OU-1/OU-2 Feasibility Study Report Review Comments

General Comment

1. **General Comment 1 (Characterization of PCB impacted Soil Disposal)**: *In many location in the document the disposal of soils with PCB concentrations less than 50 mg/kg are mentioned. This is a new disposal. It is not the same as the soil management previously authorized under the Residential and Special Use Property scenarios which are based on composite samples with PCB concentrations less than 10 mg/kg.*

Response to General Comment 1:

The text provided in Section 5.2.7 has been revised to clarify that the request to use on-site soil management is new and that prior approvals for the use of a soil management area do not carry forward to materials from the nonresidential and special use area portions of OU-1/OU-2. The specific text from Section 5.2.7 of the OU-1/OU-2 Feasibility Study (OU-1/OU-2 FS) states:

"The use of an on-site soil management area is being proposed in this FS for materials from the nonresidential portion of OU-1/OU-2 including nonresidential soils, soils from the dredge spoil piles, and sediment from Snow Creek. The SSSMA is the proposed on-site soil management area for dredge spoil materials, nonresidential soils, and sediment with PCB concentrations less than 50 mg/kg. While an on-site soil management area has already been used at this Site for soils generated during removals conducted under the NTC Removal Action Agreement and the Stipulation, the approvals provided under the May 4, 2006, Explanation of Significant Differences (ESD; USEPA 2006c) do not automatically extend to remedial actions identified and evaluated in this FS."

The text in Section 5.2.7 has also been revised to clarify that the 2006 ESD acknowledged the possibility of using the SSSMA for Site materials other than residential and special use soils and noted that such a proposal would need to go through a public review process. This is demonstrated in the USEPA response to Comment Number 5 on the proposed ESD. In this response, the USEPA indicated:

"The capacity of the proposed soil management area was developed in more detail so that a better estimate of capacity could be determined. The capacity of the area is not related to the total amount of soil remaining to be removed from residential properties. EPA expects that only a fraction of the capacity will be required to manage residential soil with PCB concentrations, based on five-point composite samples, less than 10 ppm. Use of the remaining capacity would need to be approved as part of a remedy selected in future decision documents. The excess capacity could be considered as part of an institutional control program or some other containment remedy for non-hazardous PCB contaminated soils. Any proposal to use the soil management area for other than residential soils will be proposed to the community in a proposed plan and a comment period will follow. No action will be taken without input from the community."

The OU-1/OU-2 FS is the initial step for proposing disposal of nonresidential soils, materials from the dredge spoil piles, and sediment with PCB concentrations less than 50 mg/kg in the SSSMA.

Specific Comments

1. ***Specific Comment 1: (Executive Summary, ES-2):*** *Why is the October 1, 2015 meeting identified as a basis for the FS?*

Response to Specific Comment 1:

The Executive Summary has been clarified to reflect that the October 1, 2015, meeting was not a basis for the OU-1/OU-2 FS but rather, this meeting was convened as a requirement under the Partial Consent Decree (PCD) as an opportunity for Pharmacia LLC/Solutia Inc. (P/S) to communicate the contents of the OU-1/OU-2 FS technical memoranda to the United States Environmental Protection Agency (USEPA).

2. ***Specific Comment 2: (Executive Summary, ES-4):*** *Figure 3-1 in the RI-identifies seven previously implemented interim measures and removal actions: Northside Area; Eastside Area; Eastside Drainage Way (through former Miller Property); Alabama Power Company (APCO) Drainage Ditch; Quintard Mall; Hall Street; and 11th Street ditch. Why is that format not maintained in the FS? Technically, the work at Hall Street was conducted as part of a removal action to provide a clean work surface for sewer workers. Snow Creek sediment dredge spoil pile removals were also conducted in OU1/OU2. Eliminate definitive statements about the remedy for the IMs in the first paragraph. The point of the FS is to evaluate alternatives for further action, not to declare what remedy is appropriate. Delete starting at "In a limited number…" Similar revisions are needed in the third paragraph. Each alternative that relies on the soil management plan attached should reference it, but the attached soil management plan does not control which remedies are considered.*

Response to Specific Comment 2:

All of the previously implemented Interim Measure (IM) projects identified in the comment are addressed in the OU-1/OU-2 FS. This includes segmenting the Eastside Drainage Way (through the former Miller Property) from the Eastside Area as two separate IMs to be consistent with the OU-1/OU-2 Remedial Investigation (OU-1/OU-2 RI) report. Figure 2-4 has also been revised to include the four dredge soil piles that were removed and are discussed in Section 4.3.6.2. The definitive statements regarding the remedy for the IMs in the first and third paragraphs were removed. The comment regarding the soil management plan is noted, and the range of remedial alternatives included in the OU-1/OU-2 FS reflects the alternatives included in Attachment A to the comments from the USEPA dated February 1, 2016.

3. ***Specific Comment 3: (Executive Summary, ES-5, Characterization of HH Risk):*** *The last sentence in the first paragraph is a strong statement. PCBs were the primary focus of the investigation and were identified as a risk driver, but other contaminants were found to be a risk to human receptors. EUs were identified with high PCB risk. Were any EUs identified with high risk from arsenic, chromium, dioxin, or PAHs? The last sentence in the second paragraph may be accurate on a site wide basis, but there is risk to subsurface soils in at least three OUs (see RI Table 5-4).*

Maybe it should just be stated that contaminants in soils were determined to create the most risk to human health. Regardless all contaminants that potentially create risk need to be mentioned. Groundwater risk was evaluated in OU3, and the PCB MCL (an ARAR) was used to guide the Off-Facility investigation of groundwater in OU1/OU2, rather than a risk assessment.

Response to Specific Comment 3:

The Executive Summary has been revised to clarify the risks associated with non-PCB constituents and PCBs in soils. The Executive Summary now states "The HHRA found that the most prevalent and widespread risks to human health in OU-1/OU-2 are associated with the presence of PCBs in surface soil. The human health risk assessment (HHRA) also identified constituents other than PCBs as COPCs, including arsenic, PAHs (as benzo(a)pyrene [BaPE] equivalents), chromium and polychlorinated dibenzo-p-dioxin and dibenzofurans (PCDD/DFs, as 2,3,7,8-tetrachlorodibenzo-p-dioxin equivalent [TEQ]) that exceeded the risk thresholds in soils. The risk exceedances were limited to surface soils as their presence in other Site media (subsurface soils, surface water, sediment, and air) resulted in low levels of risk. Risks associated with PCBs in groundwater were also elevated in one portion of OU-1/OU-2, the T-11 portion of Exposure Unit 5 (EU5), as PCB concentrations in groundwater at this location exceeded the maximum contaminant level (MCL) value."

The text that discusses risks associated with PCBs in subsurface soils has been revised and now reads as follows: "The three EUs where subsurface risks exceeded the PCB PRGs (EU5, EU10, and EU19N) were also associated with the highest surface soil PCB concentrations and are addressed under the OU-1/OU-2 FS." Addressing these areas in the OU-1/OU-2 FS includes 1) remedial alternatives for groundwater at T-11 for the eastern portion of EU5 that target subsurface soils, 2) remedial alternatives to address a UWDA in the southeastern portion of EU10 that include addressing subsurface soils, and 3) remedial alternatives for nonresidential surface soils in EU19N. In EU19N, the PCBs that drive the high subsurface soil concentrations are located in upper 12-inch horizon. Since the subsurface horizon includes the 0- to 4-foot interval, the remedial alternatives that address surface soils in this EU (located in the 0- to 12-inch interval) also address subsurface conditions. Other than EU5 and EU10, there are no individual samples collected from below 1 foot with PCB concentrations exceeding the nonresidential subsurface PRG for PCBs of 97 mg/kg.

4. ***Specific Comment 4: (Executive Summary, ES-5, Characterization of Ecological Risk):*** *Delete the word "individual" before birds and mammals. The Ecological Risk Assessment and Risk Management Principles for Superfund Sites, October 1999, guidance indicated that the relevant risk was the risk to local populations at the site. The text is trying to imply that there are not enough individual animals present at OU1/OU2 to constitute a population. There does not need to be a certain number of individual animals affected before the site has actionable risk. The text is characterizing this as risk to individuals and not a risk to local populations. No population risk assessment was performed.*

Response to Specific Comment 4:

The requested change was made to the Executive Summary.

5. **Specific Comment 5*: Executive Summary, ES-6, the FS Process***: *The RAOs are narrative and PRGs are numerical. The RAOs pertain to the specific exposure pathways and receptors evaluated in the risk assessments and for which unacceptable risks were identified. A range of PRGs were evaluated for soil and sediment. The PRGs were not established by the EPA, they were established by the risk assessments and/or ARARs, and selected for evaluation in the FS by the EPA. State*

that only one set of PRGs were used in the comparative analysis; if other RGs are selected in the ROD, the comparative analysis should be reviewed and revised as needed.

If contaminants and concentrations are included, the ranges considered and all contaminants should be mentioned. Clarify that PTW is source material that is highly toxic or highly mobile. The highly toxic component of the definition should be addressed by the goals established from the risk assessment. The mobility determination was made by measuring the groundwater concentrations near high soil concentrations. Delete "overly" in second to last sentence in second paragraph.

Include UWDAs as separate category of impacted media.

Response to Specific Comment 5:

The Executive Summary was clarified to reflect that the RAOs are narrative and the PRGs are numerical and that while one set of PRGs was used to conduct the detailed and comparative analyses of alternatives, these evaluations would be reviewed and revised if the Record of Decision (ROD) selects different remedial goals (RGs). The Executive Summary was also revised to indicate that the OU-1/OU-2 FS includes candidate remedial areas/volumes and remedial cost estimates for nonresidential surface soil and sediment using alternative PRG values. These alternative PRG values included 9 mg/kg for nonresidential surface soil and 1 mg/kg for sediment.

The Executive Summary was revised to clarify that the evaluation of principal threat waste (PTW) includes assessing both mobility and toxicity and to reflect the inclusion of unapproved waste disposal areas (UWDAs) in the OU-1/OU-2 FS as a separate category of remedial alternatives. Additionally, the word "overly" was deleted from the second to the last paragraph.

6. ***Specific Comment* 6*:* Executive Summary, ES-7**, ***Detailed and Comparative Analysis of Alternatives:*** *To comply with ARARs, on-site remedial actions can attain or waive Federal and more stringent State applicable or relevant and appropriate requirements (ARARs) of environmental laws. The statements made about ARARs in the first and second paragraph of this section and in the body of the comparative analysis the language should acknowledge that comply means to attain or waive an ARAR.*

A description of the alternatives that should be discussed in this section is provided in Attachment A. When disposal onsite is discussed in dredge spoil piles, non-residential, groundwater, and sediment alternatives, it should be explained that the proposed disposal is different than what is currently approved.

Thanks for providing the environmental impact assessments.

Response to Specific Comment 6:

The Executive Summary has been revised as requested by noting that ARARs must either be complied with or waived; that the categories of alternatives have been revised to be consistent with Attachment A that was provided with the USEPA's February 1, 2016, comments; and that the proposed use of on-site soil management for nonresidential materials including dredge spoil piles, nonresidential soils, and sediment is a new request that is separate and apart from the prior regulatory approvals that provided for use of an on-site soil management area for soils excavated from residential and high activity portions of the special use areas.

7. ***Specific Comment 7: Section 1 Introduction:*** *The OU1/OU2 portion of the Site description should include residential properties inside and outside the floodplain that were impacted by PCBs. This section just discusses the extent of the non-residential investigation. All residential properties with PCB impacts (except the few in OU4) are part of this RI/FS also.*

Response to Specific Comment 7:

Section 1 has been updated to include a discussion on the extent of the residential investigation as follows: "The extent of the residential and special use investigation in OU-1/OU-2 is defined under a Stipulation and Agreement (Stipulation) between the USEPA and P/S (USEPA 2006a). On January 17, 2006, the USEPA entered into an Administrative Agreement and Order on Consent for Removal Action (Administrative Order) with 11 industrial companies (collectively, Foothills Community Partnership [FCP]) to address the performance of time-critical removal activities at the Anniston Lead Site (USEPA 2006b). In some areas, the Anniston Lead Site overlaps a portion of the OU-1/OU-2 footprint. Because of this overlap, the USEPA and P/S entered into a Stipulation to clarify P/S' obligation regarding residential sampling and removal activities in the four zones (Zones A, B, C, and D) delineated in the Administrative Order. Under the Administrative Order, the Non-Time-Critical (NTC) Removal Agreement (PCD, Appendix G) and the Stipulation, the FCP had primary responsibility for sampling activities within Zones A and B, and P/S had primary responsibility for sampling activities within Zones C and D (USEPA 2006b). Evaluation Area (EA) 35, which is outside of Zones C and D, was subsequently added to the residential property sampling program by agreement of P/S and the USEPA to characterize potential PCB concentrations in this area."

8. ***Specific Comment 8: Section 2.1 Site Description:*** *In the second paragraph, the words "potentially" and "may have" should be removed in discussions about PCBs being carried downstream in surface water. In the final paragraph on page 2-2, delete "for the most part" from the last sentence.*

Response to Specific Comment 8:

The requested edits were made to Section 2.1 including the deletion of "potentially," "may have," and "for the most part."

9. ***Specific Comment 9: Section 2.2.2.2 Page 2-4:*** *Delete the word "largely" in the discussion about EPA oversight. EPA did oversee activities. The last sentence is not correct; this document does not complete "the FS obligations under the PCD."*

Response to Specific Comment 9:

The word "largely" was deleted from the sentence. The words "and completes the FS obligation under the PCD" were deleted from the last sentence of the paragraph.

10. ***Specific Comment 10: Section 2.2.2.3 Summary of Site Investigations and Responses under the Clean Water Act:*** *The carbon treatment on the groundwater wells impacted by PCBs should be mentioned here.*

Response to Specific Comment 10:

This section of the OU-1/OU-2 FS has been revised to include the following sentence: "Extracted PCB-impacted groundwater is treated with carbon prior to discharging the water into the former WWTF."

11. ***Specific Comment 11: Section 2.4.1.1 Residential Sample Program:*** *The PCB results from sampling by other parties, including the EPA were used to identify properties. Because PCBs were cleaned up based on all the sampling, it needs to be identified in this section somehow. FCP final reports indicated that they sampled 4620 properties. The EPA sampled 1978 properties. Some properties were sampled by more than one of the parties.*

Response to Specific Comment 11:

Section 2.4.1.1 of the OU-1/OU-2 FS has been revised as follows: "A total of 1,651 residential properties were identified in areas that required sampling by P/S (Zones C and D and EA 35) both within and outside of the Snow Creek floodplain. Surface soil sampling was completed at all of these residential properties. The results of this sampling and the associated removal actions conducted through December 31, 2014, are reported in the residential Completion Report (Golder 2015). Remedial alternatives for the residential and special use areas are identified and evaluated in subsequent sections of this FS. The *Final Report for the Anniston Lead Site* summarizes that the FCP sampled surface soil at 4,620 properties in Zones A and B (Newfields 2011). Additionally, the USEPA sampled surface soil at 1,978 properties throughout Zones A through D. Some properties were sampled by more both of the parties."

12. ***Specific Comment 12: Section 2.4.3 Surface Water Investigations****: In the first paragraph, the word "potentially" should be removed in discussions about PCBs being carried downstream in surface water.*

Response to Specific Comment 12:

The word "potentially" was deleted from the sentence.

13. ***Specific Comment 13: Section 2.4.5 Air:*** *A Figure should be provided to go with the detailed discussion.*

Response to Specific Comment 13:

A figure supporting air is included as Figure 2-53 in the revised OU-1/OU-2 FS. The introductory text in Section 2.4 has been revised to clarify that the supporting figures for the various media are referred to in Section 2.5 along with the discussion of the results. The text now reads as follows: "The investigations for floodplain soil, sediment, surface water, groundwater, and air are summarized in Section 2.4. Key findings regarding the nature and extent of contamination are discussed in Section 2.5 including references to figures that present the results of the sampling efforts."

14. ***Specific Comment 14: Section 2.5.1 PCBs in Soils on Residential and Special Use Properties****: The referenced figures are not for residential and special use properties. In paragraph on page 2-14, delete the word "general" in the middle of the paragraph. The work was performed in accordance with requirements. If not, please explain.*

Response to Specific Comment 14:

The text of Section 2.5.1 has been revised to remove the reference to the residential and special use properties. The word "general" was deleted. The sentence now reads "As stated in this report, the completed residential removal actions were conducted in accordance with the requirements of the Removal Order, NTC Removal Agreement, and the Stipulation."

15. ***Specific Comment 15: Section 2.5.3 Other Constituents in Surface Soils****. In top paragraph on page 2-15, delete the sentence about "other industrial sources." **Arsenic:** Approximately 13 percent of the samples tested for Arsenic are 2 times the background concentrations. They are not all consistent with background. Please clarify.*

Response to Specific Comment 15:

The sentence regarding other industrial sources was deleted. The bullet on arsenic was revised as follows:

"Concentrations of arsenic in soil are shown on Figure 2-41. The distribution of arsenic concentrations is similar over the entire OU. Most of the sample results are consistent with background conditions described in the COPC evaluation included as Appendix G to the RI (ENVIRON 2015a). The background arsenic concentration from the Fort McClellan study is 8 mg/kg, and the mean arsenic concentration for the OU is 11 mg/kg."

It is also noted that none of the surface soil results for arsenic exceed the PRG.

16. ***Specific Comment 16: Section 2.5.4 Constituents in Subsurface Soils. PCBs:*** *In addition to the looking at the EPC for the entire site, discuss the results of Table 5-4 in the RI which shows that the EUs influencing the site-wide EPC are EU5, EU10, and EU19. If NRS alternatives look at subsurface soil residual management or remediation, these would be the areas first considered.* ***Other Constituents:*** *Is there nothing to say about the wider list of constituents?*

Response to Specific Comment 16:

Of the three EUs referred to in the comment (EU5, EU10 and EU19N), only two of these EUs (EU5 and EU10) have soils collected deeper than the 0- to 1-foot interval with PCB concentrations exceeding the subsurface PCB PRG of 97 mg/kg. As described in the response to specific comment no. 3, these deeper soils in EU5 and EU10 are being addressed in the OU-1/OU-2 FS. Other locations, including EU19N, where the subsurface PCB concentration exceeds the PRG are driven by the results of surface samples collected from the 0- to 1-foot interval. Locations where the surface sample PCB results from the 0- to 1-foot interval are driving the subsurface PCB results (for the 0- to 4-foot interval) are being addressed through actions targeting surface soils. All of these surface soil locations are being addressed through application of an EU-wide nonresidential surface soil PRG of 21 mg/kg and a criteria that limits the presence of PCBs in surface soils at concentrations greater than or equal to 50 mg/kg.

With regards to the wider list of constituents, Section 2.5.4 of the OU-1/OU-2 FS was revised to include the following paragraph. "The presence of non-PCB constituents in subsurface soils was also evaluated in the RI. The measured concentrations of these non-PCB constituents were generally lower for the subsurface results with the surface increment (0 to 1 foot) generally driving the subsurface concentration. Based on this distribution, any actions that are targeted to address non-PCB constituents in surface soils or PCBs in subsurface soils, will also mitigate subsurface risks associated with non-PCB constituents, to the extent that they are present."

17. ***Specific Comment 17: Section 2.5.5.1 PCBs in Sediment.*** *Figure 2-47a identifies sample PB-008c-07 collected by EPA as a sediment sample; the EPA database indicates that it is a surface soil sample. The 9th Street ditch samples are shown in Figure 2-48, but not on 2-47. If the 9th Street ditch samples are going to be used, show them on a map. Some of the 9th Street ditch samples are used in the EPC soil calculations. Are the n=61 samples all sediment or are some soil?*

Response to Specific Comment 17:

Sample PB-008c-07 was collected approximately 4,000 feet upstream of Snow Creek's confluence with the 11th Street Ditch. The sample was collected from an area where Snow Creek runs through an industrial property. The sample's location coordinates place this sample in the creek bed. Based on the sample listing in the USEPA's database (as soil) and the sample location coordinates (located in the creek), it's possible that the sample may have been collected from a dry location within the footprint of the creek bed, collected along an adjoining creek bank area, or collected by a technician who believed that the material appeared to be more soil-like than sediment. In terms of spatial accuracy, it is important to recognize the accuracy of GPS and the relative width of the creek bed at this likely overlap. Irrespective of whether the material is sediment or soil, the sample was collected in an industrial area well upstream of Snow Creek's confluence with the 11th Street Ditch. Based on its location, it would not be appropriate to include the result in the EPC calculations. In addition, the PCB concentration (18 mg/kg) is lower than the PRG for nonresidential soils. The sample result is no longer on the sediment figures (Figures 2-46, 2-47, and 2-48) as these figures were revised to present sediment data downstream of where the 11th Ditch flows into Snow Creek.

The samples collected along the West 9th Street Creek are shown on Figure 2-9 of the OU-1/OU-2 FS. As shown on the figure, these samples were collected outside of the OU-1/OU-2 footprint and, consistent with the OU-1/OU-2 HHRA, were not used to calculate exposure point concentrations (EPCs) for floodplain soils.

There are 96 sediment sample results shown on Figure 2-47 and the figure has been corrected.

18. ***Specific Comment 18: Section 2.5.5.3 Creek Bank Areas.*** *The community has expressed a concern about exposure to children from contaminants along the creek banks. From the discussion in this section, the concentrations along the bank are assumed to be similar to the adjacent soils. There needs to be more discussion. The question will be do the stabilization methods proposed protected for recreational use by children, and do there need to be measures put in place in areas to protect for this use. The areas that have been mentioned most often are in EU5, EU 12, EU13, EU26, and EU27.*

Response to Specific Comment 18:

The nonresidential surface soil PRG of 21 mg/kg applies to creek bank areas in general and the sediment PRG of 3 mg/kg applies to creek bank areas that are unstable and have PCB-containing creek bank soils above this threshold. These creek banks soils are located in EU5, the upstream portion of EU10 where it borders EU5, and EU12/EU13.

The creek banks in EU27 are classified as stable and generally stable and the adjoining floodplain soils have low PCB concentrations. For these reasons, no bank stability actions are targeted along this portion of Snow Creek. Creek bank stabilization is not targeted for EU26 but a recommendation was provided relative to surface soils located at the top of the bank in this EU. These soils are targeted under the remedial alternatives for nonresidential soils and the recommendations were focused on ensuring that remedial activities do not cause these soils to mobilize to the creek bank areas.

19. ***Specific Comment 19: Section 2.5.6 Constituents in Surface Water****. The second sentence should identify that PCBs were also sampled in surface water. Delete the attribution sentence about non-facility PCB sources in upstream portions of snow creek.*

Response to Specific Comment 19:

The requested changed were made, including deleting the attribution sentence and rewording the first sentences of the first paragraph as follows: "Surface water sampling points are shown on Figure 2-52. The samples collected during the RCRA Program were analyzed for particulate-phase PCBs and total suspended solids (TSS). The samples were collected over a range of base- and high-flow conditions, and the resulting data were collected to assess the downstream transport of PCBs and suspended solids. These data were also used to calculate estimated whole-water PCB concentrations."

20. ***Specific Comment 20: Section 2.5.7 Constituents in Groundwater****. Discussion of data is notably absent in this section and should be included. What are concentrations at T-11? Why mention concentration at T-9 but no other wells?*

Response to Specific Comment 20:

The maximum reported PCB concentration for well T-11 has been included in Section 2.5.7. The text also reflects that groundwater impacts from OW-21A and OW-10 are being addressed as part of OU-3, and that further discussion of the results from these areas are included in the OU-3-related documents. The remaining groundwater areas investigated within OU-1/OU-2 were evaluated for PCBs using the Aroclor and/or homolog method of analysis. As indicated in the text, all of the results were below the MCL.

21. ***Specific Comment 21: Section 2.5.8 Constituents in Air.*** *This is the same data discussed in Section 2.4.3. Is this complete discussion needed in two locations?*

Response to Specific Comment 21:

The text in Section 2.4.5 discusses the investigation activities associated with the multiple air sampling programs. The resulting data are discussed in Section 2.5.8. This approach is consistent with the response provided to specific comment no. 13 and the clarifying text that was added to Section 2.4 as follows: "The investigations for floodplain soil, sediment, surface water, groundwater, and air are summarized in Section 2.4. Key findings regarding the nature and extent of contamination are discussed in Section 2.5 including references to figures that present the results of the sampling efforts."

22. ***Specific Comment 22: Section 2.6.1 Source Areas.*** *Note that OU3 will no longer be an "active" source to OU1/OU2. NPDES surface water monitoring, groundwater monitoring and extractions, and Five-Year Reviews will be used to ensure that the remedy remains protective and that corrective measures are implemented if new releases occur, (or some other appropriate language) since waste is being left in place.*

Response to Specific Comment 22:

The requested changes were made to Section 2.6.1, and the text for the second half of this paragraph was revised as follows: "Once these additional remedial actions are completed, it is expected that OU-3 will no longer be an active source to OU-1/OU-2. In addition to past and future efforts to control sources at the Facility (OU-3), removal actions and IMs have been implemented in OU-1/OU-2. A combination of surface water data collected under the NPDES permit for the Facility and monitoring data collected under the OU-3 IROD will be used to evaluate the effectiveness of eliminating OU-3 as an active source to OU-1/OU-2. These data

will be evaluated during a 5-year review process for OU-3 that is required due to waste material being contained as part of the OU-3 remedy."

23. ***Specific Comment 23: Section 2.6.2 Release Mechanisms and Migrations Pathways.*** *Delete the word "potentially" in the second to last sentence.*

Response to Specific Comment 23:

The word "potentially" was deleted from this section of the OU-1/OU-2 FS.

24. ***Specific Comment 24: Section 2.6.2.1 Surface Water Runoff****. Delete the word "potentially" in the last sentence of the first paragraph.*

Response to Specific Comment 24:

The word "potentially" was deleted from this section of the OU-1/OU-2 FS.

25. ***Specific Comment 25: Section 2.6.2.3 Volatilization/Fugitive Dust****. Mention that construction activities that might generate fugitive dust. Discuss here or in the next section. Due to the community's sensitivity on air issues, change "insignificant risk" to "low risk" in the last sentence.*

Response to Specific Comment 25:

The requested changes were made to Section 2.6.2.3, and the text for the latter portion of the paragraph was revised as follows: "Additional actions to be taken in OU-3 and OU-1/OU-2 may further reduce or eliminate the long-term potential for volatilization or fugitive dust even though current concentrations of PCBs in air are currently considered a low risk to human health or the environment. Any construction activities that include moving OU-1/OU-2 soils will need to incorporate best management practices (BMPs) to minimize generating fugitive dust that may contain PCBs."

26. ***Specific Comment 26: Section 2.6.2.4 Human Activity****. Include construction activities here or in previous section. Change "entities other than P/S" and insert "human activity."*

Response to Specific Comment 26:

The following sentence was added to this section of the OU-1/OU-2 FS to recognize that construction activities would result in fugitive dust that may present a risk if not properly managed: "The potential for fugitive dust to be generated during remedial activities is a concern that will be addressed during the design and construction of the remedy selected for OU-1/OU-2."

27. ***Specific Comment 27: Section 3 Potential ARARS.*** *The word "preliminary" in the last sentence of the first paragraph should be "potential." Please clarify what the sentence means. This sentence seems to indicate that additional ARARs are available but weren't included because they were considered to be unimportant. Why are RCRA subtitle D regulations not identified for management of PCB remediation waste with PCB concentrations less than 50 mg/kg?*

Response to Specific Comment 27:

The word "preliminary" was deleted and the word "potential" was inserted. The use of Resource Conservation and Recovery Act (RCRA) subtitle D landfills is included in the

OU-1/OU-2 FS as an off-site disposal option for soils containing PCBs at concentrations less than 50 mg/kg. The use of an on-site soil management area is also proposed in the OU-1/OU-2 FS for managing PCB remediation wastes under the provisions of the Toxic Substances Control Act (TSCA). These provisions are outlined in 40 CFR 761.61(c).

28. ***Specific Comment 28: Section 3.1 Media and Chemicals of Concern****. Add groundwater and surface water to the bullet list. Make sure the list matches the revised list of Alternatives. The last paragraph in Section 3.1 references Section 2.5.6 for a discussion regarding groundwater; however, Section 2.5.6 is a discussion of constituents in surface water. Please clarify. Change 'addressing soil concentrations' to 'addressing localized soil concentrations'. Change references to "RGOs" to "PRGs."*

Response to Specific Comment 28:

Groundwater and surface water were added to the bullet list. The list matches the revised list of alternatives. The reference to groundwater (Section 2.5.7) was also corrected. References to RGOs and PRGs and revisions were made as appropriate recognizing that the range of RGO values were initially developed and the PRGs were selected from this initial range of RGOs. The last sentence of the section was also revised as follows: "Therefore, achieving the PRG (MCL) for groundwater will depend on addressing localized soil concentrations. Similarly, surface water concentrations are related to sediment and surface soil concentrations."

29. ***Specific Comment 29: Section 3.3.1 Establishment of Preliminary RAOs.*** *The EPA previously provided comments on RAOs for surface and subsurface soils, surface water, groundwater, and sediment. The RAOs should be identified without a lengthy explanation of why they are being listed; extraneous information should be deleted. Why don't the RAOs match Table 3-4? Add a preliminary RAO to address human contact with bank soils.*

Response to Specific Comment 29:

The RAOs in Section 3.3.1 were revised to be consistent with Table 3-4. The explanations provided are consistent with the FS process and are needed as the previously prepared technical memoranda leading up to the OU-1/OU-2 FS are not included with this document. The RAO for creek bank soils is listed under sediment in Section 3.3.1.2 since they are addressed with sediment in this FS.

30. ***Specific Comment 30: Section 3.3.2 Human Health PRG Values.*** *Typically, EPA prefers the low-end of the acceptable risk range (1E-06) to be the basis of PRGs. Deviation from this approach needs to be adequately justified and technically defensible. Explain the rationale for the selection of target risk levels for the COCs. Most areas were targeted for cleanup because of non-cancer risk exceedances. The EPA asked for an evaluation using a target risk for PCBs of 1E-6 and 1E-05 on non-residential (primarily commercial/industrial) soils. The 1E-05 is reasonable for properties used by heavy industry. A target risk for PCBs was set 1E-6 on residential soils. Target risks for PCBs of 1E-6 and 1E-05 was considered on special use soils. The target risk for non-PCB COCs was 1E-04, due to the likelihood that non-PCB COCs cannot be maintained at a lower level because on the nature of the industries in the floodplain and up-gradient from the Snow Creek. Clearly state what receptors the target risks protect. Change references to "RGOs" to "PRGs."*

Response to Specific Comment 30:

The reference to PRGs as opposed to RGOs were changed where appropriate recognizing that the PRGs were selected from the range of RGO values developed as part of the HHRA. The use of risk levels in setting the PRGs was also clarified. This included setting the residential PRG

such that excess cancer risks are lower than 1 X 10^{-6} and the hazard index (HI) value for noncancer risks is less than 1. For the nonresidential soils, the PRG for PCBs was selected such that the excess cancer risks are less than 1 X 10^{-5} and the HI for noncancer risks is below 1. For the non-PCB constituents except PCDD/DF, the PRGs were selected based on the excess cancer risks being less than 1 X 10^{-4}. The hazard index (HI) values for noncancer risks associated with these non-PCB constituents were also below 1. For PCDD/DF, the PRG value was based on the USEPA industrial default value of 0.6 µg/kg.

31. ***Specific Comment 31: Section 3.3.3 Ecological PRG Values****. Change references to "RGOs" to "PRGs." End of 5th sentence in the second paragraph indicates that 'leaking sewage conveyance pipelines' could be a nonpoint source of stream impacts but no supporting information or reference is provided. Please provide supporting information or remove text from the sentence. Explain by more stringent human health criterion based on human consumption of water and organisms of 0.000064 µg/L here or somewhere in document.*

Response to Specific Comment 31:

The reference to PRGs as opposed to RGOs were changed where appropriate recognizing that the PRGs were selected from the range of RGO values developed as part of the HHRA. The text regarding the leaking sewer pipes was deleted. An explanation of why the ambient water quality criteria (AWQC) value referred to in the comment does not apply to OU-1/OU-2 is described in Section 3.3.3. The last paragraph of this section is as follows: "PRGs for PCBs in surface water are based on the USEPA AWQC for chronic exposure of 0.014 µg/L This AWQC value is based on the protection of wildlife. Using a lower AWQC value that is protective for the ingestion of surface water and the consumption of biota (i.e., 0.000064 µg/L) is not appropriate for Snow Creek. This is based on the lack of consumable-sized fish in the OU-1/OU-2 portion of Snow Creek and that Snow Creek is not a capable water supply source."

32. ***Specific Comment 32: Section 4. Candidate Removal Areas.*** *Add UWDAs and other alternatives as requested in Attachment A.*

Response to Specific Comment 32:

Section 4.5 has been added to the Candidate Removal Areas (Section 4.0) to discuss the UWDAs as outlined in Attachment A.

33. ***Specific Comment 33: Section 4.1.3 Remaining Residential Actions and Section 4.1.3.2 Ashley and Legrande Site****. Remove Ashley and Legrande from residential. Delete sentence that names U.S. Reduction responsible for auto fluff.*

Response to Specific Comment 33:

The Ashley and Legrande Site has been removed from Section 4.1.3, and reference to the Ashley and Legrande Site has been removed throughout the document in reference to residential remedial areas and residential remedial alternatives. The Ashley and Legrande Site is being evaluated as an UWDA.

34. ***Specific Comment 34: Section 4.2 Special Use Properties.*** *There were also special use properties outside of the floodplain that are part of this category. It is not clear from the language that they are included.*

Response to Specific Comment 34:

Special use properties outside of the floodplain are included in the proposed Candidate Remedial Areas and the subsequent evaluation of special use properties remedial alternatives. The first paragraph in Section 4.2 has been revised to clarify that special use properties in Zones A through D have been included.

35. Specific Comment 35: Section 4.3 Interim Measures. *See comment number 2 about what is identified in this section. This section proposed to leave substantial soil concentrations in surface soils. There should not be any PCBs greater than 50 ppm left in surface soils. Why isn't the non-residential preliminary RGO being used for expansion or excavation of the high concentrations outside the caps? The groundwater information from the Eastside properties does not provide enough confidence that groundwater is not impacted. Evaluation of the potential remedies should not be discussed here.*

It would be helpful to understand what the data really is for the IMs. Below is a draft table prepared by EPA to look at the data. It has not been checked, so error might be present. A table like this in the FS would help understand what PCB concentrations are under caps and outside of caps. The capped are should be divided further to show what concentrations are under soil caps and geomembrane/asphalt/concrete caps.

Interim Measure	Frequency Detected	PCB Minimum (mg/kg)	PCB Maximum (mg/kg)	Mean (mg/kg)	Median (mg/kg)
Northside Properties[1] - *Under Cap* - *Not Under Cap*	**215/235 (91%)** *168/176 (95%)* *47/59 (80%)*	**0.045** *0.045* *0.3*	**2800** *2800* *156*		
Eastside Properties[2] - *Under Cap* - *Not Under Cap*	**313/415 (75%)** *192/238 (81%)* *121/177 (68%)*	**0.038** *0.53* *0.038*	**200,000** *200,000*[8] *261*		
ES Drainage Way[3] - *Under Cap* - *Not Under Cap*	**104/106 (98%)** *51/51 (100%)* *53/55 (96%)*	**0.036** 3.7 0.036	**1200** *1200* *610*		
Hall Street Properties[4] - *Under Cap*	**30/31 (97%)** *30/31 (97%)* -	**0.056** *0.056* -	**84** *84* -	**16.87** *16.87*	**11.7** *11.7* -

Interim Measure	Frequency Detected	PCB Minimum (mg/kg)	PCB Maximum (mg/kg)	Mean (mg/kg)	Median (mg/kg)
- *Not Under Cap*				-	
Quintard Mall[5]			**< 50**	**NA**	**NA**
- *Under Concrete Cap*			*< 50*	*NA*	*NA*
- *Not Under Concrete Cap*			-	-	-
APCO Ditch[6]	**5/7 (71%)**	**41**	**239**	**90**	**50**
- *Under Concrete Cap*	*5/7 (71%)*	*41*	*239*	*90*	*50*
- *Not Under Cap*	-	-	-	-	-
11th Street Ditch[7]	**90/105 (86%)**	**0.42**	**590**		
- *Under Concrete Cap*	*90/105 (86%)*	*0.42*	*590*		
- *Not Under Cap*	-	-	-		

[1] Data from Table 3-3 in the RI.
[2] Data from Table 3-4 in the RI.
[3] Data from Table 3-5 in the RI.
[4] Data from Figure 3-5 in the RI.
[5] Data from Figure 3-6 in the RI.
[6] Data from Figure 3-7 in the RI.
[7] Data from Table 3-6 in the RI.
[8] PRP claims that highest concentration likely 40,000 mg/kg due to removals, but no confirmation data available.
- Data that could be identified as "not under cap" is part of non-residential soil analysis.

Response to Specific Comment 35:

As requested by the USEPA in comment no. 2, P/S have presented the IMs completed for the Eastside Area and the Eastside Drainage Way as separate IMs including the evaluation of the additional enhancements for these areas. Section 4.3 has also been revised to indicate that the proposed IM enhancements (candidate remedial areas) were selected to address all PCB concentrations above 50 mg/kg in surface soil and to ensure that the resulting EPC for each IM area is below the nonresidential preliminary RGO. Additional investigations will be conducted at the Eastside Area to evaluate the potential presence of PTW material beneath the existing cover system.

Data summary tables were also developed and included on the revised IM figures.

36. ***Specific Comment 36: Section 4.3.1.4 Data Evaluation****. The text is confusing. It mentions two PCB samples above 500 mg/kg in soil, then nine locations where PCBs are above 500 mg/kg in soil. Sample NPSL51 is greater than 500 mg/kg and no remedy is proposed because it is behind a fence. That is not an adequate remedy for such a toxic sample, even if it is not mobile in groundwater. PTW can be related to toxicity as well as mobility. When discussing PTW both should be considered and discussed.*

Response to Specific Comment 36:

Section 4.3.1.4 has been revised to describe two "areas" with PCB concentrations greater than 500 mg/kg in soil and that one of the two areas has a single sample location above 500 mg/kg and the other area includes nine sample locations with PCB concentrations above 500 mg/kg.

Sample location NPSL51 was previously addressed as part of the original IM installed at the Northside Area. This area was covered with a soil and geotextile cover system, and engineering controls are in place (i.e., security fences, gates and locks) to reduce unauthorized access onto the property. Groundwater impacts observed in this area are currently being addressed as part of the OU-3 remedy. Based on these findings, this area has been addressed and is not considered for further remedial alternatives.

37. ***Specific Comment 37: Section 4.3.2 Eastside Area****. Why are you combining the Eastside Drainage Way (bisecting the Miller property) with the Eastside Area? The reasoning for no further action when so many high detections are present is not acceptable.*

Response to Specific Comment 37:

As described in the response to specific comment no. 2, Section 4.3 has been revised to include separate discussions of the Eastside Properties and the Eastside Drainage Way. The evaluation for each of these areas and the proposed enhancements are presented and discussed separately. As described in the revised OU-1/OU-2 FS, additional actions are proposed for each of these IM areas.

38. ***Specific Comment 38: Section 4.3.2.4 Data Evaluation.*** *Figure 4-6d does not clearly show coverage of high concentrations. Also, the RI tables still contain sampling information greater than 40,000 mg/kg. There needs to be more discussion about what is known and what is estimated about this area. It appears in Figure 4-6e that location CA-05-1782-05 is under a cover. In addition, well CMW-3 does not appear to be located "immediately down-gradient" of CA-05-1782-05.*

Response to Specific Comment 38:

As described in the response to specific comment no. 35, this section has been revised to indicate that the proposed IM enhancements (candidate remedial areas) were selected to address all PCB concentrations above 50 mg/kg in surface soil and to ensure that the resulting EPC for each IM area is below the nonresidential preliminary RGO. As a result, high concentrations of PCBs not previously addressed as part of the IM would be addressed in accordance with the selected remedy for the IM areas.

As described in Section 4.3.2.1, IMs were implemented at the Eastside Area (1995) to address the highest concentration PCBs encountered on the property (203,000 mg/kg). Soils in this area were excavated and shipped to the Chemical Waste Management facility located in Emelle, Alabama, for disposal. Additional sampling was conducted following this removal action, and residual PCB concentrations were measured up to 40,000 mg/kg. Following the removal, a geomembrane liner was placed over the area with the higher concentrations of PCBs and covered with a soil cover.

Figure 4-6e displays where IM cover systems were constructed. The data shown on the figure represent conditions below the cover except for four samples (CA-05-1782-03, CA-05-1782-04, CA-05-1782-05 and CA-05-1782-06) as described in note 5 on the figure.

This section of the report has been revised to indicate that well CMW-3 is located approximately 250 feet downgradient of CA-05-1782-05.

39. ***Specific Comment 39: Section 4.3.3 Hall Street Properties.*** *Describe the fact a geotextile and 1-foot of clean soil were placed over the area to provide a clean work surface for the Oxford public works department when sewers mains on the property needed maintenance (this may not be the correct description). This was an interim cap, not a RCRA interim measure, put in place until the OU1/OU2 ROD could establish a permanent remedy. S/P is proposing the temporary cap be considered a permanent remedy. Why are other alternatives not being considered?*

Response to Specific Comment 39:

The clean soil cover constructed at the Hall Street Properties was an interim cap completed in 2006. It was not constructed as a RCRA IM. This has been clarified in Section 4.3.4.

Groundwater monitoring at well T-16 (located on the Hall Street properties) indicated that the filtered and unfiltered groundwater sample results were all nondetect for PCBs (Golder 2012). Additionally, the interim cap implemented at the Hall Street Properties effectively reduces exposure of potential receptors to underlying PCB-containing soils, and the resulting surface soil concentrations are less than the nonresidential preliminary PRG of 21 mg/kg. Therefore, additional alternatives are not being considered as the interim cover system previously constructed is effectively isolating PCBs at the property.

40. ***Specific Comment 40: Section 4.3.5.1 11th Street Ditch****. What about recent water main issues? Does that change what is being proposed for this remedy? Should additional soil removal be considered in the area where the water main is covered by the remedy to ensure that PCB impacted soils do not get released? What about concentrations outside of the capped area; how does the soil PCB concentration relate to the non-residential target risk range?*

Response to Specific Comment 40:

The 11th Street Ditch removal and containment actions implemented (i.e., excavation and off-site disposal of PCB-containing soils and construction of concrete-lined and riprap-lined covers) are considered a permanent remedy that effectively isolate the underlying PCB-containing soils and reduce the potential exposure to and erosion/migration of those soils. The recent water main break that occurred at the 11th Street Ditch was a temporary O&M issue related to aging infrastructure owned and operated by the City of Anniston. The damage to the cover system was minor and will not reduce the overall effectiveness of the cover. Most of the repairs will consist of sealing minor cracks, while a few isolated areas will require replacement of the concrete cover. The damage will be repaired and will not impact the long-term performance of the cover system. No physical enhancements are being proposed as part of the remedial alternatives for this previously implemented removal action project as the current cover system is effective at isolating the remaining PCBs beneath the cap.

The PCB concentrations located outside of the cover system have been addressed as part of the nonresidential surface soil evaluations in the various EUs or IM areas.

41. ***Specific Comment 41: Section 4.4 Dredge Spoil Piles.*** *Seven (7) of the dredge spoil piles were sampled in 1999. A summary of the sample results should be provided if not in RI.*

DREDGE SPOIL PILE SOIL SAMPLING RESULTS

Pile Number	Sample ID	Sample Type	Aliquot Sample Depths (inches)	Total PCBs[1] (mg/kg)	Mercury (mg/kg)
SC-1	SC-1	composite	10,27,36,18,30	19.600	0.25
SC-3	SC-3	composite	30,24,18,15,18	24.900	0.20
SC-4	SC-4-1	composite	27,24,30,24,18	13.800	NA
	SC-4-2	composite	24,18,15,21,33	17.400	NA
SC-5	SC-5-1	composite	33,30,27,15,15	14.200	NA
	SC-5-2	composite	24,30,33,15,15	88.000	NA
SC-6	SC-6-1	composite	24,18,12,18,15	19.900	NA
	SC-6-2	composite	30,24,12,12,15	30.300	NA
SC-7	SC-7-1	grab	20	4.600	NA
	SC-7-2	grab	18	1.264	NA
	SC-7-3	grab	6-30	1.532	NA
	SC-7-4	grab	20	1.117	0.19
	SC-7-5	grab	24	0.520	NA
	SC-7-6	grab	15	5.280	NA
	SC-7-7	grab	27	1.680	NA
	SC-7-8	grab	18	1.500	NA
	SC-7-9	grab	24	19.000	NA
SC-8	SC-8-1	grab	9	1.170	0.27 [2]
	SC-8-2	grab	24	28.700	NA
	SC-8-3	grab	20	2.200	NA
	SC-8-4	grab	9	0.750	NA
	SC-8-5	grab	10	2.630	NA
	SC-8-6	grab	8	6.800	NA
	SC-8-7	Grab	6-30	14.000	NA
	SC-8-8	Grab	10	5.400	NA
	SC-8-9	Grab	6-30	9.900	NA
	SC-8-10	Grab	21	34.200	NA
	SC-8-11	Grab	28	46.000	NA
	SC-8-20	Grab	Dup SC-8-2	27.100	NA

NA = Not Analyzed

1. *Total PCBs by USEPA Method 846 8082 did not include Aroclor 1268.*

2. *Mercury sample for SC-8-1 taken at a depth of 12 inches.*

In 2012, the condition of the remaining dredge spoil piles was evaluated:

- *The remaining piles range in height from 3 to 7 feet and in areal extent from 225 square feet to 44,000 square feet.*
- *The remaining piles have a well-established vegetative cover comprised of trees, ivy, vines, weeds, brush, brier or kudzu.*
- *A non-woven geotextile was also observed at SC-1. Evidence of creek bank erosion was observed along the four remaining Snow Creek dredge spoil piles, and some minor slumping was observed at SC-2 on the west bank.*
- *The widths of dredge spoil SC-7 and SC-8 were smaller than the initial investigation which occurred in September 1998. Field measurements indicated that SC-7 had an initial width*

of 40 feet in 1998 and in 2012 had a width of 30 feet. SC- 8 had an initial width of 80 feet in 1998 and in 2012 had a width of 70 feet.

All of this information should be considered when evaluating the dredge spoil piles and what alternatives are proposed. The fact that SC7 and SC-8 have decreased in size implies they are not stable.

Response to Specific Comment 41

All of the data for the eight dredge spoil piles that are or were located in OU-1/OU-2 are presented in Appendix A-36 to the OU-1/OU-2 RI report. The data for the four remaining dredge spoil piles are presented on Figures 4-12a and 4-12b. The alternatives for dredge spoil piles that remove all four of the remaining dredge spoil piles are included in the OU-1/OU-2 FS. Dredge spoil pile SC-8 is a candidate remedial area as the nonresidential PRG for PCBs is exceeded. Dredge spoil pile SC-2 will be characterized to confirm that the PRG is not exceeded and will be removed if it does. The stability of the remaining dredge spoil piles will be assessed as part of alternatives DSP-2 and DSP-3, and the dredge spoil piles will be stabilized if needed. Two additional remedial alternatives, DSP-4 and DSP-5 were added to the OU-1/OU-2 FS and include removing all four dredge spoil piles.

42. Specific Comment 42: Section 4.5.1 Surface Soils, page 4-23*. The second paragraph is confusing. The opening sentence states: The only non-PCB constituent that exceed the surface soil PRG was PAHs. However, later on in the paragraph, there is a discussion that the chromium PRG was exceeded in two samples and the PCDD/DFs PRG was exceeded in one sample. Table 4-1 should include all areas where remediation is needed to reach the PRGs, even if Solutia does not accept responsibility for their cleanup.*

Provide more discussion about the alternative concentrations evaluated and the EUs/acreage impacted. Additionally, although OU2 sampling was not conducted outside of the floodplain, some non-residential and non-special use sampling exists from previous studies. That is how the area west of EU1 was discovered. Can we make statements from the data that help make a case for OU2 sampling not extending outside the floodplain? I think a look at where the cleanups are needed supports that conclusion. If there is anything else the data supports, this might be a place to discuss it.

Response to Specific Comment 42:

None of the individual subsurface sample results exceeded the subsurface PRGs for the non-PCB constituents. None of the surface soil samples exceeded the PRG for arsenic. The two locations in EU24 where chromium exceeds the surface soil PRG have been identified as candidate remedial areas in the OU-1/OU-2 FS. The three individual samples where PAHs (as BaPE) exceed the PRG were also identified as candidate remedial areas. Two of the three sample locations are addressed by a single candidate remedial area given their close proximity. The other candidate remedial area for PAHs (as BaPE) is located in EU14N. There was one exceedance of the PCDD/DF PRG in EU24 that is also addressed as a candidate remedial area.

Additional information regarding the nonresidential areas using the alternative PRG of 9 mg/kg has been included in Section 4.6.1.

A review of the data for OU-1/OU-2 did not identify PCBs above the nonresidential PRG except for the area located to the west of EU1 that is being addressed under the OU-1/OU-2 FS and one isolated industrial property that is located outside of the 100-year floodplain.

43. Specific Comment 43: Section 4.5.1.2 EU7*. Figure 4-14c should be Figure 4-13c.*

Response to Specific Comment 43:

The text now reflects that the figure for EU7 is provided as Figure 4-17c.

44. Specific Comment 44: Section 4.5.1.8 West of EU1. *What is the basis for the statement: For leaching to groundwater to exceed MCL, a high proportion of the overall mass of PCBs for the sample would need to be associated with the lower chlorinated PCB Aroclor mixtures. Is this conclusion based on empirical data from the groundwater studies conducted in the area? Id depth sampling needed to confirm the assessment?*

Response to Specific Comment 44:

The leaching to groundwater criteria discussed in the comment above was initially postulated by and was subsequently developed cooperatively with USEPA's hydrogeologist Ms. Kay Wischkaemper. The initial OU-1/OU-2 groundwater investigations involved installing and sampling four wells on the Northside Properties (T-8, T-9, T-10, and T-12) and one well on a property in EU-5 (T-11). The Northside Properties was known to have impacted soil managed under engineered cover systems. Consequently, two wells (T-8 and T-12) were installed in the vicinity of an HDPE cover system that contained soil with PCB concentrations greater than 500 mg/kg. The groundwater samples from T-8 and T-12 were either less than the detection limit or detected below the MCL for PCBs. However, the groundwater concentrations measured at T-11 was above the MCL for PCBs. After examining the soil and groundwater data from the vicinity of T-8 and T-12 and comparing that data to the soil and groundwater data in the vicinity of T-11, the USEPA noted that soil samples collected at the T-11 location had a unique mixture of Aroclors, which included lower chlorinated Aroclors (Aroclor 1232), and soil samples collected from the vicinity of T-8 and T-12 only included the higher chlorinated Aroclors (such as Aroclor 1254 and Aroclor 1260). Based on this analysis, the USEPA together with P/S developed the conceptual model that the leachability of PCBs in soil to groundwater is dependent on the presence of lower chlorinated PCB Aroclors. This hypothesis is supported by scientific research as it is well known that the aqueous solubility of Aroclors decreases with increasing chlorination. For the Site, several subsequent investigations were conducted to evaluate this hypothesis. No other sample locations within OU-1/OU-2 had soil results indicating PCBs with Aroclor 1232 (or lower chlorinated Aroclors) nor did any of the additional wells installed have groundwater PCB concentrations above the MCL.

45. Specific Comment 45: Section 4.5.2 Subsurface Soils. *The PCB UCL for subsurface soil in EU 5 and 19 exceed the subsurface soil PRG and should be considered candidates for remedial action, even if the remedial action id residual management. Soil can be a PTW based on toxicity. PCBs soils greater than 97 mg/kg meet that definition for construction workers. Also, some concern about soils with PCB concentrations greater than 50 mg/kg are of concern under TSCA if on properties not controlled by S/P.*

Response to Specific Comment 45:

The OU-1/OU-2 FS has been revised to address all surface soils with PCB concentrations greater than 50 mg/kg. As noted in the response to specific comment no. 3, all locations with subsurface soil PCB concentrations greater than or equal to the subsurface PRG of 97 mg/kg are also addressed under the revised OU-1/OU-2 FS. The evaluation of potential PTW now includes both mobility and toxicity as noted in the response to specific comment no. 5.

46. Specific Comment 46: Section 4.7 Sediment and Creek Banks. *It is clear here that banks with concentrations above the sediment PRG are candidate remedial areas. Both concentrations considered for sediment should be protective for recreational child exposure, which has been a question from the community. Provide more discussion about the alternative concentration evaluated and the areas of sediment and banks impacted.*

Response to Specific Comment 46:

As described in response to specific comment no. 18, the nonresidential surface soil PRG applies to creek bank areas and is protective of recreational exposure. The sediment PRG applies to sediment and creek bank areas that are unstable and have PCB-containing creek bank soils above this threshold. The sediment PRG was developed for ecological purposes and is also protective recreational exposure. Additional discussion of the volumes and costs associated with the alternative PRG is presented in Section 7.9 of the OU-1/OU-2 FS.

47. Specific Comment 47: Section 5.2.7 Off-site Disposal and Soil Management. *This seems like an odd location to put information specific to the cleanup. This section was initially for a discussion of general response action and remedial technologies, not specifics about the site. If a discussion about the soil management areas in included, it should include the history behind the soil management areas and why they were constructed. The soil management areas themselves should be evaluated in the document. Why is it appropriate to allow disposal of PCB remediation waste in an area not governed by state landfill regulations (RCRA subtitle D). The logic for the residential soils can be provided, but why should that logic hold for soils in non-residential areas. The impacts from contaminants other than lead are certainly greater in non-residential soils. Subtitle D landfills offer more protection because they are lined. There will be a great deal of scrutiny about non-residential soils and sediment being disposed in soil management areas rather than landfills. It is a different disposal scenario and should not be hidden away in the document, but discussed in a transparent fashion. Disposing of residential soils with PCBs composite sample concentrations less than 10 mg/kg are not the same as disposing of non-residential soils with PCB grab sample concentrations less than 50 mg/kg.*

Response to Specific Comment 47:

As described in the response to general comment no. 1, the revised text provided in Section 5.2.7 clarifies that the request to use on-site soil management is new and that prior approvals for the use of a soil management area do not carry forward to materials from the nonresidential and special use area portions of OU-1/OU-2.

48. Specific Comment 48: Section 5.3 Evaluation of Remedial Technologies for Floodplain Soils*. Explain why these technologies are evaluated only for non-residential surface soils? Are they really applicable to all soils? Is the assumption that other contaminants have small volumes and the only technologies that need to be evaluated are for PCBs? The section is confusing. A discussion of soil management, ICs, and O&M seem out of place here. There should be alternatives that look to reduce or eliminate soil management, ICs, and O&M.*

Response to Specific Comment 48:

The nonresidential soils are the only excavated materials that would have sufficient volume to warrant consideration of a treatment technology (other than groundwater). PCBs are the primary COPCs for the site, and the presence of other constituents in addition to PCBs is not likely to influence disposal options with the exception of the UWDAs that may require treatment with stabilization before disposal in an off-site landfill. The on-site and off-site treatment approaches included for nonresidential soils in the OU-1/OU-2 FS include

combinations of low temperature thermal desorption and off-site incineration. Both treatment approaches would include control technologies in the event other constituents such as volatile metals (e.g., arsenic, lead, and/or mercury) were present in the nonresidential soils.

The discussion of options for managing in-place soils is appropriate given the range of general response actions and remedial technologies evaluated in Tables 5-1 and 5-2. Section 5.3 focuses on the range of remedial technologies that will be used to develop and screen the range of remedial alternatives in Section 6. The technology evaluation process should not bias the range of technologies considered.

49. Specific Comment 49: Section 6 Screening of Remedial Alternatives. *Add UWDA category and alternative in Attachment A. The soil management plan in Appendix D should be referred to as a conceptual plan. If soil management is a component of the selected remedy, the plan would need to be reviewed and approved.*

Response to Specific Comment 49:

The OU-1/OU-2 FS has been revised to include UWDAs as a separate category of remedial alternative. References to the soil management plan throughout the FS, the attached version of the plan, have been revised to refer to this document as a Conceptual Soil Management Plan.

50. Specific Comment 50: Section 7.1 Evaluation Criteria. *Please note that complying with ARARs can be achieved through attainment or a waiver.*

As mentioned before, it would be appropriate to also make a calculation using a lower discount rate and a longer time to implement. (See OSWER Directive 9355.0-75. The blanket use of 30 years is not appropriate as discussed on page 4-2. The circumstances when it is appropriate to consider an alternate discount rates is on page 4-5.

Response to Specific Comment 50:

The notation that ARARs can be met through attainment or a waiver was added to Section 7.1. New cost estimate summary tables (Table 8-3a and 8-3b) was revised to include estimated costs using an alternative discount rate of 0%, 3%, and 7% using durations of 30 years (Table 8-3a) and 60 years (Table 8-3b). The costs for the comparative analysis presented on Table 8-2 are based on a discount rate of 7% for a 30-year period consistent with the RI/FS guidance. The costs presented in Tables 8-3a and 8-3b show the effect of the time value of money with the varying discount rates and that the incremental net present costs beyond a 30-year time window are quite low. While the guidance provided in OSWER Directive 9355.0-75 indicates that estimates for timeframes longer than 30 years can be developed when the timeframes are known, that is not the case for many of these remedial alternatives. Hence, the results of the proposed evaluation would add little value to the USEPA remedy selection process.

51. Specific Comment 51: Section 7.2 Residential Properties*. The Ashley and Legrande discussion should be removed. See Attachment A for all alternatives needed in this category. It is not clear why 7.2.1.2 through 7.2.1.7 are needed, since the first threshold criteria was not met. Is it anticipated in the remedy and the costs that residual PCBs will remain on the properties in perpetuity or does the remedy anticipate there will be a time when all waste has been removed? Please include timeframe for completion of activities.*

Response to Specific Comment 51:

The Ashley and Legrande Site has been deleted from the analysis of alternatives for residential properties and is now included as a UWDA. The residential alternatives presented in the OU-1/OU-2 FS have been revised to be consistent with the alternatives presented in Attachment A to the USEPA comment letter dated February 1, 2016.

Residual PCBs not removed as part of the remedy will remain on these properties in perpetuity unless later addressed through soil management activities. The text and associated cost tables have been updated to clarify this timeframe.

The approach for conducting the detailed analysis and comparative analysis of remedial alternatives in the OU-1/OU-2 FS includes the nine detailed evaluation criteria presented in the National Contingency Plan (NCP). The approach includes conducting the evaluations with all nine criteria based on the requirements of the NCP and the *Guidance for Conducting Remedial Investigation/Feasibility Studies Under CERCLA,* EPA/540/G-89/004OSWER Directive 9355.3-01October 1988 (RI/FS Guidance). The first threshold criterion is overall protection of human health and the environment. This criterion must be met for an alternative to be viable. However, evaluating this first threshold criterion is based on the alternative's collective performance with the other eight detailed evaluation criteria. As such, these other criteria must first be evaluated before this overarching criterion can be considered. The following text is from Section 6.2.3.1 of the RI/FS Guidance and discusses the evaluation of overall protection of human health and the environment: "This evaluation criterion provides a final check to assess whether each alternative provides adequate protection of human health and the environment. The overall assessment of protection draws on the assessments conducted under other evaluation criteria, especially long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs." Based on the requirements of the NCP and the RI/FS Guidance, the residential no action alternative and the other no action alternatives in the OU-1/OU-2 FS were evaluated using all nine of the detailed evaluation criteria.

52. Specific Comment 52: Section 7.3 Special Use Properties. *See Attachment A for all alternatives needed in this category. The NTC Removal and Stipulation cannot be used to determine that no further action is needed. The low activity areas have not been addressed and residuals remain on some properties. It is not clear why 7.3.1.2 through 7.3.1.7 are needed, since the first threshold criteria was not met. Is it anticipated in the remedy and the costs that residual PCBs will remain on the properties in perpetuity or does the remedy anticipate there will be a time when all waste has been removed? ? Please include timeframe for completion of activities.*

Response to Specific Comment 52:

The remedial alternatives for special use properties have been revised and are consistent with the alternatives presented in Attachment A to the USEPA comment letter dated February 1, 2016. Residual PCBs not removed as part of the remedy will remain on these properties in perpetuity unless later addressed through soil management activities. The text and associated cost tables have been updated to clarify this timeframe. Consistent with the response to specific comment no. 51, the no action alternative for special use properties was evaluated using the nine detailed evaluation criteria identified in the NCP.

53. Specific Comment 53: Section 7.4 Interim Measure Areas. *See Attachment A for all alternatives needed in this category. It is not clear why 7.4.1.2 through 7.4.1.7 are needed, since the first threshold criteria was not met. ? Please include timeframe for completion of activities.*

Response to Specific Comment 53:

The remedial alternatives for the IM areas have been revised and are consistent with the alternatives presented in Attachment A to the USEPA comment letter dated February 1, 2016. Residual PCBs not removed as part of the remedy will remain on these properties in perpetuity. The text and associated cost tables have been updated to clarify this timeframe. Consistent with the response to specific comment no. 51, the no action alternative for IM alternatives was evaluated using the nine detailed evaluation criteria identified in the NCP.

54. Specific Comment 54: Section 7.5 Dredge Spoil Piles. *Note that proposed onsite disposal is a new disposal than previously approved for residential soils. See Attachment A for all alternatives needed in this category. It is not clear why 7.5.1.2 through 7.5.1.7 are needed, since the first threshold criteria was not met. Is it anticipated in the remedy and the costs that residual PCBs will remain on the properties in perpetuity or does the remedy anticipate there will be a time when all remediation waste has been removed?*

Response to Specific Comment 54:

Section 5.2.7 and Section 7.5 were revise to emphasize that on-site disposal would require approvals independent from the previous approvals for residential removals. The specific changes to Section 5.2.7 are presented in the response to general comment no. 1.

Sections 4, 7, and 8 are updated to include the additional alternatives requested by USEPA in Attachment A to the comments dated February 1, 2016. The remedial alternatives for the dredge spoil piles anticipate removing the dredge spoil pile with PCB concentration that exceed the nonresidential PRG (SC-8), characterize the one dredge spoil pile that has yet to be sampled (SC-2), and making sure that the dredge spoil piles that remain are stable. A 12-inch layer of floodplain soils beneath the dredge spoil pile that is removed would be excavated and disposed of and the residuals would be managed as nonresidential soils. That is, the remedy selected for the nonresidential soils, including soil management would be applicable to the dredge spoil pile areas following their removal or stabilization.

Consistent with the response to specific comment no. 51, the no action alternative for the dredge spoil piles was evaluated using the nine detailed evaluation criteria identified in the NCP.

55. Specific Comment 55: Section 7.6 Non-residential Soils. *Note that proposed onsite disposal is a new disposal than previously approved for residential soils. See Attachment A for all alternatives needed in this category. It is not clear why 7.6.1.2 through 7.6.1.7 are needed, since the first threshold criteria was not met. Is it anticipated in the remedy and the costs that residual PCBs will remain on the properties in perpetuity or does the remedy anticipate there will be a time when all waste has been removed? Please include timeframe for completion of activities. Discuss alternative concentrations in more detail.*

Response to Specific Comment 55:

Throughout the OU-1/OU-2 FS, it is clarified that on-site disposal through an on-site soil management area would require approvals in addition to those already in place for the

residential and special use property soils. Consistent with Attachment A to the USEPA comments dated February 1, 2016, Alternative NRS-6 is added for the on-site treatment (low temperature thermal desorption) of soils with off-site incineration of the PCB-containing oils generated by the desorption process. Alternative NRS-7 was not necessary, as a remedial alternative for subsurface soils is not required. As described in response to specific comment no. 3, there are no locations where the subsurface PRGs are exceeded that are not already addressed by the range of alternatives considered in the OU-1/OU-2 FS including groundwater at T-11 (located in eastern portion of EU5), the UWDA located in the southeastern portion of EU10, and nonresidential surface soils in EU19N.

Consistent with the response to specific comment no. 51, the no action alternative for nonresidential soil was evaluated using the nine detailed evaluation criteria identified in the NCP.

56. ***Specific Comment 56: Section 7.7 Groundwater and PTW at T-11.*** *See Attachment A for all alternatives needed in this category. It is not clear why 7.7.1.2 through 7.7.1.7 are needed, since the first threshold criteria was not met. Is it anticipated in the remedy and the costs that residual PCBs will remain on the properties in perpetuity or does the remedy anticipate there will be a time when all waste has been removed?*

Response to Specific Comment 56:

The remedial alternatives for groundwater and PTW at T-11 have been revised and are consistent with the alternatives presented in Attachment A to the USEPA comment letter dated February 1, 2016. Residual PCBs not removed as part of the remedy for the T-11 area will remain on the property in perpetuity. The text and associated cost tables have been updated to clarify this timeframe.

Consistent with the response to specific comment no. 51, the no action alternative for groundwater at T-11 was evaluated using the nine detailed evaluation criteria identified in the NCP.

57. ***Specific Comment 57: Section 7.8 Sediment and Creek Banks.*** *See Attachment A for all alternatives needed in this category. It is not clear why 7.8.1.2 through 7.8.1.7 are needed, since the first threshold criteria was not met. Is it anticipated in the remedy and the costs that residual PCBs will remain on the properties in perpetuity or does the remedy anticipate there will be a time when all waste has been removed? Mention figures, volumes, and cost information for alternate PRG in Appendices. Provide more discussion*

Response to Specific Comment 57:

All of the alternatives identified for sediment in Attachment A of the USEPA comments dated February 1, 2016, were included in the OU-1/OU-2 FS. Consistent with the response to specific comment no. 51, the no action alternative for sediment and creek banks was evaluated using the nine detailed evaluation criteria identified in the NCP.

Additional information regarding the areas, volumes, and costs for the alternative PRGs is provided in the detailed analysis of alternatives. It is noted that PCBs will remain on-site for an extended period of time, yet the alternatives for sediment (other than no action) are designed to achieve the PRGs over time. Until the PRGs are met, monitoring will be conducted and evaluated during 5-year reviews.

58. Specific Comment 58: Tables 7-1 to 7-16, Cost estimate tables. *The assumption that one cubic yard of soil equals 1.5 tons seems high.*

Response to Specific Comment 58 (Tables 7-1 and 7-2):

The value of 1.5 tons per cubic yard is reasonable and was based on the mid-point value (111.5 pounds per cubic foot) for a range of well-graded loose sands with wet unit weights varying from 99 to 124 pounds per cubic foot. These wet unit weight data are presented in *Foundation Engineering, 1974 by Peck, R.B., Hansen, W.E. and Thornburn, T.H., and published by Wiley*.

59. Specific Comment 59: Tables 7-1 and 7-2. *Can the costs for soil excavation be broken down further? The cost ($135/yd and $148/yd) seems to be very high.*

Response to Specific Comment 59:

The cost of soil excavation for residential and special use properties as included in Tables 7-1 and 7-2 of the December 2015 version of the OU-1/OU-2 FS includes preparing the properties for excavation, implementing health and safety measures, installing erosion controls as necessary, excavating the impacted soil, hauling the impacted material to the SSSMA, and restoring the area. The only additional cost that are separately itemized include the cost for hauling and disposing of impacted material that must go off-site for disposal and the cost for importing and placing backfill. The potential off-site disposal options include either a Subtitle D landfill or a hazardous waste landfill. Historically, P/S have tracked the cost for conducting removals on residential and special use properties based on the square footage of removal area addressed (for a 1-foot depth). This work has been conducted for the past 15 years using this fixed unit rate approach (dollars per square foot of removal). There is a substantial amount of cost tracking data that support the unit rates used in preparing the OU-1/OU-2 FS cost estimates.

60. Specific Comment 60: Table 7-14, 7-15, and 7-16. *Can the costs for sediment excavation be broken down further? The combined cost to excavate/dewater/stabilize sediment of $320/yd seems high. Identify the PRGs on Table 7-14 and 7-15.*

Response to Specific Comment 60:

The costs for sediment excavation were $210 per cubic yard. The costs for sediment dewatering and stabilization were $110 per cubic yards. These costs were developed based on the volume of sediment to be excavated, the personnel necessary to implement the work, the type and number of equipment, work hours per day, and the projected sediment removal rate (cubic yards/day) and are representative of this type of work.

The sediment-related PRGs were added to Tables 7-24, 7-25, and 7-26 for alternatives SED-2, SED-3, and SED-4, respectively.