COMMENTS TO PRE-FINAL (95%) RD (EXCLUDING APPENDIX I)
FOR OU1 LCP CHEMICALS SUPERFUND SITE
BRUNSWICK, GEORGIA

GENERAL COMMENTS

1. Several references were provided to calculations that had been conducted during the RD, but no specific references to the locations of the calculations in the appendices were identified. Please add specific references to these calculations.

2. For clarity, provide both the appendix name and designation when referencing appendices (not just appendix designation or name).

3. Some sections address or note the surface-weighted average concentrations (SWACs), but the text still does not include how the SWACs were determined. Please add an explanation of how the SWACs were determined. Statistics associated with the SWAC such as the 95% UCL and LCL should be provided.

4. The ROD directed on Page 77, "Sufficient sampling in Domains 1, 2 and 3 will be undertaken during the Remedial Design phase to confirm that the PCDDs and PCDFs are co-located located with the Aroclor 1268." Please update the RD to briefly state the co-location study was completed and what it concluded.

SPECIFIC COMMENTS TO 95% RD

Comments on the Basis of Design Report (BODR) main text:

5. **Section 1.1 Site Description and Background** – In the first paragraph, add the jailhouse as being a facility that is near the property. In the second paragraph, third sentence, the statement "a power plant operated by Georgia Power from the 1030s to the 1950s" should be 1930s to the 1950s.

6. **Section 1.1.5 Final Remedy Components** – Please enhance the explanation in Section 1.1.5 by referring to Appendix C. Some explanation is needed to explain how six acres of Purvis Creek to be capped (now dredged) was added to the seven acres originally targeted for dredging for a total of eight acres. Appendix C explains this, but discussion is needed for the main text. Please assess whether the redrawn boundaries of the creeks capture all locations with COC concentrations above the benthic CULs within the cutlines for dredging.

7. **Section 1.2 Remedial Design Process** – Please clarify or provide additional details in the first sentence which states, "the remedial design process involves an iterative, value engineering-based approach that considers the effectiveness, cost, and construction logistics."

8. **Section 2.1.5.4 Elutriate Water Testing** – Please provide a reference regarding the standard procedures for obtaining elutriate samples from dredge materials.

9. **Section 2.1.5.4 Elutriate Water Testing** – Total and filtered samples should have been sent for analysis. Water quality criteria for PCBs are based on unfiltered (total) samples. Please clarify that total PCBs, not just Aroclor 1268, will be analyzed.

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10. **Sections 2.1.5.4 Elutriate Water Testing and Section 2.1.5.5 Solidification/ Stabilization Treatment Evaluation** – Although a summary of waste stabilization results was provided in response to Specific Comment 6 to the 50% RD, the initial sample data provided in Table 2-2 does not appear to have been initially very contaminated, thus the solidification results do not seem to be very conclusive. Please elaborate on whether the COC concentrations in the initial sample data indicate the need for further solidification/stabilization treatment evaluation or increased admixture dosage rates during the Remedial Action.

11. **Section 2.1.5.5 Solidification/Stabilization Treatment Evaluation** –Provide a summary of locations that were selected for solidification/stabilization treatment testing evaluation to provide an understanding of the basis for this evaluation.

12. **Section 2.2.1: Infrastructure** – In the statement, "The groundwater injection infrastructure and a groundwater wellfield to the south support upland remediation activities", please clarify that this refers to the infiltration galleries rather than the recently removed injection wells.

13. **Section 2.3 Hydrodynamics** – This section refers the reader to the appendices in the Feasibility Study for additional detail. More detail should be included in the text of this Section specifically pertaining to anticipated storm-event sediment dynamics in the channels. The text, as written, presents the general conclusion that the Site is "net depositional" and that day-to-day tidal fluctuations are unlikely to mobilize sediments in the marsh areas outside of the tidal channels. The text does not explain whether the persistence and effectiveness of the remedy, specifically the backfill within the channels, would be impacted by large storm events that flood the marsh beyond day-to-day tidal cycles. More content should be added to this Section regarding the effects of storm events on hydrodynamics and sediment dynamics. The purpose would be to document that the effects of storm events, and not just day-to-day tidal fluctuations, were considered and adequately addressed by the RD.

14. **Section 2.4.1 Biological Protections, page 20** – The U.S. Fish and Wildlife Service administers the Endangered Species Act; this should be corrected in the text, please revise accordingly.

15. **Section 2.5 Summary of Previous Remedial Actions** – Provide references to specific reports for further details of previous remedial actions.

16. **Design Report Section 2.5.2 Soils and Infrastructure Removal** describes the removal action conducted on the upland portion of the Site between 1994 and 1997 that included excavation of approx. 167,000 cubic yards (CY) of contaminated soil and industrial process. However, the 167,000 CY quantity includes the marsh removal conducted in 1998. Either clarify the quantity or clarify the removal action changing the duration and other areas beyond the upland. Note that no further action remedial decision by USEPA is only for the upland.

17. **Section 3 Dredging** – Assuming a 2 feet dredge depth (18 inches fixed depth and 6-inch allowance over dredge), calculations for areas shown in Table 3-2 (Approximate Dredge Volumes), the total volume shown in Table 3-2 of 31,937 cubic yards (CY) is approximately 92% of the total, which would be calculated (34,836 CY) using the assumed areas provided (470,293 square feet). A note should be added to the table to clarify how the excavation volumes were calculated.

18. **Section 3.2.1 Engineered Dredge Prisms** – The response to Specific Comment 16 on the 50% RD addresses the comment, but the text was not revised accordingly. Please revise.

19. **Section 3.2.1 Engineered Dredge Prisms** – Chemistry samples should also be collected during dredging to confirm whether predicted SWACs or CULs were achieved.

20. **Section 3.4 Sequencing, page 30** – The criteria used to verify dredging is complete are based only on meeting the target dredge cut (Appendix G, Figure G-2). Criteria should also be based on comparison to chemical-specific CULs and predicted SWACs.

21. **Section 3.7 Resuspension Control During Dredging** – Include protocols for ensuring that the bank-to-bank turbidity curtains won't harm or kill marine mammals or sea turtles or other aquatic organisms.

22. **Section 4 Dredged Material Handling, Transport, and Disposal** – The estimated total quantities of sediment stabilized/solidified should be defined.

23. **Section 4.1 Design Assumptions** – In the second to last bullet, the statement "the addition of stabilization agents may be necessary for dredged sediments to meet disposal requirements", please provide some examples of stabilization agents that may be used or reference where this information can be found in the report.

24. **Section 4.2 Dredged Material Transport, page 35:** "At the Scow Loading/Offloading Area, free liquids will be pumped out of the transport scows …" Please state here that the free liquids will be collected and processed through the water treatment system (WTS), as described in paragraph 3, page 36.

25. **Section 5 Backfilling** – Limited justification was provided to explain the reduced volumes of backfill compared to the volumes of dredged sediment(12 inches backfill versus 18 to 24 inches dredged sediment). Hydraulic modeling should be performed to determine the impacts from the reduced volume of backfill.

26. **Section 5.2 Backfill Materials and Borrow Sources, second to last paragraph** – The statement, "Given the steep slopes present in some channel areas, the dredge prism was designed to have a 3H:1V slope at the perimeter of the dredge cuts to promote stability of the post-backfill surface." Further detail should be added to this Section to document these slope stability considerations, including: (1) How steep are the "steepslopes" present in some channel areas compared to the proposed 3H:1V slope design; (2) Are those steep slopes natural features that formed in response to hydrodynamic and sediment dynamic processes; (3) Are they likely to form again in those locations as the system equilibrates after the remedy is implemented; and (4) Does the backfill placement on those slopes account for localized erosion in those locations.

27. **Section 5.3 Backfilling Equipment Selection and Production Rate, page 40** – Wipe testing should not be discontinued; visual inspection is not sufficient.

28. **Section 5.4 Sequence and Placement Techniques** – The text indicates that post-dredged subgrade is estimated to settle no more than 1 inch within 30days of placement of 12 inches of backfill, but consolidation settling may be more than 1 inch in localized areas where the

dredged material was low density/highly organic material. A sentence should be added to this Section that identifies the tolerance/allowable variance for final elevations and refers to the Technical Specification where that tolerance is specified.

29. **Section 5.5 Resuspension Control During Backfill Placement, page 41**: The monitoring program described in Section 9 only includes monitoring of turbidity levels. If the turbidity action levels (Section 9.3) are exceeded, water samples should be collected to confirm the assumption that it is clean sediment-generated turbidity.

30. **Section 6 Thin Layer Cover** – Add a sentence to this Section identifying the design thickness (or range of thickness) for the thin layer cover (TLC). It is specified in Appendix A (Engineering Drawings) but should also be included within the BODR text in this Section.

31. **Section 6 Thin Layer Cover** – Provide the anticipated water volumes used in the TLC slurry mixture application.

32. **Section 6.1 Design Assumptions, last paragraph** – This Section concludes with the statement "The existing marsh clay is expected to settle under the load of the applied thin cover. Based upon a review of the Thin Cover Pilot Study survey data, up to 3 inches of combined consolidation of placed materials and underlying settlement can be expected within 1 year of placement of the thin cover." Marsh ecological communities are very sensitive to small changes in elevation, especially at the transitions between adjacent habitat types. Add a statement to this Section that notes whether that amount of settlement is acceptable or impactful to the marsh ecosystem and that references the report section or appendix where it is discussed in more detail.

33. **Section 6.2: Materials and Borrow Sources** – The frequency provided in the following statement "Chemical and geotechnical testing will be completed at a frequency of 1 sample per 2,500 tons of imported fill sand delivered to the Site", appears to be low, EPD recommends a frequency of 1 sample per 500 tons of imported fill sand.

34. **Section 6.3 Thin Cover Equipment Selection and Production Rate,Thin cover thickness bullet** – This bullet states, "Results from the Thin Cover Pilot Study have shown that marsh grasses will reestablish effectively in either a 6-inch minimum or 9-inch minimum thin cover layer, although the 6-inch portions of the Pilot Study area have generally recovered more quickly." This statement is relevant but does not identify the target thicknessof the TLC. It is specified in Appendix A (Engineering Drawings) but should also be included within the BODR text in this Section.

35. **Section 6.3 Thin Cover Equipment Selection and Production Rate, page 44** - Please clearly state that the target thickness for the TLC placement will be 6 inches.

36. **Section 7 Site Restoration** – This Section does not specifically discuss restoration of the loading/offloading area at the end of the causeway where dredged material will be transferred from scows to trucks. Clarify whether the loading/offloading area will be subject to site restoration or will remain in place for future use. If the loading/offloading area is to be restored, the details describing how it will be restored should be added.

37. **Section 7.2.1 Marsh OU1, page 49** – Please provide additional details for this section

regarding restoration of access roads, including source of topsoil and plants, methods for planting, and analytical evaluation of topsoil before placement. Although the impacted area is not known until after remediation, the number of sample plots per area that will be required to evaluate restoration success can be defined now.

38. **Section 7.2.2 Upland** – Grass seed application is specified for the restoration of the Laydown Area. A reference to the Site Restoration Technical Specification (Section 32 30 00) should be included. The anticipated type of grass seed should be included in the Specification.

39. **Section 7.2.2 Upland** – The text was revised to address the Specific Comment 21 to the 50% RD, but the response incorrectly lists the sampling rate as one sample per 1,000 linear feet of road. The sampling rate included in Section 7.22 is one sample per 2,500 tons of stockpiled gravel. Please reconcile the sampling rate.

40. **Section 8.1.2 Water Treatment** – The anticipated actual and permitted water quantities and flow rates that will be treated by the Water Treatment System should be provided. Please state if samples will be collected from the WTS to confirm that discharge requirements are met; how often confirmation samples will be collected; and the analyses that will be conducted.

41. **Section 8.1.3 Backfill and Thin Cover Materials** – This section states "Backfill will be placed at a thickness of 6 inches as post-dredge residual cover to be installed as shown on the Engineering Drawings (Appendix A)." Section 5, page 38 states, "Following dredging to remove sediments (as described in Section 4) and verification of dredging (as described in Section 10), post-dredge backfill will be placed in two, 6-inch lifts to achieve a 12-inch layer in the dredged areas." Please be consistent when discussing backfill placement and thickness.

42. **Section 8.1.3 Backfill and Thin Cover Materials, Table 8-1 Backfill Gradation Requirements** – The headings appear to be incorrect. The first column labeled "Operable Unit" specifies material grain size and appears to be sieve numbers. The second column titled "Feature" appears to be "percent finer than". The column titles should be revised. A note to the table should be added to clarify that the first column refers to U.S. Standard Sieves (or the correct reference for the contents of the first column).

43. **Section 8.1.3: Backfill and Thin Cover Materials** – Please discuss if there is a specification for topsoil, which was previously discussed for restoration areas

44. **Section 9 Environmental Considerations, Controls and Monitoring** –References to Section 13 (Long-Term Monitoring) and Appendix I (Long-Term Monitoring Plan) should be added.

45. **Section 9.3 Water Quality, second to last paragraph** – This Section includes the statement, "The Advisory Level for the monitoring buoys data will be 50 nephelometric turbidity units ("NTU") above background, where background is defined as the lowest of the three monitoring buoy measurements." There may be situations where all three monitoring buoy locations are affected by elevated turbidity resulting from remedial operations. A statement should be added to indicate how buoy placement adjustments may be used to avoid that situation.

46. **Section 9.3 Water Quality, page 58** – Turbidity is the only parameter that will be evaluated to assess water quality during remedial activities. If the turbidity action levels are exceeded, water samples should be collected to confirm the assumption that it is clean sediment generated turbidity.

47. **Section 9.2.4: Air Quality Monitoring** – Will PM2.s monitoring for particulate matter be required as well?

48. **Section 11 Permit Equivalency** – A detailed permit review was discussed in this Section, but no reference was provided to describe how the review would be conducted and documented. Further detail on the detailed permit review should be provided. In the third sentence of the third paragraph, address requirements of the Georgia Code for Oil and Hazardous Material Spills and Releases as referenced in 12-14-1. In the fourth sentence of the third paragraph, the correct citation is the 391-2-3 Georgia Coastal Marshlands Protection Act (CMPA), not wetlands.

49. **Section 13 Long-Term Monitoring, second to last paragraph** – This Section concludes with the statement "Tissue samples will be analyzed for mercury, Aroclor 1268, and lipids (finfish only)." The statement should be revised for clarity to read: "All tissue samples will be analyzed for mercury and Aroclor 1268. Finfish will be analyzed for mercury, Aroclor 1268, and lipids."

50. **Section 13 Long-Term Monitoring** – A reference should be added that Appendix I (Long-Term Monitoring Plan) details the applicability to Remedial Action Objectives (RAOs).

51. **Section 13 Long-Term Monitoring, page 65, and Appendix I** –
    - Please add lipid analysis to the whole body mummichog samples.
    - Please clarify the number and locations of proposed surface water samples; will six samples be collected from each creek or will a total of six samples be collected? Will samples be collected every fall for five years, or only one time?
    - Because the stated objective is to document the re-establishment of the benthic community, please identify the metrics that the benthic samples will be compared with (pre-remedial samples, reference area samples?).
    - Please specify the number of sample plots/area to be evaluated in areas impacted by thin-layer placement activities and temporary access roads. Also identify target species and acceptance criteria.

52. **Section 13 Long-Term Monitoring, page 65, and Appendix I** – RD Section 13 is entitled "Long-term Monitoring" however, monitoring is only proposed for five years, which is not long-term in CERCLA perspective. EPA guidance on using fish tissue data to monitor remedy effectiveness defines long-term remedy performance as monitoring to answer the question, "Have the sediment cleanup levels been reached and maintained for at least five years, and thereafter as appropriate?" I recommend to sample in years 1 and 4 to have the data ready for the first five-year review, allowing time to analyze and evaluate the data. By the first five-year review the goal is to have the data necessary to evaluate short-term protectiveness of the remedy or short-term risk reduction. Even if the concentrations were trending downward in fish tissue, the remedy would probably only be short-term protective. Monitoring beyond the first five-year review would be necessary to document long-term protectiveness. Monitoring for long-term protectiveness is likely to continue beyond the first five-year review to measure

whether remediation goals in fish tissue have been reached and the benthic community has recovered.

53. **Table 2-1** – Most of the elutriate water samples exceeded the saltwater chronic ambient water quality criterion (AWQC) for PCBs (0.03 micrograms per liter [µg/L]), even though filtered samples were collected. Total and filtered samples should be collected and sent for analysis. The detection limit (DL) for lead (10 µg/L) was not sufficient to determine if elutriate water exceeded the chronic AWQC of 8.1 µg/L—one J-qualified result exceeded this. Analytical methods with lower detection limits should be explored for use in long-term monitoring.

54. **Figures 2-1 through 2-4** – Shading on recent samples should be consistent. For example, on Figure 2-4d surface sample BRD-CO46 is shaded orange (exceeded PAH CUL of 4 parts per million [ppm]) while surface samples BRD-CO27, -CO33 and CO-39 exceed the PAH CUL and are not shaded.

Comments on Appendix A – Engineering Drawings

55. As indicated in the BODR and Appendix B (Technical Specifications), thedredging/backfill areas along Purvis Creek will use turbidity curtains during the excavation and backfill process. However, the locations of the turbidity curtains are not indicated on the drawings. Although the Specifications indicate that the Remedial Action Contractor is responsible for describing turbidity curtain implementation in the Marine Resuspension Control Plan, a callout should be added to the Engineering Drawings indicating the anticipated, approximate locations of the turbidity curtains.

56. **Sheet C06 Environmental Control Details** – The detail for catch basin protection with straw bales was included in the 50% RD, but not the 95% RD. If no catch basin requires protection, then the change is acceptable. If catch basins are present, then the catch basin protection detail should be added or the applicable alternate detail should be noted.

57. **Sheet C14 Dredge Cross Sections (3 of 3)** – Detail R/C11, complete Profile R-R'.

Comments on Appendix B – Technical Specifications

58. **Section 01 11 00, Summary of Work, Part 1, Paragraph 1.4.D: Site Description** – The Site Description section discusses "air sparge well points" associated with upland environmental investigation and remediation activities throughout OU-3; haven't most of these been removed/abandoned?

59. **Section 01 11 00 Summary of Work, Part 1, Paragraph 1.7, Subparagraph B.6** – A reference to the Specification (Section 35 20 24 Dredged Material Management and Processing) that describes the procedures and techniques for stabilization and dewatering of dredged sediment should be added.

60. **Section 01 55 13 Temporary Access Roads, Part 1 General, 1.1 Description, C page 288 of 5,496 and Section 32 30 00, Part 3 Execution, 3.3 Restoration of OU-1 Tidal Marsh, A page 382 of 5,496** - The placement of temporary mat marsh access roads and associated tidal crossings will be selected by the contractor. The design and construction must minimize disturbance of the existing marsh subgrade and vegetation in OU-1. Mat placement adjacent to

open water (e.g., LCP Ditch and Eastern Creek) should be set back from the bank so that a strip of undisturbed marsh grass remains uncompressed between the mat roads and the creek bank. During access road restoration when the contractor places imported restoration topsoil on the depressed road areas to achieve pre-construction elevations, a vegetative barrier between topsoil placement and open water increases the chance that low density soil will not be washed off the roadbed and into open waters with sheet flow during higher tides. Care should also be taken at tidal crossings where a vegetative barrier will not be present between the road and creek bank so that these areas do not create a conduit for surface waters to travel along the topsoiled roadbeds to wash material into open waters.

Work sequencing, especially matt placement in Domain 1 and temporary flow controls in the LCP Ditch, has the potential to disrupt tidal sheet flow and freshwater upland runoff into Domain 1. Matting should be sequenced or installed in a manner that will allow upland runoff east of Domain 1 to mix with tidal sheet flow from Domain 2a or other areas and not become 'trapped' in cells created by the matts. The persistent buildup of freshwater in Domain 1 saltmarsh for the 6 to 12- month duration of the work could result in vegetative re-speciation (i.e., introduction of freshwater plants) and degrade the existing saltmarsh.

61. **Section 01 57 13 - Temporary Erosion and Sediment Control, Part 2 Products, 2.3 Straw Bales and 2.4 Straw Wattles** – Straw wattles, straw bales, and other erosion and sediment controls intended to be left in place after completion of work should be 100% biodegradable (e.g., not contain plastic netting, nylon twine or wire). Non-biodegradable elements such as baling wire or nylon twine on straw bales should be removed prior to completion of the project. Hardwood (e.g., oak) or pressure-treated stakes are not considered biodegradable in the short-term and should be removed prior to completion.

62. **Section 01 57 13, 3.4.F: Provisions for Erosion and Sediment Control During Construction** – The last sentence states "Any release of oil or hazardous materials (as defined by State of Georgia, OCGA Section 12-8-60, "Georgia Hazardous Waste Management Act of 1990," as amended) caused by the Contractor are the full responsibility of the Contractor." Should the citation here be 12-14-1, Oil or Hazardous Spills or Releases?

63. **Section 31 05 13 Soils and Aggregates, Part 2, Paragraph 2.2** – A reference to the project-specific additional requirements provided in Paragraph 3.2 (Material Testing Requirements) for chemical and geotechnical testing should be added.

64. **Section 310513, 3.2.C.1: Material Testing Requirements and Table 3** – Referencing Section 6.2 Materials and Borrow Sources of the main report, "chemical and geotechnical testing is stated to be completed at a frequency of 1 sample per 2,500 tons of imported fill sand delivered to the Site". EPD recommends the frequency of 1 sample per 500 tons of imported fill sand delivered to the Site, as the suggested frequency of 1 sample per 2,500 tons seems low. Furthermore, provide an explanation as to why is "Backfill" and "TLC" are not analyzed for pH.

65. **Section 31 11 00 Site Clearing, Part 3, Paragraph 3.5** – The paragraph should be revised to state whether the use of herbicides is acceptable or prohibited. If herbicides are acceptable, references for completion of an Herbicide Application Plan and associated qualifications should be added.

66. **Section 31 23 00, 2.1.A: Unsuitable Site Materials** – The following section specifies mercury and lead, but PAHs and PCBs are not discussed; please reconcile.

67. **Section 32 30 00 - Site Restoration, Part 1 General, 1.3 Submittals, A. Pre-Construction, 1. Site Restoration Plan, b page 375 of 5,496** – Technical Specifications require the Contractor to submit a Site Restoration Plan prior to construction that includes, among other items, a description of the proposed means, methods and equipment to be used during site restoration activities. Georgia Department of Natural Resources Coastal Resource Division (CRD) would like to review the Site Restoration Plan prior to construction to ensure compliance with enforceable policies of the State.

68. **Section 32 30 00 - Site Restoration, Part 2 Products, 2.1 Marsh Plant Stock, B page 378 of 5,496** – State policy does not allow harvest of saltmarsh vegetation from tidally-influenced areas. We request the technical specifications be modified to prohibit plant material from being collected in the field.

69. **Section 32 30 00 - Site Restoration, Part 3 Execution, 3.3 Restoration of OU-1 Tidal Marsh, C. Tidal Marsh Restoration Area Planting, 1 page 382 of 5,496** – Saltmarsh planting generally has a higher success rate when planted in the early spring (March to early April) or during cooler falls (October to November). Consider revising the technical specification's planting dates of March 15-June 15 to allow for fall planting.

70. **Section 32 30 00 - Site Restoration, Part 3 Execution, 3.3 Restoration of OU-1 Tidal Marsh, C. Tidal Marsh Restoration Area Planting, 9 page 383 of 5,496 and 3.4 Revegetation Maintenance, C page 384 of 5,896** – The Contractor must install herbivory controls to protect plantings in accordance with the Site Protection Plan and maintain them during the 1-year revegetation maintenance period. Herbivory protections are not normally needed in saltmarsh settings. Experience in coastal Georgia has shown little or no impact to newly planted saltmarsh vegetation from herbivores, whereas strings on top of protection devices pose a bird entanglement risk if not properly maintained and non-biodegradable mylar may become dislodged and be consumed by sea turtles. It is preferable to require demonstrated need (require contractor to provide evidence of herbivore destruction) prior to allowing the installation of herbivory protections. If herbivory controls are installed biodegradable reflective film should be used. A removal plan should be submitted specifying that non-biodegraded elements (including hardwood stakes) will be removed in their entirety.

71. **Section 35 02 00 - Backfill and Thin Layer Cover, Part 1 General, 1.3 Submittals, A. Pre-Construction, 1. Backfill and Thin Layer Cover Work Plan, e page 387 of 5,496** – Technical Specifications require the Contractor to submit a Backfill and Thin Layer Cover Work Plan prior to construction that includes, among other items, procedures, means, and methods for placement and sequencing of work. CRD would like to review the Backfill and Thin Layer Cover Work Plan prior to construction to ensure compliance with enforceable policies of the State.

72. **Section 35 30 24 Dredged Material Management and Processing** – Include protocols for ensuring that the bank-to-bank turbidity curtains (see Section 3.7 Resuspension Control During Dredging) won't harm or kill marine mammals or sea turtles or other aquatic organisms.

73. **Section 35 02 00 Backfill and Thin Layer Cover, Part 3.4 Backfill Verification** *(and in Appendix G Construction Quality Assurance Plan, Section 4.7.2 Thickness Verification)* – The dredge backfill is considered compliant only at min. 80% of the DMU meeting the target placement of 12 inches, a min. placement of 9 inches, and not contiguous areas greater than 500 sf less than 12 inches. What is the rationale for 80%?

74. **Section 35 02 00 Backfill and Thin Layer Cover, Part 3.4 Backfill Verification** *(and in Appendix G Construction Quality Assurance Plan, Section 4.8.2 Thickness Verification)* – The TLC placement is considered compliant only at min. 80% of the target placement of 6 inches, a min. placement of 4 inches, and no contiguous areas greater than 1,000 sf less than 6 inches. What is the rationale for 80%? This should be 100%. Appendix E Pilot Study Installation Section 4.5.2 Confirmation of Placement shows sample core thicknesses were over 6 inches. Further, the six-inch area thicknesses generally ranged from 7 to 8 inches. Procedures in the Pilot Study states that if the thickness of the cover material did not meet minimum thickness requirements, additional cover material was placed. This same procedure should be followed in the Remedial Action. Also, Appendix B Technical Specifications, Section 32 02 00, Part 3.6.E Thin Layer Cover Placement allows for 3 inches over-placement over the design minimum thickness of 6 inches.

75. **Section 35 00 23 Integrated Dredging, Part 3.10 Dredge Verification** – This section states that a min. of 95% of the post-dredge surveyed surface must be at or below the dredge design surface elevations for non-TSCA materials, whereas 100% of the post-dredge surveyed surface must be at or below the dredge design surface for TSCA materials. The 95% should be changed to 100%. The design allows for 6 inches over- dredging; therefore, 100% should be achievable. Part 3. 10B.2.b.ii and iii should be deleted from the Technical Specifications as well as the same provisions provided in Appendix G Construction Quality Assurance Plan, Section 4.6.1 Removal Verification.

76. **Section 35 80 00 - Marine Resuspension Controls, Part 1 General, 1.3 Submittals, A. Pre-Construction, 1. Marine Resuspension Control Plan, b and c page 427 of 5,496** – Technical Specifications require the Contractor to submit a Marine Resuspension Control Plan that includes, among other items, the design, layout, and plan for the installation, deployment, inspection, and maintenance of the marine resuspension control system as well as a proposed plan for performing daily inspections. CRD would like to review the Marine Resuspension Control Plan prior to construction to ensure compliance with enforceable policies of the State.

77. **Section 35 80 00 - Marine Resuspension Controls, Part 1 General, 1.3 Submittals, A. Pre-Construction, 1. Marine Resuspension Control Plan, d-f page 428 of 5,496** – The Marine Resuspension Control Plan also requires methods and equipment for turbidity curtain reefing, anchoring and weighting. Turbidity curtains, including permeable turbidity curtains, are generally not encouraged in tidal areas when manatees may be present due to their risk of entanglement. If the top of the turbidity curtain is floating and designed to rise and fall with the tide, the curtain may fold over on itself during lower tides and entrap manatee. This risk can be mitigated if turbidity curtains are used only when water temperatures are below 15.5°C (60°F) when manatees are not present or is 'fixed' to pilings or other rigid structures that prevent the curtain from folding over on itself at lower tides. If turbidity curtains are used in warmer weather and are not 'fixed', continuous (every 3-5 minutes) monitoring and/or patrolling of the barrier may be needed depending on design.

Comment on Appendix C – OU1 Remedy Updates

78. **Table 4-7, Original Boundary Area vs. Updated Boundary Area Surface Weighted Average Concentration Values** – Table 4-7 indicated a SWAC adjustment from 3.0 mg/kg for Aroclor-1268 and 2.1 mg/kg for mercury to a post-remediation updated boundary SWAC of 2.6 mg/kg for Aroclor-1268 and 1.5 mg/kg for mercury. The difference was -0.4 mg/kg for Arochlor-1268 and -0.6 mg/kg for mercury. Please add an explanation to Appendix C of how the SWAC estimates for the Western Creek Complex changed when no remediation is planned in the Western Creek Complex or in the surrounding marsh in Domain 2. There appears to have been some reassignment of samples from the Western Creek Complex to the Domain 2 marsh, however, Appendix C did not include this information.

79. **Table 4-7, Original Boundary Area vs. Updated Boundary Area Surface Weighted Average Concentration Values** – The SWAC reductions estimated in Table 4-7 assumed the area receiving the TLC attained a post-remedy concentration equal to the detection limit. However, the final concentration in the biologically active zone of the TLC is unknown. In addition, the areas of Domains 1 & 2 outside the areas receiving the TLC might experience declining concentrations by natural processes. Decision units representing the areas inside the TLC and outside the TLC within each of Domains 1 and Domain 2 are recommended for ISM for the 0- to 6-inch depth interval. Composite samples of the top 6 inches are recommended for the 60 locations to estimate the upper confidence limit on the average concentration of mercury and Aroclor-1268 in the TLC. Discrete samples are recommended for the 6- to 12-inch interval to compare with the benthic invertebrate CULs, which are not-to-exceed values to ensure that the cover is at least 6 inches over any concentrations that exceed benthic CULs. The area outside the TLC should also be sampled by ISM in the top 6 inches to develop an upper confidence limit on the average concentrations of mercury and Aroclor-1268. This information should be used to reconstruct the SWAC for the combined remediated and un-remediated domain to verify that the SWAC CULs have been met. It may be advantageous to perform the monitoring as soon as possible so that the extent of the TLC can be extended if needed as well as after four or five years to verify that sediments depositing on top the cover or mixing into the cover have not elevated the confidence limit on the average concentrations in the TLC area to a degree that the SWACs for Domains 1 & 2 exceed the SWAC CULs.

Comment on Appendix D - 2018 Tide Measurements

80. **2018 Tide Measurements** - Adjust graphical depiction for the Actual vs. Predicted Tide Gauge Data for the date range of 2/24/2018 -9/12/2018, to be consistent with the other graphs presented in the document. If possible, depict the 3 tidal zone locations (headwater/middle/lower zone) on the graphs.

Comment on Appendix G – Construction Quality Assurance Plan (CQAP)

81. **Section 4.7.1 Backfill Material Quality Verification and Section 4.8.1 Thin Cover Material Quality Verification** – The proposed analyses do not include EPA SW-846 Method 8081 for organochlorine pesticides. As these compounds are ubiquitous in soils associated with rural farming activities and termite control, this analytical method should be added. This method should also be added to Appendix B (Technical Specification 31 0513 Soils and Aggregates, Section 3.2).

82. **Section 4.8.1 Thin Cover Material Quality Verification, page 24, third to last and last paragraph** – This Section seems to indicate that the maximum 12 inches of thin cover placement is only allowable "within the temporary mat roads". However, this provision is not included in Appendix B (Technical Specifications) Section 35 02 00 Backfill and Thin Layer Cover. This difference between the Specification and the CQAP should be resolved.

83. **Section 4.14.1 Restoration Plantings, page 31,fourth paragraph** – The paragraph includes the sentence, "Placement will be verified in Section 4.8.2." The only CQAP description of topsoil placement is included in Section 4.7. However, Section 4.7 does not address verification. The reference to Section 4.8.2 should be replaced with a reference to Section 4.7. Topsoil verification procedures should be added to Section 4.7.

84. **Section 6 Procedures for Decontamination of Equipment of SOP 06 - Equipment Cleaning and Decontamination** – The document outlines the following steps that will be used to decontaminate supporting equipment such as boats, lines, and ropes that are not in direct contact with samples or sediment:
    1. Equipment will be rinsed with ambient water onboard the boat
    2. Rinse water will not be contained
    3. Incidentally spilled sediment on the decks will be washed overboard, if possible, otherwisespilled sediment will be contained and disposed of as IDW.

    Please clarify or provide additional information supporting whether ambient water is clean enough to use and sufficient to decontaminate equipment and not further contaminate and cross-contaminate other supplies and objects onboard. Specify how rinse water is going to be handled and properly managed if it will not be contained. Furthermore, please clarify what specifically categorizes an "incidentally spilled sediment" and "spilled sediment". Provide a discussion on why "spilled sediment" is disposed of as IDW and "incidentally spilled sediment" is not. Can both types of sediment be disposed as IDW?

    Additionally, steps are outlined that will be used to decontaminate sediment sampling equipment that will be lowered through the water column, such as vibracore sampler, piston sampler, direct-push sampler, and surface grab samplers. In the numbered items **1,** 2, 4 and 5, as mentioned above, please clarify or provide additional information supporting that ambient water is clean enough to use and sufficient to decontaminate equipment and not further contaminate and cross-contaminate other supplies and objects onboard.

<u>Comments on Appendix H – Transportation and Off-Site Disposal Plan (TODP)</u>

85. The example for hazardous waste disposal only references polychlorinated biphenyls and associated Toxic Substance Control Act (TSCA) criteria. Criteria should be added for non-TSCA contaminants of concern (COCs) such as mercury.

86. General waste acceptance/transport criteria for each of the types of waste should be added.

87. **Figures 2a, 2b, and 2c** are referenced but are not included. These figures should be added to the TODP, including the TODP Table of Contents.

88. **Section 4.1: Hazardous Waste** - As discussed in this TODP, the proposed route was selected to minimize impacts to affected communities, and all truck drivers will be instructed to use the proposed route. Please provide additional information on plans of action in the event of a

roadblock or mandatory detour: there should be considerations and instructions for truck drivers to deviate from the proposed route if unforeseen circumstances arise.

Comments on Appendix J – Project Schedule

89. Durations for obtaining pre-construction permits should be added.

Comments on Appendix K – Operations and Maintenance Plan

90. **Section 1.2 Summary of Planned Remedial Action** – This Section lists 9,000 CY of thin cover while Section 1.2 of Appendix G (CQAP) and Section 2.3 of Appendix L (Institutional Controls Plan) list 10,000 – 14,000CY of thin cover. This difference in thin cover volumes should be resolved.

91. **Section 2.2: Scope** - This section states that O&M will be conducted for a period of 5 years. Provide a discussion if this timeline will be extended if potential areas of deficiencies are noted within the restoration area.

92. **Section 4.1 Habitat Restoration Maintenance—Warranty Period** – This Section should specify the frequency of the inspections during the warranty period.

Comments on Appendix L – Institutional Controls Plan (ICP)

93. **Section 2.4 Contaminants of Concern** – "COCs pose a potential health and safety exposure risk to public access within OU1…" To reflect that some COCs are based on potential human health effects, but all COCs are based on adverse effects on aquatic species, this text should be revised, such as: COCs pose a potential health and safety exposure risk to public access and/or potential adverse effects to aquatic species within OU1…"

94. **Section 3.2 Informational Controls), Section 3.4 (Enforcement and Permit Tools), Figure 1 (Fish Advisory locations)** – Are any informational signs currently in place in the marsh area or on the banks of any of the creeks to inform the public about current fish consumption advisories? If not, how are the public informed regarding the fish consumption advisories? It would be helpful to have this information in this section of the report, and perhaps in the report body (if not already there).

95. **Section 3 Planned Institutional Controls** – The basis of the ICP as stated is for only 1 year, primarily during the Operable Unit (OU) 1 construction period. However, long-term monitoring (LTM) continues for a minimum of 5 years. ICP activities that extend over the duration of LTM should be indicated.

96. **Section 5 Conditions for Modification and Termination** – The last paragraph states "Conditions for termination will occur if land ownership changes and/or the cleanup goals or levels are met." The ICs should follow the property regardless of the ownership.

EDITORIAL COMMENTS TO 95% RD

97. **Section 2.1.4.1 Regional and Local Geology, second paragraph** –Replace "course" with "coarse".

98. **Appendix B Technical Specification Section 35 20 24 Dredged MaterialManagement and Processing** – Replace 35 20 23 in the footer with 35 20 24.

99. **Appendix B Technical Specification Section 35 80 00 Marine Resuspension Controls, Paragraph 1.3, Subparagraph A.1.l** – The sentence states, "A description of the Contractor's water quality monitoring program, which shall include the following, at a minimum:". Add the missing text.

100. **Appendix B Technical Specification Section 35 80 00 Marine Resuspension Controls, Paragraph 3.5, Subparagraph B** – Replace the reference to Part 3.6 with Part 3.5.

101. **Appendix B Technical Specification Section 35 80 00 Marine Resuspension Controls, Paragraph 3.6, Subparagraph A** – The inspection frequency description should be revised for clarity.

102. **Appendix G CQAP, Section 4.6.1 Removal Verification, page 17, second paragraph** – Replace the reference to Engineering Drawings C-13to C-17 with a reference to Engineering Drawings C-7 to C-14.

103. **Appendix G CQAP, Section 4.6.1 Removal Verification, page 17, last paragraph** – Replace the reference to Specification 02 21 12 – Surveying with 02 21 13 – Surveying.

104. **Appendix G CQAP, Section 4.6.1 Removal Verification, page 19, last paragraph** – The sentence should be revised for clarity.

105. **Appendix G CQAP, Section 4.7 Backfilling, page 19, last paragraph** –Replace the reference to Section 4.6.2 with a reference to Section 4.6.1.

106. **Appendix G CQAP, Section 4.7 Backfilling, page 20, Verification ofImport Material Quality bullet** – Replace the reference to Section 4.6.1 with a reference to Section 4.7.1.

107. **Appendix G CQAP, Section 4.7.2 Thickness Verification, page 22, first paragraph** – Replace the reference to Section 4.5 with a reference to Section 4.6.1.

108. **Appendix G CQAP, Section 4.8 Thin Cover Placement, page 23,Verification of Import Material Quality bullet** – Replace the reference to Section 4.6.1 with a reference to Section 4.7.1.

109. **Appendix G CQAP, Section 4.8.1 Thin Cover Material Quality Verification, page 23, second paragraph** – Replace the reference toSection 4.6.1 with a reference to Section 4.7.1.

110. **Appendix G CQAP, Section 4.14.1 Restoration Plantings, page 31, bulleted list at end of Section** – Replace "pre-conditions" with "pre- conditioned". Replace "sizes of desiccation" with "signs of desiccation".

111. **Appendix G CQAP, Section 4.15 Water Quality Monitoring, page 33,second**

paragraph – Replace the reference to Section 7 with a reference to Section 6.

112. **Appendix I LTMP, Section 5 RAO Attainment and Adaptive Management, third paragraph** – The third sentence is a fragment. The sentence should be revised.