section 5.1 will also be revised accordingly.

b) Air: It should not be assumed that airborne contamination poses no risk since the surface of the causeway is a dirt road that is periodically graded. Please revise the text to include address the issue of airborne contamination risk and the dirt road.

Response:

Risk from dermal contact will be evaluated in the risk assessment. However, the causeway is not believed to be a source of fugitive emissions which would require collecting air samples. After review of existing data and field observations made from monitoring equipment, a decision to collect air samples would be determined.

4) **Comment:** Table 4-1, Investigation Rationale, text page 4-4:

The section discussing data gaps/needs for the groundwater proposes risk assessment. As stated in comment 3(a), all groundwater in the state is classified as a potential drinking water source. In accordance with R.61-68 Water Classification and Standards, all groundwater of the State is classified as Class GB. This classification requires that concentrations of inorganic and organic constituents must not exceed established MCLs. Completing a risk assessment of the concentrations of contaminants found in the groundwater is inappropriate when concentration limits are established by regulation. In addition, MCLs are established at concentrations that already account for risk to human health.

Response

Please refer to the response to Comment 3 of this section.

5) **Comment:** Section 6.4, Monitoring Well Installation and Construction:

a) Page 6-3: The use of bentonite chips in the seal is not recommended. Bentonite chips have longer hydration times and complete hydration cannot be assured. Bentonite pellets are recommended due to faster/more complete hydration.

Response:

The third sentence of the fifth paragraph of Section 6.4, Monitoring Well Installation and Construction, will be revised as follows. "A minimum 2-foot-thick seal of 100 percent sodium bentonite pellets will be installed above the primary filter pack and allowed to hydrate as per the manufacturer's recommendations."

b) Page 6-4: The grout should not be installed to the ground surface. It should be installed to a point below the frost line. The concrete used to form the pad will fill the remaining annular space. Figure 6-1 of this work plan correctly depicts the relationship between the grouted interval and the concrete pad.

Response:

It is agreed that the grout should not be installed to the ground surface but to a point below the frost line. This change will be reflected in the text of Section 6.4 Monitoring Well Installation and Construction.

c) Page 6-4: This section is incomplete. The text and figures should also include:

i) Specifications for an identification plate that will be affixed to the well with information including: Well name, date drilled, depth of well, the driller's name and certification number.

ii) Specifications for the formation of the concrete pad.

iii) Specifications for the protective stickups to be installed around the completed concrete pad.

NOTE: These specifications are already listed in the Master Work Plan for MCRD. The text should be revised to either include complete specifications, or properly reference the Master Work Plan.

Response:

The text of Section 6.4 will be revised to include a reference to MCRD Parris Island South Carolina Master Work Plan, Volume II, Section 2.3 Monitoring Well Construction and Installation for the specifications of the well's concrete pad and protective casings. Additionally, the identification plate specifications will be included in the text of this section. Lastly, Figure 6-1 will be revised to include these specifications.

6) **Comment:** Figure 6-1, Typical Monitoring Well Detail:

This diagram should have the specifications for the protective stickups shown (see comment 5 above). Please revise the text accordingly.

Please refer to the response to comment 5.

7) **Comment:** Section 7.2.1, Surface Water Sampling, page 7-1:

a) The text does not specify if the surface water samples will be taken before, during, or after high tide. It is preferable that all the surface water samples be taken during like tidal conditions. Please revise the text to include a sample protocol that describes the timing of the sampling events.

Response:

As discussed during the July 9-10, 1997 Parris Island Partnering Team meeting, sediment samples will be collected at low tide and surface water samples will be collected at high tide as the surface water begins to recede. The text of Section 7.2.1 will be revised accordingly.

This comment is also relevant to the Draft Work Plans for Sites 1/41 and 2/15 and will be similarly addressed.

b) The text specifies that background samples collected for Site 2 will be used to determine background conditions at Site 3. Sites 1, 2, and 3 are all located close to each other. Please revise the text to include a comparison of the background samples taken from Site 1 as well.

Response:

One set of background samples for soil, surface water and sediment will be taken at Site 1. These samples will also be used as background for Sites 2/15 and 3. The text of the Work Plans for these sites will reflect this statement.

**RESPONSE TO U.S. EPA COMMENTS TO
DRAFT REMEDIAL INVESTIGATION WORK PLANS
SITE 3 (CAUSEWAY LANDFILL)
MCRD PARRIS ISLAND, SOUTH CAROLINA**

1. **Comment:** General Comment

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

Response:

Please refer to the response to U.S. EPA comments to the Draft SAP for Site 1 (Incinerator Landfill) and Site 41 (Former Incinerator).

2. **Comment:** 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	Number of	Sediment Screening	Number of
	Value (ug/L)	Exceedences	Value (ppm)	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.

Response:

The information listed above will be included in the text of Section 2.3.3

3. **Comment:** 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.

Response:

The fish/shellfish study data will be used to develop work plans for ecological sampling which will be developed, as needed, after the initial sampling results are evaluated. Additionally, the fish/shellfish data will be incorporated into the ecological risk assessment.

4. **Comment:** 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."

Response:

Please refer to the response to comment 3.

5. **Comment:** 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.

Response:

Please refer to the response to comment 3.

6. **Comment:** 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.

Response:

Please refer to the response to comment 3.

7. **Comment:** 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.

Response:

During a site visit, it was determined that waste materials (garbage) was present along the entire length of the causeway. Therefore, it is believed to be necessary to sample along the entire length of the causeway. The text of Section 7.2 will be modified to include the observation of landfill debris along the entire causeway.