ARF-023668

Department of Energy
Savannah River Operations Office
P.O. Box A
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APR 21 2022

Ms. Susan B. Fulmer, P.G., Manager
Federal Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Mr. Jon Richards
Savannah River Site Remedial Project Manager
Superfund Division
U. S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the Early Construction and Operational Disposal Site N-1 (NBN), Central Shops Scrap Lumber Pile (631-2G), and Building 690-N, Process Heat Exchanger Repair Facility (aka Ford Building) Operable Unit (U) (SRNS-RP-2021-00548, April 2022, Revision 1 Redline) and Savannah River Site's Responses to the Regulatory Comments on the Revision 0 Document, SEMS Number: 93

In accordance with the terms of the Federal Facility Agreement, the U. S. Department of Energy is submitting the subject information for your review. The South Carolina Department of Health and Environmental Control's (SCDHEC) and the U. S. Environmental Protection Agency's (EPA) comments on the Revision 0 document were received on January 20, 2022 and January 24, 2022, respectively. The Savannah River Site's final responses, redline pages of the main body of the document along with appendices B, C, and D are included with this submittal. There were no redline changes to the other appendices. Please review the enclosures and provide your response within thirty (30) days of receipt. The effort and time that the EPA and SCDHEC have given on the subject operable unit are greatly appreciated.

Questions from you or your staff may be directed to me at (803) 952-8365.

Sincerely,

Brian T. Hennessey

Digitally signed by Brian T. Hennessey
Date: 2022.04.13 10:46:19 -04'00'

Brian T. Hennessey
SRS Remedial Project Manager
Infrastructure and Area Completion Division

IACD-22-139

Enclosures:

1. Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the Early Construction and Operational Disposal Site N-1 (NBN), Central Shops Scrap Lumber Pile (631-2G), and Building 690-N, Process Heat Exchanger Repair Facility (aka Ford Building) Operable Unit (U) (SRNS-RP-2021-00548, April 2022, Revision 1 Redline) SEMS Number: 93
2. SRS Responses to South Carolina Department of Health and Environmental Control Comments on the Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the Early Construction and Operational Disposal Site N-1 (NBN), Central Shops Scrap Lumber Pile (631-2G), and Building 690-N, Process Heat Exchanger Repair Facility (aka Ford Building) Operable Unit (U) (SRNS-RP-2021-00548, October 2021, Revision 0) SEMS Number: 93
3. SRS Responses to EPA Comments on the Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the Early Construction and Operational Disposal Site N-1 (NBN), Central Shops Scrap Lumber Pile (631-2G), and Building 690-N, Process Heat Exchanger Repair Facility (aka Ford Building) Operable Unit (U) (SRNS-RP-2021-00548, October 2021, Revision 0) SEMS Number: 93

cc w/o encl:
J. Blalock, SCDHEC-Columbia
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R. H. Pope, EPA-Atlanta

cc w/encl:
M. McRae, TechLaw, Inc

Comments Received January 24, 2022

Note: SRS is providing herein supplemental information for the Ford Building subunit to be added to the subject document. The information is provided after the regulatory comments and responses below.

GENERAL COMMENT

1. It is unclear why the engineered concrete cover installed over the Ford Building remnant slab was not identified as a containment response action component to land use controls (LUCs) in remedial Alternative C-2. As noted in Section 5.3.6.2 (Alternative C-2: Land Use Controls) Page 5-36 of 5-70, LUCs would include operations and maintenance (O&M) costs for the concrete cover installed over the Ford Building remnant slab where polychlorinated biphenyls (PCBs) (i.e., Aroclors 1254 and 1260) and cesium-137 plus daughters (+D) previously presented an unacceptable risk to human health. LUCs would also include annual inspections and required maintenance to maintain the integrity of the existing concrete cover system. The text further states the cover system must remain in place to be protective of the industrial worker and/or future resident, and Five-year remedy review would be required. As such, it appears the engineered cover system is an integral component of the remedial alternative C-2, particularly since it is necessary to achieve the remedial action objective (RAO) to "Prevent residential and industrial exposure to PCBs and cesium-137 at the Ford Building remnant slab that exceed 1E-06 risk and PCB applicable, relevant and appropriate requirement (ARAR) of 1 milligram per kilogram (mg/kg) for free release." As such, the concrete cover should be considered as a remedy component in the Corrective Measures Study/Feasibility Study (CMS/FS) for the Ford Building subunit and included in the preferred remedial alternative(s) that will be presented in the Statement of Basis/Proposed Plan made available for public review. According to the Resource Conservation and Recovery Act Facility Investigation/Remedial Investigation Report with Baseline Risk Assessment and Corrective Measures Study/Feasibility Study for the Early Construction and Operational Disposal Site (ECODS) N-1 (NBN), Central Shops Scrap Lumber Pile (CSSLP) (631-2G), and Building 690-N, Process Heat Exchanger Repair Facility (aka Ford Building) Operable Unit (OU) (U), SEMS Number: 93, SRNS-RP-2021-00548, Revision 0, October 2021 (the Report), the post-decommissioning facility remnants (including the building slab) will be closed as part of the ECODS N-1, CSSLP, and Ford Building OU (see Appendix B, Contaminant Fate and Transport, Page B-11 of B-64). *Please revise the Report to include the engineered concrete cap as a containment response action component to include land use controls (LUCs) in remedial Alternative C-2.*

   Response: Clarification.

   Although the engineered concrete cover over the Ford Building remnant slab does act as a form of containment with respect to the hazardous and radioactive contamination left in place it is considered the baseline condition at this subunit, as the decommissioned end state of the structure included the engineered concrete cover; it was in place when the remedial investigation began. The RAOs are achieved through the continued

maintenance of the cover rather than with the installation of a new cover system. Therefore, Alternative C-2 should not include the concrete cover as a containment response action; rather, only maintenance of the existing cap is necessary. No changes to the text are proposed.

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

SPECIFIC COMMENTS

1. **Executive Summary, Page ES-1 & ES-2 and Section 1.3.2, Central Shops Scrap Lumber Pile (631-2G), Page 1-5 of 1-18:** The timeframe reported for the burning of treated lumber and creosote-treated wood at the CSSLP subunit is unclear. For example, the text in the Executive Summary states the CSSLP burning area remained active until the mid-2000s; however, the last sentence on Page ES-1 states burning operations at the CSSLP were limited to untreated wood products some-time prior to 1998. Additionally, the text in Section 1.3.2 states that sometime after the closure of the Central Shops Burning/Rubble Pits (CSBRP) in 1985 burning operations at the CSSLP were limited to untreated wood products. *Please revise the text to provide a consistent timeframe for when burning of treated lumber and creosote-treated wood took place at the CSSLP.*

   Response: Agree.

   Burning of treated lumber occurred between 1985 and 1998, but the exact date that the CSSLP stopped burning treated lumber is unknown Likewise, all burning operations stopped in the mid-2000s as stated in the ES and Section 1.3.2, but the exact date that the CSSLP stopped all burning operations is unknown. The text in the ES will be revised as follows:

   "Some time between 1985 and 1998, burning operations at the CSSLP were limited to untreated wood products such as shipping pallets, and the ash that was generated at the CSSLP was collected and disposed of off-unit at SRS. ~~Burning operations at the CSSLP were limited to untreated wood products some time prior to 1998, and the ash was collected and hauled to the Burma Road Landfill at SRS.~~"

   The text in section 1.3.2 will be revised as follows:

   "Some time ~~after the closure of the CSBRP~~ between 1985 and 1998, burning operations at the CSSLP were limited to untreated wood products~~,~~ such as shipping pallets, and the ash that was generated at the CSSLP was collected and disposed of off-unit at SRS."

   Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

2. **Figure 1-6, Ford Building 2020-2021, Page 1-16 of 1-18:** The Ford Building concrete cover/remnant slab is not identified on the figure. Additionally, a small green circle located just to the east of the assumed building slab has not been identified. *Please revise the figure*

to clearly identify the Ford Building concrete cover/remnant slab and the small green circle on the figure.

Response: Agree.

The Ford Building (690-N) concrete cover and small green circle will be identified in Figure 1-6. The small green circle is the location of a AROPOL spill (15 gal) in 1985 and closed by the Site Evaluation program in 1998. The revised Figure 1-6 is attached.

Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

3. **Section 2.1.2, Surface Features, Page 2-3 of 2-24:** A topographic map is not presented to support the assertions in the text that the Ford Building subunit is located on a topographic ridge between the Pen Branch and Fourmile Branch watersheds. For example, the text states the Ford Building is in the southeastern portion of the Central Shops Area on a topographic ridge between Pen Branch and Fourmile Branch with the surface elevation and the land gently sloping radially downgradient from the Ford Building. The text references Figure 2-2 (Central Shops [N Area] Surface Water Run-Off, Page 2-12 of 2-24]); however, no topographic contours of the ground surface elevation are depicted. *Please revise the Report to include a figure with topographic contours illustrating the groundwater surface elevation and topographic ridge between Pen Branch and Fourmile Branch.*

   Response: Agree.

   Figure 1-1 shows the watershed boundaries and the water table contours. The land surface contours will be added to Figure 2-2. The revised Figure 2-2 is attached.

   Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

4. **Section 2.2.1 Geology, Page 2-4 of 2-24:** The text incorrectly references Figure 2-2 (Central Shops [N Area] Surface Water Run-Off, Page 2-12 of 2-24]) as depicting the shallow geologic units associated with the ECODS N-1, CSSLP, and Ford Building OU. The shallow geologic units associated with the ECODS N-1, CSSLP, and Ford Building OU are depicted in Figure 2-3 (Lithostratigraphic and Hydrostratigraphic Unit Comparisons, Page 2-13 of 2-24). *Please revise the text to reference Figure 2-3 (Lithostratigraphic and Hydrostratigraphic Unit Comparisons) Page 2-13 of 2-24.*

   Response: Agree.

   The figure callout will be corrected to Figure 2-3 in the text.

   Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

5. **Section 2.2.2, Groundwater Hydrogeology, Page 2-5 of 2-24:** The text incorrectly references Figure 2-2 (Central Shops [N Area] Surface Water Run-Off, Page 2-12 of 2-24]) as depicting the Floridan Aquifer System consisting of, in ascending order, Gordon Aquifer,

the Gordon Confining Unit and the Upper Three Runs. *Please revise the text to reference Figure 2-3 (Lithostratigraphic and Hydrostratigraphic Unit Comparisons).*

Response: Agree.

The figure callout will be corrected to Figure 2-3 in the text.

Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

6. **Section 2.3.3, Secondary Sources of Contamination and Section 2.3.5 Exposure Media, Page 2-9 of 2-24:** It is unclear why contaminated concrete was not included in these sections. For example, the Report (i.e. last bullet of the Executive Summary, Page ES-2 of ES-6) indicates at the Ford Building subunit, PCBs (i.e., Aroclors 1254 and 1260) and cesium-137(+D) previously presented an unacceptable risk to human health at the Ford Building remnant slab prior to placement of the engineered concrete cover. Additionally, the last sentence of Section 2.3.1 (Primary Sources of Contamination) states the primary sources of contamination for the Ford Building subunit are primarily associated with the remnant building slab. *Please revise the Report to clarify why PCB and cesium-137 contaminated concrete was not discussed as a secondary source of contamination.*

   Response: Agree.

   The purpose of the CSM is to show the potential exposure pathways of concern that will be evaluated in the risk assessment. The Ford Building remnant slab was not shown on the figure because the engineered concrete cover breaks the pathways of concern and there is no exposure to the remnant slab under the current configuration. Spills or releases from the slab (including PCB and Cs-137) to the surrounding soils is a potentially complete exposure pathway that is evaluated in the risk assessment. The text in Section 2.3 Conceptual Site Model will be revised as follows:

   1st paragraph:

   "The CSM is an objective framework for assessing data pertinent to the investigation. The preliminary CSMs for the ECODS N 1, CSSLP, and Ford Building OU (Figures 2-5 through 2-7) identify and evaluate suspected sources of contamination, contaminant release mechanisms, potentially affected media (secondary sources of contamination), potential exposure pathways, and potential human and ecological receptors <u>that are evaluated in the risk assessment</u>."

   The last sentence in Section 2.3.1 will be revised to clarify that the the primary sources of contamination for the Ford Building subunit associated with the remnant building slab are covered by an engineered concrete cover.

   "Polychlorinated biphenyls (PCBs [Aroclors]) from the early machinery, industrial contaminants<u>, expansion joint caulk containing PCBs,</u> and radionuclides from the heat exchangers comprise the primary sources of contamination for the Ford Building subunit

primarily associated with the remnant building slab and are covered by an engineered concrete cover."

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

7. **Section 2.3.6, Exposure Routes, Page 2-10:** The sections for receptors (Section 2.3.7, Receptors (Human and Ecological)) should be placed before the section on exposure routes. *Revise Section 2 to rearrange these sections.*

   Response: Clarification.

   The presentation of the text in Section 2.3 follows the progression of the major components of the CSMs from the left margin (primary sources of contamination) to the right margin (potential receptors). The exposure routes column is located before (to the left of) the potential receptors column in the figure and is presented before the potential receptors discussion in the text. No change to the document is proposed.

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

8. **Figure 2-4, Soil Series in the Central Shops (N Area), Page 2-15 of 2-24:** The soil types depicted in this figure are not easily identifiable. For example, the color coding used to define the different soil types depicted in the figure legend are too similar. *Please revise the figure to clearly depict soil types using colors that can be easily distinguished from one another.*

   Response: Agree.

   Figure 2-4 will be revised with a wider range of colors for the different soil types. The revised Figure 2-4 is attached.

   Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

9. **Section 3.2.2, Central Shops Scrap Lumber Pile (631-2G), Page 3-4:** It is uncertain why surface water was not collected at all four targeted locations at the Central Shops Scrap Lumber Pile (631-2G)(CSSLP) Surface Water Impoundment Area. This section states that surface water samples were collected at three of the four location within the CSSLP, but no justification is provided. *Revise this section to state why surface water samples were only collected from three of the four locations.*

   Response: Agree.

   Justification for the sampling discrepancy at the CSSLP (631-2G) Surface Water Impoundment Area as well as at the Carolina Bay #125 will be added to the text. Section 3.2.2 will be revised as follows:

   "Surface water samples were collected at three (3) of the four (4) locations within the CSSLP (631-2G) Surface Water Impoundment Area and one (1) of the ~~at all~~ three (3)

planned background locations from Carolina Bay #125. One (1) of the surface water locations at the CSSLP Surface Water Impoundment Area was not sampled due to the presence of significant safety hazards for the samplers at that specific location. At Carolina Bay #125, two (2) of the planned locations were dry, so the three (3) background samples were collected from a general area near location CB125-02, with each sample collected approximately one week apart. Two (2) samples (filtered and unfiltered) were collected at each sampled location for a total of ~~twelve (12)~~ six (6) surface water samples collected from the Surface Water Impoundment Area and six (6) surface water samples at the Carolina Bay #125."

Responsible Party: Steven Conner, (803) 952-8843, steven.conner@srs.gov

10. **Section 3.2.3, Ford Building, Page 3-6 of 3-42 and Section 3.9.2, Ford Building Subunit Characterization and Data Summary, Page 3-27 of 3-42:** The unit of measurement (i.e., picocuries per gram [pCi/g]) reported for the Aroclor 1254 maximum detection in concrete is incorrect. The correct unit of measurement for Aroclor 1254 results is reported in milligrams per kilograms (mg/kg). Additionally, the 5.5 mg/kg maximum detection in concrete reported for Aroclor 1254 is incorrect. The 5.5 mg/kg maximum detection in concrete result is for the PCB Aroclor 1260. *Please revise these sections to address the noted discrepancies in the text.*

    Response: Agree.

    In Section 3.2.3 and Section 3.9.2 the unit of measurement for Aroclor 1254 will be changed to mg/kg. Additionally, the concentration of 5.5 mg/kg will be associated with Aroclor 1260 as suggested.

    Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

11. **Section 3.9.2, Ford Building Subunit Characterization and Data Summary, Page 3-27 of 3-42:** The text does not indicate the concrete cover installed at the Ford Building remnant slab was also necessary due to unacceptable risk to human health due to cesium-137 (+D) exposure. For example, the text states an engineered concrete cover was installed over the entire Ford Building remnant slab area to prevent exposure to PCB contamination; however, no mention of unacceptable risk to human health due to cesium-137 (+D) exposure. *Please revise the text to indicate the engineered concrete cover was installed to prevent exposure to PCB and cesium 137(+D) contamination.*

    Response: Agree.

    The text in Section 3.9.2, 2nd paragraph, Ford Building Characterization and Data Summary, will be revised as follows:

    "…an engineered concrete cover was installed over the entire Ford Building remnant slab area to prevent exposure to PCBs and cesium-137 (+D) ~~contamination~~.

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

12. **Section 3.11, Applicable or Relevant and Appropriate Requirements Evaluation, Page 3-34 of 3-42:** The statement that the maximum detected PCB concentration was for Aroclor 1252 at 15 mg/kg is incorrect. The maximum detected PCB concentration of 15 mg/kg in concrete is for Aroclor 1254. *Please revise the text to address this discrepancy.*

    Response: Agree.

    The text in Section 3.11 will be revised. Aroclor 1252 will be corrected to Aroclor 1254 as suggested.

    Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

13. **Figure 3-3, ECODS N-1 Sample Locations, Page 3-37 of 3-42:** The figure is incorrectly titled as "ECODS N-1 Sample Locations". *Please revise the figure title to state "Ford Building Sample Locations".*

    Response: Agree.

    Figure 3-3 will be renamed as "Figure 3-3. ~~ECODS N-1~~ Ford Building Sample Locations".

    Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

14. **Figure 2-7 Preliminary Conceptual Site Model for the Ford Building, Page 2-19 of 2-24 and Figure 3-6 Revised Conceptual Site Model for the Ford Building Subunit, Page 3-41 of 3-42**: The human health remedial action objective (RAO) for subunit is to prevent residential and industrial exposure to PCBs and cesium-137 at the Ford Building remnant slab that exceed 1E-06 risk and the PCB ARAR of 1mg/kg for free release. However, these risk exposures are not documented on the preliminary conceptual site model (CSM) (Figure 2-7) or on the refined CSM (Figure 3-6). It is understood per Section 5.2.1 (Development of Alternatives) Page 5-8 of 5-70, that an engineered concrete cover was installed over the remnant slab thereby breaking the exposure pathway; however, this condition must be maintained in order to achieve the RAO. The text also states the concrete cover is the current baseline condition of the Ford Building subunit and the alternatives have been developed with this condition in place. *As such, for a clear understanding of the CSM please revise the CSM figures as necessary to document the concrete cover baseline condition.*

    Response: Agree.

    See response to comment #6. Figures 2-7 and 3-6 will be revised to include the remnant slab with the following footnote:

    "The Ford Building remnant slab had PCBs and Cs-137 that exceed 1E-06 industrial worker risk levels prior to completion of D&D activities. An engineered concrete cover

breaks the pathways of concern and there is no exposure under the current configuration. Therefore, the remnant slab is not considered in the risk assessment."

The revised Figure 2-7 is attached to these comment responses. Note that the changes are shown in red text. Figure 3-6 will be revised similarly.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

APPENDIX C – HUMAN HEALTH RISK ASSESSMENT – GENERAL COMMENTS

1. The conceptual site models (CSMs) shown in Figures 2-5, 2-6, and 2-7, for Early Construction and Operational Disposal Site (ECODS) N-1 (no building number [NBN]), Central Shops Scrap Lumber Pile (631-2G) (CSSLP), and Building 690-N, Process Heat Exchanger Repair Facility (also known as [aka] Ford Building) Operable Unit (OU) [ECODS N-1, CSSLP, and Ford Building OU], respectively, have several deficiencies, as follows:
   a. All three figures show a secondary release mechanism of Volatilization (from surface soil), followed by an exposure medium of "Air Vapor". While this might be a complete exposure pathway, it is conditional based on the presence of volatile constituents. To be wholly correct, a footnote should be provided to indicate that if volatile constituents are present, the inhalation pathway would be complete and quantitatively evaluated for industrial workers and residents. A novel shading or shape could also be used;

   Response: Clarification.

   As presented in Section 2.3.7, "Complete exposure pathways to potential human receptors and ecological receptors for evaluation in this document are included in the preliminary CSMs (Figures 2-5 through 2-7). The refined CSMs, which include the RCOCs, are included in Chapter 3." The preliminary CSMs (Ch.2) represent the potentially complete pathways to human and ecological receptors that will be evaluated in the risk assessment. The inhalation of volatiles is considered a potentially complete pathway at this stage of the process, pending analysis of the collected data. Characterization samples were obtained at all 3 subunits and analyzed for the complete suite of TCL and TAL constituents, including volatile organic compounds (VOCs). The revised CSMs presented in Chapter 3 identify the complete exposure pathways based on the results of the baseline risk assessment - the inhalation of volatiles pathway is shown as incomplete.

   No change to the preliminary CSM figures in Chapter 2 is proposed.

   b. The exposure route of "External Exposure" is too similar to "Dermal Contact" and should be relabeled as, "External Radiation Exposure" or footnoted to distinguish between the two;

   Response: Agree.

Figures 2-5, 2-6 and 2-7 will be revised to change the term "External Exposure" to "External Radiation". The same clarification will be made to the revised CSMs presented in Chapter 3 (Figures 3-4, 3-5 and 3-6). The revised Figure 2-7 is attached to these comment responses. Note that the changes are shown in red text. All of the CSM figures will be revised similarly.

c. The CSM for CSSLP (Figure 2-6) shows that surface water will be evaluated by comparison to Maximum Contaminant Levels (MCLs), however, the circle for Residential Receptors is open, indicating only a qualitative evaluation will be performed (and note that the text in the legends box is cut off by the border). First, comparison of media concentrations to an MCL is a quantitative evaluation, and secondly, there are other potentially complete exposure pathways related to domestic use of water besides ingestion, including dermal contact, and inhalation of vapors (if volatile constituents are present); and,

Response: Clarification.

In accordance with established Core Team agreements and recently approved baseline risk assessments at SRS (i.e., RI/BRA for the Lower Three Runs Integrator Operable Unit approved in 2017 and the RFI/RI/BRA for the G-Area Oil Seepage Basin approved in 2018), a formal risk calculation that evaluates the ingestion, dermal contact and inhalation pathway is not performed for surface water media. Instead, surface water is evaluated by a comparison to MCLs. In this instance, "qualitative evaluation" simply means a comparison (i.e., above or below) to the threshold value. Since a calculation is not performed, (and therefore not quantified), the comparison is considered qualitative for the purposes of the CSM. Specific details are provided in Appendix C, Human Health Risk Assessment.

No change to the CSM is proposed.

d. Subsurface soil (1-4 feet) represents a part of the soil horizon that could be accessed by both industrial workers and residents if the whole soil column is excavated. This is usually handled by calculating two exposure point concentrations (EPCs) for constituents of concern (COCs), one for the surface, and one for subsurface. However, all three CSMs show incomplete exposure pathways (shown as a dash) for subsurface soil pathways. As such, the designation, "Deep Soils (all depths)" shows a complete pathway for industrial workers only, and is counterintuitive; if subsurface soil is an incomplete pathway, then "Deep Soil (all depths)" should also be complete.

Response: Clarification.

In accordance with established Core Team agreements and recently approved baseline risk assessments at SRS (i.e., RI/BRA for the Lower Three Runs Integrator Operable Unit approved in 2017 and the RFI/RI/BRA for the G-Area Oil Seepage Basin approved in 2018), the human health risk assessment considers the 0-1 ft interval (only) for both

the hypothetical future resident and industrial worker scenarios, and the PTSM evaluation considers deep soil (all depths) for the industrial worker scenario. Although the 1-4 ft interval is not formally evaluated in the human health risk assessment, it is considered in the PTSM evaluation (all soil depths). The CSM simplistically represents the pathways/receptors that are evaluated in the baseline risk assessment as agreed to by the Core Team. Specific details are provided in Appendix C, Human Health Risk Assessment.

No change to the CSM figures is proposed.

Thus, revise the CSMs in Figures 2-5, 2-6, and 2-7 as follows: 1) provide either a footnote or new shading/shape to show that the volatilization pathway is conditional; 2) add "radiation" to the "External Exposure" route to distinguish between dermal contact of chemical constituents and radionuclides; 3) add Inhalation of vapors (also conditional, and designated as above) to the surface water-based pathways in Figure 2-6, and include filled circles for the Ingestion, Dermal Contact and External "Radiation" Exposure" pathways; and 3) include filled circles for all the subsurface pathways for both Industrial Workers and Residents, and a filled circle for Residents, for Deep Soil (all depths). Note that any additional pathways determined to be complete should also be included in the human health risk assessment (HHRA) calculations.

Response: Clarification.

The preliminary CSMs presented in this document are consistent with established Core Team methodologies/agreements and recently approved BRAs. The figures will be revised as indicated in the specific comment responses above.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

2. The baseline HHRA, contained in Appendix C, is insufficiently comprehensive. For example:
   a. The guidance document upon which this HHRA is predicated is not clearly stated. It appears, based on the tables prepared, that the guidance document used is the Department of Energy (DOE) guidance document called, *Environmental Compliance and Area Completion Projects Regulatory Document Handbook*, ERD-AG-003, Revision 17, June 2012, for the Savannah River Site (referred to herein as the SRS Guidance), which is intended to govern the preparation of site evaluation reports, including risk assessments, but this is not explicitly mentioned in text. Note that the DOE guidance is out of date with respect to current United States Environmental Protection Agency EPA risk assessment methodology;

Response: Clarification.

The HHRA was prepared in accordance with established Core Team methodologies/agreements and recently approved baseline risk assessments (i.e., RI/BRA for the Lower Three Runs Integrator Operable Unit approved in 2017 and the

RFI/RI/BRA for the G-Area Oil Seepage Basin approved in 2018). SRS acknowledges that the Regulatory Document Handbook is outdated and is planning for modification with input from the Core Team/Risk Assessment Design Team (RADT) in the FY 2022-2023 timeframe.

b. The calculation of EPCs with respect to how data are evaluated is not detailed. This includes the following:
   i. Although it is assumed that EPA's ProUCL v.5.1 was used to calculate the reasonable maximum exposure (RME) 95% upper confidence limit (UCL) on the arithmetic mean concentrations, it is not stated or referenced;

Response: Agree.

Explanation. Agree. Section C-1.2 Data will be revised as follows:

"…All data used in the HHRA for the ECODS N-1 are presented in Appendix A. The ProUCL (USEPA 2015) software package was used to calculate the 95% upper confidence limit (UCL) on the arithmetic mean that are presented in Appendix A. The data distribution and recommended 95%UCL as determined by ProUCL for each constituent are presented as footnotes to the tables in Appendix A. Non-detected constituent concentrations were processed in accordance with the ProUCL User's Guide. The Data Usability Reports (DURs) for the 2019 Pre-Workplan Characterization Samples and the 2020 Workplan Characterization Samples are presented in Appendix J. The reports provide an assessment of the precision, accuracy, representativeness, comparability, and completeness data quality indicators and measurement performance criteria. The DURs concluded that that the data quality objectives were met, and that the data is considered usable for the purposes of decision-making in the RI/BRA. In addition, the Site Evaluation Report for Early Construction and Operational Disposal Site (ECODS) N-1 (U) presents a Laboratory Quality Discussion (Section IV) and a Site Evaluation Validation Report (Section V) for the samples that were collected in 2001 (WSRC 2001)."

In addition, Section C-4 References will be revised as follows:

"USEPA, 2015. Statistical Software ProUCL v5.1 for Environmental Applications for Data Sets With and Without Nondetect Observations, United States Environmental Protection Agency"

"WSRC, 2001. Site Evaluation Report for Early Construction and Operational Disposal Site (ECODS) N-1, WSRC-RP-2001-4185, Revision 0, Westinghouse Savannah River Company, Savannah River Site, Aiken SC"

   ii. If ProUCL was used, the model outputs were not provided; and,

Response: Agree with clarification.

A reference to ProUCL including data distribution and recommended 95%UCL calculation is described in response 2.b.i above. Specific ProUCL model outputs were not provided consistent with other recently approved RI/BRAs.

iii. The manner in which non-detected constituent concentrations (i.e., NDs) and field duplicate samples were handled is not specified, and therefore, data sensitivity cannot be determined.

Response: Clarification.

See response 2.b.i above. Nondetects were handled in accordance with the ProUCL User's Guide; field and laboratory QA/QC samples (including field duplicate samples), were used to assess PARCC parameters and are documented in Appendix J.

c. The uncertainty evaluation provided for each COC is incomplete;

Response: Clarification.

The level of detail in the uncertainty evaluation is consistent with established methodologies approved by the Core Team as previously indicated.

No change to the document is proposed.

d. The specific Regional Screening Levels (RSLs) used to determine the COCs is not stated (i.e., carcinogenic risk of 10^{-6}/ hazard quotient of 0.1 or 10^{-6}/1.0).

Response: Agree.

The second paragraph in Section C-1.4 will be revised as follows:

"…The generic summary table includes RSLs for the resident and industrial worker that uses all default parameters for both the residential and industrial worker scenarios (Attachment C-1). <u>The RSLs are based on a carcinogenic risk = 1E-06 and/or a hazard quotient (HQ) = 1.0.</u> The RSL website was accessed in February 2021."

Suggest revising Appendix C as follows: 1) Clearly state which guidance document is being followed; 2) Add additional detail regarding the calculation of EPCs with respect to software reference/data handling procedures and provide ProUCL (or other software) output as an attachment; 3) Discuss uncertainties and respective biases in the context of the overall risk assessment, not by constituent, including potential deficiencies in sampling, data analysis, etc.; and 4) State which RSLs are being used for screening purposes.

Response: Agree/Clarification.

See above responses.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

3. It is uncertain how screening of concrete data was performed for samples collected from the Ford Building. According to the SRS Guidance, Page 2, although it is acknowledged that concrete is an impervious medium for which human health exposure is negligible, weathering could change the physical properties of concrete to allow for some exposure through the ingestion pathway. Further,

   "…The Risk Assessment Design Team determined that approximately 1/10th of the standard exposure of non-radiological constituents in soil would be a reasonable assumption for the available fraction of concrete due to weathering. This is considered a conservative approach since the ingestion, inhalation, and dermal contact pathways are all taken into consideration in the soil preliminary remedial goal (PRG) calculation. A value of ten times (10x) the soil PRG shall be used in the risk estimate of non-radiological constituents for concrete media."

   Section C-1.1.3 (Ford Building), discusses concrete and soil sampling and analysis at the Ford Building, and presents the human health screening results, but not the manner in which the screen was performed. *Revise this Appendix C section to include the screening method for the concrete samples and state the criteria against which the data were screened.*

   Response: Agree.

   Section C-1.1.3 Ford Building, 3rd paragraph will be revised as follows:

   "The HH screening evaluation for the Ford Building (690-N) concrete slab and underlying soils in support of the D&D strategy identified concrete with PCBs (Aroclor 1254, maximum detection in concrete = 15 ~~pCi/g~~mg/kg, residential risk = 6.3E-06, industrial worker risk = 1.5E-06; Aroclor 125~~4~~60 maximum detection in concrete = 5.5 ~~k~~gmg/kg, residential risk = 2.3E-06, industrial worker risk < 1E-06) and cesium-137 (maximum detection in concrete = 1.75 pCi/g, residential risk = 2.8E-05, industrial worker risk = 1.7E-05) at levels that warrant concern with respect to human health (SRNS 2019b). For concrete media, maximum detected concentrations were used as the EPC to conservatively calculate risk/hazard. The sources of the threshold values used in the evaluation include the USEPA Surface PRGs (SPRGs) for Outdoor Surfaces (USEPA 2011) for radionuclides and ten times (10x) the soil RSLs (USEPA 2014) for nonradionuclides. No HH COCs were identified for underlying soils. No contaminant migration (CM) COCs were identified as part of the evaluation for the Ford Building (690-N) concrete slab and underlying soils in support of the D&D strategy."

   In addition, Section C-4 References will be revised as follows:

   "USEPA, 2011. USEPA Surface Preliminary Remediation Goals for Radionuclides website, United States Environmental Protection Agency, http://epa-prg-ornl.gov/radionuclides/, Website accessed June 9, 2014"

"USEPA, 2014. USEPA Regional Screening Levels website, United States Environmental Protection Agency, (May) http://epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm, Website accessed June 9, 2014."

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

4. There are two potential exposure pathways that were omitted without justification. First, as described in Section C-1.4 (Sources of Risk-Based Threshold Values, Page C-17), fruit and vegetable consumption pathways were removed from the residential exposure scenario being evaluated in this HHRA. Secondly, because "Air Vapor" is shown as a potential exposure medium on all the CSMs, as discussed previously, it is uncertain why residential vapor intrusion (VI) is not mentioned, even if it is incomplete by virtue of the non-volatile COCs present in site media. *Revise Appendix C to include justification for not including produce consumption and discuss why VI is or isn't an exposure pathway of concern.*

   Response: Clarification.

   Per previous Core Team streamlining agreements (RADT 3/23/2005), the homegrown produce pathway is not considered in the risk assessment because of document streamlining initiatives and uncertainties associated with biouptake factors. Also note that in contrast to the PRG website, the RSL website for nonradionuclides does not consider, or offer as an option, the consumption of homegrown fruits and vegetables for any receptor scenarios.

   The inhalation of air vapors pathway is included in the total RSL threshold used in the quantitative risk assessment as described in response to Comment 1.a. The potential for vapor intrusion to the inside of a building, whether existing or planned, may be real if VOCs are present in the soil or groundwater that are problems warranting action. Per previous Core Team agreements, an evaluation of indoor air quality will be conducted prior to construction of any inhabitable buildings if VOCs are a problem warranting action. VOCs are not an issue at this OU, and a vapor intrusion analysis is not warranted.

   No change to the document is proposed.

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

5. There are several instances where recommendations are given for no additional remedial evaluation of a COC, which constitute a risk management decision that, per standard guidance, should not be included in a HHRA. For example, Section C-2.3.1.1, Soil Media (ECODS N-1 (NBN Subunit), states that arsenic is not recommended for further remedial evaluation as a human health COC in soil for any receptor scenario because: arsenic unit concentrations are below background soil concentration ranges; arsenic is considered a naturally-occurring constituent that is common in SRS background soils; and it does not appear to be unit- or site-related. While these statements may be true, it is not within the purview of the risk assessment to determine whether remedial evaluations should be

discontinued. *Revise Appendix C accordingly, and reword to state the lines of evidence as conclusions, and not recommendations*.

Response: Clarification.

The HHRA was prepared in accordance with established Core Team methodologies/agreements and recently approved baseline risk assessments, including the constituent-specific uncertainty discussion that ultimately identifies refined COCs as problems warranting remedial action.

No change to the document is proposed.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

6. There is a great deal of redundancy in the results presented for each subunit addressed by this HHRA. For example, Section C-2.3.1.1, Soil Media (Subsection of C-2.3.1, ECODS N-1 (NBN) Subunit, Page C-22 of C-104) describes the properties, the distribution in soils, and the industrial uses of arsenic. The same text is repeated for arsenic results in CSSLP, in Subsection C-2.3.2.1 (Soil Media, Pages C-24 to C-25 of C-104). A similar discussion on chromium is also provided in both CSSLP soils and sediments. It should also be noted that these qualitative constituent discussions should not be included with numerical results. *Revise Appendix C to reduce the redundancy by removing repetitive text, and if desired, create one section where qualitative discussions may be placed.*

   Response: Clarification.

   The format of the uncertainty discussions presented in this document are consistent with past Core Team agreements and SRS protocols, including a constituent by constituent summary of the results of the quantitative risk assessment as well as the qualitative discussions to justify a recommendation whether the COC under consideration is a problem warranting remedial action.

   The document format is a potential topic for a future RADT. No change to this document is proposed.

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

APPENDIX C – HUMAN HEALTH RISK ASSESSMENT – SPECIFIC COMMENTS

1. **Appendix C, Section C-1.1.3, Ford Building, Page C-12:** It is not explained in the second paragraph why the maximum detection of Aroclor 1254 in concrete is presented in the units picocuries per gram (pCi/g) as well as kilograms per kilogram (kg/kg), with two accompanying sets of risk results. The acronym "CM", as used in the term, "No CM COCs were identified…" should also be defined. *Revise Section C-1.1.3 to provide these two clarifications.*

Response: Agree.

The unit of measurement for Aroclor 1254 will be changed to mg/kg. Additionally, "CM" will be added to the List of Abbreviations and Acronyms for Appendix C and defined in Section C-1.1.3, 3rd paragraph, last sentence.

See response to General Comment #3.

Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

2. **Appendix C, Section C-1.3, Receptors, Page C-16:** As written, this section states that the future residential scenario was evaluated for surface water, with no qualifier. It should be specifically noted that surface water was evaluated only for CSSLP, and not the other subareas within the OU. *Revise Section C-1.3 accordingly.*

   Response: Agree.

   In Section C-1.3, 4th paragraph, 1st sentence will be modified as follows:

   "The future resident receptor scenario is also evaluated for the CSSLP subunit surface water media. This includes a comparison of constituents to surface water…"

   Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

3. **Appendix C, Section C-1.4, Sources of Risk-Based Threshold Values, Page C-17**: The name of the PRG calculator should be given in this section, rather than "website calculator" and the access date reference. *Revise Section C-1.4 to name EPA's "Preliminary Remediation Goals for Radionuclide Contaminants at Superfund Sites" calculator.*

   Response: Agree. Section C-1.4 Sources of Risk-Based Threshold Values will be revised as follows:

   Section C-1.4, 3rd paragraph:

   "The PRGs for residential scenario are obtained by using the ~~website calculator~~ USEPA Superfund Radionuclide Preliminary Remediation Goals for Superfund website ~~function to derive site-specific PRGs~~ (USEPA 2020a). "

   In addition, Section C-1.4, 2nd paragraph will be revised for consistency:

   "The USEPA Regional Screening Levels website is the source of RSLs, as used in this assessment, provides generic exposure scenario tables and a calculator function to derive site-specific RSLs in which user-specific exposure parameters are exchanged for the generic scenario parameters ~~consists of generic exposure scenario summary tables and a calculator function to derive site-specific RSLs in which user-specific exposure parameters are exchanged for the generic scenario parameters~~ (USEPA, 2020b)."

   Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

4. **Appendix C, Section C-1.4, Sources of Risk-Based Threshold Values, Page C-17:** November 2021 RSLs have recently been published, and therefore, *RSL values from February 2021 used herein for screening should be checked to ensure that no substantive changes have occurred.*

   Response: Agree.

   The RSL values that were used in this evaluation are based on the November 2020 update that was accessed in February 2021. The RSL tables are typically updated every six months. The May 2021 and November 2021 updates were checked and there are no substantive changes that would impact the conclusion of the HHRA.

   No change to the document is proposed.

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

5. **Appendix C, Section C-1.4, Sources of Risk-Based Threshold Values, Page C-18:** There are two sections that discuss the screening of surface water data: Section C-1.4, and Section C-2.2.1, Comparison of MCL or PRG/RSL or AWQC. *Revise either section to remove this redundancy.*

   Response: Agree.

   Sections C-1.4 and C-2.2.1 will be revised as follows:

   Section C-1.4:

   "…For surface water, maximum contaminant levels (MCLs), ~~are used, where available for constituents, to screen against maximum detected concentrations and activity concentrations in water. Where MCLs are not available, the lesser of~~ tap water RSLs, or PRGs, ~~published on generic tables~~ or ambient water quality criteria (AWQC) (SCDHEC 2014) are used. Surface water screening levels for non-radiological and radiological constituents are presented in Attachments C-4 and C-5, respectively."

   Section C-2.2.1:

   "Maximum detected concentrations of each constituent are conservatively compared to drinking water MCLs. In the absence of a MCL, the lowest value for the tap water RSL/PRG or promulgated AWQC (federal/state) is used as a screening threshold. ~~Attachments C-4 and C-5 contain the surface water screening thresholds for nonradionuclides and radionuclides, respectively, used in this evaluation.~~ Constituents that exceed the MCL or PRG/RSL or AWQC thresholds are further evaluated in the refinement of COCs step (Section C.2.4)."

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

APPENDIX D – ECOLOGICAL RISK ASSESSMENT – GENERAL COMMENTS

1. Appendix D, the Ecological Risk Assessment (the ERA) of the Report does not appear to follow standard or site-specific guidance for conducting risk assessments nor does it cite any guidance or standard methods. The Environmental Compliance and Area Completion Projects Regulatory Document Handbook (ERD-AG-003, June 2012) outlines site-specific formatting and technical protocols to guide risk assessments conducted for the Savannah River Site (SRS). *Revise the ERA to cite and follow site-specific SRS or standard EPA guidance. Note that some of the comments provided herein point out major departures from respective guidance.*

   Response: Clarification.

   This ERA was prepared in accordance with established Core Team agreements and recently approved baseline risk assessments. Of particular significance is the RI/BRA for the Lower Three Runs Integrator Operable Unit because of the size of the watershed and the scrutiny that this document would eventually receive, both internal and external. Several scoping meetings (characterization, post-characterization and problem identification) were held prior to document submittal. The ERA process was discussed in detail and agreed to with feedback from SCDHEC and USEPA (and their subcontractors) prior to document submittal and approval in 2017. The RFI/RI/BRA for the G-Area Oil Seepage Basin was approved in 2018 and used the ERA presented in the Lower Three Runs IOU RI/BRA as a template to the extent applicable. The ERA for the ECODS N-1 OU follows the format/methods from these two approved documents.

   SRS acknowledges that the Environmental Compliance and Area Completion Projects Regulatory Document Handbook is outdated and is planning for update/modification with input from the Core Team/ Risk Assessment Design Team (RADT) in the FY 2022-2023 timeframe. This update will realign the outdated process sections with the latest approved site-specific practices and provide the opportunity for improvement.

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

2. The ERA does not consider potential risks to threatened and endangered (T&E) species or their habitat to be present at the three exposure units. There is some discussion regarding T&E species in Section 2.1.1 (Habitats and Ecological Setting) within the Report, but it is not complete and only considers plants. Per site-specific and standard guidance, the ERA should evaluate the potential for T&E species to occur at each of the three exposure units. It is recommended that the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool be used to supplement current sources to determine presence/absence of T&E species at the site. Per 16 U.S. Code §1536, the USFWS is the lead agency to ensure that actions authorized, funded, or carried out by any other department, agency or instrumentality of the United States is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of

designated critical habitat of such species. The IPaC tool is the USFWS-recommended method for use in identifying the potential occurrence of T&E species and respective critical habitats. *Revise Appendix D to include an evaluation of the IPaC tool results and identify surrogate T&E species receptors and critical habitats as necessary.*

Response: Agree with clarification.

SRS has a wealth of site-specific information on threatened, endangered, and sensitive (TES) species available from GIS coverages for plant and select faunal species that is further supported by U. S. Forest Service-Savannah River (USFS-SR) ground surveys for TES species as well as rare species. The SRS Natural Resources Management Plan developed by the USFS-SR prioritizes protection of TES species. The USFS-SR manages the U.S. DOE's SRS wildlife, plants, and renewable timber resources so that ecological systems are sustained and protected. They also develop habitat management plans through consultation with the U.S. Fish and Wildlife Service for endangered species management and conduct ground surveys of TES species.

The waste unit areas addressed by this RFI/RI/BRA/CMS/FS are located in a past industrialized setting with minimal viable habitat available. The TES species survey cited in the document (Bumpus and Garner 1994) represents only one of three surveys conducted in the area. The TES surveys include both fauna and flora. The other two surveys will be included in the text as described below.

To address this comment, the first paragraph of Section 2.1.1 will be revised as follows

"The diverse habitats of SRS support a wide range of aquatic, semi-aquatic, and terrestrial biota. As an Environmental Research Park, the SRS has a wealth of site-specific information on a variety of species including threatened, endangered, and sensitive (TES) species. The information includes locational data from geographic information system coverages for plant and select faunal species that is further supported by ground surveys for TES species and other various organisms to support various research efforts including long-term monitoring conducted by the Savannah River Ecology Laboratory. The SRS Natural Resources Management Plan developed by the U. S. Forestry-Savannah River (USFS-SR) prioritizes protection of TES species. The USFS-SR manages the DOE's SRS wildlife, plants, and renewable timber resources so that ecological systems are sustained and protected. They also develop habitat management plans through consultation with the U. S. Fish and Wildlife Service for endangered species management and conduct ground surveys of TES species. Threatened, Endangered, and Sensitive (TES) plants known to be present at SRS are provided in Table 2-1. Table 2-2 lists TES animal species known to occur in Barnwell County, South Carolina. Along with the ~~There is~~ extensive ecological data available for SRS, ~~as well as~~ there is ~~more~~ area-specific ~~data~~ information for N Area including ECODS N-1, CSSLP, and Ford Building OU.

The ECODS N-1 subunit is located in a wooded area…"

Revisions to the end of the fourth paragraph of Section 2.1.1 will be as follows: "A TES survey was conducted at the Central Shops Burning/Rubble Pits (631-1G, 631-3G, 631-5G) (Imm 1998a) as well as the CSBRP (631-6G) (Bumpus and Garner 1994). ~~The survey covers 30.7 ha (75.8 ac) that includes ECODS N-1 and nearby aquatic habitat.~~ No TES species were identified during the surveys. ~~Similar survey results would be expected fo the CSSLP subunit.~~

The following edits will be made the last paragraph in Section 2.1.1 to include the TES survey for the Ford Building area:

"The Ford Building subunit is located in an area characterized by grasses and herbaceous vegetation with volunteer pine trees (*Pinus spp.*) and various shrub species. There is no aquatic habitat associated with the Ford Building subunit. The predominant structure is a concrete cover and gravel skirt over the Ford Building remnant slab. This area has minimal viable habitat for ecological receptors. A TES survey was conducted at the ~~CSBRP (631G)~~ Ford Building Seepage Basin and surrounding area (~~Bumpus and Garner~~Imm 1998b~~1994~~). The survey ~~covers 30.7 ha (75.8 ac) that includes ECODS N-1 and nearby aquatic habitat. No~~ did not reveal any TES species within the urban-industrial landscape."

The following references will be added to the reference section to cite the additional TES surveys:

"Imm, D., 1998a. Threatened, Endangered & Sensitive Species Listing 1998 Savannah River Forest Station Site 23, Central Shops Burning/Rubble Pits (631-1G, 631-3G, 631-5G), U.S Department of Agriculture – Forest Service, Savannah River Site, Aiken, SC

Imm, D., 1998b. Threatened, Endangered & Sensitive Species Listing 1998 Savannah River Forest Station Site 37, Ford Building Seepage Basin (904-91G), U.S Department of Agriculture – Forest Service, Savannah River Site, Aiken, SC"

Additionally, a new table (shown below) will be added after Table 2-1 for animal species that occur in Barnwell County. Subsequent table number will be adjusted as needed.

TES Animal Species Known to Occur in Barnwell County

Scientific Name	Common Name	State Protection Status
Vertebrate Animals		
Clemmys guttata	Spotted Turtle	Threatened
Condylura cristata	Star-nosed Mole	
Corynorhinus rafinesquii	Rafinesque's Big-eared Bat	Endangered
Egretta caerulea	Little Blue Heron	
Haliaeetus leucocephalus	Bald Eagle	Threatened
Hyla avivoca	Bird-voiced Treefrog	
Neotoma floridana	Eastern Woodrat	
Picoides borealis	Red-cockaded Woodpecker	Endangered
Rana capito	Gopher Frog	Endangered
Sciurus niger	Eastern Fox Squirrel	
Invertebrate Animals		
Anodonta couperiana	Barrel Floater	

Elliptio congaraea	Carolina Slabshell	
Lampsilis cariosa	Yellow Lampmussel	
Lampsilis splendida	Rayed Pink Fatmucket	
Pyganodon cataracta	Eastern Floater	
Utterbackia imbecillis	Paper Pondshell	
Villosa delumbis	Eastern Creekshell	
Villosa vibex	Southern Rainbow	

Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

3. It is not apparent how hexavalent chromium (Cr+6) is a suspected constituent of potential concern (COPC) COPC from historical burning activities conducted at the ECODS N-1 exposure unit. Little information is provided on what was burned at ECODS N-1 and "burning activities" of "creosote-treated wood" is not a commonly known source of Cr+6. *Revise the ERA to include more information to support the statement that burning activities is a suspected source of Cr+6 in ECODS N-1 soils, sediments, and surface water.*

   Response: Agree.

   Text in Section D-1.2.1 and D-1.2.2.1 will be revised as follows:

   Section D-1.2.1 ECODS N-1 (NBN), 1st paragraph:

   "…2001 Site Evaluation locations with elevated metal results. Because of the site history of burning activities at ECODs N-1, hexavalent chromium (Cr+6) analyses were performed on the 2019 samples collected adjacent to the 2001 samples that showed elevated total chromium (Cr) levels at depth (2.4-3.0 m [8-10 ft]). Naturally occurring chromium that is present in the soil or in industrial debris may be oxidized during burning to the more toxic form, hexavalent chromium."

   Section D-1.2.2.1 Upland Area, 2nd paragraph:

   "The RFI/RI Workplan (SRNS 2020) characterization further defined the nature and extent of contamination at some 2019 sample locations and identified if elevated metal (including hexavalent chromium) results are due to native soil conditions or related to unit operations. Naturally occurring chromium that is present in the soil or in industrial debris may be oxidized during burning to the more toxic form, hexavalent chromium."

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

4. It appears that the presence of dioxins and furans (D/Fs) has not been evaluated in ECODS N-1 soils where historical burning activities of creosote-treated wood occurred. The burning of organic materials such as treated wood at ambient temperatures has the potential to produce D/Fs, which are highly recalcitrant and toxic compounds. As such, a screening evaluation of burn areas should include sampling and analysis of D/Fs. *Revise Appendix D to either include exposure and risk analyses of D/Fs, or discuss the justification of the omission of D/Fs and include as an uncertainty.*

Response: Clarification.

Based on site investigations at SRS, dibenzofuran detections are typically 1,000 times higher than the results for the other dioxin and furan congeners. The Site Evaluation for ECODS N-1 (2001) investigation included dibenzofuran analyses on all samples and all results were below detection.

In the 2019 pre-Work Plan characterization effort at the CSSLP subunit, all 77 soil samples were analyzed for dibenzofuran and the only detection (126 ug/kg, J-qualified), was from the 8-10 ft sample interval at CSSLP-15. Based on the following lines of evidence, sufficient data on dioxins and furans existed and no additional dioxin/furan analyses were identified for further investigation at the CSSLP in the approved RI Work Plan:

- **low frequency of detection at the CSSLP subunit in preceding investigations;**
- **one low concentration J-qualified detection of Dibenzofuran at the CSSLP;**
- **the trend of other dioxin and furan congeners to be observed three orders of magnitude lower; and**
- **dioxins and furans were not identified as refined COCs at the adjacent CSBRP OU pits where the ash had been disposed in a very similar risk management setting.**

No change to the document is proposed because the selection of analytes for inclusion in site characterization and data needs for the risk assessment and remedy selection is conducted through and documented in the approved RI Work Plan.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

5. Neither Appendix A (Investigation Data) nor Appendix D, provides a full list of metals or chemicals that were sampled for and analyzed. Only detected constituents appear to be summarized. Without knowing the full list of analytes, it is not possible to determine what site media were analyzed for which contaminants. Detection limits also appear to be missing. Detection limits are needed to verify whether analytical methods were sensitive enough to measure constituents in site media at levels at or below toxicity benchmarks. This cannot be done unless all constituents are listed with respective detection limits. Revise the Data Summary Tables in Appendix A and Appendix D Screening Level Evaluation tables to include all constituents and respective detection limits. Standard ERA guidance documents provide examples on what information should be included in screening-level risk assessment COPC selection tables.

Response: Clarification.

All of the characterization data, including constituents that are reported as non-detects, are provided on the compact disk that is submitted with the hard copy of the document. Typically, the data spreadsheets are provided only in an electronic format due to the volume of data. The screening tables in Appendix D are consistent with the

information/tables that were provided in the most recently approved ERAs (i.e., LTR IOU and G-Area Oil Seepage Basin). In addition, ecological risk screening tables are purposely formatted to be as similar as possible to the human health risk screening tables to the extent practical. This table format has been agreed to by previous RADTs.

No change to the document is proposed.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

6. It appears that the ERA uses detection frequency criteria to exclude contaminants during the COPC selection process. This procedure is neither justified nor supported by general or site-specific guidance. Excluding constituents at the screening-level step of an ERA greatly inhibits risk managers' ability to understand whether hotspots may pose risks to sensitive receptors and determine whether sampling was sufficient in characterizing an exposure unit. The use of detection frequency information should only be considered during uncertainty analyses. *Revise the ERA Screening Level Evaluation so that COPCs are selected without consideration of detection frequencies.*

   Response: Clarification.

   According to the Risk Assessment Guidance for Superfund (RAGS) Part A (1989), chemicals that are detected infrequently may be artifacts in the data that may not reflect site-related activity or disposal practices and may be eliminated from further evaluation. One condition which may indicate eliminating contaminants from further consideration includes a low detection frequency (5% or lower frequency of detection, provided that at least 20 samples were taken). This criterion was used to eliminate some constituents in the screening level evaluation in accordance with the guidance. As suggested in the comment, the frequency of detect was also used as a line of evidence to support the extent of contamination discussion in the uncertainty evaluation.

   No change to the document is proposed.

   Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

7. The ERA does not provide enough information to understand how EPCs were derived for use in the Refinement Level Evaluation. Missing information includes descriptions on how duplicate and non-detected results were handled and what software was used to generate EPCs. Without this information it is not possible to evaluate whether data were handled per standard guidance. Ideally, EPA-approved software (ProUCL) should be used to generate average and 95UCL EPCs using Kaplan-Meier derivation methods that consider non-detected values. *Revise the Draft ERA to provide a description on how data were handled and EPCs generated.*

   Response: Agree.

   Section D-1.2 Data, last paragraph will be revised as follows:

"…All data used in the ERA for the ECODS N-1 are presented in Appendix A. The ProUCL (USEPA 2015) software package was used to calculate the 95% upper confidence limit (UCL) on the arithmetic mean; these data are presented in Appendix A. The data distribution and recommended 95%UCL as determined by ProUCL for each constituent are presented as footnotes to the tables in Appendix A. Non-detected constituent concentrations were processed in accordance with the ProUCL User's Guide. The Data Usability Reports (DURs) for the 2019 Pre-Workplan Characterization Samples and the 2020 Workplan Characterization Samples are presented in Appendix J. The reports provide an assessment of the precision, accuracy, representativeness, comparability, and completeness data quality indicators and measurement performance criteria. The DURs concluded that that the data quality objectives were met, and that the data is considered usable for the purposes of decision-making in the RI/BRA. In addition, the *Site Evaluation Report for Early Construction and Operational Disposal Site (ECODS) N-1 (U)* presents a Laboratory Quality Discussion (Section IV) and a Site Evaluation Validation Report (Section V) for the samples that were collected in 2001 (WSRC 2001)."

In addition, Section D-4 References will be revised as follows:

"USEPA, 2015. *Statistical Software ProUCL v5.1 for Environmental Applications for Data Sets With and Without Nondetect Observations*, United States Environmental Protection Agency"

"WSRC, 2001. *Site Evaluation Report for Early Construction and Operational Disposal Site (ECODS) N-1*, WSRC-RP-2001-4185, Revision 0, Westinghouse Savannah River Company, Savannah River Site, Aiken SC"

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

8. Plant communities, rabbit, shrew, mouse, American robin, bats, American kestrel, fox are identified as representative receptors to be evaluated (Section D-1.3, Habitats/Receptors/Preliminary Assessment and Measurement Endpoints, Page D-15 of D-234)), but the ERA does not evaluate any of them on an individual level. Therefore, it is not possible to address the assessment and management endpoints identified in Section D-1.3. This is important given that each receptor would likely have different exposures and sensitivities (toxicity) to site contaminants. It also precludes risk managers form identifying potential risks and remediation strategies for special status or otherwise valuable species. *Revise the ERA to include receptor-specific exposure and effects evaluations. Note that this often occurs during refinement steps after COPCs are selected using the lowest (among all receptors) media-specific no-effect ecological screening values (ESVs).*

Response: Clarification.

Receptor-specific HQs are presented in Attachment D-9 and are discussed in Section D-3.4 Results/Refinement of Constituents of Concern. The receptor specific HQ calculations are performed for the constituents that were initially identified as COPECs (screening level using maximum detect) and subsequently identified as COPCs (refinement-level

using 95%UCL) using the lowest among all receptor ESVs and RSVs as appropriate. Constituents with refinement-HQs > 1 (i.e., COPCs) were further evaluated in the uncertainty discussion in Section D-3.4 and include the receptor specific HQs as presented in Attachment D-9. The receptor specific HQs are based on the average soil concentration and an area use factor adjustment. This approach is consistent with the information/tables that were provided in the most recently approved ERA (G-Area Oil Seepage Basin).

No change to the document is proposed.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

9. It is not readily apparent how the lowest observable adverse effect level (LOAEL)-based refinement screening values (RSVs) used during the refinement evaluation were selected. Additionally, the process of selecting RSVs is unnecessarily complicated and difficult to follow. For example, Attachment D-1 Tables I.B, II.B, and III.B contain a mix of ESVs and RSVs for soils and sediment. There is only one ESV or RSV cited for each analyte. The source of Los Alamos National Laboratory (LANL) RSVs in Attachment D-1 is cited as Attachment D-3. Attachment D-3 still only lists one Ecological Screening Level (ESL) for each analyte with no reference to the receptor to which they pertain. Attachment D-7 (not cited) is a screen shot of all ESLs available on LANL's ECORISK Database. This attachment lists no- and low-effect ESLs for multiple receptors and media for a given analyte. When Attachment D-3 LANL RSVs are cross referenced to Attachment D-7 values, final RSV selection appears to be somewhat random. For example, when we cross reference which RSVs are selected for arsenic in soil, the Attachment D-3 RSV of 33 mg/kg was selected. However, this does not match the low effect ESL for soil (68 mg/kg) listed in Attachment D-3. Both of these values are found in Attachment D-7 for arsenic. However, 33 mg/kg is a sediment-based low effect ESL for aquatic communities and 68 mg/kg is a soil low effect ESL for earthworms. Neither are the lowest low effect ESL listed in Attachment D-7 which is for shrew (31 mg/kg). Note that all of these receptors are identified in Section D-1.3. Revise the first paragraph in Section D-3 to clearly state how RSVs were selected and how this selection relates to each ecological receptor that is identified in Section D-1.3. *Revise RSV text and tables to succinctly and accurately summarize RSVs and respective sources. The tables should only include contaminants that are relevant to the ERA; note that the tables are hard to find and should be included in the Table of Contents of Appendix D.*

Response: Agree with clarification.

Section D-1.4 Sources of Literature Based Thresholds describes the 3 primary sources of thresholds, USEPA Region 4, LANL and SCDHEC water quality criteria and how the information was compiled to ultimately derive the ESVs and RSVs used in this evaluation.

In the case of arsenic, the LANL table in Attachment D-7 correctly identifies the earthworm RSV of 6.8 mg/kg as the minimum concentration for the No Effect ESL, but

68 mg/kg is not the minimum Low Effect ESL. SRS agrees that the lowest, most conservative value for the shrew (31 mg/kg) for the Low Effect ESL should be used in the risk assessment. The LANL table was reviewed in its entirety and four additional constituents were identified where the lowest, most conservative Low Effect ESL was not used. These include cadmium (soil), selenium (soil and sediment), PCB 1254 (sediment), and gamma-chlordane (soil). The tables/text will be modified accordingly.

Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

10. According to Section D-3.3 (RSV Screening – Surface Water Media, Page D-29 of D-234)), LOAEL ESLs are used to calculate wildlife hazard quotients (HQs) for surface water but this fails to recognize that wildlife would be concurrently exposed to contaminants in surface water, sediment, and soils at ECODS N-1 exposure unit. LANL surface water ESLs (i.e., RSVs) only consider water consumption risk from this one exposure route and ignores exposure risks from incidental soil/sediment ingestion and bioaccumulation in dietary items. It should be noted that the Refinement Level Evaluation used in the ERA is not a common ERA refinement procedure when assessing risks to wildlife (see for reference EPA's Step 3a). Refinement is often conducted using receptor-specific food chain modeling that can estimate exposure from different sources (e.g., incidental soil ingestion, surface water ingestion, and dietary items that have accumulated contaminants in their tissues). *Revise the ERA Refinement Level Evaluation to include food chain modeling to estimate exposure and evaluate risks to each wildlife receptor and COPC. This is the correct and most complete way to evaluate risks to wildlife when exposed to multiple contaminated media. Note that this will require obtaining toxicity reference values and food chain modeling parameters for each receptor. The use of food chain modeling has many benefits that include additional refinement steps such as incorporating area use factors (AUFs) and ranges of model exposure parameters.*

    Response: Clarification.

    Receptor specific HQs are presented in Attachment D-9 and are discussed in Section D-3.4 Results/Refinement of Constituents of Concern. This approach is consistent with the information/tables that were provided in the most recently approved ERA (G-Area Oil Seepage Basin). No change to this document is proposed.

    Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

11. Attachment D, text table references do not match was is actually reported in attachments and the table numbering/identification format is not consistent. This makes cross checking text references to attachment and table content very difficult. Format inconsistences might be the result of copy/pasting screen shots from toxicity benchmark source documents into Draft ERA tables. The Draft ERA also references sections and figures that are in other sections of the Report without distinction. *Revise Appendix D to consistently reference tables. If the*

primary Report sections, figures, or tables are being cited, they should be clearly identified as such.

Response: Agree.

A thorough technical review will be performed on the ERA to ensure consistencies throughout are addressed.

Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

12. Attachment D D-2 (EPA Region 4 Screening Tables for Soil, Sediment, and Surface Water [March 2018], Pages D-127 to D-146 of D-234) and D-7 (Los Alamos National Laboratory Receptor-Specific ESLs [2017], Pages D-179 to D220 of D-234) tables are of poor quality, which makes them very difficult to read. They appear to be screen shots that are copied and pasted into the ERA. They also contain more toxicity benchmarks than those that were used to conduct the ERA, which makes it unnecessarily complicated and difficult to use when validating the ERA. *Revise respective tables so that they are in the same format as all other ERA tables, and legible.*

    Response: Clarification.

    The EPA and LANL tables are presented in their entirety for completeness and the appropriate thresholds were brought forward to derive the site-specific ESVs and RSVs that are shown in Attachment D-1. The intent of the tables is to provide a visual accompaniment for the source material used to generate the ESVs and RSVs. These tables are not available in electronic format. In an effort to improve usability, the following link to the EPA Region 4 Screening tables will be provided in the text.

    https://www.epa.gov/sites/default/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf

    Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

13. Appendix D, Section D-3.4 (Results/Refinement of Constituents of Concern) makes risk management decisions that effectively eliminate all COPCs for additional study. It is against EPA and site-specific guidance to make risk management decisions in an ERA. It is the responsibility of risk managers to use all the information on risks and uncertainties when evaluating site remediation needs. Interjecting risk management decisions in an ERA undermines the objectivity of the assessment. *Revise Appendix D to exclude all risk management decisions so that only factual information is presented that is supported by risk characterization results and other lines of evidence. Information on refined risks and associated uncertainties should be summarized in the Report (Section 3) so that risk management decisions made therein are sufficiently justified.*

    Response: Clarification.

The ERA was prepared in accordance with established Core Team methodologies/agreements and recently approved baseline risk assessments, including the constituent-specific uncertainty discussion that ultimately identifies refined COCs as problems warranting remedial action.

The document format is a potential topic for a future RADT. No change to this document is proposed.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

14. It is not clear why the ERA uses RESidual RADioactivity (RESRAD) Biota database concentration guides (BCGs) as a line of evidence and not as COPC ESVs (Section D-3.4, Results/Refinement of Constituents of Concern). BCGs are appropriate screening values for use in identifying radionuclide COPCs. *Revise the Draft ERA to include BCGs during the COPC Screening Level Evaluation.*

Response: Clarification.

The ERA was prepared in accordance with established Core Team methodologies/agreements and recently approved baseline risk assessments, including the hierarchy of screening thresholds. The RESRAD thresholds were used when ESLs from LANL were not available.

The sources/hierarchy of literature-based thresholds is a potential topic for a future RADT. No change to this document is proposed.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

15. There are two or possibly three sources of background data that could be used to screen COPCs but only one source (WSRC [not defined], 2006) is described as being used in the ERA. Section D-1.2 (Data, page D-12 of D-34)), subsections specifically state that background locations were sampled outside of the unit boundaries. These samples were collected in 2020, which is well after the 2006 WSRC publication date. *Revise the Draft ERA to include a detailed description of which background data were used, why one was used over another (if applicable), and provide a table of background summary statistics with respective sources. If multiple sources of background data are used, any discrepancies in concentrations of COPCs between respective datasets should be identified and discussed as an uncertainty.*

Response: Clarification.

The background data used in the screening level effects evaluation for both soil and sediment are taken from Background Soils Statistical Summary Report for the Savannah River Site (WSRC 2006). This is a very robust dataset that has been approved for risk screening and provides statistical summaries for many naturally occurring constituents at SRS. The SRS 2x average background concentration was used at all subunits to

perform the ESV screening for soil and sediment. No background screen was performed for the surface water media.

Site-specific background samples were collected for the ECODS N-1 (soil) and CSSLP (soil, sediment and surface water). These samples were used in the uncertainty evaluation as an additional line of evidence to assist in the identification of RCOCs. The SRS Background dataset was also used in the uncertainty evaluation.

This approach is consistent with past Core Team agreements/methodologies and recently approved risk assessments.

No change to the document is proposed.

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

16. It is not clear whether surface water ESVs for select metals were adjusted for site-specific water hardness. South Carolina Department of Health & Environmental Control (SCDHE) Regulation 61-68 water quality numeric criteria for cadmium, chromium, copper, lead, nickel, silver, and zinc are all normalized for water hardness using provided equations and equation parameters. *Revise the ERA to state whether respective ESVs were normalized to site-specific hardness. If the criteria were used without hardness normalization, then the ERA should include an uncertainty analysis on how site-specific hardness compares to what was used to derive the values on the SCDHE Regulation 61-68 table and describe any biases.*

Response: Clarification.

The SCDHEC water quality numeric criteria were not adjusted for hardness. The regulation states that if the metals concentrations for numeric criteria are hardness dependent, the acute and chronic values shall be based on the 25 mg/L (that is published in the table) if the ambient hardness is less than 25 mg/L.

Hardness at the CSSLP Impoundment Area was not measured directly, but can be reliably calculated using the calcium and magnesium concentrations: Hardness = 2.497 [Ca] + 4.118 [Mg]

Using the measured concentrations of calcium (5.99 mg/L) and magnesium (1.56 mg/L), a hardness of 21.38 mg/L (as CaCO3) was calculated for the CSSLP Impoundment Area. Therefore, the thresholds were not hardness adjusted.

Section D-1.4 Sources of Literature -Based Thresholds will be revised as follows:

"An additional source of threshold values used only for the assessment of surface water is the South Carolina Department of Health and Environmental Control, R.61-68, Water Classifications and Standards (freshwater aquatic life chronic values) regulation (SCDHEC 2020). These thresholds were used for both the screening level and refinement level assessments. <u>The thresholds for select metals were not hardness adjusted since the</u>

ambient hardness is less than 25 mg/L (as $CaCO_3$). A copy of this regulation is provided in Attachment D-4."

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

17. The Draft ERA is hard to follow and contains grammatical errors and acronym issues throughout. The introduction should outline the rest of the ERA, internal inconsistencies removed or fixed, and all acronyms should be defined when first used and consistently reported thereafter. Also, commonly used technical terminology should be consistently used so not to confuse the reader (e.g., exposure units, subunits vs. AOUs). *Revise Draft ERA to perform a thorough technical review before finalizing*.

    Response: Agree.

    A thorough technical review will be performed before submittal of the Revision 1 document.

    Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

APPENDIX D – ECOLOGICAL RISK ASSESSMENT – SPECIFIC COMMENTS

1. **Appendix D, Section D-1.1.2 Central Shops Scrap Lumber Pile (631-2G), Page D-10:** This section states that the "U.S. Department of Energy (USDOE), the U.S. Environmental Protection Agency (USEPA) and the South Carolina Department of Health and Environmental Control (SCDHEC) agreed to address the surface water impoundment area and upland soil together as the CSSLP subunit," however no reference or citation is provided. *Revise this section to include a reference as to when this decision was made.*

    Response: Agree.

    During Core Team scoping meetings for development of the RFI/RI/BRA/CMS/FS, evaluation of the CSSLP were discussed as two distinct areas - the upland area and the surface water impoundment area.

    Section D-1.1.2, 1st paragraph, 5th sentence will be revised as follows:

    "The U.S. Department of Energy (USDOE), the U.S. Environmental Protection Agency (USEPA), and the South Carolina Department of Health and Environmental Control (SCDHEC) agreed in project scoping meetings conducted in December 2019 and August 2021 to address the surface water impoundment area and upland soil together as the CSSLP subunit."

    Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

2. **Appendix D, Attachment D-2 EPA Region 4 Screening Tables for Soil, Sediment, and Surface Water (March 2018), Page D-136, D-139, D-141, and D-146**: The embedded links to listed websites do not work. *Revise links to working websites.*

   Response: Clarification.

   The EPA Region 4 Screening Tables are screen captures for reference/information only and are not intended to be viable links. The link to the EPA Region 4 Screening tables will be provided on the cover page for Attachment D-2 as shown below.

   "Attachment D-2

   EPA Region 4 Screening Tables for
   Soil, Sediment, and Surface Water
   (March 2018)

   Link: https://www.epa.gov/sites/default/files/2018-03/documents/era_regional_supplemental_guidance_report-march-2018_update.pdf"

   Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

3. **Appendix D, Section D-1.3 Habitats/Receptors/Preliminary Assessment and Measurement Endpoints, Page D-18 and D-19:** The assessment/measurement summaries for sediment dwelling and aquatic organisms state that HQ calculations will be performed at the ECODS N-1 and Ford Building; however, these two subunits do not contain aquatic habitats. *Revise the ERA to remove ECODS N-1 and the Ford Building from discussions of surface water and sediment-based discussions.*

   Response: Agree with clarification.

   The intent of the original text was to provide a reference to the entire OU, not specific subunits. For clarity the text in Section D-1.3 will be revised as follows:

   ***10th bullet* - "…nutrient cycling in an aquatic system. Benthic organisms also are susceptible to constituents in sediment and are potentially exposed within the ~~ECODS N-1,~~ CSSLP subunit~~., and the Ford Building OU.~~ The measurement endpoint is the measured concentration in sediment media compared to sediment toxicity threshold values. This preliminary comparison is expressed as an HQ calculation based on the screening of ~~ECODS N-1,~~ the CSSLP subunit. ~~, and the Ford Building OU data summarized in Appendix A"~~**

   ***11th bullet* - "…prey items for many species. Aquatic organisms are susceptible to constituents in surface water and are potentially exposed to contamination within the ~~ECODS N-1,~~ CSSLP subunit~~, and the Ford Building OU~~. The measurement endpoint is the measured concentration in surface water media compared to ambient water quality**

criteria (AWQC). This preliminary comparison is expressed as an HQ calculation based on the screening of ~~ECODS N-1,~~ the CSSLP subunit~~, and the Ford Building AOU~~ (data summarized in Appendix A)."

Responsible Party: Doug Martinson, (803) 952-6043, douglas.martinson@srs.gov

4. **Appendix D, Table D-8, Refinement Level Evaluation for CSSLP Subunit (Soil 1-4 ft), and Table D-9, Screening Level Evaluation for CSSLP Surface Water Impoundment Area (Sediment 0-1 ft), Pages D-91 and D-92**: These tables appear to be missing concentration measurement units. *Revise the tables to include measurement units.*

   Response: Agree.

   Tables D-8 and D-9 will be revised to include units of concentration.

   Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

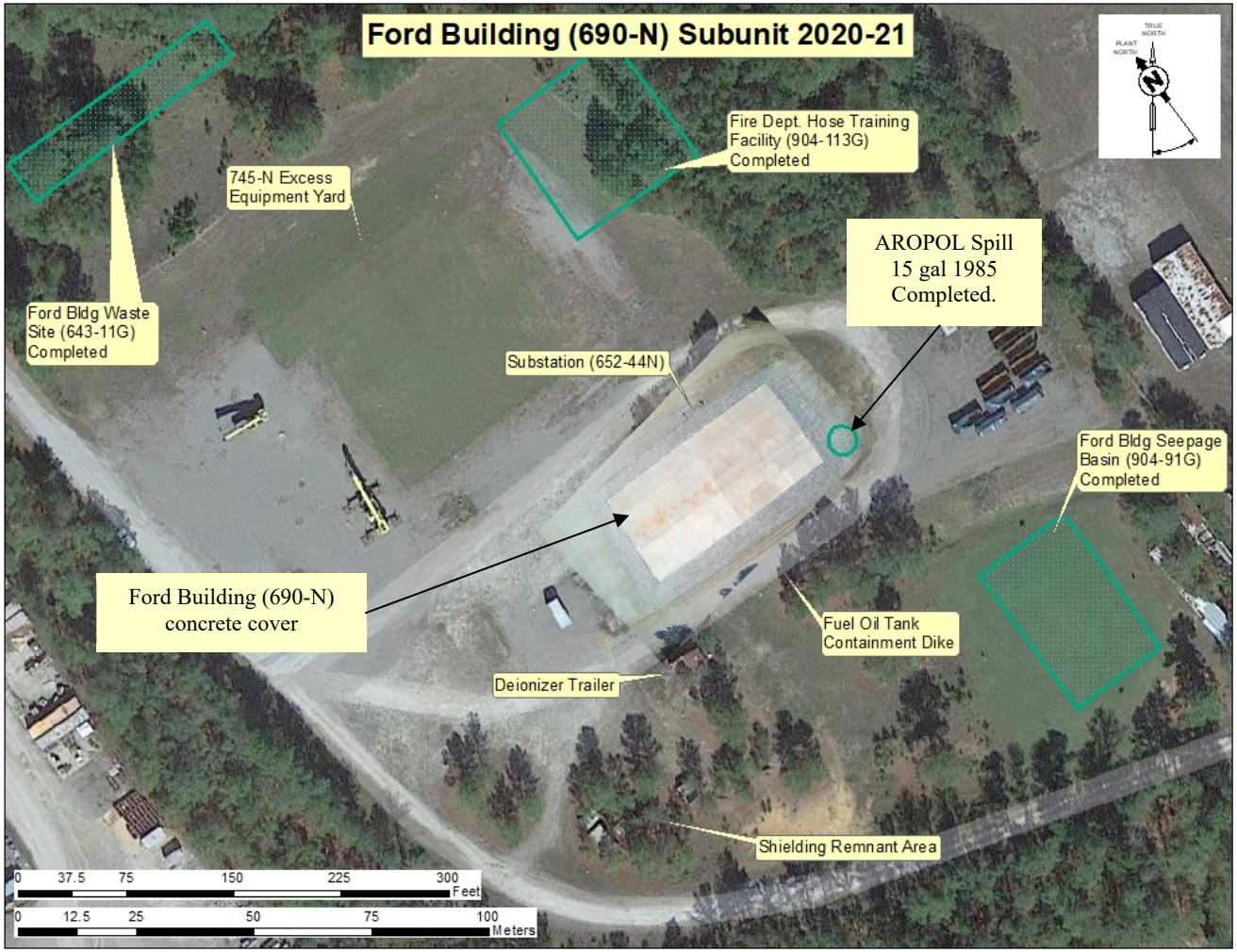
5. **Appendix D, Attachment D-5, Table 6, Uncertainty Evaluation for CSSLP Surface Water Impoundment Area (Surface Water, Unfiltered) and Table 7, Uncertainty Evaluation for CSSLP Surface Water Impoundment Area (Surface Water, Filtered):** Identified tables are missing footnotes. *Revise respective tables to defince 690-N is added to Appendix C.4 of the FFA.*

   Response: Agree.

   Attachment D-5, Tables 6 and 7 will be revised to include footnotes. Also, Exposure Point Concentration values will be corrected. Note the last sentence of the comment referring to 690-N is unclear.

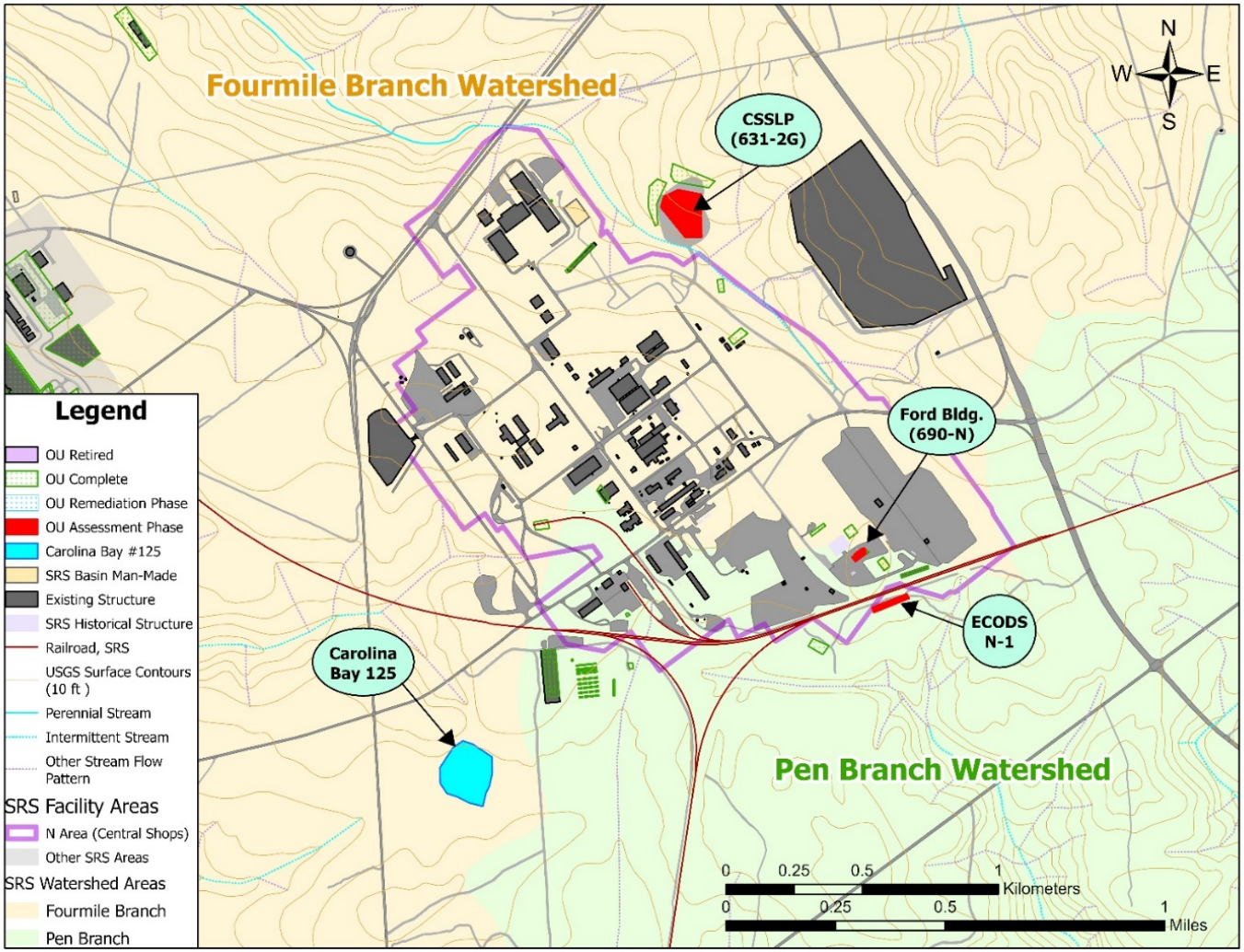
   Responsible Party: Susan Blas, (803) 952-6904, susan.blas@srs.gov

Comments Received January 24, 2022

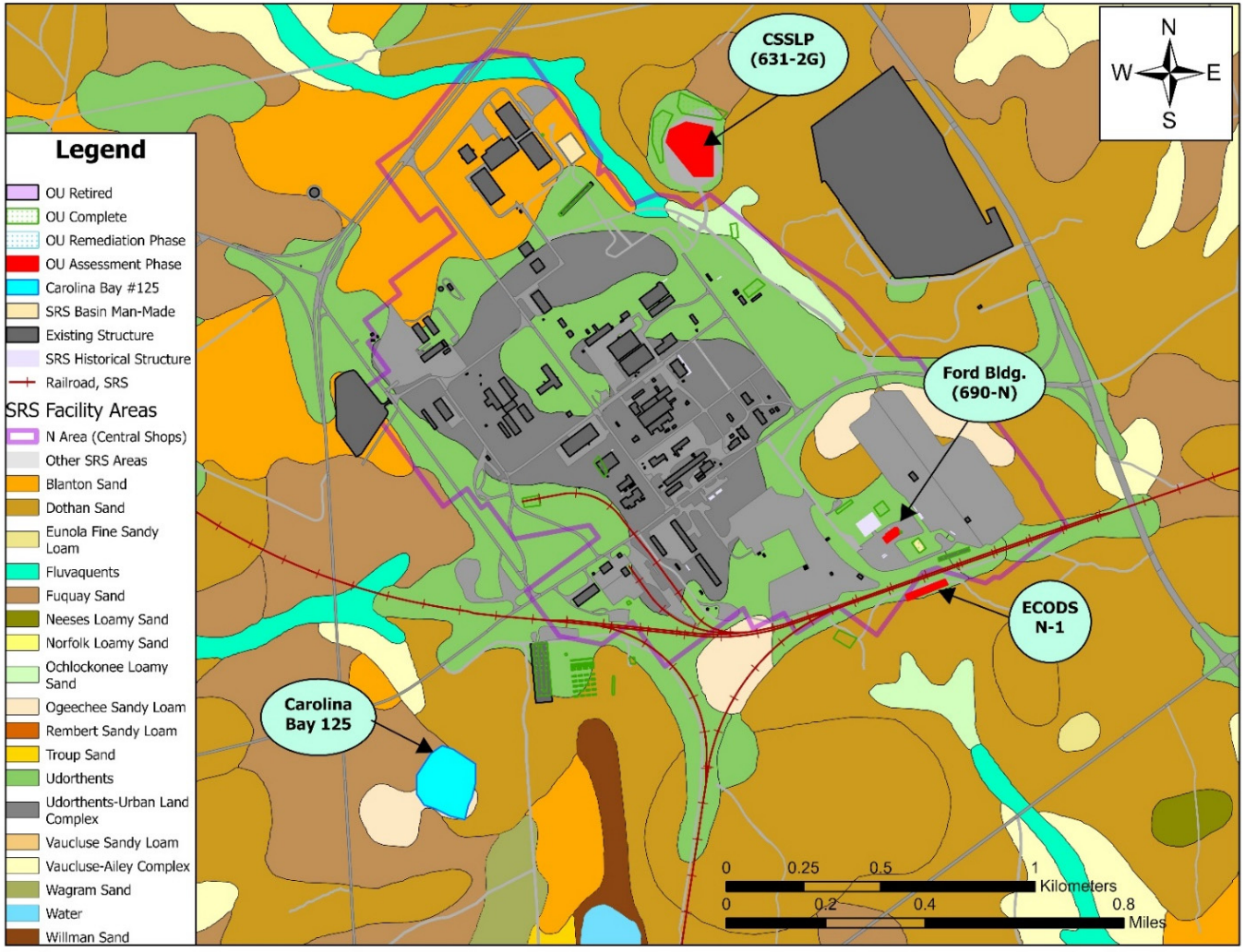


Revised Figure 1-6. Ford Building 2020-2021 (Specific Comment #2)

Comments Received January 24, 2022



Revised Figure 2-2. Central Shops (N Area) Surface Water Run-Off (Specific Comment #3)



Revised Figure 2-4. Soil Series in the Central Shops (N Area) (Specific Comment #8)

Comments Received January 24, 2022

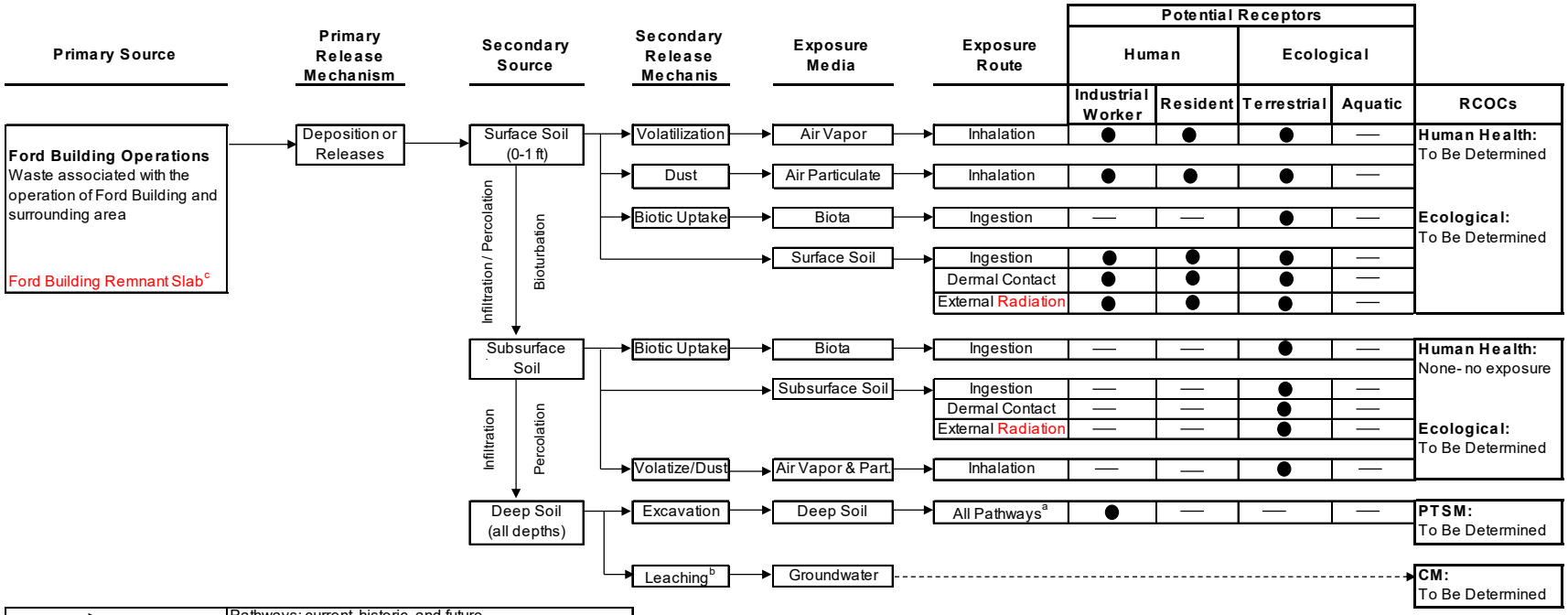


Figure 2-7. Preliminary Conceptual Site Model for Ford Building (690-N) Subunit

Revised CSM per response to Specific Comment #14 and Appendix C Human Health Risk Assessment General Comment 1b.

Supplemental information for the Ford Building subunit.

During the review of the comment responses, SRS recognized that PCB-containing caulk identified in expansion joints in the original Ford Building concrete building slab meets the definition of PCB bulk product waste per 40 CFR Part 761.3 Definitions. The presence and characterization of this material is reported in *Characterization Report Building 690-N (Ford Building) and Ancillary Equipment and Facilities*, SDD-2014-00054 (SRNS, 2014). The remnant building slab and caulk are now covered by a TSCA-compliant engineered concrete cover slab placed in 2021 to complete Ford Building decommissioning.

To address this condition, the following changes will be made to the document:

Chapter 2, Section 2.3.1, the third paragraph will be revised as follows:

"The Ford Building subunit was built in the 1950s and used exclusively for testing of Ford Company-manufactured motor control packages for control rod drive mechanisms prior to their installation in the SRS reactors. During the early 1960s this facility was converted for reactor heat exchanger repair/rework. This mission continued until the early 1970s when the procurement of new heat exchangers for the SRS reactors terminated the mission of the facility. Polychlorinated biphenyls (PCBs [Aroclors]) from the early machinery, industrial contaminants, expansion joint caulk containing PCBs, and radionuclides from the heat exchangers comprise the primary sources of contamination for the Ford Building subunit primarily associated with the remnant building slab and are covered by an engineered concrete cover."

Chapter 3, Section 3.11 the last paragraph in the section will be revised as follows:

"However, maximum detected concentrations of Aroclor ~~1252~~ 1254 (max = 15 mg/kg) and Aroclor 1260 (max = 5.5 mg/kg) originating from the machine oils in the concrete remnant slab as well as expansion joint caulk containing PCBs at the Ford Building ~~exceed~~ do not meet the free release criteria. A 15-cm (6-in.) concrete cover was designed to be compliant with the cap requirements at 40 CFR 761.61(a)(7) for PCB remediation waste. The concrete cover was installed in 2021. The concrete cover breaks the direct exposure pathway to PCBs. As a result of this barrier, PCBs are not identified as an ARAR RCOC at the Ford Building. This cover also achieves the substantive requirements under 40 CFR 761.62(c) for risk-based disposal of Bulk Product Waste and the unit does not pose an unreasonable risk of injury to health or the environment."

Chapter 5, Section 5.3.6.1.2, will be revised as follows:

"~~No chemical-specific, location-specific, or action-specific ARARs are associated with Alternative C-1.~~Table 5-4 lists the potential ARARs applicable to the ECODS N-1,

CSSLP and Ford Building OU. The specific ARARs applicable to each alternative are listed below.

Chemical-Specific ARARs: **Per 40 CFR Part 761, Section 62, Paragraph (c) disposal of PCB bulk product waste would be handled in accordance with the capping requirements provided in 40 CFR Part 761, Section 61, Paragraph (a)(7).**

Location-Specific ARARs: **No location-specific ARARs are associated with Alternative C-1.**

Action-Specific ARARs: **No action-specific ARARs are associated with Alternative C-1."**

Chapter 5, Section 5.3.6.2.2, will be revised as follows:

~~**"No chemical-specific, location-specific, or action-specific ARARs are associated with Alternative C-2.**~~**Table 5-4 lists the potential ARARs applicable to the ECODS N-1, CSSLP and Ford Building OU. The specific ARARs applicable to each alternative are listed below.**

Chemical-Specific ARARs: **Per 40 CFR Part 761, Section 62, Paragraph (c) disposal of PCB bulk product waste would be handled in accordance with the capping requirements provided in 40 CFR Part 761, Section 61, Paragraph (a)(7).**

Location-Specific ARARs: **No location-specific ARARs are associated with Alternative C-2.**

Action-Specific ARARs: **No action-specific ARARs are associated with Alternative C-2".**

Chapter 5, Section 5.3.6.3.2, will be revised as follows:

"Table 5-4 lists the potential ARARs applicable to the ECODS N-1, CSSLP and Ford Building OU. The specific ARARs applicable to each alternative are listed below.

Chemical-Specific ARARs: **Per 40 CFR Part 761, Section 62, Paragraph (c) disposal of PCB bulk product waste would be handled in accordance with the capping requirements provided in 40 CFR Part 761, Section 61, Paragraph (a)(7).** ~~**No chemical-specific ARARs are associated with Alternative C-3.**~~ **"**

Chapter 5, Section 5.4.3.2, will be revised as follows:

~~**"There are no ARARs associated with Alternatives C-1 and C-2.**~~**Chemical-specific ARARs for Alternatives C-1, C-2 and C-3 include the disposal of PCB bulk product waste. Alternative C-1 does not achieve the chemical-specific ARAR. Alternatives C-2 and C-3 achieve the chemical-specific ARAR through an existing concrete cover, designed to be compliant with PCB capping requirements, and through the associated O&M to maintain the integrity of the concrete cover.** **Action-specific ARARs for Alternative C-3**

include the characterization of low-level waste and the disposal and transportation of solid waste, which are achievable by using direct or indirect methods to characterize the waste and through the use of an existing approved disposal facility such as Three Rivers Landfill."

Table 5-4 will be revised to add the following two ARARs:

Action	Requirements	Prerequisite	Citation
Waste treatment and disposal — (e.g., excavated contaminated soils/sediments, debris)			
Disposal of PCB bulk product waste at 690-N	EPA will issue a written decision on each application for a risk-based sampling, disposal, or storage method for PCB bulk product wastes. EPA will approve such an application if it finds that the method will not pose an unreasonable risk of injury to health or the environment. NOTE: Appropriate information required in an application can be provided in a CERCLA document (e.g. EE/CA, Action Memo, FS, PP, or ROD) that is approved or issued by EPA.	Sampling, storage and/or disposal of PCB bulk product waste (as defined in 40 CFR 761.3) – **applicable**	40 CFR Part 761, Section 62, Paragraph (c)
	Cap requirements. A cap means, when referring to on-site cleanup and disposal of PCB remediation waste, a uniform placement of concrete, asphalt, or similar material of minimum thickness spread over the area where remediation waste was removed or left in place in order to prevent or minimize human exposure, infiltration of water, and erosion. A concrete or asphalt cap shall have a minimum thickness of 15 cm (6 inches). A cap must be of sufficient strength to maintain its effectiveness and integrity during the use of the cap surface which is exposed to the environment. A cap shall not be contaminated at a level ≥1 ppm PCB per Aroclor TM (or equivalent) or per congener. Repairs shall begin within 72 hours of discovery for any breaches which would impair the integrity of the cap.	Risk based disposal of PCB bulk product waste per 40 CFR Part 761, Section 62, Paragraph (c)(1)– **relevant and appropriate**	40 CFR Part 761, Section 61, Paragraph (a)(7)

Table 5-7, under "Compliance with ARAR" heading will be revised as shown below:

Criterion	C-1 No Action	C-2 Land Use Controls	C-3 Excavation (Hot Spot Removal) and Disposal with LUCs
Compliance with ARARs			
Chemical-Specific	~~**No ARARs exist**~~ **ARAR for sampling, storage and/or disposal of PCB waste is not achieved.**	~~**No ARARs exist**~~ **ARAR for sampling, storage and/or disposal of PCB waste can be achieved.**	~~**No ARARs exist**~~ **ARAR for sampling, storage and/or disposal of PCB waste can be achieved.**

Comments Received January 20, 2022

Note: SRS is providing herein supplemental information for the Ford Building subunit to be added to the subject document. The information is provided after the regulatory comments and responses below.

Specific Comments

1. Section 2.2.3, Surface Water Hydrology, page 2-6. Figure 2-3 is referenced at the top of page 2-6; Figure 2-2 should be referenced instead.

   Response: Agree.

   The figure callout will be changed to Figure 2-2.

   Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

2. Section 3.2.3, Ford Building, page 3-6, second paragraph and Appendix C, Human Health Risk Assessment, page C-12, second paragraph. Please state the correct PCB-1254 concentration units for both locations.

   Response: Agree.

   In Section 3.2.3, 2nd paragraph, the units for the maximum concentration of Aroclor will be changed from "pCi/g" to "mg/kg". Likewise in Appendix C, Section C-1.1.3, 3rd paragraph, units for the maximum concentration of Aroclor 1254 will be changed from "pCi/g" and "kg/kg" to "mg/kg". Similar changes will also be made in Section 3.9.2.

   Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

3. Figure 3-1, ECODS N-1 Sample Locations, page 3-35. The sentence beginning on page 3-13 and finishing at the top of page 3-14 in Section 3.7.2 states that samples were collected at a depth of 18 to 20 feet in three locations. Please include the locations of these samples on Figure 3-1.

   Response: Clarification.

   Samples collected from a depth of 18 to 20 feet were collected from all fourteen locations during the 2019 ECODS N-1 OU sampling event. No change to Figure 3-1 is required. The text in Section 3.7.2, 2nd paragraph, will be revised to include the depth of 18 to 20 ft interval prior to the fourteen (14) locations as follows:".

   "...and deep subsurface (2.4 to 3 m [8 to 10 ft], ~~and~~ 3 to 3.7 m [10 to 12 ft]) and 5.4 to 6 m (18 to 20 ft) soils at fourteen (14) locations for TAL analysis (Figure 3-1). ~~Samples were also collected at a depth of 5.4 to 6 m (18 to 20 ft) three locations.~~"

Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

4. Figure 3-2, Central Shops Scrap Lumber Pile (631-2G) Sample Locations, page 3-36. This figure shows an insert of Carolina Bay #125, yet the location of the bay in relation to the CSSLP is unclear. Please depict the location of Carolina Bay #125 on this figure or a separate one.

   Response: Agree.

   Figure 2-2 has been revised to show the Carolina Bay #125 in relation to the CSSLP. The figure is included at the end of this document. No change to Figure 3-2 is proposed. Both Figure 2-2 and Figure 3-2 will be referenced in Section 3.2.2 as follows:

   "Unit specific background sediment (0 to 0.3 m [0 to 1 ft] and 0.3 to 1.2 m [1 to 4 ft] depth intervals) ~~and surface water (unfiltered and filtered)~~ samples were collected from three (3) locations from Carolina Bay #125 ~~(CBBKG-1 through CBBKG)~~ to support the Surface Water Impoundment Area evaluation (Figure 3-2). Due to drying conditions, three (3) unit specific background surface water samples (unfiltered and filtered) were collected one week apart at one (1) location (CB125-002) from Carolina Bay #125 to support the Surface Water Impoundment Area evaluation (Figure 3-2). The location of the Carolina Bay #125 in relation to the CSSLP is shown in Figure 2-2."

   Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

5. Figure 3-3, ECODS N-1 Sample Locations, page 3-37. This figure should be renamed to indicate the Ford Building Operable Unit.

   Response: Agree.

   Figure 3-3 will be renamed as "Figure 3-3. ~~ECODS N-1~~ Ford Building Sample Locations".

   Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

6. Section 5.2.1.1.2, Alternative A-2: Land Use Controls, page 5-8 and Section 5.2.2.1.2, Alternative A-2: Land Use Controls, page 5-13. For the discussions of LUCs as a Remedial Alternative at ECODS N-1, please include language that specifically addresses signage indicating the presence of asbestos.

   Response: Agree.

   Section 5.2.1.1.2, Alternative A-2: Land Use Controls text will be revised as follows:

   "LUCs would be implemented at the ECODS N-1 subunit through the use of warning signs indicating the presence of asbestos-containing material and no trespassing ~~signs~~,

excavation permit restrictions, a Land Use Control Implementation Plan (LUCIP), and deed restrictions in the event the property is ever sold."

Section 5.2.2.1.2, Alternative A-2: Land Use Controls text will be revised as follows:

"This alternative is considered to be on the low end of the cost scale by requiring only warning signage for the presence of asbestos-containing material and no trespassing, excavation permit restrictions, a LUCIP, and any necessary deed restrictions."

Section 5.3.4.2, Alternative A-2: Land Use Controls text will be revised as follows:

"LUCs would be implemented at the ECODS N-1 subunit through the use of ~~signage (e.g., warning, no trespassing)~~ warning signs indicating the presence of asbestos-containing material and no trespassing, excavation permit restrictions, implementation of a LUCIP, and deed restrictions in the event the property is ever sold."

Responsible Party: Justin Steadman, (803) 952-7346, justin.steadman@srs.gov

7. Appendix B, Section B-2.5.1.2 ECODS N-1 Subunit Tier II Analysis, page B-24. The update to the VZCOMML© model with regards to the analysis for cyanide appears to account for the deepest detection being at 10 feet, using a more realistic parameter rather than the deepest sampling location as discussed on page B-22. Please include more discussion on the new soil layer that was modeled below the source zone as well as any cyanide concentration assumptions for this new soil layer.

Response: Agree with Clarification.

In the case of the ECODS N-1 subunit, initial simulations were run assuming contaminant concentrations equal to the maximally detected result (8.43 mg/kg for cyanide) and a source zone thickness equal to the maximum depth sampled in the characterization effort (20 ft bgs). The layers modeled for the ECODS N-1 subunit are depicted in Table B-2 and are based on soil class descriptions from Field Geologic Logs collected during the RFI/RI Work Plan effort in 2020.

Cyanide was initially identified as a Tier II COPC. Therefore, the VZCOMML© model was further refined for a second Tier II simulation specific to cyanide. Considering the 2019 pre-Work Plan sampling data, cyanide at the ECODS N-1 subunit was not detected in any samples below a depth of 10 ft bgs. The VZCOMML© model was refined to a 10 ft thick source zone with a clay loam texture classification, followed by a 10 ft thick soil layer also with a clay loam texture classification, and then followed by the soil layers identified in Table B-2. The 10 ft soil layer below the source zone was considered to have no cyanide contamination, in agreement with the soil sampling results. The proposed Section B-2.5.1.2 text change is as follows:

"The 19 constituents, which failed the Tier I screen, were evaluated in a Tier II simulation. The Tier II screen identified cobalt and cyanide as initial CM COPCs (Table B-6). The K_d value for cobalt was revised from 10 L/kg to 40 L/kg based on most recent site specific data (Kaplan 2021). The deepest sample with a detection for cyanide was located ~~at~~ 3 m (10 ft) bgs. There is no evidence of cyanide contamination below 3 m (10 ft) within the subunit. The VZCOMML© model was refined ~~updated~~ to lessen the source zone thickness from 6.1 m (20 ft) to 3 m (10 ft), and the clay loam soil texture classification was retained. Below the new source zone, a~~nd add a new~~ 3 m (10 ft) soil layer was added, which contained a clay loam soil texture classification. ~~below the source zone with a texture classification equivalent to the source zone.~~ The soil layers are consistent with what is described in Table B-2 and are based on soil class descriptions from Field Geologic Logs collected during the RFI/RI Work Plan effort in 2020 (SRNS 2020). The new 3 m (10 ft) soil layer in the refined Tier II model for cyanide is assumed to be clean, consistent with soil sample results. The revisions in the model resulted in both cobalt and cyanide passing the Tier II simulation."

Responsible Party: Adam Willey, (803) 646-4944, adam.willey@srs.gov

8. Appendix B, Section B-2.6.1 CSSLP Subunit Upland Soil Uncertainty Analysis, page B-29. The 3rd bullet under Manganese reads, "It does not appear to be unit related since it is indistinguishable from background." Does this analysis use manganese speciation to make this determination, or is the manganese indistinguishable due to its similarity to SRS background? Please explain.

   Response: Clarification.

   The determination that manganese is indistinguishable from background does not consider manganese speciation. Sample results are for total manganese, with a maximum detection below the SRS maximum total manganese in background, as stated in the first bullet of this section. This is the same comparison methodology used for many COCs at SRS when determining RCOCs to retain for waste units. No change to the document is proposed.

   Responsible Party: Adam Willey, (803) 646-4944, adam.willey@srs.gov

9. Appendix C, Section C-1 Introduction, page C-10, first paragraph. Please correct the last sentence in the paragraph to reference Figures 2-5 through Figure 2-7.

   Response: Agree.

   Section C-1, 5th paragraph, last sentence. The figure callouts will be changed to Figure 2-5 through Figure 2-7.

Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

10. Appendix C, Section C-1.2.3 Ford Building, page C-15, first bullet. Please confirm the number of soil samples taken at each depth.

    Response: Agree.

    Eleven locations were sampled at the 745-N Equipment Yard with soil samples taken at each depth. One of the eleven locations was sampled to a greater depth than the other locations.

    Appendix C, Section C-1.2.3, 1st bullet will be revised as follows:

    "At the Excess Equipment Yard (745-N), eleven locations in a 10-~~m~~ to 15-m (30-~~ft~~ to 50-ft) grid pattern ~~to cover the area~~ had soil samples taken from the surface (0- to 0.3-m [0- to 1-ft]) and shallow subsurface (0.3- to 1.2-m [1- to 4-ft]) soil intervals. ~~and at one deeper subsurface location.~~ At one of the eleven locations, deeper subsurface soil samples (2.4- to 3-m [8- to 10-ft], 5.5- to 6.1-m [18- to 20-ft], and 8.5- to 9.0-m [28- to 30-ft]) ~~soil samples~~ were collected;"

    Responsible Party: Terry Killeen, (803) 952-6850, terry.killeen@srs.gov

11. Appendix C, Section C-2.3.2.2 Sediment Media, page C-27. Lead is listed as a HH COPC in sediment in the first paragraph of this section; however, the data presented in Table C-7 indicates otherwise. Please correct.

    Response: Agree.

    Table C-7 is correct. "Lead" will be removed from Section C-2.3.2.2, 1st paragraph, 1st sentence.

    Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

12. Appendix C, Section C-2.3.3.1 Soil Media, page C-33. The references to Tables C-11, C-12 and C-13 in the first three paragraphs of this section should be changed to Tables C-12, C-13 and C-14 respectively.

    Response: Agree.

    In Section C-2.3.3.1, 1st, 2nd, and 3rd paragraphs, the table callouts will be changed to Tables C-12, C-13, and C-14, respectively, as suggested.

    Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

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13. Appendix C, Section C-2.3.3.1 Soil Media, page C-36. The first paragraph of the thallium discussion indicates a total of 37 samples with 3 detects. Table A.3.1 lists a total of 38 samples with 4 detects. Also, 23.6 mg/kg is listed as the maximum thallium concentration detected at the Ford Building Subunit in the first paragraph; however, the last paragraph on this page states higher concentrations of 43.3 mg/kg and 55.1 mg/kg. Please clarify the discussion of thallium detections and maximum concentrations.

    Response: Agree with Clarification.

    In Section C-2.3.3.1, Thallium was detected in 4 of 38 samples. The text will be modified as follows: "It was detected in ~~3/37~~ 4/38 surface soils samples with none being estimated (i.e., J-qualified)."

    No change to Table A.3.1 is required.

    The thallium concentration of 23.6 mg/kg is the highest concentration for the 0 to 0.3 m (0 to 1 ft) interval. The last paragraph on the page is discussing the distribution of thallium in all depths samples and the maximum concentrations listed are from depths specified in the text. The first paragraph of the thallium discussion will be revised as follows:

    "The highest detected concentration in the 0 to 0.3 m (0 to 1 ft) interval was at S~~s~~ample location FBFA-26 (Figure C-16) ~~had the highest detected concentration~~."

    Responsible Party: Sadika O'Quinn, (803) 952-6697, sadika.o'quinn@srs.gov

Supplemental Information for the Ford Building subunit.

During the review of the comment responses, SRS recognized that PCB-containing caulk identified in expansion joints in the original Ford Building concrete building slab meets the definition of PCB bulk product waste per 40 CFR Part 761.3 Definitions. The presence and characterization of this material is reported in *Characterization Report Building 690-N (Ford Building) and Ancillary Equipment and Facilities*, SDD-2014-00054 (SRNS, 2014). The remnant building slab and caulk are now covered by a TSCA-compliant engineered concrete cover slab placed in 2021 to complete Ford Building decommissioning.

To address this condition, the following changes will be made to the document:

Chapter 2, Section 2.3.1, the third paragraph will be revised as follows:

"The Ford Building subunit was built in the 1950s and used exclusively for testing of Ford Company-manufactured motor control packages for control rod drive mechanisms prior to their installation in the SRS reactors. During the early 1960s this facility was converted for reactor heat exchanger repair/rework. This mission continued until the early 1970s when the procurement of new heat exchangers for the SRS reactors terminated the mission of the facility. Polychlorinated biphenyls (PCBs [Aroclors]) from the early machinery, industrial contaminants, expansion joint caulk containing PCBs, and radionuclides from the heat exchangers comprise the primary sources of contamination for the Ford Building subunit primarily associated with the remnant building slab and are covered by an engineered concrete cover."

Chapter 3, Section 3.11 the last paragraph in the section will be revised as follows:

"However, maximum detected concentrations of Aroclor ~~1252~~ 1254 (max = 15 mg/kg) and Aroclor 1260 (max = 5.5 mg/kg) originating from the machine oils in the concrete remnant slab as well as expansion joint caulk containing PCBs at the Ford Building ~~exceed~~ do not meet the free release criteria. A 15-cm (6-in.) concrete cover was designed to be compliant with the cap requirements at 40 CFR 761.61(a)(7) for PCB remediation waste. The concrete cover was installed in 2021. The concrete cover breaks the direct exposure pathway to PCBs. As a result of this barrier, PCBs are not identified as an ARAR RCOC at the Ford Building. This cover also achieves the substantive requirements under 40 CFR 761.62(c) for risk-based disposal of Bulk Product Waste and the unit does not pose an unreasonable risk of injury to health or the environment."

Chapter 5, Section 5.3.6.1.2, will be revised as follows:

"~~No chemical-specific, location-specific, or action-specific ARARs are associated with Alternative C-1.~~Table 5-4 lists the potential ARARs applicable to the ECODS N-1,

CSSLP and Ford Building OU. The specific ARARs applicable to each alternative are listed below.

Chemical-Specific ARARs: **Per 40 CFR Part 761, Section 62, Paragraph (c) disposal of PCB bulk product waste would be handled in accordance with the capping requirements provided in 40 CFR Part 761, Section 61, Paragraph (a)(7).**

Location-Specific ARARs: **No location-specific ARARs are associated with Alternative C-1.**

Action-Specific ARARs: **No action-specific ARARs are associated with Alternative C-1."**

Chapter 5, Section 5.3.6.2.2, will be revised as follows:

"~~No chemical-specific, location-specific, or action-specific ARARs are associated with Alternative C-2.~~ Table 5-4 lists the potential ARARs applicable to the ECODS N-1, CSSLP and Ford Building OU. The specific ARARs applicable to each alternative are listed below.

Chemical-Specific ARARs: **Per 40 CFR Part 761, Section 62, Paragraph (c) disposal of PCB bulk product waste would be handled in accordance with the capping requirements provided in 40 CFR Part 761, Section 61, Paragraph (a)(7).**

Location-Specific ARARs: **No location-specific ARARs are associated with Alternative C-2.**

Action-Specific ARARs: **No action-specific ARARs are associated with Alternative C-2."**

Chapter 5, Section 5.3.6.3.2, will be revised as follows:

"Table 5-4 lists the potential ARARs applicable to the ECODS N-1, CSSLP and Ford Building OU. The specific ARARs applicable to each alternative are listed below.

Chemical-Specific ARARs: **Per 40 CFR Part 761, Section 62, Paragraph (c) disposal of PCB bulk product waste would be handled in accordance with the capping requirements provided in 40 CFR Part 761, Section 61, Paragraph (a)(7). ~~No chemical-specific ARARs are associated with Alternative C-3.~~ "**

Chapter 5, Section 5.4.3.2, will be revised as follows:

~~"There are no ARARs associated with Alternatives C-1 and C-2.~~Chemical-specific ARARs for Alternatives C-1, C-2 and C-3 include the disposal of PCB bulk product waste. Alternative C-1 does not achieve the chemical-specific ARAR. Alternatives C-2 and C-3 achieve the chemical-specific ARAR through an existing concrete cover, designed to be compliant with PCB capping requirements, and through the associated

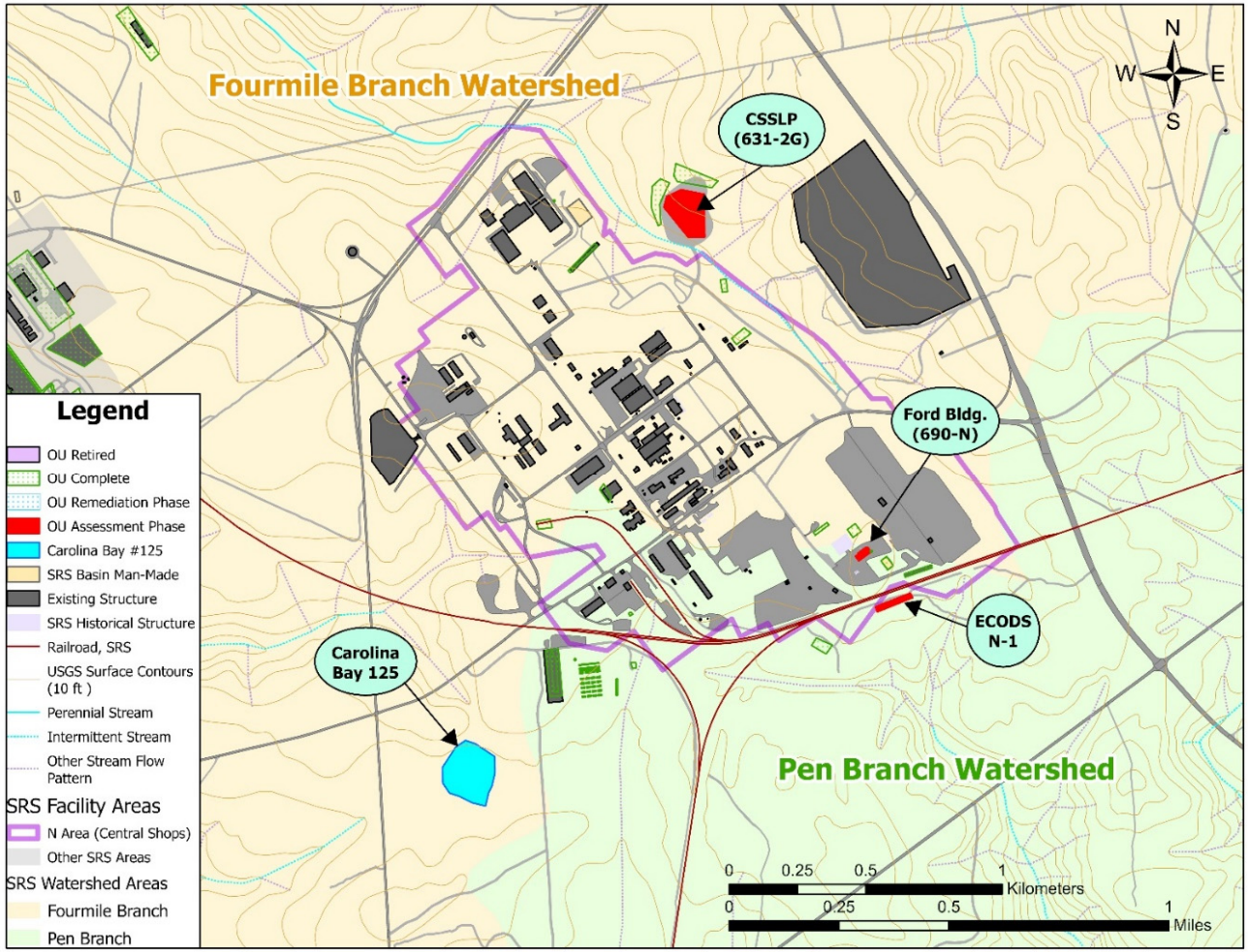
O&M to maintain the integrity of the concrete cover. Action-specific ARARs for Alternative C-3 include the characterization of low-level waste and the disposal and transportation of solid waste, which are achievable by using direct or indirect methods to characterize the waste and through the use of an existing approved disposal facility such as Three Rivers Landfill."

Table 5-4 will be revised to add the following two ARARs:

Action	Requirements	Prerequisite	Citation
Waste treatment and disposal — (e.g., excavated contaminated soils/sediments, debris)			
Disposal of PCB bulk product waste at 690-N	EPA will issue a written decision on each application for a risk-based sampling, disposal, or storage method for PCB bulk product wastes. EPA will approve such an application if it finds that the method will not pose an unreasonable risk of injury to health or the environment. NOTE: Appropriate information required in an application can be provided in a CERCLA document (e.g. EE/CA, Action Memo, FS, PP, or ROD) that is approved or issued by EPA.	Sampling, storage and/or disposal of PCB bulk product waste (as defined in 40 CFR 761.3) – **applicable**	40 CFR Part 761, Section 62, Paragraph (c)
	Cap requirements. A cap means, when referring to on-site cleanup and disposal of PCB remediation waste, a uniform placement of concrete, asphalt, or similar material of minimum thickness spread over the area where remediation waste was removed or left in place in order to prevent or minimize human exposure, infiltration of water, and erosion. A concrete or asphalt cap shall have a minimum thickness of 15 cm (6 inches). A cap must be of sufficient strength to maintain its effectiveness and integrity during the use of the cap surface which is exposed to the environment. A cap shall not be contaminated at a level ≥1 ppm PCB per Aroclor TM (or equivalent) or per congener. Repairs shall begin within 72 hours of discovery for any breaches which would impair the integrity of the cap.	Risk based disposal of PCB bulk product waste per 40 CFR Part 761, Section 62, Paragraph (c)(1)– **relevant and appropriate**	40 CFR Part 761, Section 61, Paragraph (a)(7)

Table 5-7, under "Compliance with ARAR" heading will be revised as shown below:

Criterion	C-1 No Action	C-2 Land Use Controls	C-3 Excavation (Hot Spot Removal) and Disposal with LUCs
Compliance with ARARs			
Chemical-Specific	~~**No ARARs exist**~~ **ARAR for sampling, storage and/or disposal of PCB waste is not achieved.**	~~**No ARARs exist**~~ **ARAR for sampling, storage and/or disposal of PCB waste can be achieved.**	~~**No ARARs exist**~~ **ARAR for sampling, storage and/or disposal of PCB waste can be achieved.**



Revised Figure 2-2. Central Shops (N Area) Surface Water Run-Off (Specific Comment #4)