Savannah River NUCLEAR SOLUTIONS℠

Record of Decision Remedial Alternative Selection for the Early Construction and Operational Disposal Site L-3 (NBN), L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit (U)

SEMS Number: 91

SRNS-RP-2025-01295

Revision 1

June 2026

SAVANNAH RIVER SITE • AIKEN, SOUTH CAROLINA

DISCLAIMER

This document was prepared in conjunction with work accomplished under Contract No. DE-AC09-08SR22470 with the U.S. Department of Energy.

This work was prepared under an agreement with and funded by the U.S. Government. Neither the U.S. Government or its employees, nor any of its contractors, subcontractors or their employees, makes any express or implied: 1.) warranty or assumes any legal liability for the accuracy, completeness, or for the use or results of such use of any information, product, or process disclosed; or 2.) representation that such use or results of such use would not infringe privately owned rights; or 3.) endorsement or recommendation of any specifically identified commercial product, process, or service. Any views and opinions of authors expressed in this work do not necessarily state or reflect those of the United States Government, or its contractors, or subcontractors.

Printed in the United States of America

Prepared for
U.S. Department of Energy
and
Savannah River Nuclear Solutions, LLC
Aiken, South Carolina

RECORD OF DECISION
REMEDIAL ALTERNATIVE SELECTION (U)

Record of Decision Remedial Alternative Selection for the Early Construction and Operational Disposal Site L-3 (NBN), L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit (U)

SEMS Number: 91

SRNS-RP-2025-01295
Revision 1
June 2026

Savannah River Site
Aiken, South Carolina

Prepared by:
Savannah River Nuclear Solutions, LLC
for the
U.S. Department of Energy under Contract DE-AC09-08SR22470
Savannah River Operations Office
Aiken, South Carolina

This page was intentionally left blank.

DECLARATION FOR THE RECORD OF DECISION

Unit Name and Location

Early Construction and Operational Disposal Site L-3 (no building number [NBN]), L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit
Superfund Enterprise Management System Identification Number: OU-SEMS 91
Savannah River Site
Comprehensive Environmental Response, Compensation and Liability Act
Identification Number: SC1 890 008 989
Aiken, South Carolina
United States Department of Energy

The Early Construction and Operational Disposal Site L-3 (NBN) (ECODS L-3), L-Area Rubble Pit (131-1L) (LRP 131-1L), and L-Area Rubble Pit (131-4L) (LRP 131-4L) Operable Unit (OU) is listed as a Resource Conservation and Recovery Act (RCRA) 3004(u) Solid Waste Management Unit/Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) unit in Appendix C of the Federal Facility Agreement (FFA) for the Savannah River Site (SRS).

The FFA is a legally binding agreement between regulatory agencies (U.S Environmental Protection Agency [USEPA] and South Carolina Department of Environmental Services [SCDES]) and regulated entities (U.S Department of Energy [USDOE]) that establishes the responsibilities and schedules for the comprehensive remediation of SRS. The media associated with these units is soil. Groundwater is not considered a part of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU and is addressed under the L-Area Southern Groundwater OU.

Statement of Basis and Purpose

This decision document, per 40 Code of Federal Regulation (CFR) 300.430(f)(5)(i), presents the selected remedial action for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU located at the SRS near Aiken, South Carolina. This remedy was chosen in accordance with CERCLA, as amended by the Superfund Amendments Reauthorization Act, and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the information contained in the Administrative Record File for this site.

The USEPA, SCDES, and USDOE concur with the selected remedy.

Assessment of the Site

There has been a release of contaminants at two of the three subunits of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU. More specifically, polychlorinated biphenyls (PCBs) are present in the surface soils at the ECODS L-3 subunit and asbestos containing material (ACM) may be present in soils that may pose a risk to human health receptors. For the LRP 131-4L subunit, benzo(a)pyrene is present in the surface soil that may pose a risk to human receptors. In addition, presumed ACM was identified in soil at the LRP 131-4L subunit. There are no problems warranting action identified for ecological receptors, principal threat source material (PTSM), or contaminant migration for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU. The response action selected in this Record of Decision (ROD) is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment from the ECODS L-3 and LRP 131-4L subunits. There is no current or potential threat to public health, welfare, or the environment from the LRP 131-1L subunit.

Description of the Selected Remedy

The selected remedy for the ECODS L-3 subunit is Land Use Controls (LUCs) (Alternative A-2*)* to prevent human exposure to ACM that is likely present in unit soils and to PCBs (Aroclor 1254 and Aroclor 1260) that are present in surface soils that would present an unacceptable risk to a hypothetical future resident. Alternative A-2 was selected as the preferred remedy at the ECODS L-3 subunit due to the overall protection and effectiveness of the remedy.

The LRP 131-1L subunit poses no unacceptable risk based on unlimited exposure and unrestricted land use scenario and, therefore, no remedial action is selected for this subunit.

For the LRP 131-4L subunit, the selected remedy is LUCs (Alternative B-2) to prevent human exposure to presumed ACM that is present in unit soils and to benzo(a)pyrene that is present in surface soils that present an unacceptable risk to a hypothetical future resident. Alternative B-2 was chosen as the preferred remedy at the LRP 131-4L subunit due to the overall protection and effectiveness of the remedy.

LUCs for the ECODS L-3 subunit and LRP 131-4L subunit will be in effect indefinitely, unless ACM is removed from the subunits and concentrations of hazardous substances (PCBs at the

ECODS L-3 subunit and benzo(a)pyrene at the LRP 131-4L subunit) are at levels that allow for unrestricted use and exposure. LUCs include the following:

- Warning signs posted at the ECODS L-3 and LRP 131-4L subunits around the waste unit boundaries/areas, including operations and maintenance of the signage.

- Administrative/Worker Access Controls: Includes SRS administrative controls and land use restrictions for onsite workers as implemented under the Site Use/Site Clearance Program and other controls that are in place to ensure worker safety, including work controls/work packages that include worker training, and health and safety requirements, and pre-work briefings.

- Engineering Controls: SRS access controls that limit and inform SRS workers and inadvertent trespassers as described in the current 2023 RCRA Permit Renewal Application, Volume I, Section F.1, which describes the security procedures and equipment, 24-hour surveillance system, artificial or natural barriers, control entry systems, and warning signs in place at the SRS boundary.

This remedy was selected because it meets the remedial action objectives, provides overall protection of human health and the environment, complies with Applicable or Relevant and Appropriate Requirements (ARARs), and is cost-effective. The remedy provides a high level of long-term protection from the hazardous constituents that remain in place.

The RCRA permit will be revised to reflect selection of the final remedy using the procedures under 40 CFR Part 270, and South Carolina Hazardous Waste Management Regulations R.61-79.264.101; 270.

Statutory Determinations

Based on the OU *RCRA Facility Investigation (RFI)/Remedial Investigation (RI) with Baseline Risk Assessment (BRA) and Corrective Measures Study/Feasibility Study (CMS/FS)* (Savannah River Nuclear Solutions, LLC [SRNS] 2025a), two of the three subunits (ECODS L-3 and LRP 131-4L) pose a threat to human health. No problems warranting action were determined for the LRP 131-1L subunit. Therefore, LUCs (Alternative A-2) for the ECODS L-3 subunit, and LUCs (Alternative B-2) for the LRP 131-4L subunit have been selected as the remedy for the

ECODS L-3, LRP 131-1L, and LRP 131-4L OU. No action is selected for the LRP 131-1L subunit due to no problems warranting action. The future land use for the LRP 131-1L subunit will be unrestricted and LUCs will only be required for the ECODS L-3 and LRP 131-4L subunits.

Because the remedy for the ECODS L-3 and LRP 131-4L subunits result in hazardous substances remaining on-site above levels that allow for unlimited use and unrestricted exposure, in accordance with Section 121(c) of CERCLA and the NCP, §300.430(f)(5)(iii)(c), a statutory review will be conducted within five years of initiation of the remedial action and every five years thereafter, to ensure that the remedy continues to be protective of human health and the environment. Future land use for the ECODS L-3 and LRP 131-4L subunits will be industrial.

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action (unless justified by a waiver), and is cost-effective. The statutory preference for treatment as a principal element of the remedy is not applicable as no PTSM refined constituents of concern were identified at the OU.

In the long term, if the property, or any portion thereof, is ever transferred from USDOE, the U.S. Government and/or USDOE will take those actions necessary pursuant to Section 120(h)(1) of CERCLA. Those actions will include in any contract, deed, or other transfer document, notice of the type and quantity of any hazardous substances that were known to have been stored (for more than one year), released, or disposed of on the property. The notice will also include the time at which the storage, release, or disposal took place to the extent such information is available.

In addition, if the property, or any portion thereof, is ever transferred by deed, the U.S. Government will also satisfy the requirements of CERCLA 120(h)(3). The requirements include a description of the remedial action taken, a covenant, and an access clause. These requirements are also consistent with the intent of the RCRA deed notification requirements at final closure of a RCRA facility if contamination remains at the OU.

LUCs will be implemented through the following:

- The contract, deed, or other transfer document shall also include restrictions precluding residential use of the property. However, the need for these restrictions may be reevaluated at the time of transfer in the event that exposure assumptions differ and/or the residual contamination no longer poses an unacceptable risk under residential use. Any reevaluation of the LUCs will be done through an amended ROD with USEPA and SCDES review and approval.

- In addition, if the site is ever transferred to nonfederal ownership, a survey plat of the OU will be prepared, certified by a professional land surveyor, and recorded with the appropriate county recording agency.

In the event of a property lease or interagency agreement, the equivalent restrictions will be implemented as required by CERCLA Section 120(h).

The selected remedy for the ECODS L-3 and LRP 131-4L subunits leave hazardous substances in place that pose a potential future risk and will require land use restrictions for as long as necessary to keep the selected remedy fully protective of human health and the environment. As agreed on March 30, 2000, among the USDOE, USEPA, and SCDES, SRS has implemented a Land Use Control Assurance Plan (LUCAP) (WSRC 1999) to ensure that the LUCs required by numerous remedial decisions at SRS are properly maintained and periodically verified. The OU-specific Land Use Control Implementation Plan (LUCIP) incorporated by reference into this ROD will provide details and specific measures required to implement and maintain the LUCs selected as part of this remedy. The USDOE is responsible for implementing, maintaining, monitoring, reporting upon, and enforcing the LUCs selected under this ROD. The LUCIP, developed as part of this action, will be submitted as required in the FFA for review and approval by USEPA and SCDES. Upon final approval, the LUCIP will be appended to the LUCAP and is considered incorporated by reference into the ROD, establishing LUC implementation and maintenance requirements enforceable under CERCLA. The approved LUCIP will establish implementation, monitoring, maintenance, reporting, and enforcement requirements for the OU. The LUCIP will remain in effect unless and until modifications are approved by the USEPA and SCDES as needed to be protective of human health and the environment. LUCIP modification will only occur through another CERCLA document.

Data Certification Checklist

This ROD provides the following information:

- Constituents of concern (COCs) and their respective concentrations (Section V).
- Baseline risk represented by the COCs (Section VII).
- Cleanup levels established for the COCs and the basis for the levels (Section VIII).
- Current and reasonably anticipated future land use assumptions used in the Baseline Risk Assessment and ROD (Section VI).
- Potential land use that will be available at the site as a result of the selected remedy (Section VI).
- Estimated capital, operation and maintenance, and total present-worth cost; discount rate; and the number of years over which the remedy cost estimates are projected (Section IX).
- Key decision factor(s) that led to selecting the remedy (i.e., describe how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria) (Section X).

07/28/2026 KAREN MORROW Digitally signed by KAREN MORROW Date: 2026.07.28 14:37:59 -04'00'

Date

Karen D. Morrow
Office Director for Closure and Project Management
Savannah River Operations Office
Office of Environmental Management
U. S. Department of Energy

8/14/26 Juli E. Blalock

Date

Juli E. Blalock, Chief
Bureau of Land and Waste Management
South Carolina Department of Environmental Services

Date

Hunter Johnson, Division Director
Superfund and Emergency Management Division
U. S. Environmental Protection Agency - Region 4

This page was intentionally left blank.

DECISION SUMMARY
REMEDIAL ALTERNATIVE SELECTION (U)

Record of Decision Remedial Alternative Selection for the Early Construction and Operational Disposal Site L-3 (NBN), L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit (U)

SEMS Number: 91

SRNS-RP-2025-01295
Revision 1

June 2026

Savannah River Site
Aiken, South Carolina

Prepared by:
Savannah River Nuclear Solutions, LLC
for the
U.S. Department of Energy under Contract DE-AC09-08SR22470
Savannah River Operations Office
Aiken, South Carolina

This page was intentionally left blank.

TABLE OF CONTENTS

Section		Page
Declaration for the Record of Decision		i
List of Figures		iv
List of Tables		v
List of Appendices		v
List of Abbreviations and Acronyms		vii
I.	Savannah River Site and Operablt Unit Name, Location, and Description	1
II.	Site and Operable Unit Compliance History	2
III.	Highlights of Community Participation	7
IV.	Scope and Role of the Operable Unit	9
V.	Operable Unit Characteristics	9
VI.	Current and Potential Future SIte and Resource Uses	18
VII.	Summary of Operable Unit Risks	18
VIII.	Remedial Action Objectives and Remedial Goals	25
IX.	Description of Alternatives	28
X.	Comparative Analysis of Alternatives	32
XI.	The Selected Remedy	35
XII.	Statutory Determinations	41
XIII.	Explanation of Significant Changes	42
XIV.	Responsiveness Summary	42
XV.	Post-ROD Document Schedule and Description	42
XVI.	References	43

List of Figures

Figure		Page
Figure 1.	Location of the SRS	47
Figure 2.	Location of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU at the Savannah River Site	48
Figure 3.	Location of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU within the Savannah River Site	49
Figure 4.	ECODS L-3 Subunit and Site Evaluation Sampling Locations	50
Figure 5.	L-Area Rubble Pit 131-1L Subunit and RFI/RI Work Plan Sampling Locations	51
Figure 6.	L-Area Rubble Pit 131-4L Subunit and RFI/RI Work Plan Sampling Locations	52
Figure 7.	Waste Thickness Observed at L-Area Rubble Pit (131-4L) Subunit as Outcome of RFI/RI Characterization	53
Figure 8.	Aroclor 1254 Data for Surface Soil Media (0 to 0.3 m [0 to 1 ft]) at the ECODS L-3 Subunit	54
Figure 9.	Aroclor 1260 Data for Surface Soil Media (0 to 0.3 m [0 to 1 ft]) at the ECODS L-3 Subunit	55
Figure 10.	Benzo(a)pyrene Data for Surface Soil Media (0 to 0.3 m [0 to 1 ft]) at the LRP 131-4L Subunit	56
Figure 11.	ECODS L-3, LRP 131-1L, and LRP 131-4L OU Generic Conceptual Site Model after Completion of Final Remedial Action	57

List of Tables

Table		Page
Table 1.	ECODS L-3, LRP 131-1L, and LRP 131-4L OU Risk Summary	58
Table 2a.	Summary of Refined Constituents of Concern and Medium-Specific Exposure Point Concentrations: ECODS L-3 Subunit (Soil)	59
Table 2b.	Summary of Refined Constituents of Concern and Medium-Specific Exposure Point Concentrations: LRP 131-4L Subunit (Soil)	59
Table 3.	Cancer Toxicity Data Summary	60
Table 4.	Resident Risk Characterization Summary – Carcinogens	61
Table 5.	Cleanup Levels for ECODS L-3, LRP 131-1L, and LRP 131-4L OU	62
Table 6.	ARARs for the Selected Remedial Alternative for the ECODS L-3 and LRP 131-4L Subunits	63
Table 7.	Description of CERCLA Evaluation Criteria	67
Table 8.	Comparison of ECODS L-3 Subunit Alternatives against the CERCLA Evaluation Criteria	69
Table 9.	Comparison of the LRP 131-4L Subunit Alternatives against the CERCLA Evaluation Criteria	71
Table 10.	Land Use Controls for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU	73
Table 11.	Cost Estimates for the Selected Remedy - ECODS L-3 Alternative A-2 - Land Use Controls	75
Table 12.	Cost Estimates for the Selected Remedy – LRP 131-4L Alternative B-2 – Land Use Controls	77

List of Appendices

Appendix		Page
Appendix A	Responsiveness Summary	A-1

This page was intentionally left blank.

LIST OF ABBREVIATIONS AND ACRONYMS

~	approximately
>, ≥	greater than, greater than or equal to
<	less than
ACM	asbestos containing material
ARAR	applicable or relevant and appropriate requirement
ARF	Administrative Record File
bgs	below ground surface
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulation
COC	constituent of concern
COPC	constituents of potential concern
COPEC	constituents of potential ecological concern
CM	contaminant migration
CMS/FS	corrective measures study/feasibility study
CSM	conceptual site model
ECODS	early construction and operational disposal site
EPC	exposure point concentration
ERA	ecological risk assessment
ESV	ecological screening value
FD	field duplicate
FFA	Federal Facility Agreement
ft/ft^3	feet/cubic feet
GPR	ground penetrating radar
HH	human health
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IOU	Integrator Operable Unit
km/km^2	kilometer / square kilometer
LANL	Los Alamos National Laboratory
LLC	Limited Liability Company
LOAEL	lowest observed adverse effect level
LRP 131-1L	L-Area Rubble Pit (131-1L)
LRP 131-4L	L-Area Rubble Pit (131-4L)
LUC	Land Use Control
LUCAP	Land Use Control Assurance Plan
LUCIP	Land Use Control Implementation Plan

LIST OF ABBREVIATIONS AND ACRONYMS *(continued)*

m/m^3	meter / cubic meters
mg/kg	milligram per kilogram
mi	mile
N/A	not applicable
NA	not available
NBN	no building number
NC	not calculated
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	non-detect
NOAEL	no observed adverse effect level
O&M	Operations & Maintenance
OU	operable unit
PCB	polychlorinated biphenyl
pCi/g	picocuries per gram
PRG	preliminary remedial goal
PTSM	principal threat source material
RAO	remedial action objective
RB	rinsate blank
RCOC	refined constituent of concern
RCRA	Resource Conservation and Recovery Act
REG	regular
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
RSL	regional screening level
RSV	refinement screening value
SARA	Superfund Amendments Reauthorization Act
SB/PP	Statement of Basis/Proposed Plan
SCDES[1]	South Carolina Department of Environmental Services
SE	site evaluation
SER	site evaluation report
SEMS	Superfund Enterprise Management System
SPL	split
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
TAL	Target Analyte List

[1] SCDES was known as the South Carolina Department of Health and Environmental Control prior to July 1, 2024.

LIST OF ABBREVIATIONS AND ACRONYMS *(continued/end)*

TCL	Target Compound List
TCR	total cumulative risk
TSCA	Toxic Substance Control Act
UCL	upper confidence limit
USC	U.S. Code
USDOE	U.S. Department of Energy
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
WSRC	Washington Savannah River Company
WSRC	Westinghouse Savannah River Company*, prior to 2006*
yd^3	cubic yards

This page was intentionally left blank.

I. SAVANNAH RIVER SITE AND OPERABLT UNIT NAME, LOCATION, AND DESCRIPTION

Unit Name, Location, and Brief Description

Early Construction and Operational Disposal Site L-3 (no building number [NBN]), L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit
Superfund Enterprise Management System (SEMS) Identification Number: OU-SEMS 91
Savannah River Site
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Identification Number: SC1 890 008 989
Aiken, South Carolina
U.S. Department of Energy (USDOE)

Savannah River Site (SRS) occupies approximately (~) 800 km^2 (310 mi^2) of land adjacent to the Savannah River, principally in Aiken and Barnwell counties of South Carolina. SRS is located ~40 km (25 mi) southeast of Augusta, Georgia, and 32 km (20 mi) south of Aiken, South Carolina (Figure 1).

The USDOE owns SRS, which historically produced tritium, plutonium, and other special nuclear materials for national defense and the space program. Chemical and radioactive wastes have resulted from the nuclear material production processes. Hazardous substances, as defined by the CERCLA, are present in the environment at SRS.

The Federal Facility Agreement (FFA) (FFA 1993) for SRS lists the Early Construction and Operational Disposal Site L-3 (NBN) (ECODS L-3), L-Area Rubble Pit (131-1L) (LRP 131-1L), and L-Area Rubble Pit (131-4L) (LRP 131-4L) Operable Unit (OU) as a Resource Conservation and Recovery Act (RCRA)/CERCLA Solid Waste Management Unit requiring further evaluation.

The ECODS L-3, LRP 131-1L, and LRP 131-4L OU was evaluated through an investigation process that integrates and combines the RCRA corrective action process with the CERCLA remedial process to determine the actual or potential impact to human health and the environment of releases of hazardous substances to the environment.

II. SITE AND OPERABLE UNIT COMPLIANCE HISTORY

SRS Operational and Compliance History

The primary mission of SRS has been to produce tritium, plutonium, and other special nuclear materials for our nation's defense programs. Production of nuclear materials for the defense program was discontinued in 1988. SRS has provided nuclear materials for the space program, as well as for medical, industrial, and research efforts up to the present. Chemical and radioactive wastes are by-products of nuclear material production processes. These wastes have been treated, stored, and in some cases, disposed of at SRS. Past disposal practices have resulted in soil and groundwater contamination.

Hazardous waste materials handled at SRS are managed under RCRA, 42 U.S.C § 6901-6992k, a comprehensive law requiring responsible management of hazardous waste. Certain SRS activities require South Carolina Department of Environmental Services (SCDES) operating or post-closure permits under RCRA. SRS received a RCRA hazardous waste permit from SCDES, which was most recently renewed on October 27, 2025. Module VIII of the Hazardous and Solid Waste Amendments portion of the RCRA permit mandates corrective action requirements for non-regulated solid waste management units subject to RCRA 3004(u).

On December 21, 1989, SRS was included on the National Priorities List. The inclusion created a need to integrate the established RCRA facility investigation (RFI) program with CERCLA requirements to provide for a focused environmental program. In accordance with Section 120 of CERCLA 42 U.S. Code (USC) Section § 9620(e)(2), USDOE has negotiated the FFA (FFA 1993) with U.S. Environmental Protection Agency (USEPA) and SCDES to coordinate remedial activities at SRS into one comprehensive strategy, which fulfills these dual regulatory requirements. USDOE functions as the lead agency for remedial activities at SRS, with concurrence by USEPA – Region 4 and SCDES.

Operable Unit Operational and Compliance History

The OU consists of the ECODS L-3 subunit, LRP 131-1L subunit, and LRP 131-4L subunit and its location at the SRS is shown in Figure 2. These subunits were used during the

construction and early operation of SRS for disposal of construction debris and other non-radioactive waste materials, such as rubble and concrete (Figure 3). The ECODS L-3, LRP 131-1L, and LRP 131-4L OU is located within an industrial area, and the future land use is reasonably anticipated to remain industrial. The three subunits are located outside of the L Area perimeter fence to the east-northeast.

Groundwater is not part of the OU and is being addressed under the L-Area Southern Groundwater OU.

ECODS L-3 Subunit

The ECODS L-3 subunit is one of twenty-five ECODS at SRS which were identified during a review of early 1950s aerial photographs. These sites were used during the construction and early operation of SRS for disposal of trash, construction debris and other non-radioactive waste materials, such as rubble and concrete. The ECODS L-3 subunit is estimated to have been in use from November 1953 to June 1954. Prior to its use as a disposal site, the area was used as farmland. Sections of the trenches may have been used as a burn pit for disposal of combustible waste.

The ECODS L-3 subunit is located in the southern portion of the SRS, east of L Area (Figure 3). The subunit is approximately 9.7 km (6.0 mi) north of the nearest SRS boundary. The ECODS L-3 subunit is located approximately 518 m (1,700 ft) east of the eastern corner of the L Area perimeter fence and approximately 152 m (500 ft) west of SRS Road C.

Based on historical photographs and a ground-penetrating radar survey completed in 2002 during a site evaluation (SE) of the subunit, it was estimated that waste disposed of in the ECODS L-3 subunit was buried in two trenches located end-to-end (Figure 4). The original trenches were estimated to be 18 m (60 ft) wide by 30 m (100 ft) long. The 2002 SE effort determined the trench dimensions were ~15 m (50 ft) wide by 27 m (90 ft) long and 4.6 m (15 ft) wide by 27 m (90 ft) long (WSRC 2003).

Soil samples were collected and analyzed during the 2002 SE of the ECODS L-3 subunit and results were reported in the *Site Evaluation Report for the Early Construction and*

Operational Disposal Site (ECODS) L-3 (NBN) (U) (WSRC 2003). All samples were analyzed for the complete list of Target Analyte List (TAL) and Target Compound List (TCL) constituents and the data were validated to definitive level. Definitive level data is analytical data of known quality, concentration, and level of uncertainty and is required for final decision-making. The levels of quality and uncertainty of the analytical data are consistent with the requirements for the decision to be made. Based on the site evaluation report (SER) and in accordance with Section 300.420(b)(1)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the ECODS L-3 subunit was removed from FFA Appendix G.1, *Areas to Be Investigated*, and placed in Appendix C, *RCRA/CERCLA Units* (FFA 1993) for further assessment.

An asbestos survey was not completed for the ECODS L-3 subunit during the 2002 SE. Based on the disposal history of similar SRS ECODS and the dates of operation of the ECODS L-3 subunit, asbestos containing material (ACM) may be present in soils at the ECODS L-3 subunit.

LRP 131-1L Subunit

The LRP 131-1L subunit is located in the southern portion of the SRS, east of L Area and just outside of the L Area perimeter fence (Figure 3). The subunit is approximately 9.7 km (6.0 mi) north of the nearest SRS boundary. The LRP 131-1L subunit is a former waste disposal area reportedly used for various construction debris and operated from 1973 to 1982 (DuPont 1983a). SRS records indicate that metal, lumber, poles, concrete, brick, tile, asphalt, tires, rubber, scrap metal, fence posts, hard plastics, wallboard, asbestos, glass, batteries, paint cans, drums and transite were typically disposed of at SRS construction debris sites such as the LRP 131-1L subunit (DuPont 1983a and DuPont 1983b). However, the term “pit” may be a misnomer as the 2022 characterization activities did not indicate that a pit was constructed or that waste was placed below ground surface. There is no record of hazardous or radioactive material disposed of at the subunit.

The subunit is a rectangular area approximately 12 m (40 ft) by 46 m (150 ft) with the four corners marked by orange ball markers (Figure 5).

A preliminary screening was performed at the LRP 131-1L subunit in 1991, which included a soil-gas survey to determine if hazardous waste may be present in the subsurface soils and to identify potential areas of contamination within the subunit. A total of ten soil-gas samples were collected along the centerline of the subunit. Samples were analyzed for volatile organic compounds (VOCs) and chlorinated VOCs. The survey results determined that VOCs from methane through hexane are likely to be present in the subunit soils. These compounds are expected in relation to breakdown of typical disposal debris in SRS disposal sites, however contamination within the subunit could not be ruled out and further investigation was warranted. No other characterization was performed at the LRP 131-1L subunit prior to the RFI/Remedial Investigation (RI) characterization in 2022 (SRNS 2025a). The LRP 131-1L subunit was placed in Appendix C of the FFA, *RCRA/CERCLA Units* (FFA 1993) for further assessment.

The LRP 131-1L subunit was characterized in 2022 to support RFI/RI/Baseline Risk Assessment (BRA) of the subunit and for remedial decision making. Based on observation of soil cores during sampling activities, it was determined no waste material was placed below ground surface at the LRP 131-1L subunit. Construction debris was encountered at only one soil boring in the 0.3 to 1.2 m (1 to 4 ft) interval and appeared to be a railroad tie or other creosote wooden material. No potential ACM was observed in any soil borings. All samples collected in the 2022 characterization were analyzed for the complete list of TAL and TCL constituents, as well as radiological screening for gross alpha and nonvolatile beta. All data were validated to definitive level. Definitive level data is analytical data of known quality, concentration, and level of uncertainty and is required for final decision-making. The levels of quality and uncertainty of the analytical data are consistent with the requirements for the decision to be made.

LRP 131-4L Subunit

The LRP 131-4L subunit is located northeast of the L Area perimeter fence and just north of the rail line (Figure 3). Records indicate the LRP 131-4L subunit received inert rubble from the L-Area Powerhouse Stack and Silo demolition (Dupont 1983a and DuPont 1983b). The rubble consisted primarily of concrete and asphalt material with some metal.

The unlined pit was reported to have operated from 1973 to 1983 before it was filled and seeded in 1983. Operating procedures indicate it was to receive inert, non-hazardous materials, and there are no records indicating any disposal of hazardous or radioactive materials.

Orange ball markers are present to designate the subunit boundaries, an area ~30.5 m by 30.5 m (100 ft by 100 ft) (Figure 6). However, during site walkdowns to support a 1994 SE effort, the subunit size was questioned due to land disturbance on the northwestern side of the subunit, outside of the orange ball markers. Additionally, during site walkdowns in 2021, in preparation of the RFI/RI Work Plan for the LRP 131-4L subunit, surface disturbance and debris (e.g., rebar, concrete, asphalt) were observed on the northeastern side of the subunit outside of the orange ball markers. Therefore, the LRP 131-4L subunit area to be investigated was expanded to approximately 36.6 m by 36.6 m (120 ft by 120 ft) to include the disturbed land and observed debris (Figure 6).

A SE of the LRP 131-4L subunit was conducted from 1992 to 1994, and results were reported in the *Site Evaluation Report for the L-Area Rubble Pit (131-4L) (U)* (WSRC 1994). Based on the SER, in accordance with 300.420(b)(1)(i) of the NCP, the LRP 131-4L subunit was removed from FFA Appendix G.1, *Areas to Be Investigated*, and placed in Appendix C, *RCRA/CERCLA Units, for further assessment* (FFA 1993).

The LRP 131-4L subunit was characterized in 2022 to support RFI/RI/BRA of the subunit and for remedial decision making. Characterization activities included soil boring, observation of core for waste material, and soil sampling. Estimation of the pit boundary and depth was determined through sampling activities. Based on observation of waste material at sample locations within the orange ball markers, within the expanded unit boundary to the northwest, and in step-out locations to the north, the RFI/RI investigation of the subunit did not define the extent of the buried waste to the northwest (Figure 7). Material encountered at step-out locations, including LAP-4L-040, was consistent with material encountered at other sampling locations at the LRP 131-4L subunit through visual observation and supported by analytical results. Therefore, the nature of contamination was defined through the RFI/RI investigation. All samples collected in the 2022

characterization were analyzed for the complete list of TAL and TCL constituents, as well as radiological screening for gross alpha and nonvolatile beta. All data were validated to definitive level. Definitive level data is analytical data of known quality, concentration, and level of uncertainty and is required for final decision-making. The levels of quality and uncertainty of the analytical data are consistent with the requirements for the decision to be made. The extent of contamination was conservatively estimated by extending the waste unit boundary to a ditch feature northwest of the subunit (Figure 6). This feature incises the ground surface ~0.9-1.2 m (3-4 ft) below ground surface and shows no evidence of buried waste present. This feature acts as a maximum subunit boundary in lieu of confirmatory borings to define the exact extent of buried waste.

Potential ACM was identified by technical oversight at one location (LAP-4L-018) at the LRP 131-4L subunit. In accordance with the RFI/RI Work Plan, SRS subject matter experts confirmed the material was presumed ACM and is consistent with expected building materials and the time period that the LRP 131-4L subunit was in operation.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

Both RCRA and CERCLA require the public to be given an opportunity to review and comment on the draft permit modification and proposed remedial alternatives. Public participation requirements are listed in Sections 113 and 117 of CERCLA (42 USC § 9613(k)(2)(B) and 9617(a)). These requirements include establishment of an Administrative Record File (ARF) that documents the investigation and selection of the remedial alternatives for addressing the ECODS L-3, LRP 131-1L, and LRP 131-4L OU soil media. The ARF must be established at or near the facility at issue.

The SRS FFA Community Involvement Plan (WSRC 2011) is designed to facilitate public involvement in the decision-making process for permitting, closure, and the selection of remedial alternatives. The plan addresses the requirements of RCRA, CERCLA, and the 1969 National Environmental Policy Act. South Carolina Hazardous Waste Management Regulations R.61-79.124 and Section 117(a) of CERCLA, as amended, requires the advertisement of the draft permit modification and notice of any proposed remedial action

and provides the public an opportunity to participate in the selection of the remedial action. The *Statement of Basis/Proposed Plan (SB/PP) for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU* (SRNS 2025b), a part of the ARF, highlights key aspects of the investigation and identifies the preferred action for addressing the ECODS L-3, LRP 131-1L, and LRP 131-4L OU.

The FFA ARF, which contains information pertaining to the selection of the response action, is available at the following locations:

US Department of Energy
Public Reading Room
Gregg-Graniteville Library
University of South Carolina – Aiken
471 University Parkway
Aiken, South Carolina 29803
(803) 641-3465

Thomas Cooper Library
Government Information and Maps Department
University of South Carolina
1322 Greene Street
Columbia, South Carolina 29208
(803) 777-4841

The FFA ARF is available electronically at the following address: https://public.srs.gov/missions-and-programs/environmental-stewardship/arf-irf-index/

The RCRA ARF for SCDES is available for review by the public at the following location:

The South Carolina Department of
Environmental Services
Bureau of Land and Waste
Management
2600 Bull Street
Columbia, South Carolina 29201
(803) 898-2000

The public was notified of the public comment period through mailings of the *SRS Environmental Bulletin*, a newsletter sent to citizens in South Carolina and Georgia, and through notices in the *Aiken Standard*, *The Augusta Chronicle*, *The People-Sentinel*, and *The State* newspapers. The public comment period was also announced on local radio stations.

The SB/PP 45-day public comment period began on February 5, 2026 and ended on March 22, 2026. A Responsiveness Summary, prepared to address any comments received during

the public comment period, is provided in Appendix A of the Record of Decision (ROD). A Responsiveness Summary will also be available with the final RCRA permit renewal.

IV. SCOPE AND ROLE OF THE OPERABLE UNIT

Due to the complexity and size of multiple waste units in different areas, the SRS is divided into watersheds for the purpose of managing a comprehensive cleanup strategy. The SRS is segregated into six watersheds (i.e., Upper Three Runs, Lower Three Runs, Fourmile Branch, Steel Creek, Pen Branch, and the Savannah River/Floodplain Swamp). In addition, the SRS also identifies six Integrator Operable Units (IOUs), which are the surface water bodies and associated wetlands that correspond to the six respective watersheds. Waste units within a watershed may be evaluated and remediated individually or grouped with other waste units and evaluated as part of a larger Area OU. Upon disposition of all the waste units within a watershed, a final comprehensive ROD for the corresponding IOU (i.e., surface water and associated wetlands) will be pursued with additional public involvement. The ECODS L-3, LRP 131-1L, and LRP 131-4L subunits are located within the Steel Creek watershed (Figure 2).

A release of hazardous substances into the environment has occurred at the ECODS L-3 and LRP 131-4L subunits. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. No response action is required for the LRP 131-1L subunit.

V. OPERABLE UNIT CHARACTERISTICS

Characteristics of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU are provided below.

Conceptual Site Model

The conceptual site model (CSM) is an objective framework for assessing data pertinent to the investigation. The CSM identifies and evaluates suspected sources of contamination, contaminant release mechanisms, potentially affected media (secondary sources of

contamination), potential exposure pathways, and potential human and ecological receptors.

Exposure pathways describe the course a chemical or physical agent can take from the source to the exposed receptor. The following five components constitute an exposure pathway:

1. Source (facility operations, spill, etc.)
2. Exposure medium (soil, sediment, surface water, etc.)
3. Exposure point (soil surface, sediment surface, etc.)
4. Exposure route (ingestion, dermal contact, inhalation, external radiation, etc.)
5. Receptor (resident, worker, wildlife, etc.)

If any of these elements are missing, the pathway is incomplete and is not considered further in a quantitative risk assessment. A pathway is complete when all five components are present to permit potential exposure of a receptor to a source of contamination. Exposure analysis is conceptually important in terms of identifying all the potentially complete exposure routes, understanding the nature and extent (as well as fate and transport) of contamination, and developing preliminary remedial alternatives. In a complete pathway, exposure occurs at exposure points that may represent only a small portion of the entire exposure route. If there is no exposure point, then there is no exposure, and the pathway is considered incomplete.

The OU consists of three subunits: ECODS L-3, LRP 131-1L, and LRP 131-4L. Figures 2 and 3 depict the location of the subunits within the SRS and L Area, respectively. These subunits represent geographically distinct locations within the ECODS L-3, LRP 131-1L, and LRP 131-4L OU, each of which contains environmental media to which a receptor may be exposed, that allow for the summary of data and evaluation of potential exposure. This approach allows for remedial decisions to be made on a smaller scale within the larger OU area. Characterization activities for soil media were conducted in 2002 at the ECODS L-3 subunit and in 2022-2023 for the LRP 131-1L and LRP 131-4L subunits. No groundwater or surface water samples were collected.

Media Assessment

The overall investigative approach that was implemented for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU investigation is described in the combined *RCRA Facility Investigation (RFI)/Remedial Investigation (RI) with Baseline Risk Assessment (BRA) and Corrective Measures Study/Feasibility Study (CMS/FS)* (SRNS 2025a). The Core Team representatives from USDOE, USEPA, and SCDES agreed to this combined and accelerated strategy for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU.

Subunit Investigation (Soil Media)

Characterization of the ECODS L-3, LRP 131-1L, LRP 131-4L OU was conducted primarily in 2002, and 2022-2023, and is documented in the RFI/RI/BRA/Corrective Measures Study (CMS)/Feasibility Study (FS) (SRNS 2025a). A brief description of the characterization efforts for each subunit is provided below.

ECODS L-3 Subunit

A SE characterization effort at the ECODS L-3 subunit was conducted in 2002. The SE characterization efforts in 2002 included a radiological control survey, a ground penetrating radar (GPR) survey, and soil sampling. The radiological control survey designated the area as a "Clean Area." Two confirmation soil samples were collected from location EL3-09 and EL3-10 (Figure 4) and were sent for laboratory analyses of gross alpha and nonvolatile beta. Sample results confirmed both samples were below the screening level of 20 picocuries per gram (pCi/g) for gross alpha and 50 pCi/g for nonvolatile beta.

Based on historical photographs, it is estimated that waste disposed of in the ECODS L-3 subunit was buried in two trenches located end-to-end and each ~18 m (60 ft) wide by 30 m (100 ft) long. The boundaries of the trenches were estimated by the 2002 GPR survey which determined the size of each trench determined to be ~15 m (50 ft) wide by 27 m (90 ft) long and 4.6 m (15 ft) wide by 27 m (90 ft) long (Figure 4). The GPR survey estimated the depth as ~7.3 m (24 ft) below ground surface (bgs). However, during soil sampling, the bottom of the two trenches within the subunit were confirmed at depths of 3.4 m (11 ft) bgs or less.

In support of the 2002 SE, composite soil sampling was performed at 23 locations, including five background locations, using direct push technology. Eighteen of the locations were distributed systematically throughout the area using a grid pattern. Sixteen of sampling locations (EL3-01 to EL3-16) were within the trenches; one location (EL3-17) was adjacent to the east end of the eastern trench; and one sample location (EL3-18) was between the two trenches. The five background sampling locations (EL3-19 to EL3-23) were selected based on the groundwater flow path with one side-gradient location, one down-gradient location, and three up-gradient of the subunit.

Sampling was completed at all 23 locations with a total of 90 samples collected (Figure 4). Thirteen locations were sampled from three intervals to a depth of 2.4m (8 ft) bgs. Three sampling locations (EL3-06, EL3-10, and EL3-16) collected samples from four sample intervals to a depth of 3.7 m (12 ft) bgs. Seven sampling locations (EL3-01, EL3-02 and EL3-19 to EL3-23) collected samples from five intervals to a depth of 4.9 m (16 ft) bgs. During sampling activities, the presence of waste was noted to include glass, metal, and rubber.

All samples were analyzed for the TAL of inorganic constituents and the TCL of organic compounds, pesticides, herbicides, and polychlorinated biphenyls (PCBs).

LRP 131-1L Subunit

The 2022 RFI/RI characterization started with an effort to delineate the lateral and vertical extent of the subunit with a GPR survey. The GPR survey at the LRP 131-1L subunit was not able to confirm land disturbance below surface within the subunit boundary. Visual description of the core collected from all sampling locations were described (SRNS 2025a). Subsurface soil appeared to be native and undisturbed throughout; therefore it was determined that a “pit” was not constructed at this subunit. This was further confirmed through historical photos which demonstrated that waste was placed on surface at the subunit, and no pit was constructed.

Soil sampling of the LRP 131-1L subunit was completed in accordance with the RFI/RI Work Plan (SRNS 2022). Twenty-one sampling locations and a total of 131 samples (113

REG, 7 FD, 7 splits [SPL], and 4 rinsate blanks [RB]) were collected to determine nature and extent of contamination. Eight pit boundary locations (LAP-1L-001 to LAP-1L-008) were chosen to aid in extent determination and 13 locations (LAP-1L-009 to LAP-1L-021) were placed within the subunit boundary in a random, unbiased sampling pattern (Figure 5). Five soil boring intervals from 0 m (0 ft) down to 4.9 m (16 ft) were sampled at all locations. At the eight boundary locations, an additional subsurface soil interval was sampled at 4.9 to 6.1 m (16 to 20 ft) bgs in order to confirm the extent of the subunit was delineated. All samples were successfully collected without any deviations.

For the LRP 131-1L subunit, the seven SPL samples were collected at locations LAP-1L-003 and LAP-1L-018 (0.0 to 0.3 m [0 to 1 ft]), LAP-1L-006 and LAP-1L-021 (0.3 to 1.2 m [1 to 4 ft]), LAP-1L-009 (1.2 to 2.4 m [4 to 8 ft]), LAP-1L-012 (2.4 to 3.6 m [8-12 ft]), and LAP-1L-015 (3.6 to 4.9 m [12 to 16 ft]) (Figure 5). SPL samples were collected and prepared using the same methods as REG samples and were sent to separate laboratories from the REG samples for analyses using the same analytical methods to ensure direct comparison.

Waste was encountered at one location (LAP-1L-015) at the bottom of the 0.3 to 1.2 m (1 to 4 ft) interval (Figure 5). The observed waste appeared to be a railroad tie, or other creosote wooden material. No potential ACM was observed on the surface of the unit or in any soil borings for the LRP 131-1L subunit during field activities.

All samples were analyzed for all constituents on the TAL and TCL, and all requested analyses were completed without deviation. In addition to TAL and TCL constituents, gross alpha and nonvolatile beta screening was performed on all samples.

LRP 131-4L Subunit

The 2022 RFI/RI characterization started with an effort to delineate the lateral and vertical extent of the subunit with a GPR survey. GPR was performed prior to commencement of soil sampling activities to ascertain if pit size and depth could be determined. However, due to interferences with shallow deposition of material and makeup, as well as shallow roots from the dense underbrush, the findings were inconclusive.

Soil sampling of the LRP 131-4L subunit consisted of 41 total sample locations for a total of 220 samples (192 REG, 11 FD, 11 SPL, and 6 RB) collected (Figure 6). Fifteen samples were unable to be collected due to waste material within the sampling depth at depths of 1.2 m (4 ft) to 2.4 m (8 ft) at five locations (LAP-4L-014, LAP-4L, 015, LAP-4L-021, LAP-4L-032, LAP-041), 2.4 m (8 ft) to 3.6 m (12 ft) at seven locations (LAP-4L-014, LAP-4L-015, LAP-4L-018, LAP-4L-032, LAP-4L-035, LAP-4L-040, and LAP-4L-041), and 3.6 m (12 ft) to 4.9 m (16 ft) at one location (LAP-4L-041) or no deep soil recovered in sample barrel at two sampling intervals for LAP-4L-30 (2.4 [8 ft] to 3.6 m [12 ft], 3.6 [12 ft] to 4.9 m [16 ft]). There were fourteen interior sample locations (LAP-4L-013 to LAP-4L-016, LAP-4L-018, LAP-4L-020 to LAP-4L-022, LAP-4L-024 to LAP-4L-026, and LAP-4L-028 to LAP-4L-030), completed in a random, unbiased sampling pattern spaced 6.1 m (20 ft) apart within the subunit. Along the original subunit boundary, delineated by the orange ball markers, eleven peripheral sample locations were identified (LAP-4L-006 to LAP-4L-011, LAP-4L-017, LAP-4L-023, and LAP-4L-031 to LAP-4L-033). Eight sample locations (LAP-4L-001 to LAP-4L-005, LAP-4L-012, LAP-4L-019, and LAP-4L-027) were included to investigate the area northeast of the subunit, where debris was observed on surface. Four sample locations (LAP-4L-034 to LAP-4L-037) were included to bound an area of subsidence that was identified on the northern side of the subunit during site walkdowns. Four step-out sample locations (LAP-4L-038 to LAP-4L-041) were identified northwest of the subunit as contingent locations based on field observations.

For the LRP 131-4L subunit, the eleven SPL samples were collected at locations LAP-4L-002, LAP-4L-010, LAP-4L-012, and LAP-4L-022 (0.0 to 0.3 m [0 to 1 ft]), LAP-4L-004 and LAP-4L-014 (0.3 to 1.2 m [1 to 4 ft]), LAP-4L-006, LAP-4L-016, and LAP-4L-020 (1.2 to 2.4 m [4 to 8 ft]), LAP 4L 008 (2.4 to 3.6 m [8 to 12 ft]) and LAP-4L-025 (3.6 to 4.9 m [12 to 16]) (Figure 6). SPL samples were collected and prepared using the same methods as REG samples and were sent to separate laboratories from the REG samples for analyses using the same analytical methods to ensure direct comparison.

All of the 41 locations were sampled with soil sampling depth intervals that included surface soil (0.0 to 0.3 m [0 to 1 ft] bgs), subsurface soil (0.3 to 1.2 m [1 to 4 ft] bgs), and

deep soil (1.2 to 2.4 m and 2.4 to 3.6 m [4 to 8 ft and 8 to 12 ft] bgs), unless samples were unable to be collected due to waste in the sample core or no recovery of deep soil in the sample barrel. At three locations of the LRP 131-4L subunit (LAP-4L-016, LAP-4L-020, and LAP-4L-026), the bottom of the pit was confirmed in previous intervals and the tentative interval from 3.6 to 4.9 m (12 to 16 ft) bgs was not sampled. At 33 locations (LAP-4L-001 to LAP-4L-015, LAP-4L-017 to LAP-4L-019, LAP-4L-021 to LAP-4L-025, LAP-4L-027 to LAP-4L-029, LAP-4L-031, LAP-4L-033, LAP-4L-034, and LAP-4L-036 to LAP-4L-039), sampling was completed at 3.6 to 4.9 m (12 to 16 ft) bgs because the bottom of the pit was not confirmed, or waste was determined in the previous sampling depth. At four locations (LAP-4L-032, LAP-4L-035, LAP-4L-040, and LAP-4L-041), sampling was completed to a depth of 4.9 to 7.3 m (16 to 20 ft) bgs because waste was confirmed in the 3.6 to 4.9 m (12 to 16 ft) bgs interval. Additionally, at one location (LAP-4L-030), sampling was completed to a depth of 6.1 to 7.3 m (20 to 24 ft) bgs due to no soil recovery in the shallower depths. At sample location LAP-4L-007 (Figure 6), a soil core was collected to a depth of 15 m (50 ft) bgs, and lithologic descriptions recorded. The deep samples were collected to provide necessary information at depth to support the contaminant migration (CM) analysis and better define nature and extent below the unit. Soil cores were recorded in the field for lithologic descriptions at all sample locations (SRNS 2025a). Most of the soil described contained significant amount of clay matrix, except within the waste, and the pit was underlain by a dense clay unit.

All samples were analyzed for all constituents on the TAL and TCL, and all requested analyses were completed without deviation. In addition to TAL and TCL constituents, gross alpha and nonvolatile beta screening was performed on all samples. Estimation of the pit boundary and depth was determined through sampling activities. Through soil sampling activities, waste was identified within the orange balls marking the pit boundary. Waste was also observed in peripheral locations to the northwest (Figure 7), therefore the four step-out locations were drilled and sampled. In this area, waste was observed at step-out location LAP-4L-040 from 0.91 to 4.6 m (3.0 to 15 ft) bgs. Based on observation of waste material at LAP-4L-040, the RFI/RI characterization of the subunit did not define

the extent of the buried waste to the northwest, which was beyond the original defined subunit boundary. However, a natural drainage ditch provided a boundary to the northwest.

Description of waste encountered throughout the subunit consisted of brick, concrete, metal, rebar, wire, charred debris, black clinker/ash, and asphalt. Thickness of waste at the unit varied in depth from 0.2 to 3.9 m (0.5 to 12.8 ft) with an approximate volume of 10,900 m^3 (386,000 ft^3) (Figure 7). Potential ACM was identified at one location (LAP-4L-018) at a depth of 0.6 to 1.7 m (2 to 5.5 ft) (Figure 6). In accordance with the RFI/RI Work Plan, an SRS asbestos inspector confirmed the material was presumed ACM and is consistent with expected building materials and the time period that the LRP 131-4L subunit was in operation.

Media Assessment Results

A comprehensive approach was implemented to address potential impact to the human health and the environment at the ECODS L-3, LRP 131-1L, and LRP 131-4L OU. Soil samples were collected and analyzed in support of a 2002 SE characterization for ECODS L-3 subunit. Soil samples were collected and analyzed for the LRP 131-1L and LRP 131-4L subunits in 2022 and 2023 during the RFI/RI characterization. Sample locations are presented in Figures 4 through 6 for the subunits of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU.

The characterization data were used to perform a human health risk assessment (HHRA), an ecological risk assessment (ERA), a principal threat source material (PTSM) evaluation, and a CM to groundwater analysis (SRNS 2025a). Table 1 summarizes the results of these evaluations and identifies refined constituents of concern (RCOCs) for the OU. RCOCs are those constituents that were retained following a weight-of-evidence evaluation and require remedial action.

Human health (HH) RCOCs were identified for the future resident scenario at the ECODS L-3 subunit and the LRP 131-4L subunit. PCBs in surface soil at ECODS L-3 subunit were determined to be a potential threat to HH (hypothetical resident). Additionally, ACM is potentially present in the ECODS L-3 subunit soil and, therefore,

presents a potential risk to human receptors should exposure occur. Benzo(a)pyrene was determined to be a potential threat to HH (hypothetical resident) within surface soil at LRP 131-4L subunit. Additionally, presumed ACM was identified in LRP 131-4L subunit soil and therefore, presents a potential risk to human receptors should exposure occur. No HH RCOCs were identified for the future resident scenario at the LRP 131-1L subunit and no HH RCOCs were identified for the future industrial worker scenario in any of the three subunits. A brief description of the media assessment results for each subunit is provided below.

ECODS L-3 Subunit

At the ECODS L-3 subunit, PCBs (Aroclor 1254 and Aroclor 1260) are present in the surface soils that pose a risk greater than 1E-06 and a hazard quotient (HQ) greater than 1 to the hypothetical resident receptor scenario. More specifically, Aroclor 1254 (exposure point concentration [EPC] – 1.28 mg/kg) has a residential risk of 5.4E-06 (Figure 8) and Aroclor 1260 (EPC = 0.354 mg/kg) has a residential risk of 1.5E-06 (Figure 9). PCB total cumulative risk (TCR) = 6.9E-06. Aroclor 1254 also has a HQ = 1.1 for the hypothetical residential scenario. ACM is likely present in unit soils that may pose a risk to human receptors if exposed.

LRP 131-1L Subunit

No problems warranting action were determined for the LRP 131-1L subunit.

LRP 131-4L Subunit

At the LRP 131-4L subunit, benzo(a)pyrene (EPC = 0.164 mg/kg) is present in the surface soil (0.3 m [0 to 1 ft]) that poses a risk greater than 1.0E-06 for the hypothetical resident receptor scenario (risk = 1.4E-06) (Figure 10). ACM is likely present in unit soils that may pose a risk to human receptors if exposed.

Site-Specific Factors

No site-specific factors requiring special consideration that might affect the remedial action for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU are present at the site.

VI. CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Land Uses

According to the SRS Future Use Project Report (USDOE 1996), residential uses of SRS land should be prohibited. The *Land Use Control Assurance Plan for the Savannah River Site* (WSRC 1999) designates the ECODS L-3, LRP 131-1L, and LRP 131-4L OU as being within an industrial area. The future land use is reasonably anticipated to remain industrial with USDOE maintaining control of the land.

Groundwater is not a part of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU and is being addressed separately as part of the L-Area Southern Groundwater OU.

VII. SUMMARY OF OPERABLE UNIT RISKS

Baseline Risk Assessment

As a component of the RFI/RI process, a BRA was performed to evaluate risks associated with the ECODS L-3, LRP 131-1L, and LRP 131-4L OU (SRNS 2025a). The BRA estimates what risks the site poses if no action were taken. It provides a basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. The BRA includes a HHRA, ERA, PTSM evaluation, and CM analysis. This section of the ROD summarizes the results of the BRA for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU (SRNS 2025a).

Summary of Human Health Risk Assessment

The ECODS L-3, LRP 131-1L, and LRP 131-4L OU is located in L Area in an area currently designated for industrial use. No current or projected future development of these subunits are planned, nor is the current land use expected to change. Nevertheless, to support the risk management decision-making, both the residential (unrestricted) and industrial land use scenarios were evaluated. A description of each is presented below.

The *future resident* receptor scenario evaluates long-term risks to individuals assumed to have unrestricted use of the area. This scenario considers residents (children and adults) that hypothetically live on the subunits and are exposed chronically, both indoors and

outdoors, to subunit contaminants. The standard exposure assumptions are 26 years, 350 days per year, and 24 hours per day.

The *future industrial worker* scenario is a standard USEPA exposure scenario which addresses long-term risks to workers who are exposed to subunit contaminants within an industrial setting. The standard exposure assumptions are 25 years, 250 days per year, and 8 hours per day. This receptor is referred to as "composite worker" by USEPA and is analogous to the term "industrial worker" used herein. The future industrial worker scenario considers an adult who hypothetically works on-unit in an outdoor setting for the majority of time.

Exposure routes associated with soil include incidental ingestion, inhalation of particulates and vapors, dermal absorption, and external exposure to radiation. The 0 to 0.3 m (0 to 1 ft) surface interval from the ECODS L-3, LRP 131-1L, and LRP 131-4L subunits were evaluated for both the residential and industrial worker scenarios in the HHRA.

USEPA publishes regional screening levels (RSLs) for non-radiological constituents and preliminary remediation goals (PRGs) for radiological constituents that are risk-based concentrations (or activity concentrations) that can be used to evaluate potentially contaminated waste sites. RSLs and PRGs combine current USEPA toxicity values with standard exposure factors that represent reasonable maximum exposure conditions to estimate contaminant concentrations in exposure media that the agency considers protective of humans over a lifetime. The concentrations are based on direct exposure pathways for which generally accepted methods, models, and assumptions have been developed for specific land use conditions.

The *USEPA Regional Screening Levels* website (USEPA 2023a) was the source of RSLs used in this assessment. The generic table located on the USEPA website was published in November 2023 and used all default parameters for both the residential and industrial worker scenarios. The RSL website was accessed in December 2023.

The *Preliminary Remediation Goals for Superfund* website (USEPA 2023b) was the source of the PRGs used in this assessment. The website was accessed in December 2023. The

PRGs for a residential scenario were obtained by using the website calculator function to derive site-specific PRGs. These site-specific PRG values were calculated by using all default parameters as standard input assumptions with the exception of the fruit and vegetable consumption pathways (SRNS 2023b). The PRGs for an industrial worker scenario were obtained from the generic table which assumed all default parameters.

The first step of the formal HHRA for soil was data screening to identify human health constituents of potential concern (COPCs). The maximum detected soil concentration from the 0 to 0.3 m (0 to 1 ft) sample depth interval for each constituent was compared to a residential RSL or PRG screening value and SRS background concentration, if appropriate (i.e., for naturally occurring constituents only). Constituents that exceeded the soil screening criteria were identified as COPCs and were carried forward to the quantitative risk evaluation.

The quantitative risk assessment was implemented by a streamlined approach which used the RSLs/PRGs to calculate the HH risk estimates for each ECODS L-3, LRP 131-1L, and LRP 131-4L OU subunit.

For carcinogens, the risk estimate was calculated using the following equation:

$$\textit{Cancer Risk} = \textit{(exposure point concentration / RSL or PRG) x 1E-06}$$

The EPC is identified as the lesser of the maximum detected value or the 95% upper confidence limit (UCL) of the mean concentration. Carcinogenic constituents with an individual cancer risk greater than (>) 1E-06 were identified as HH constituents of concern (COCs).

For noncarcinogens, the hazard estimate was calculated using the following equation:

$$\textit{Noncancer Hazard Quotient} = \textit{EPC / RSL}$$

If the total hazard index (HI) was less than (<) 1, then no COCs were identified. If the total HI was greater than or equal to (≥) 1, then the constituents were segregated based on relevant target organs. HQs were summed according to target organs. Constituents were identified as HH COCs if the total organ HQ was > 0.1 and the total organ HI was > 1.

A recommendation of whether a HH COC should be carried forward for further remedial evaluation was based on a thorough analysis of each constituent in an uncertainty discussion. COCs that were not eliminated in the refinement process based on a weight-of-evidence evaluation were identified as HH RCOCs.

There were no HH RCOCs for the LRP 131-1L subunit. HH RCOCs were identified for the ECODS L-3 and the LRP 131-4L subunits (soil). The Risk Assessment Guidance for Superfund Part D tables are presented for the RCOCs identified in the BRA to support the HH risk discussion. Tables 2a and 2b list the RCOCs and their EPCs for each subunit. Table 3 provides a summary of the cancer toxicity data, and Table 4 provides the calculated risk levels for the future resident.

More specifically, for the ECODS L-3 subunit, Aroclor 1254 (risk = 5.44E-06; HQ = 1.1) and Aroclor 1260 (risk = 1.48E-06) (TCR) = 6.9E-06) was identified as a HH RCOC in soil media for the future resident scenario (Table 4). No constituents were identified as a HH RCOCs in soil for the future industrial worker scenario (Table 1).

For the LRP 131-4L subunit, benzo(a)pyrene (risk = 1.43E-06) was identified as a HH RCOC in soil media for the future resident scenario (Table 4). No constituents were identified as a HH RCOCs in soil for the future industrial worker scenario.

Summary of Ecological Risk Assessment

Ecological risk is associated with the potential for harmful effects to ecosystems resulting from exposure to an environmental stressor. A stressor is any physical, chemical, or biological entity that can induce an adverse response. Stressors may adversely affect specific natural resources or entire ecosystems, including plants and animals, as well as the environment with which they interact.

The habitats within the ECODS L-3, LRP 131-1L, and LRP 131-4L OU support terrestrial receptors on a relatively small scale with the media of concern being soil. Surface (0 to 0.3 m [0 to 1 ft]) and subsurface (0.3 to 1.2 m [1 to 4 ft]) intervals from the ECODS L-3, LRP 131-1L, and LRP 131-4L subunits were evaluated (soil, terrestrial receptors) in the ERA.

Ecological threshold levels are medium- and receptor-specific values that can be used to evaluate (i.e., screen) soil, sediment, and surface water data from potentially contaminated sites. The thresholds are derived from several sources and are used to evaluate No Observed Adverse Effect Level (NOAEL) and Lowest Observed Adverse Effect Level (LOAEL) for wildlife receptors. The ecological screening values (ESVs) in the initial screening-level effects evaluation are based on NOAEL thresholds. For constituents that exceed ESVs and background screening, refinement screening values (RSVs) are used for the refinement-level risk calculation. The RSVs are based on LOAEL thresholds appropriate for refinement of soil, sediment, and surface water constituents.

The threshold values used for the ESV and RSV assessments were derived from three sources: (1) the *USEPA Region 4 Ecological Risk Assessment Supplemental Guidance Interim Draft* (USEPA 2018), (2) the Los Alamos National Laboratory (LANL) ECORISK Database Tool (LANL 2017), and (3) the SCDES, R.61-68, Water Classifications and Standards (SCDES 2023).

The ECODS L-3, LRP 131-1L, and LRP 131-4L OU ERA consisted of steps designed to provide a scientifically based and defensible assessment of exposure and hazard assessment for ecological receptors that will support a risk management decision regarding site remediation. The ERA included a screening-level ecological effects evaluation in which constituent concentrations in soil, were compared to relevant ecological screening levels; constituents that exceeded ESVs or that had no ESV were considered constituents of potential ecological concern (COPECs). COPECs that result from the screening-level evaluation are carried forward to a refinement-level risk (hazard) calculation in which refinement-level HQs are calculated for each COPEC. The refinement-level screening is based on LOAEL thresholds and the 95% UCL on the mean. Analytes that failed the refinement-level screening were considered COPCs. Uncertainties associated with the screening thresholds, background concentrations, nature and extent of contamination, receptor-specific area use factors, age of data, or contaminants that result from the screening and refinement processes were discussed in an uncertainty evaluation. The uncertainty discussion concluded with a determination of whether the constituent should or should not be considered a RCOC.

The screening level ecological effects evaluation for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU indicated that more information was not needed to make remedial decision recommendations for the protection of ecological receptors. Site-specific biological sampling or additional studies were not warranted. No ecological problems warranting action for soil at the ECODS L-3, LRP 131-1L, and LRP 131-4L OU were identified.

Summary of the Fate and Transport Analysis

A fate and transport analysis was performed to identify CM COCs. Tier I screening was conducted on each subunit modeling the most conservative assumptions including maximum constituent concentrations at the maximum sample depth (i.e., shortest travel time distance in the vadose zone to water table). Tier I constituents predicted to potentially impact groundwater at concentrations exceeding action levels were assessed further, following a less conservative set of assumptions for the Tier II analysis, assessing the impact to groundwater at concentrations exceeding action levels within the evaluation timeframe of 1,000 years. Vadose zone CM simulations were modeled based on the best available data from previous soil boring activities as well as recent soil core descriptions for the CM analysis performed using VZCOMML© (V.4.0)[2]. Results of the CM evaluation revealed no soil contaminants in the vadose zone with the potential to migrate to groundwater and exceed groundwater action levels within 1,000 years. No contaminant migration RCOCs were identified at the ECODS L-3, LRP 131-1L, and LRP 131-4L OU as a result of this evaluation.

Discussion of Principal Threat Source Material

Source materials are those materials that include or contain hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air that acts as a source for direct exposure (USEPA 1991). PTSM is defined as source material that has a high toxicity or mobility and cannot be reliably contained or present a significant risk to HH or the environment. No threshold

[2] Vadose Zone Contaminant Migration Multi-Layered Model (VZCOMML©) Version 4.0, Copyright TXu 1-663-361, 2009, Savannah River Nuclear Services, LLC.

level of toxicity/risk has been established to define "principal threat." However, treatment or removal alternatives should be considered for source materials when the cumulative risk for the future industrial worker exceeds 1E-03 for carcinogens or a HI of 10 for noncarcinogens. The identification of PTSM based on mobility is evaluated under the CM analysis. In order to determine whether contaminants in soil at the ECODS L-3, LRP 131-1L, and LRP 131-4L OU may be considered PTSM, a quantitative assessment evaluating the toxicity of the source material was performed.

Data used for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU PTSM evaluation included soil results from all depth intervals from each subunit, as appropriate. The USEPA default industrial worker was the receptor scenario evaluated under the PTSM evaluation for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU.

In the preliminary screen, the maximum detected concentration for every constituent from each subunit in the ECODS L-3, LRP 131-1L, and LRP 131-4L OU was determined and used as the EPC. HQs for noncarcinogens and risk estimates for carcinogens were calculated using industrial worker RSLs/PRGs as risk-based threshold levels. Results of the PTSM evaluation for soil at the ECODS L-3 subunit indicate that the HI is 2.79E+00 and the cumulative risk is 3.99E-05. No PTSM RCOCs were identified for the ECODS L-3 subunit soil medium.

For the LRP 131-1L subunit, results of the PTSM evaluation for soil indicate that the HI is 1.74E-01 and the cumulative risk is 2.36E-04. No PTSM RCOCs were identified for the LRP 131-1L subunit soil media.

For the LRP 131-4L subunit, results of the PTSM evaluation for soil indicate that the HI is 1.10E+00 and the cumulative risk is 5.08E-04. No PTSM RCOCs were identified for the LRP 131-4L subunit soil media.

In summary, no PTSM RCOCs were identified for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU.

Conclusion

As determined in the combined RFI/RI/BRA/CMS/FS report (SRNS 2025a), unacceptable risks were identified under the future resident scenario for the ECODS L-3 subunit for Aroclor 1254 and Aroclor 1260 contamination in soil, and the LRP 131-4L subunit for benzo(a)pyrene in soil. In addition, asbestos is likely present within the ECODS L-3 and LRP 131-4L subunits that may potentially pose a threat to human health if disturbance of subsurface soils occurs. The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

VIII. REMEDIAL ACTION OBJECTIVES AND REMEDIAL GOALS

This section discusses the remedial action objectives (RAOs) and cleanup levels for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU to protect human health and the environment and mitigate the effects of contamination.

Remedial Action Objectives

RAOs are medium- or OU-specific objectives for protecting human health and the environment. RAOs usually specify potential receptors and exposure pathways and are identified during project scoping once the CSM is understood. RAOs describe what the remediation must accomplish and are used as a framework for developing remedial alternatives. The RAOs are based on the nature and extent of contamination, threatened resources, and the potential for human and environmental exposure. The following RAOs have been identified for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU and are protective of the future resident:

- ECODS L-3 subunit
    - Prevent exposure of human receptors to ACM that is likely present in unit soils if exposed.
    - Prevent exposure of a future resident to Aroclor 1254 and Aroclor 1260 in surface soils at levels exceeding 1E-06 risk and an HQ of 1.

- LRP 131-4L subunit
  - Prevent exposure of human receptors to presumed ACM that is likely present in unit soils if exposed.
  - Prevent exposure of a future resident to benzo(a)pyrene in surface soils at levels exceeding 1E-06 risk.

Cleanup Levels

PRGs serve to provide a range of cleanup levels for each RCOC and are typically identified along with the RAOs. Following public comment and approval of the SB/PP, the PRGs for the selected remedy are documented as final cleanup levels in the ROD. Cleanup levels were previously referred to as remedial goals in earlier SRS documentation.

Cleanup levels can be qualitative statements or numerical values often expressed as concentrations in soil or groundwater, or actions (installation of engineered barriers, placement of caps and covers, etc.) that achieve the RAO. These cleanup levels are either concentration levels that correspond to a specific risk or hazard or are based on ARARs. Final cleanup levels will be monitored to determine when the remedial action is complete.

PRGs and final cleanup levels for receptors and media of concern are presented in Table 5. Cleanup levels were calculated for the future resident scenario that corresponds to a target cancer risk of 1.0E-06 at the ECODS L-3 and LRP 131-4L subunits and are presented in Table 5. A cleanup level for asbestos at the ECODS L-3 and LRP 131-4L subunits is not presented in Table 5 because risk-based thresholds are not available at the USEPA RSL website. The most restrictive PRG or background concentration is selected as the final cleanup level.

Figures 8 and 9 are maps of the HH RCOC locations at the ECODS L-3 subunit that exceeded the RSL for a future resident scenario for Aroclor 1254 and Aroclor 1260, respectively. Figure 10 is a map of the HH RCOC location that exceeded the RSL for the future resident scenario for the LRP 131-4L subunit for benzo(a)pyrene.

Applicable or Relevant and Appropriate Requirements

Section 121(d) of CERCLA, as amended by the Superfund Amendments Reauthorization Act (SARA), requires that remedial actions for cleanup of hazardous substances must comply with requirements and standards set forth under Federal and State environmental laws and regulations that are applicable or relevant and appropriate (i.e., ARARs). ARARs are Federal and more stringent, promulgated State environmental or facility siting requirements in a law or regulation that a selected remedy must attain, which vary from site to site. SARA requires that the remedial action for a site meet all ARARs unless a waiver is invoked.

ARARs consist of two sets of requirements: those that are applicable, and those that are relevant and appropriate. Applicable requirements are those substantive standards that specifically address the situation at a CERCLA site and are promulgated under Federal or State environmental laws. If a requirement is not applicable, it may still be relevant and appropriate. "Applicability" is a legal and jurisdictional determination, while the determination of "relevant and appropriate" relies on professional judgment, considering environmental and technical factors at the site. A requirement may be "relevant" in that it covers situations similar to that at the site but may not be "appropriate" to apply for various reasons and, therefore, not well suited to the site. In some situations, only portions of a requirement or regulation may be judged relevant and appropriate; if a requirement is applicable, however, all substantive parts must be followed. In addition to ARARs, many Federal and State environmental and public health programs include criteria, guidance, and proposed standards that are not legally binding but provide useful approaches or recommendations. Such information is required to-be-considered when cleanup levels are developed.

Key ARARs associated with each alternative are discussed in more detail in the Description of Alternatives section. The complete list of ARARs for the selected remedy are presented in Table 6 for the ECODS L-3 subunit and the LRP 131-4L subunit.

IX. DESCRIPTION OF ALTERNATIVES

This section presents and summarizes the remedial alternatives for the final remedy for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU. The RFI/RI/BRA/CMS/FS for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU (SRNS 2025a) included the identification and screening of technologies, development and screening of alternatives, and a detailed analysis of remedial alternatives. The range of alternatives includes options that (1) restrict exposure to contaminated media; (2) reduce exposure to contaminated media; and (3) eliminate exposure to contaminated media. Remedial alternatives were developed for each subunit as described below. Eight remedial alternatives were evaluated in the RFI/RI/BRA/CMS/FS (SRNS 2025a). Since the LRP 131-1L subunit had no problems warranting action, remedial alternatives were not evaluated for this subunit. Eight alternatives (Alternatives A-1 through A-4 for ECODS L-3 subunit; Alternatives B-1 through B-4 for LRP 131-4L subunit) were retained for detailed analysis in the RFI/RI/BRA/CMS/FS (SRNS 2025a) and are described below.

Remedy Components, Common Elements, and Distinguishing Features of Each Alternative

ECODS L-3 Subunit (Alternatives A-1, A-2, A-3, and A-4)

Alternative A-1: No Action

The No Action alternative is required by the NCP to serve as a baseline for comparison with other remedial alternatives. Under this alternative, no effort would be made to control access, limit exposure, or reduce toxicity, mobility, or volume of RCOCs at the ECODS L-3 subunit. This alternative would leave the ECODS L-3 subunit in its current condition with no additional controls. This alternative does not include five-year remedy reviews.

Summary of Costs

Capital Cost:.....$0
Operation and Maintenance (O&M):.....$0
Total Present-Worth Cost: $0

Alternative A-2: Land Use Controls

This alternative uses land use controls (LUCs) to limit access to the entire ECODS L-3 subunit. LUCs have been implemented successfully within SRS and are fully employed in all areas of the site to limit access at the site boundary and on-site facilities. Specific LUCs to be used in the remedy at the ECODS L-3 subunit include warning/no trespassing signs (related to the presence of asbestos), the SRS Site Use/Site Clearance Program, the RCRA Permit Renewal Application, Volume I, Section F.1, and deed restrictions when the property is transferred outside federal ownership. This alternative would require five-year remedy reviews.

Summary of Costs

Capital Cost: $32,030
O&M: $350,528
Total Present-Worth Cost: $382,558

Alternative A-3: Soil Cover with Land Use Controls

This alternative consists of placing a 0.6 m (2 ft) soil cover over the ECODS L-3 subunit to prevent exposure to human receptors. A soil cover would be constructed using standard earth-moving equipment. Specific LUCs to be used in the remedy at the ECODS L-3 subunit include warning/no trespassing signs (related to the presence of asbestos), the SRS Site Use/Site Clearance Program, the RCRA Permit Renewal Application, Volume I, Section F.1, and deed restrictions when the property is transferred outside federal ownership. Maintenance of the soil cover and five-year remedy reviews are required.

Summary of Costs

Capital Cost: $1,006,950
O&M: $221,762
Total Present-Worth Cost: $1,228,712

Alternative A-4: Excavation and Disposal

This alternative consists of excavating all contaminated media within the ECODS L-3 subunit and disposing off-site. Specifically, this remedial alternative includes clearing ~0.2 hectares (0.5 acres); constructing stormwater management system, the removal and offsite disposal of ~6,728 m^3 (8,800 cubic yards [yd^3]) of contaminated media to a depth of 3.7 m

(12 ft) below ground surface (the bottom depth of the disposal pits); contouring the site after removal of the contaminated media; backfilling with clean fill to grade; and constructing a vegetated cover over the footprint. This alternative would not require LUCs or five-year remedy reviews.

Summary of Costs

Capital Cost: $1,654,216
O&M: $0
Total Present-Worth Cost: $1,654,216

LRP 131-4L (Alternatives B-1 through B-4)

Alternative B-1: No Action

The No Action alternative is required by the NCP to serve as a baseline for comparison with other remedial alternatives. Under this alternative, no effort would be made to control access, limit exposure, or reduce toxicity, mobility, or volume of COCs at the LRP 131-4L subunit. This alternative would leave the LRP 131-4L subunit in its current condition with no additional controls. This alternative does not include five-year remedy reviews.

Summary of Costs

Capital Cost $0
O&M.....$0
Total Present-Worth Cost $0

Alternative B-2: Land Use Controls

This alternative involves the use of administrative and engineering controls to limit access to the entire LRP 131-4L subunit. LUCs have been implemented successfully within SRS and are fully employed in all areas of the site to limit access at the site boundary and on-site facilities. Specific LUCs to be used in the remedy at the LRP 131-4L subunit include warning/no trespassing signs (related to the presence of asbestos), the SRS Site Use/Site Clearance Program, the RCRA Permit Renewal Application, Volume I, Section F.1, and deed restrictions when the property is transferred outside federal ownership. This alternative would require five-year remedy reviews.

Summary of Costs

Capital Cost $32,030
O&M.....$386,406
Total Present-Worth Cost $418,432

Alternative B-3: Soil Cover with Land Use Controls

Alternative B-3 consists of placing a 0.6 m (2 ft) soil cover over the entire area of the LRP 131-4L subunit to prevent exposure to human receptors. A soil cover would be constructed using standard earth-moving equipment. Specific LUCs to be used in the remedy at the LRP 131-4L subunit include warning/no trespassing signs (related to the presence of asbestos), the SRS Site Use/Site Clearance Program, the RCRA Permit Renewal Application, Volume I, Section F.1, and deed restrictions when the property is transferred outside federal ownership. Maintenance of the soil cover and five-year remedy reviews are required.

Summary of Costs

Capital Cost $1,294,659
O&M.....$248,679
Total Present-Worth Cost $1,543,338

Alternative B-4: Excavation and Disposal

Alternative B-4 consists of excavating all contaminated media within the LRP 131-4L subunit and disposing off-site. Specifically, this remedial alternative includes clearing ~0.5 hectares (1.2 acres); the removal and offsite disposal of ~21,592 m^3 (23,613 yd^3) of contaminated media to a depth of 4.3 m (14 ft) below ground surface (the bottom depth of the disposal pits), contouring the site after removal of the contaminated media, backfilling with clean fill to grade, and constructing a vegetated cover over the footprint. The estimated volume is based on the maximum extent of contamination, extending the boundary to the northwest to a nearby ditch feature. The ditch shows no evidence of buried waste present and acts as a maximum subunit boundary. This alternative would not require LUCs or five-year remedy reviews.

Summary of Costs

Capital Cost $7,671,286
O&M.....$0
Total Present-Worth Cost $7,671,286

X. COMPARATIVE ANALYSIS OF ALTERNATIVES

The NCP (40 Code of Federal Regulation [CFR] 300.430(e)(9)) requires that potential remedial alternatives undergo detailed analysis using relevant evaluation criteria that will be used to select a final remedy. USEPA has established nine evaluation criteria to address the statutory requirements under CERCLA. The criteria fall into categories of threshold criteria, primary balancing criteria and modifying criteria. The nine evaluation criteria are detailed in Table 7.

The potential remedial alternatives have been evaluated against the threshold and primary balancing criteria. Provided below is a summary of the comparison of the alternatives against the CERCLA evaluation criteria. Key advantages and disadvantages for each alternative relative to one another and in relation to the two threshold criteria and five primary balancing criteria are discussed below and summarized in Table 8 for the ECODS L-3 subunit, and Table 9 for the LRP 131-4L subunit.

ECODS L-3 Subunit

Overall Protection of Human Health and the Environment

Alternative A-1 creates a potential for human exposure to asbestos and is not protective of HH because there are no controls or remediation. Alternative A-2 limits exposure to the contaminated media through the implementation of engineering and administrative controls. Alternative A-3 protects HH by the placement of a soil cover to eliminate the direct exposure pathways in addition to the use of administrative and engineering controls. Alternative A-4 protects HH by the excavation of the contaminated media to eliminate the direct exposure pathway. Protection to ecological receptors is not applicable for Alternatives A-1, A-2, A-3, and A-4 since contaminants are not at levels that pose a threat to the environment.

Compliance with ARARs

Alternative A-1 does not achieve the chemical-specific ARAR associated with the asbestos. Alternatives A-2, A-3, and A-4 will comply with the asbestos ARARs in Table 6 that are relevant and appropriate to the selected LUCs, which include warning signs, public access controls, and deed notices for asbestos disposal sites.

Short-Term Effectiveness

Alternative A-1 is not effective in the short-term since exposure is not prevented and therefore, ranked lowest of all the alternatives. Alternatives A-3 and A-4 were ranked equally due to the injury risk to the industrial worker during implementation, although this is typically mitigated by health and safety measures. Implementation of Alternatives A-3 and A-4 would also require a longer time frame to implement. Alternative A-2 was ranked the highest due to posing no risk to the industrial worker or surrounding community during implementation and the short time frame to implement the alternative.

Long-Term Effectiveness and Permanence

Alternative A-1 is not effective in the long-term since exposure is not prevented and therefore ranked the lowest. Alternatives A-2 and A-3 are ranked equally due to remaining effective as long as LUCs are in place. Alternative A-4 is the most effective in the long-term due to the elimination of all contaminated media within the subunit.

Reduction of Toxicity, Mobility, or Volume through Treatment

None of the alternatives employ any treatment to reduce the toxicity, mobility, or volume of the contaminated media. As such, all alternatives are given an equally low ranking.

Implementability

No implementation is required of Alternative A-1; therefore, this alternative was ranked highest. Alternative A-2 was ranked the same as Alternative A-1 even though this alternative requires administrative and engineering controls that are easy to implement. Alternatives A-3 and A-4 were ranked below Alternative 2 and equally ranked due to the extended time frame to implement.

Cost

The total present-worth cost for each of the alternatives is provided below:

Alternative A-1 No Action: $0
Alternative A-2 Land Use Controls: $382,558
Alternative A-3 Soil Cover with LUCs: $1,228,712
Alternative A-4 Excavation and Disposal: $1,654,216

LRP 131-4L Subunit

Overall Protection of Human Health and the Environment

Only Alternative B-1 is not protective of human health and the environment. Alternative B-2 limits exposure to the contaminated media through the implementation of administrative and engineering controls. Alternative B-3 breaks the exposure pathway to contaminated media through the use of a protective cover system in addition to the use of administrative and engineering controls. Alternative B-4 eliminates exposure to human health and the environment by removing all contaminated media at the site.

Compliance with ARARs

There are no ARARs that have been identified associated with Alternative B-1. Alternative A-2 will comply with the asbestos ARARs in Table 7 that are relevant and appropriate to the selected LUCs, which include warning signs, public access controls, and deed notices for asbestos disposal sites Alternatives B-3 and B-4 use BMPs to achieve the action-specific ARARs to minimize sediment erosion and manage stormwater runoff. Alternative B-4, which includes disposal and transportation of solid waste, would meet SCDES requirements through an existing approved disposal facility such as Three Rivers Landfill.

Short-Term Effectiveness

Alternative B-1 is not effective in the short-term since exposure is not prevented and therefore, ranked lowest of all alternatives. Alternative B-2 was ranked the same as Alternative B-1 even though this alternative required administrative and engineering controls that are easy to implement. Alternatives B-3 and B-4 were ranked below Alternative B-2 and equally ranked due to the extended time frame to implement.

Long-Term Effectiveness and Permanence

Alternative B-1 is not effective in the long-term since exposure is not prevented and therefore, it ranked lowest. Alternatives B-2 and B-3 are ranked equally due to remaining effective as long as LUCs are in place. Alternative B-4 is the most effective in the long-term due to the elimination of all contaminated media within the subunit.

Reduction of Toxicity, Mobility, or Volume through Treatment

None of the alternatives employ any treatment to reduce the toxicity, mobility, or volume of the contaminated media. As such, all alternatives were given an equally low ranking.

Implementability

No implementation is required of Alternative B-1; therefore, this alternative was ranked the highest. Alternative B-2 was ranked the same as Alternative B-1 even though this alternative requires administrative and engineering controls that are easy to implement. Alternatives B-3 and B-4 were ranked below Alternative B-2 and equally ranked due to the extended time frame to implement.

Cost

The total present-worth cost for each of the alternatives is provided below:

Alternative B-1 No Action: $0
Alternative B-2 Land Use Controls: $418,436
Alternative B-3 Soil Cover with LUCs: $1,543,338
Alternative B-4 Excavation and Disposal: $7,671,286

XI. THE SELECTED REMEDY

Detailed Description of the Selected Remedy

For the ECODS L-3 subunit, *Alternative A-2, Land Use Controls* is the selected remedy because it is effective in preventing human exposure to ACM that is likely present in unit soils and to PCBs (Aroclor 1254 and Aroclor 1260) that are present in the surface soil that will present an unacceptable risk to a hypothetical future resident. Alternative A-2 will achieve the RAO provided LUCs remain in place.

For the LRP 131-4L subunit, *Alternative B-2, Land Use Controls* is the selected remedy because it is effective in preventing human exposure to ACM that is likely present in unit soils and to benzo(a)pyrene that is present in the surface soil that will present an unacceptable risk to a hypothetical future resident. Alternative B-2 will achieve the RAO provided LUCs remain in place.

The following LUC objectives are necessary to ensure protectiveness of Alternative A-2:

- Prevent contact, removal, or excavation of soil within the ECODS L-3 subunit.
- Prohibit the development and use of property for residential housing, elementary secondary schools, childcare facilities and playgrounds.

LUCs is a proven remedy for many other waste units at SRS. The unit boundary, shown in Figure 4, is the approximate LUC boundary for the ECODS L-3 subunit. The unit boundary, shown in Figure 6, is the approximate LUC boundary for the LRP 131-4L subunit. The LUC remedy consists of using engineering and administrative controls to prevent/restrict access to the future resident from the contaminated media within the ECODS L-3 and LRP 131-4L subunits. Specific LUCs to be used in the remedy at the ECODS L-3 and LRP 131-4L subunits include warning/no trespassing signs (related to the presence of asbestos), the SRS Site Use/Site Clearance Program, the RCRA Permit Renewal Application, Volume I, Section F.1, and deed restrictions when the property is transferred outside federal ownership. Periodic (annual) inspections will be required and periodic maintenance (e.g., sign repair) will be performed to ensure that the LUCs remain protective. Five-year remedy reviews will be required. Alternative A-2 would achieve the RAO and meet ARARs (Table 6) and is determined to be protective of human health and the environment.

LUCs will be maintained indefinitely, or until ACM is removed and the concentration of hazardous substances in the media is at such levels to allow for unrestricted use and exposure. For the limited purpose of cost-estimation, the timeframe for LUCs is assumed to be 30 years.

As required in the installation-wide Land Use Control Assurance Plan (LUCAP), and in accordance with the approved *Environmental Compliance and Area Completion Projects Regulatory Document Handbook* (SRNS 2025c), a Land Use Control Implementation Plan (LUCIP) will be prepared by the USDOE that describes the implementation and maintenance actions for the remedial action, including periodic inspections. If other specific LUCs are found to be effective during preparation of the LUCIP, they can, in general, be added to the LUCIP without further revision of this ROD, unless the objective of the LUCs is found to be different than the LUC objectives stated in The Selected Remedy section. Periodic inspections will be performed to ensure warning signs are in place and no unauthorized encroachment onto the controlled area is occurring. Signs will be replaced and/or repaired as needed, and records for site use/site control permits will be maintained within the SRS infrastructure. The USDOE is responsible for implementing, maintaining, monitoring, reporting upon, and enforcing the LUCs. The LUCIP will remain in effect unless and until modifications are approved by the USEPA and SCDES as needed to be protective of human health and the environment.

Land Use Controls for ECODS L-3 Subunit and LRP 131-4L Subunit and Implementation

LUCs selected to meet the RAOs for the ECODS L-3 subunit and the LRP 131-4L subunit are presented in Table 10 and include the following:

- Signage will be located at the subunit boundaries to alert on-site workers to the presence of hazardous substances and to prevent unauthorized entry and unrestricted uses. The date for installation of the signs will be stated in the OU-specific LUCIP referenced in this ROD.

- The SRS Site Use/Site Clearance Program, which requires review of any proposed work on-site if on or in proximity to waste units. Other administrative controls to ensure worker safety include work controls, worker training, and worker briefings of health and safety requirements.

- SRS access controls to prevent exposure to trespassers, as described in the current RCRA Permit Renewal Application, Volume I, Section F.1, which describes the security procedures and equipment, 24-hour surveillance system, artificial or natural barriers, control entry systems, and warning signs in place at the SRS boundary.

In the long term, if the property, or any portion thereof, is ever transferred from USDOE, the U.S. Government and/or USDOE will take those actions necessary pursuant to Section 120(h)(1) of CERCLA. Those actions will include in any contract, deed, or other transfer document, notice of the type and quantity of any hazardous substances that were known to have been stored (for more than one year), released, or disposed of on the property. The notice will also include the time at which the storage, release, or disposal took place to the extent such information is available.

In addition, if the property, or any portion thereof, is ever transferred by deed, the U.S. Government will also satisfy the requirements of CERCLA 120(h)(3). The requirements include: a description of the remedial action taken, a covenant, and an access clause. These requirements are also consistent with the intent of the RCRA deed notification requirements at final closure of a RCRA facility if contamination will remain at the OU.

LUCs will be implemented at the ECODS L-3 and LRP 131-4L subunits through the following:

- The contract, deed, or other transfer document shall also include restrictions precluding residential use of the property. However, the need for these restrictions may be reevaluated at the time of transfer in the event that exposure assumptions differ and/or the residual contamination no longer poses an unacceptable risk under residential use. Any reevaluation of the LUCs will be done through an amended ROD with USEPA and SCDES review and approval.

- In addition, if the site is ever transferred to nonfederal ownership, a survey plat of the OU will be prepared, certified by a professional land surveyor, and recorded with the appropriate county recording agency.

In the event of a property lease or interagency agreement, the equivalent restrictions will be implemented as required by CERCLA Section 120(h).

The selected remedy for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU leaves hazardous substances in place that pose a potential future risk and will require land use restrictions for as long as necessary to keep the selected remedy fully protective of human health and the environment.

As agreed on March 30, 2000, among USDOE, USEPA, and SCDES, SRS is implementing a LUCAP (WSRC 1999) to ensure that the LUCs required by numerous remedial decisions at SRS are properly maintained and periodically verified. The OU-specific LUCIP referenced in this ROD will provide details and specific measures required to implement and maintain the LUCs selected as part of this remedy. The USDOE is responsible for implementing, maintaining, monitoring, reporting upon, and enforcing the LUCs selected under this ROD. The LUCIP, developed as part of this action, will be submitted as required in the FFA for review and approval by USEPA and SCDES. Upon final approval, the LUCIP will be appended to the LUCAP and is considered incorporated by reference into the ROD, establishing LUC implementation and maintenance requirements enforceable under CERCLA and the SRS FFA. The approved LUCIP will establish implementation, monitoring, maintenance, reporting, and enforcement requirements for the OU. The LUCIP will remain in effect unless and until modifications are approved as needed to be protective of human health and the environment. LUCIP modifications will only occur through another CERCLA document. The LUCs shall be maintained until the concentration of hazardous substances associated with the OU have been reduced to levels that allow for unlimited exposure and unrestricted use. Approval by USEPA and SCDES is required for any modification or termination of the OU-specific LUCs.

USDOE has recommended that residential use of SRS land be controlled; therefore, future residential use and potential residential water usage will be restricted to ensure long-term protectiveness. LUCs will restrict the ECODS L-3 and LRP 131-4L subunits to future industrial use and will prohibit residential use of the area. Unauthorized excavation will also be prohibited, and the OU subunits will remain undisturbed. LUCs selected as part of

this action will be maintained for as long as they are necessary and termination of any LUCs will be subject to CERCLA requirements for documenting changes in remedial actions.

Cost Estimate for the Selected Remedy

The estimated costs for *Alternative A-2, LUCs* for the ECODS L-3 subunit and *Alternative B-2, LUCs* for the LRP 131-4L subunit is $800,994. A detailed, activity-based breakdown of the estimated costs associated with implementing and maintaining the selected remedy is presented in Tables 11 through 12 and summarized below:

Remedy	Total Estimated Cost
Alternative A-2, LUCs	$382,558
Alternative B-2, LUCs	$418,436
	$800,994

The information in the cost estimate summary tables for the ECODS L-3 and LRP 131-4L subunits is based on the best available information regarding the anticipated scope of the remedial alternatives. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the ARF, an Explanation of Significant Difference to this ROD, or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to –30 percent of the actual project cost.

Estimated Outcomes of Selected Remedy

Based on the information currently available, the USDOE, USEPA, and SCDES believe that *Alternative A-2, LUCs* for the ECODS L-3 subunit, and *Alternative B-2, LUCs* for the LRP 131-4L subunit, provide the best balance of tradeoffs among the alternatives with respect to the evaluation criteria.

For the ECODS L-3 subunit, *Alternative A-2 (LUCs)* addresses the risk to human receptors by limiting access and restricting excavation at the subunit, thereby eliminating the potential exposure to asbestos in subsurface soils and to PCBs (Aroclor 1254 and Aroclor 1260) in surface soil. Alternative A-2 achieves the RAO and has been determined to be

protective of human health and the environment. The land use at the ECODS L-3 subunit will remain industrial.

For the LRP 131-4L subunit, *Alternative B-2 (LUCs)* addresses the risk to human receptors by limiting access and restricting excavation at the subunit, thereby eliminating the potential exposure to asbestos in subsurface soils and to benzo(a)pyrene in surface soil. Alternative B-2 achieves the RAO and has been determined to be protective of human health and the environment. The land use at the LRP 131-4L subunit will remain industrial.

For the ECODS L-3 and LRP 131-4L subunits, periodic (annual) inspections will be required and periodic maintenance (e.g., sign repair) will be performed to ensure that the LUCs remain protective. Five-year remedy reviews will be required for both subunits.

Waste Disposal and Transport

Because LUCs is the selected remedy for the ECODS L-3 subunit and the LRP 131-4L subunit, there will be no waste streams generated during the remedial action.

Conceptual Site Model

Figure 11 shows a generic CSM for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU that illustrates how the primary exposure routes of concern will be broken/rendered incomplete upon implementation of the selected remedy. The USDOE expects the Selected Remedy to satisfy the statutory requirements in CERCLA Section 121(b) to: 1) be protective of human health and the environment, 2) comply with ARARs, and 3) be cost effective.

XII. STATUTORY DETERMINATIONS

Based on the RFI/RI/BRA/CMS/FS (SRNS 2025a), the ECODS L-3, LRP 131-1L, and LRP 131-4L OU poses a threat to human health at the ECODS L-3 subunit and the LRP 131-4L subunit. No response action is required at the LRP 131-1L subunit. Therefore, *Alternative A-2, LUCs* for the ECODS L-3 subunit and *Alternative B-2, LUCs* for the LRP 131-4L subunit has been selected as the final remedy for the ECODS L-3, LRP 131-1L,

and LRP 131-4L OU. As part of the selected remedy, the future land use of the ECODS L-3 and LRP 131-4L subunits will be industrial use.

For the ECODS L-3 and LRP 131-4L subunits, in accordance with Section 121(c) of CERCLA and NCP §300.430(f)(5)(iii)(c), a statutory review will be conducted, within five years of initiation of the remedial action, and every five years thereafter, to ensure that the remedy continues to be protective of human health and the environment.

The selected remedy is protective of human health and the environment, complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action (unless justified by a waiver), and is cost-effective. Treatment is not a principal element of the remedy for the ECODS L-3 subunit and LRP 131-4L subunit because LUCs provide protection of human health and the environment while providing the best balance of tradeoffs regarding treatment with respect to implementability, long-term effectiveness, and permanence at a reasonable cost.

XIII. EXPLANATION OF SIGNIFICANT CHANGES

The remedies selected in this ROD do not contain any significant changes from the preferred alternatives presented in the SB/PP (SRNS 2025b).

XIV. RESPONSIVENESS SUMMARY

The Responsiveness Summary is included as Appendix A of this document, as appropriate.

XV. POST-ROD DOCUMENT SCHEDULE AND DESCRIPTION

A summary of the key deliverables and submittal dates for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU is summarized below.

Submit Revision 0 Record of Decision	January 05, 2026
Submit Revision 0 Land Use Control Implementation Plan	July 22, 2026
Issuance of the Record of Decision	September 24, 2026
Remedial Action Start	December 28, 2027

XVI. REFERENCES

DuPont, 1983a. *Departmental Environmental Action Plan Data Sheets*, R275832, E.I. DuPont de Nemours and Company, Savannah River Plant, Aiken, SC

DuPont, 1983b, *Waste Sites on the Savannah River Plant*, DPSP-83-1008, January 5, 1983, E.I. DuPont de Nemours and Company, Savannah River Plant, Aiken, SC

FFA, 1993. *Federal Facility Agreement for the Savannah River Site,* Administrative Docket No. 89-05-FF (Effective Date: August 16, 1993)

LANL, 2017. *ECORISK Database*, Release 4.1, Los Alamos National Laboratory, Los Alamos, NM

SCDES, 2023. *Water Classifications & Standards*, R. 61-68, Bureau of Water, SC

SRNS, 2022. *RFI/RI Work Plan for the Early Construction and Operational Disposal Site L-3 (NBN), L-Area Rubble Pit (131-1L) and L-Area Rubble Pit (131-4L) Operable Unit (U)*, SRNS-RP-2021-05602, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2025a. *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 L-3, L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit (U*), SRNS-RP-2023-01365, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2025b. *Statement of Basis/Proposed Plan for the Early Construction and Operational Disposal Site L-3 (NBN), L-Area Rubble Pit (131-1L), and L-Are Rubble Pit (131-4L) Operable Unit (U)*, SRNS-RP-2025-00724, Revision 1, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

SRNS, 2025c. *Environmental Compliance and Area Completion Projects Regulatory Document Handbook*, SRNS-RP-2022-00330, Revision 0, December 2025, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

USDOE, 1996. *SRS Future Use Project Report, Stakeholder Preferred Recommendations for SRS Land Use Facilities*, United States Department of Energy, Savannah River Operations Office, Aiken, SC

USEPA, 1991. *A Guide to Principal Threat and Low Level Threat Wastes,* 9380.3-06FS, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington, DC

USEPA, 2018. *Region 4 Ecological Risk Assessment Supplemental Guidance March 2018 Update*, U.S. Environmental Protection Agency, Scientific Support Section, Superfund Division, Atlanta, GA

USEPA, 2023a. *USEPA Regional Screening Levels* website*,* U.S. Environmental Protection Agency, National Center for Environmental Assessment, Arlington, VA, (November), accessed December 2023, https://www.epa.gov/risk/regional-screening-levels-rsls

USEPA, 2023b. *Preliminary Remediation Goals for Radionuclides,* U.S. Environmental Protection Agency, Office of Land and Emergency Management, Washington, DC, (February), accessed December 2023, https://epa-prgs.ornl.gov/radionuclides

WSRC, 1994. *Site Evaluation Report for the L-Area Rubble Pit (131-4L) (U)*, WSRC-RP-92-1263, Revision 1, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

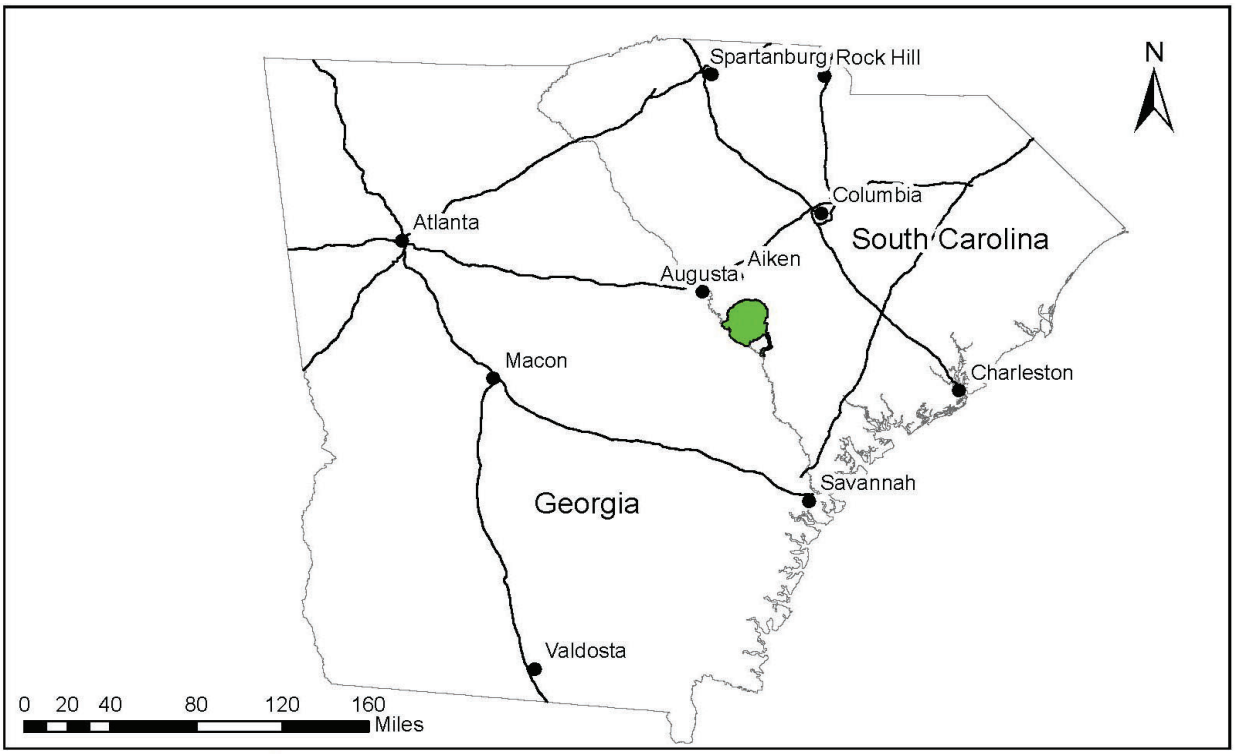
WSRC, 1999. *Land Use Control Assurance Plan for the Savannah River Site*, WSRC-RP-98-4125, Revision 1.1, latest revision, Savannah River Nuclear Solutions, LLC, Savannah River Site, Aiken, SC

WSRC, 2003. *Site Evaluation Report for the Early Construction and Operational Disposal Site (ECODS) L-3 (NBN) (U)*, WSRC-RP-2003-4048, Revision 0, Westinghouse Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2006. *Background Soils Statistical Summary Report for the Savannah River Site*, ERD-EN-2005-0223 Revision 1, Washington Savannah River Company, Savannah River Site, Aiken, SC

WSRC, 2011. *Savannah River Site Federal Facility Agreement Community Involvement Plan (U),* Revision 7, WSRC-RP-96-120, Washington Savannah River Company LLC, Savannah River Site, Aiken, SC

This page was intentionally left blank.



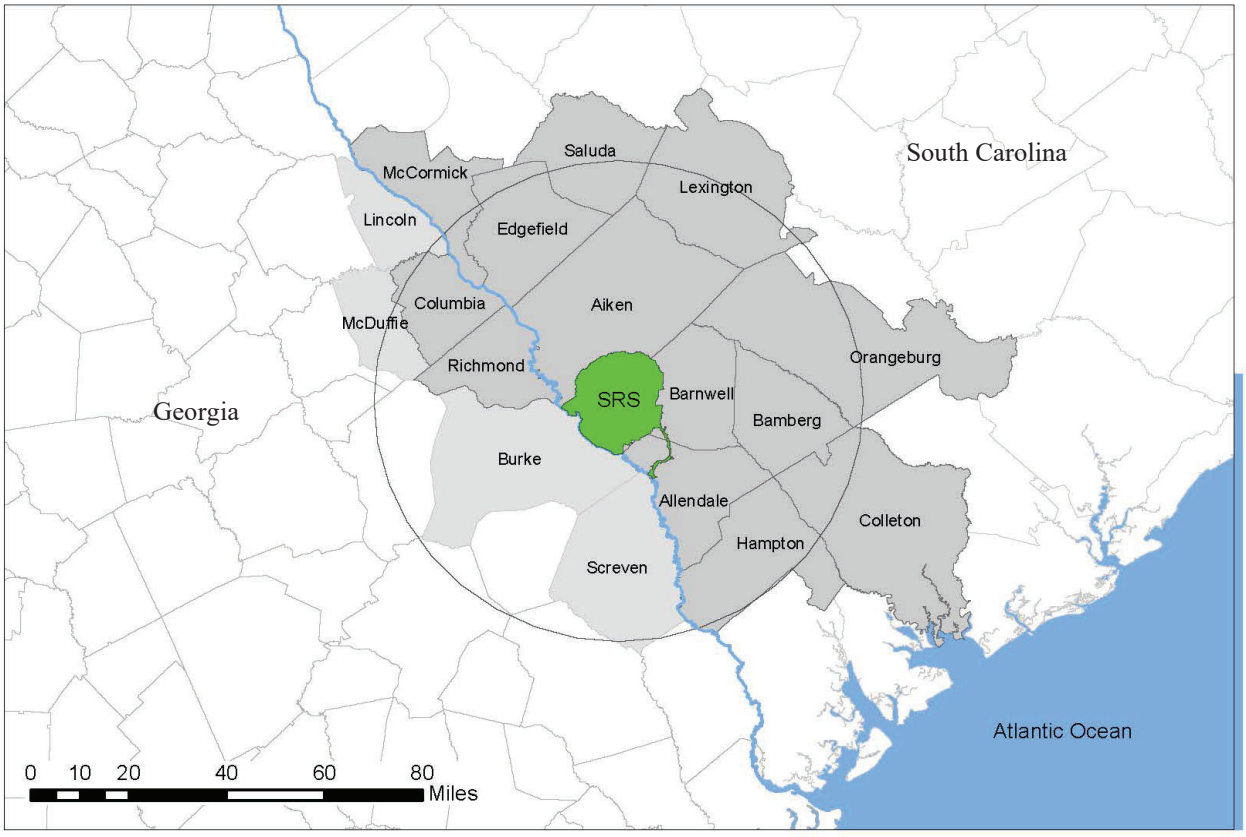


Figure 1. Location of the SRS

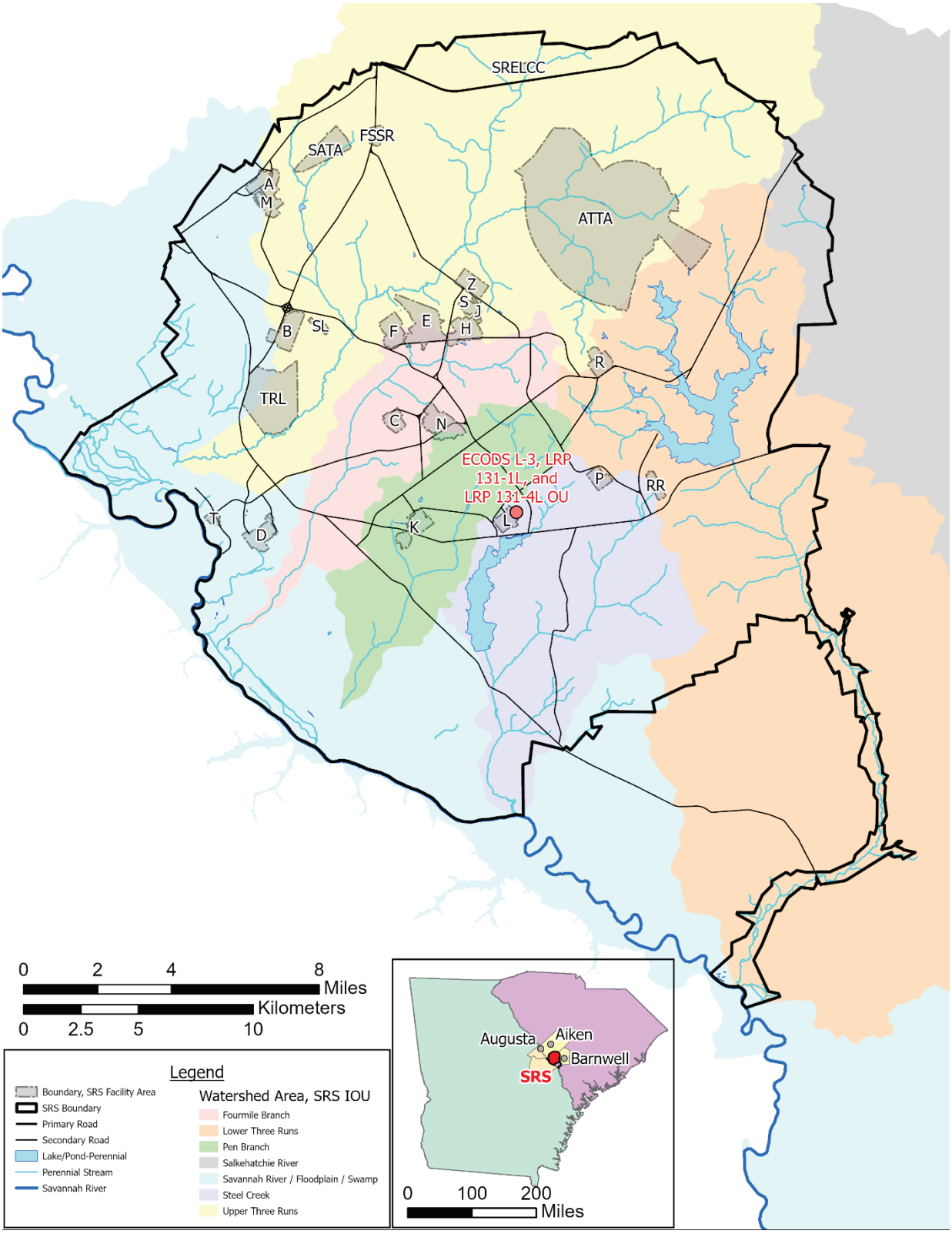


Figure 2. Location of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU at the Savannah River Site

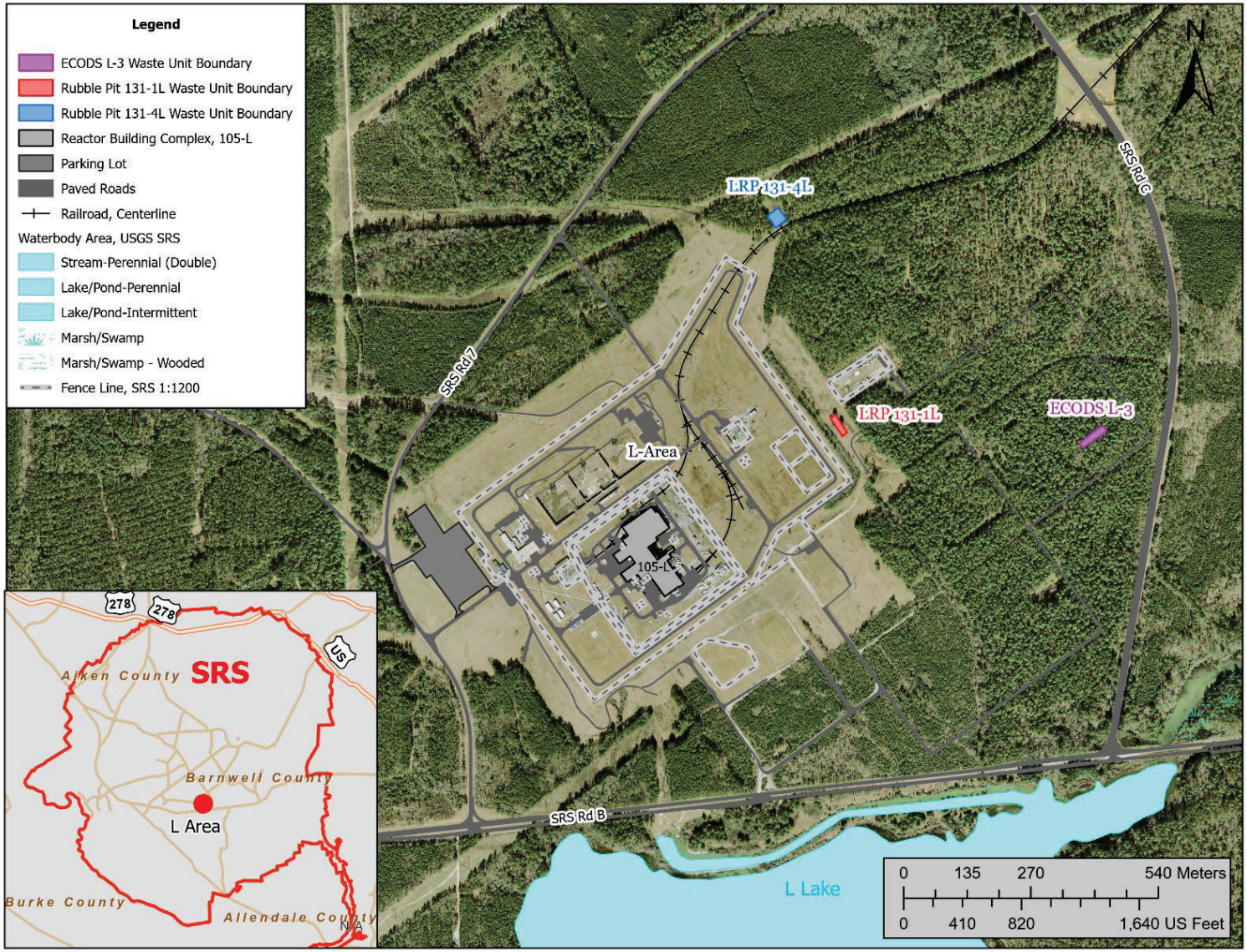


Figure 3. Location of the ECODS L-3, LRP 131-1L, and LRP 131-4L OU within the Savannah River Site

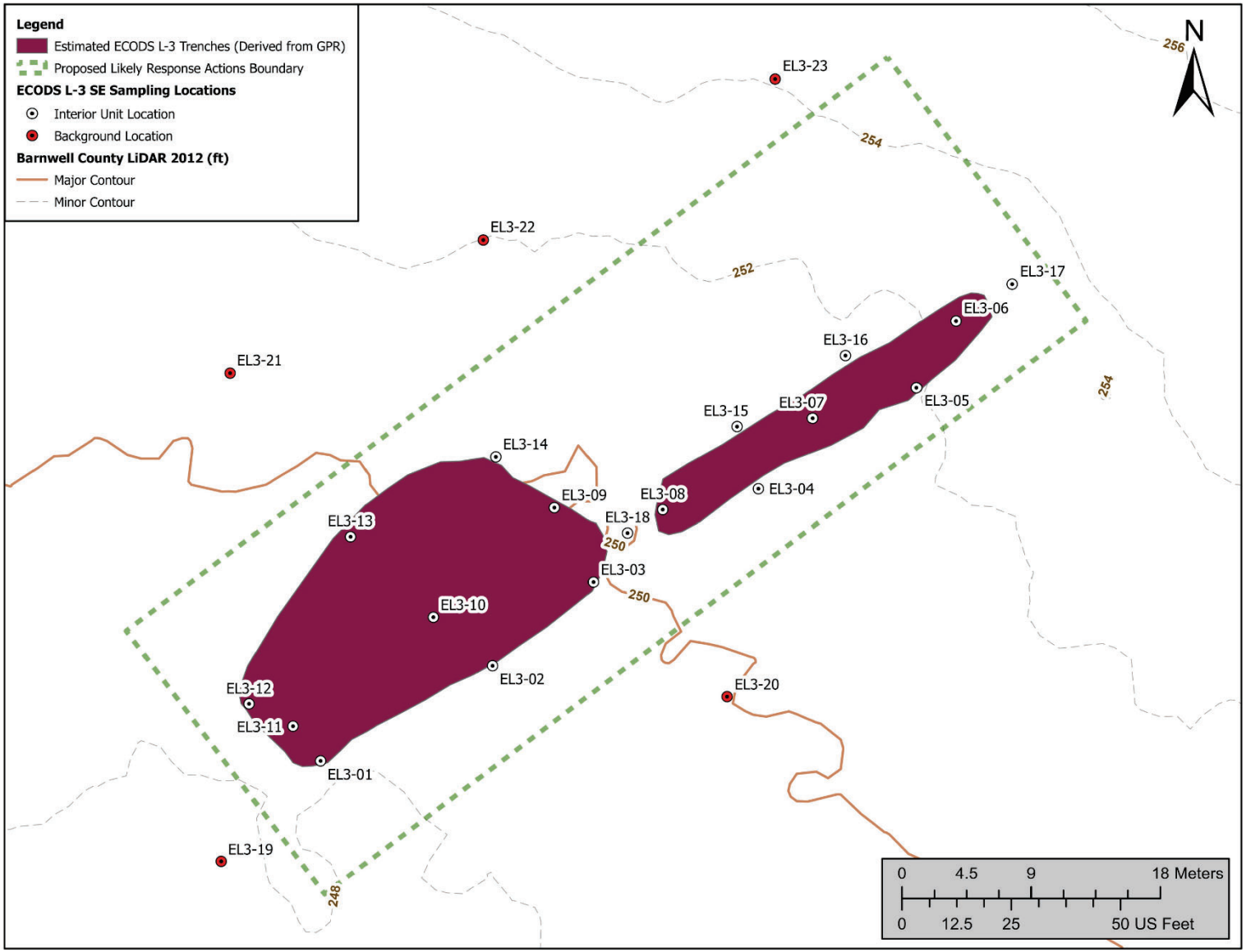


Figure 4. ECODS L-3 Subunit and Site Evaluation Sampling Locations

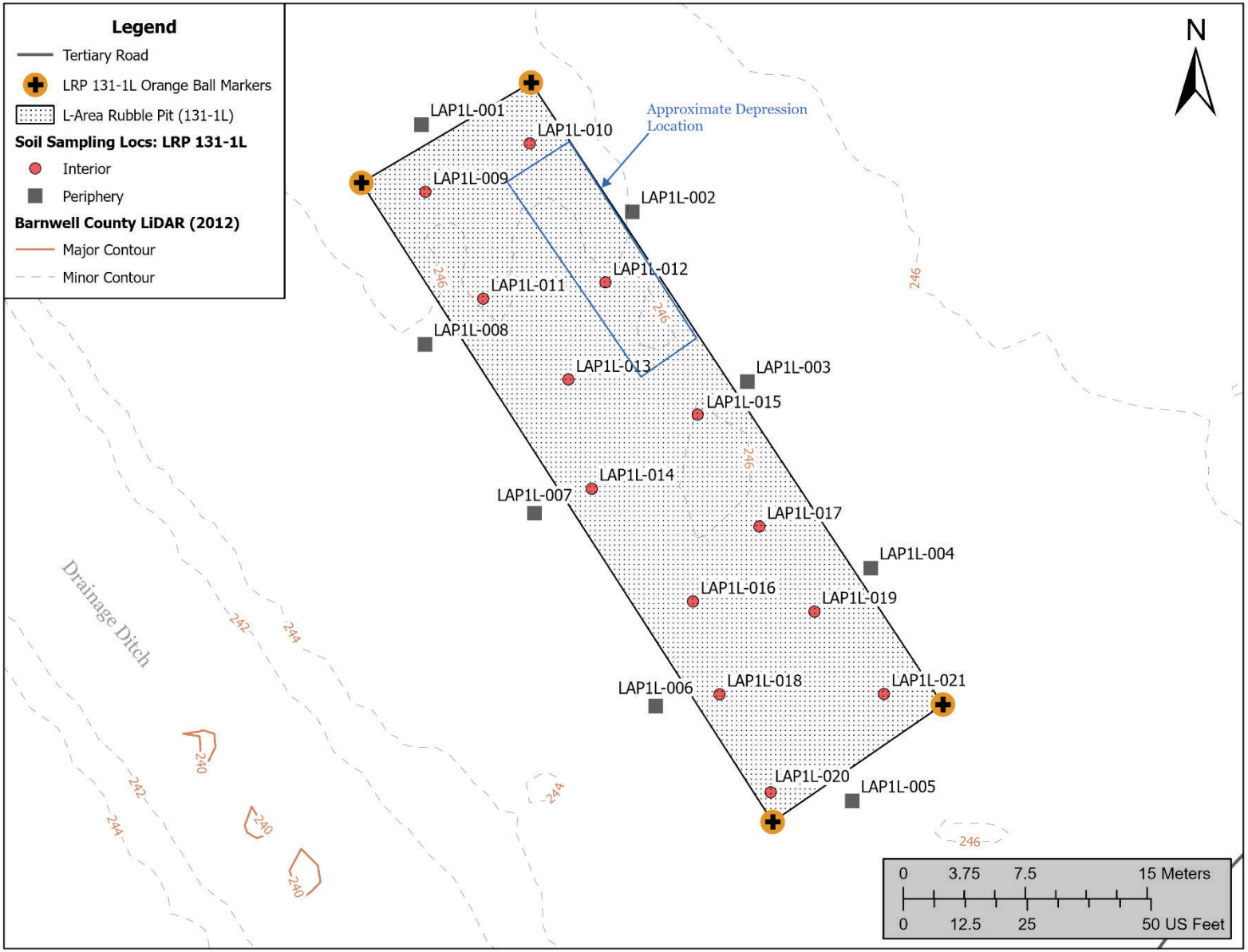


Figure 5. L-Area Rubble Pit 131-1L Subunit and RFI/RI Work Plan Sampling Locations

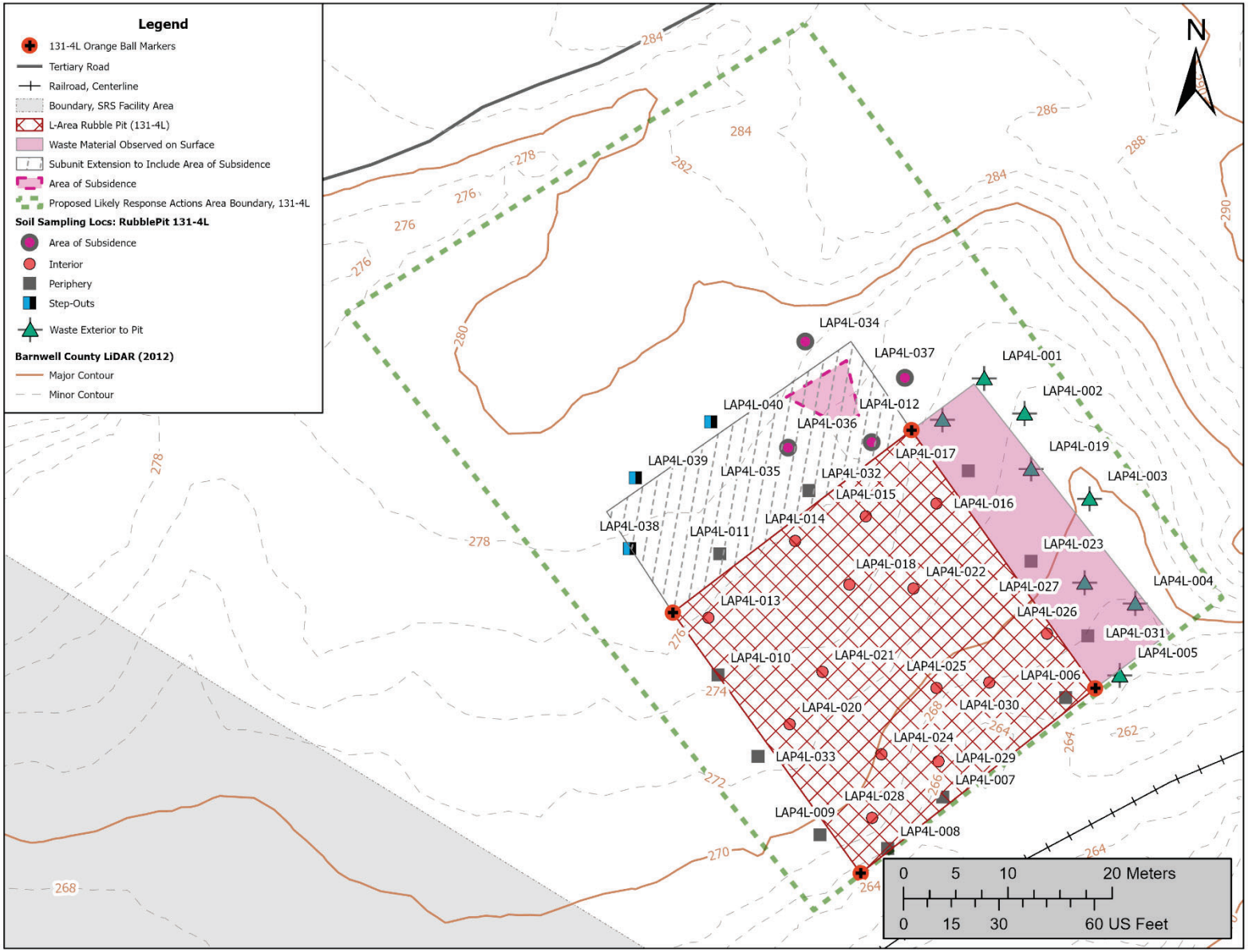


Figure 6. L-Area Rubble Pit 131-4L Subunit and RFI/RI Work Plan Sampling Locations

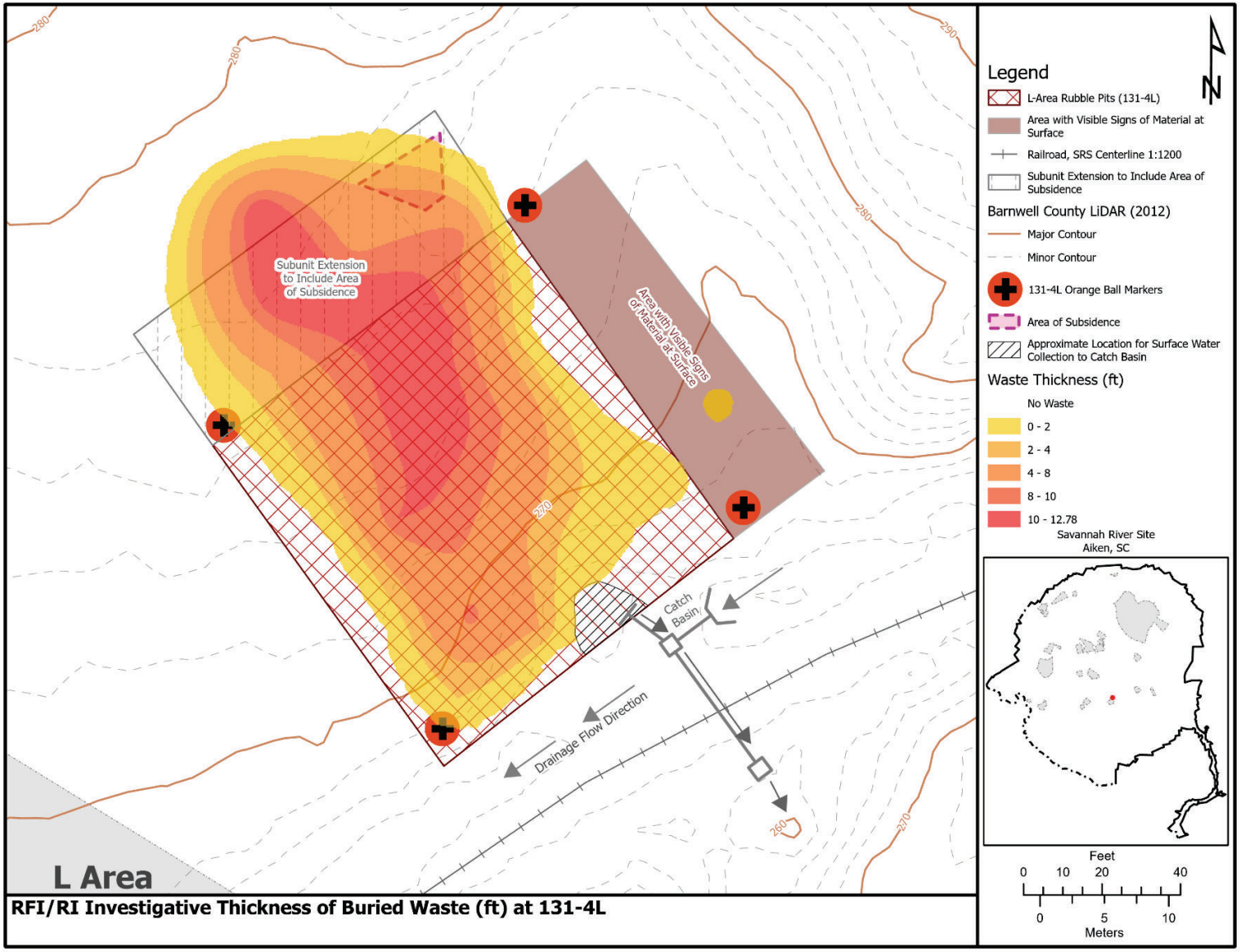


Figure 7. Waste Thickness Observed at L-Area Rubble Pit (131-4L) Subunit as Outcome of RFI/RI Characterization

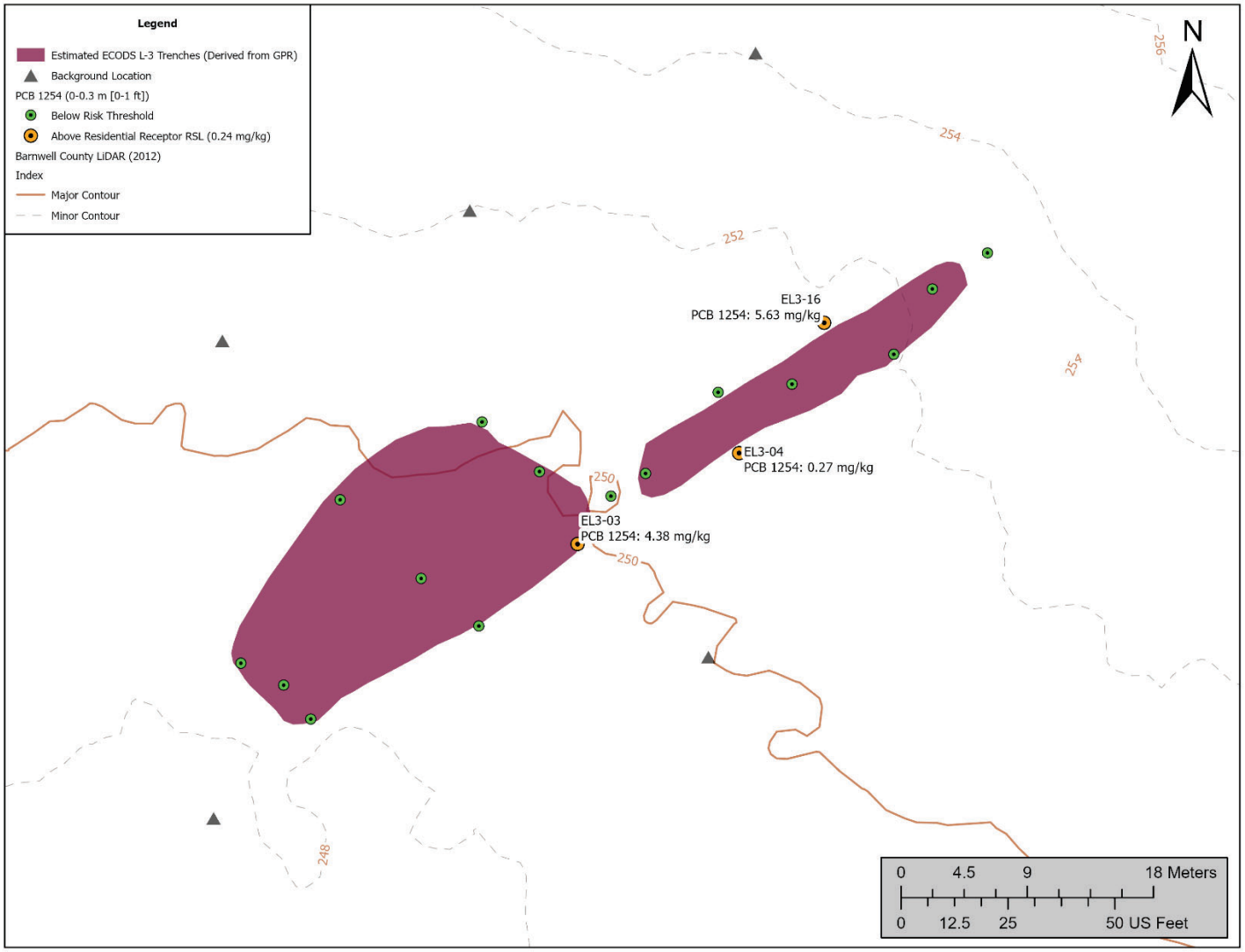


Figure 8. Aroclor 1254 Data for Surface Soil Media (0 to 0.3 m [0 to 1 ft]) at the ECODS L-3 Subunit

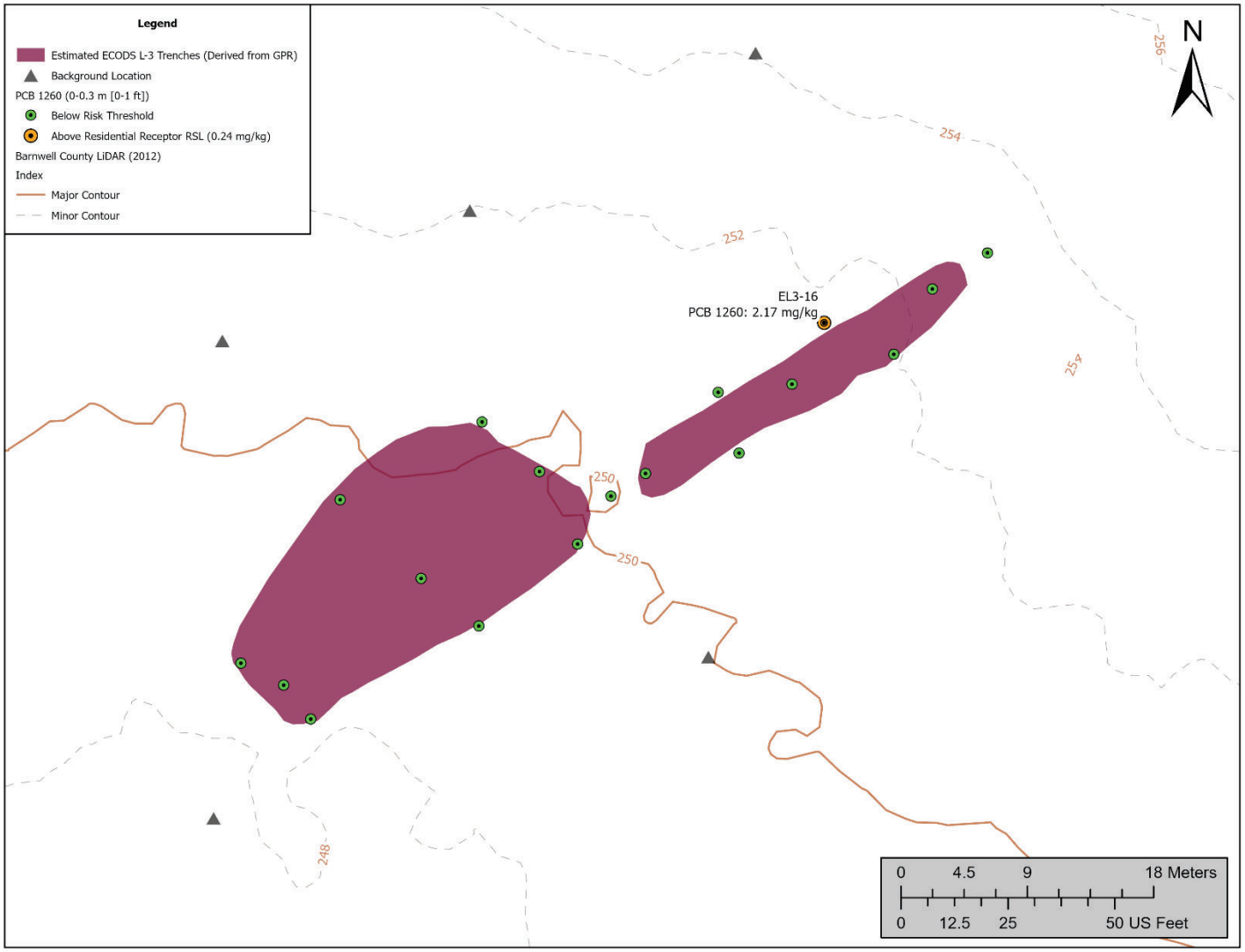


Figure 9. Aroclor 1260 Data for Surface Soil Media (0 to 0.3 m [0 to 1 ft]) at the ECODS L-3 Subunit

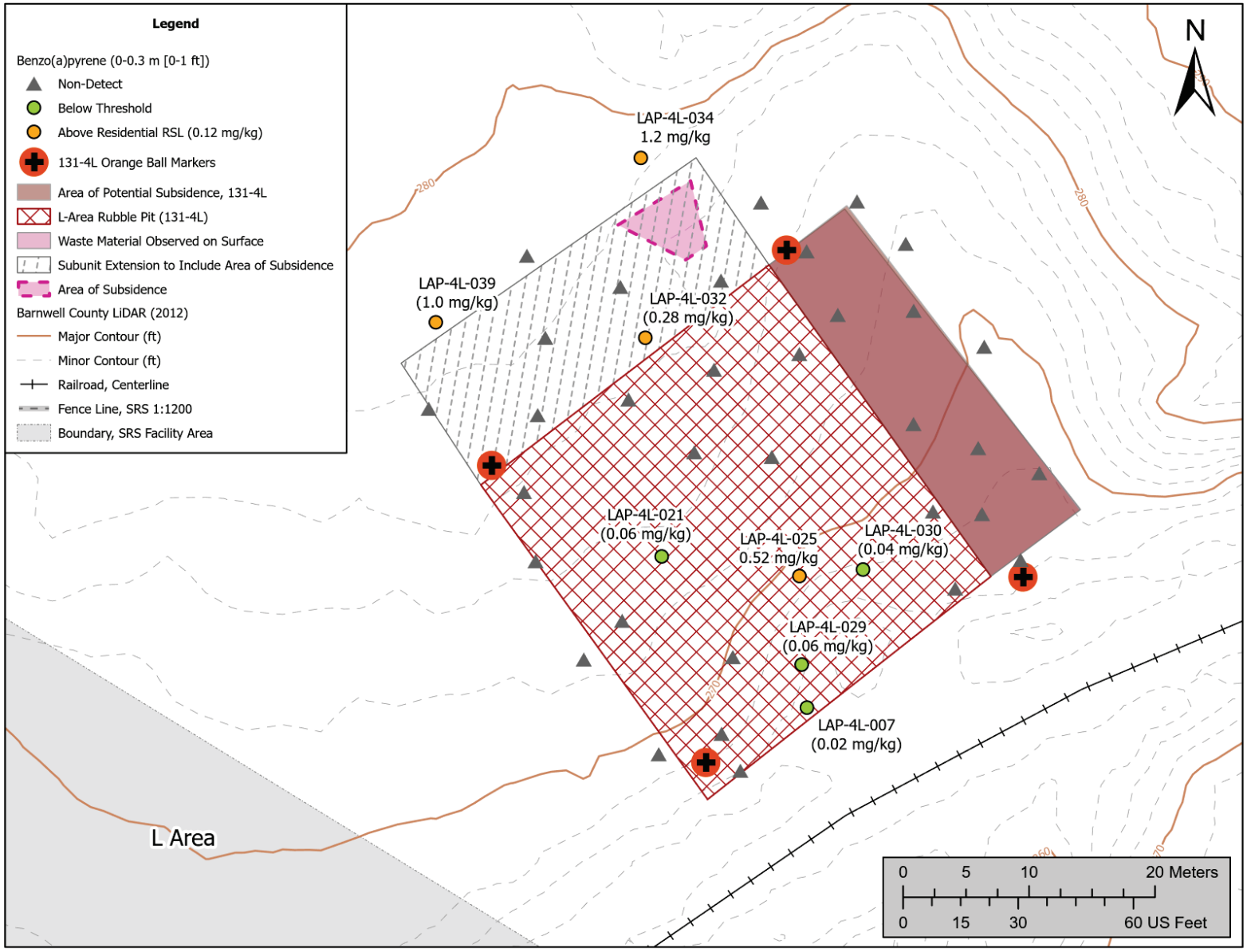
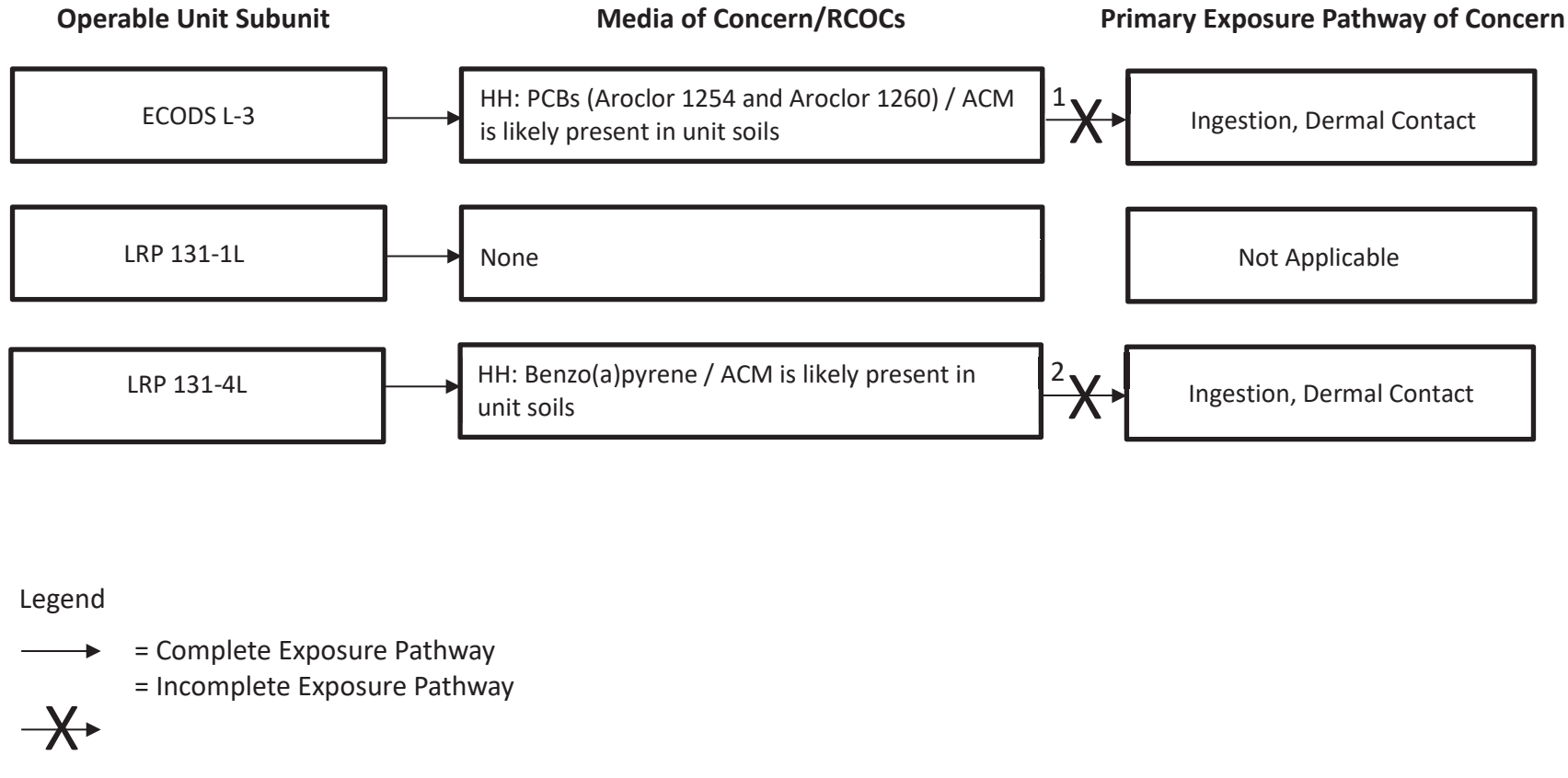


Figure 10. Benzo(a)pyrene Data for Surface Soil Media (0 to 0.3 m [0 to 1 ft]) at the LRP 131-4L Subunit



HH – Human health
1. Alternative A-2, LUCs - prevents exposure to PCBs and ACM that is likely present in unit soils.
2. Alternative B-2, LUCs - prevents exposure to benzo(a)pyrene and ACM that is likely present in unit soils.

Figure 11. ECODS L-3, LRP 131-1L, and LRP 131-4L OU Generic Conceptual Site Model after Completion of Final Remedial Action

Table 1. ECODS L-3, LRP 131-1L, and LRP 131-4L OU Risk Summary

Subunit	Refined Constituent of Concerns				
	Contaminant Migration	Human Health Risk Assessment		Ecological Risk Assessment	PTSM
		Residential	Industrial		
ECODS L-3[1]	Soil All depths None	Soil 0 to 0.3 m (0 to 1 ft) *Aroclor 1254* ***Risk = 5.4E-06*** ***HQ = 1.1*** *Aroclor 1260* ***Risk = 1.5E-06*** *PCBs*[3] ***TCR = 6.9E-06***	Soil 0 to 0.3 m (0 to 1 ft) None	Soil 0 to 0.3 m & 0.3 to 1.2 m (0 to 1 ft & 1 to 4 ft) None	Soil All depths None
LRP 131-1L	Soil All depths None	Soil 0 to 0.3 m (0 to 1 ft) None	Soil 0 to 0.3 m (0 to 1 ft) None	Soil 0 to 0.3 m & 0.3 to 1.2 m (0 to 1 ft & 1 to 4 ft) None	Soil All depths None
LRP 131-4L[2]	Soil All depths None	Soil 0 to 0.3 m (0 to 1 ft) *Benzo[a]pyrene* ***Risk = 1.4E-06***	Soil 0 to 0.3 m (0 to 1 ft) None	Soil 0 to 0.3 m & 0.3 to 1.2 m (0 to 1 ft & 1 to 4 ft) None	Soil All depths None

1 – ACM is likely to be present at ECODS L-3 subunit
2 – ACM is likely to be present at LRP 131-4L subunit
3 – PCBs also identified as ARAR (Toxic Substance Control Act [TSCA]) RCOCs)

PTSM = principal threat source material

Table 2a. Summary of Refined Constituents of Concern and Medium-Specific Exposure Point Concentrations: ECODS L-3 Subunit (Soil)

Scenario Timeframe: Current/Future
Medium: ECODS L-3
Exposure Medium: Soil (0-1 ft)

Exposure Route	Constituent of Concern	Concentration Detected		Units	Frequency of Detection	EPC	EPC Units	Statistical Measure
		Min	Max					
Soil Onsite – Ingestion, Direct Contact	Aroclor 1254	ND	5.63E+00	mg/kg	17/18	1.28E+00	mg/kg	95% UCL
	Aroclor 1260	ND	2.17E+00	mg/kg	10/18	3.54E-01	mg/kg	95% UCL

Key
EPC = exposure point concentration
Min = minimum detected concentration
Max = maximum detected concentration
ND = non-detect
mg/kg = milligrams/kilogram
95% UCL = 95% upper confidence limit of the mean concentration

Table 2b. Summary of Refined Constituents of Concern and Medium-Specific Exposure Point Concentrations: LRP 131-4L Subunit (Soil)

Scenario Timeframe: Current/Future
Medium: LRP 131-4L
Exposure Medium: Soil (0-1 ft)

Exposure Route	Constituent of Concern	Concentration Detected		Units	Frequency of Detection	EPC	EPC Units	Statistical Measure
		Min	Max					
Soil Onsite – Ingestion, Direct Contact	Benzo(a)pyrene	ND	1.2E+00	mg/kg	8/41	1.64E-01	mg/kg	95% UCL

Key
EPC = exposure point concentration
Min = minimum detected concentration
Max = maximum detected concentration
ND = non-detect
mg/kg = milligrams/kilogram
95% UCL = 95% upper confidence limit of the mean concentration

Table 3. Cancer Toxicity Data Summary

Pathway: Ingestion, Dermal Contact						
Constituent of Concern	**Oral Cancer Slope Factor**	**Dermal Cancer Slope Factor**	**Slope Factor Units**	**Weight of Evidence/ Cancer Guideline Description**	**Source**	**Date (Mo/Yr)**
Aroclor 1254	2.00E+00	1.4E-01	mg/kg	A	USEPA PRG website	Dec. 2023
Aroclor 1260	2.00E+00	1.4E-01	mg/kg	A	USEPA RSL website	Dec. 2023
Benzo(a)pyrene	1.00E+00	1.3E-01	mg/kg	A	USEPA RSL website	Dec. 2023

Key
--- = no information available
A = human carcinogen
mg/kg = milligram per kilogram

USEPA, 2023. *Regional Screening Levels* website, United States Environmental Protection Agency (November) https://www.epa.gov/risk/regional-screening-levels-rsls. Website accessed December 2023.

Table 4. Resident Risk Characterization Summary – Carcinogens

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Route	Constituent of Concern	Carcinogenic Risk				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total
ECODS L-3	Soil	Ingestion, Dermal Contact	Aroclor 1254	NC	NC	NC	N/A	5.44E-06
			Aroclor 1260	NC	NC	NC	N/A	1.48E-06
LRP 131-4L	Soil	Ingestion, Dermal Contact	Benzo(a)pyrene	NC	NC	N/A	NC	1.43E-06

Key
N/A = not applicable.
NC = not calculated. Risk was not calculated separately for each exposure pathway. The USEPA RSLs for nonradionuclides and PRGs for radionuclides that were used to calculate risk are risk-based concentrations that are derived from standardized equations which combine all of the exposure pathways and assumptions with USEPA toxicity data. Use of the RSL/PRG provides an exposure routes total risk estimate for each constituent.

USEPA, 2023. *Regional Screening Levels* website, United States Environmental Protection Agency (November) https://www.epa.gov/risk/regional-screening-levels-rsls. Website accessed December 2023.

Table 5. Cleanup Levels for the ECODS L-3 and LRP 131-4L Subunit

Media	HH RCOC	Units	Resident PRG[1]	ARAR PRG[2]	SRS Background 2X Average Concentration	SRS Background 95th percentile[3]	SRS Background Maximum[3]	Final Cleanup Level[4]
ECODS L-3 Subunit								
Soil	Aroclor 1254	mg/kg	*0.24*	25.0	NA[5]	NA[5]	NA[5]	**0.24**
	Aroclor 1260	mg/kg	*0.24*	25.0	NA[5]	NA[5]	NA[5]	**0.24**
LRP 131-4L Subunit								
Soil	Benzo(a)pyrene	mg/kg	*0.12*	N/A[6]	0.025	0.036	0.008	**0.12**

Key:
1 – Resident PRGs are identified at risk = 1E-06 from Appendix F of the RFI/RI/BRA/CMS/FS (SRSN 2025a). A cleanup level for asbestos at the ECODS L-3 and LRP 131-4L subunits is not presented in the table because risk-based thresholds are not available at the USEPA RSL website.
2 – For comparison purposes, the PCB TSCA ARAR threshold for low-occupancy is presented for Aroclor 1254 and Aroclor 1260.
3 – SRS background concentrations from Background Soils Statistical Summary Report for the Savannah River Site (WSRC 2006), Appendix B-2 (all depths interval).
4 – Final Cleanup Level is the most restrictive (i.e., residential) risk-based concentration. If the risk-based PRG is less than SRS background, then the SRS Background 95th percentile is identified as the Final Cleanup Level. Source of the Final Cleanup Level is identified in italics.
5 – Not available; SRS background concentrations not available for PCBs.
6 – Not applicable; not identified as an ARAR RCOC.

Table 6. ARARs for the Selected Remedial Alternative for the ECODS L-3 and LRP 131-4L Subunits

CHEMICAL-SPECIFIC ARARs/TBC			
Chemical	**Requirements**	**Prerequisite**	**Citation(s)**
Bulk PCB Waste in Place			
Bulk PCB remediation waste (self-implementing)	Unit meets the low occupancy thresholds and the residual PCB concentrations in the soil will be less than 25 mg/kg. May remain onsite without further conditions (e.g., no fencing or cap requirements).	Bulk PCB remediation waste remaining in a *low occupancy area* (as defined in 40 C.F.R. § 761.3) at concentrations ≤ 25 mg/kg. – **relevant and appropriate**	40 C.F.R. § 761.61(a)(4)(i)(B)
LOCATION-SPECIFIC ARARs/TBC			
Location	**Requirements**	**Prerequisite**	**Citation**
NONE IDENTIFIED			
ACTION-SPECIFIC ARARs/TBC			
Action	**Requirements**	**Prerequisite**	**Citation(s)**
Asbestos Waste in Place			
Standards for inactive asbestos waste disposal sites	Must comply with one of the following: • Either discharge no visible emissions to the outside air from an inactive disposal site subject to this paragraph; or • Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, and grow and maintain a cover of vegetation on the area to prevent exposure of the asbestos-containing waste material; or Cover the asbestos-containing waste material with at least 60 centimeters (2 feet) of compacted nonasbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste	Closure of an area that received asbestos-containing waste materials – **relevant and appropriate**	40 CFR § 61.151(a) (1)-(3)

Table 6. ARARs for the Selected Remedial Alternative for the ECODS L-3 and LRP 131-4L Subunits *(continued)*

Chemical	Requirements	Prerequisite	Citation(s)
	Asbestos Waste in Place (continued)		
Warning signs for disposal site	Display warning signs at all entrances and at intervals of 100m (328 feet) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited.	Closure of an area that received asbestos-containing waste materials that does not include a natural barrier to adequately deter access by the general public – **relevant and appropriate**	40 CFR § 61.151(b)(1)
	The warning signs must: (i) Be posted in such a manner and location that a person can easily read the legend; and (ii) Conform to the requirements for (20”x14”) upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and Display the legend as prescribed in § 61.151(b)(1)(iii) located in the lower panel with letter sizes and styles of visibility at least equal to those specified in § 61.151(b)(1)(iii).	Closure of an area that received asbestos-containing waste materials that does not include a natural barrier to adequately deter access by the general public – **relevant and appropriate**	40 CFR § 61.151(b)(1)(i)-(iii)
Fence for disposal site	Fence the perimeter of the site in a manner adequate to deter access by the general public. NOTE: Access control at SRS boundary meets this requirement to deter the general public		40 CFR § 61.151(b)(2)

Table 6. ARARs for the Selected Remedial Alternative for the ECODS L-3 and LRP 131-4L Subunits *(continued/end)*

Chemical	Requirements	Prerequisite	Citation(s)
Asbestos Waste in Place (continued/end)			
Deed notice for asbestos waste disposal site	Record, in accordance with State law, a notation on the deed to the facility property and on any other instrument that would normally be examined during a title search; this notation will in perpetuity notify any potential purchaser of the property that: • The land has been used for disposal of asbestos-containing waste material; and • The survey plat and record of the location and quantity of asbestos containing waste disposed of within the disposal site required in § 61.154(f) have been filed with the Administrator; and • The site is subject to 40 CFR part 61, Subpart M. NOTE: Recordation of deed notice that informs potential purchaser on the waste disposal site is considered a substantive requirement for post-closure. NOTE: SRS complies with the Land Use Control Assurance Plan (WSRC 1999) to ensure these land use restrictions are maintained, including deed restrictions.	Closure of an inactive disposal area that received asbestos containing waste materials – **relevant and appropriate**	40 CFR § 61.151(e)(1)-(3)
Bulk PCB Waste in Place			
Bulk PCB remediation waste (risk-based)	EPA will issue a written decision on each application for a risk-based sampling, disposal, or storage method for PCB bulk remediation 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 remediation waste (as defined in 40 CFR 761.3) – **applicable**	40 C.F.R. § 761.61(c)

This page is intentionally left blank.

Table 7. Description of CERCLA Evaluation Criteria

Threshold Criteria:
• *Overall Protectiveness of HH and the Environment* determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment. • *Compliance with ARARs* evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site. ARARs may be waived under certain circumstances. ARARs are divided into chemical-specific, location-specific, and action-specific criteria.
Primary Balancing Criteria:
• *Long-Term Effectiveness and Permanence* considers the ability of an alternative to maintain protection of HH and the environment over time. It evaluates magnitude of residual risk and adequacy of reliability of controls. • *Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment* evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present. • *Short-Term Effectiveness* considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation. • *Implementability* considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services. • *Cost* includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
Modifying Criteria:
• *State Support/Agency Acceptance* considers whether USEPA and SCDES agree with the analyses and recommendations by the USDOE. Approval of the Record of Decision constitutes approval of the selected alternative by the regulatory agencies. • *Community Acceptance* considers whether the local community agrees with the Preferred Alternative. Comments received on the Statement of Basis/Proposed Plan during the public comment period are an important indicator of community acceptance. Comments from the public are considered in the final remedy selection in the Record of Decision.

This page is intentionally left blank.

Table 8. Comparison of ECODS L-3 Subunit Alternatives against the CERCLA Evaluation Criteria

Criterion	A-1 No Action	A-2 Land Use Controls	A-3 Soil Cover with LUCs	A-4 Excavation and Disposal
Overall Protection of Human Health and the Environment				
Human Health	Not protective of the future resident or on-site worker because there are no controls or remediation.	Meets the requirement by limiting exposure to the contaminated media through the use of administrative and engineering controls.	Meets the requirement by placement of a soil cover to eliminate the direct exposure pathways	Meets the requirement by excavation of the contaminated media to eliminate the direct exposure pathways.
Environment	Not applicable as contaminants are not at levels that pose a threat to the environment.	Not applicable as contaminants are not at levels that pose a threat to the environment.	Not applicable as contaminants are not at levels that pose a threat to the environment.	Not applicable as contaminants are not at levels that pose a threat to the environment.
Compliance with ARARs				
Chemical-Specific	Not compliant.	Meets the requirement by limiting exposure to the contaminated media through the use of administrative and engineering controls.	Meets the requirement by placement of a soil cover to eliminate the direct exposure pathways.	Meets the requirement by excavation of the contaminated media to eliminate the direct exposure pathways.
Location-Specific	No ARARs exist	No ARARs exist	No ARARs exist	No ARARs exist
Action-Specific	No ARARs exist	ARARs for institutional controls and deed restrictions can be achieved.	ARARs for control of the minimization of sediment erosion and management of storm water can be achieved.	ARARs for control of the minimization of sediment erosion, management of storm water and transportation of solid and PCB waste can be achieved.
Long Term Effectiveness				
Adequacy of Controls	None	Controls are adequate as long as they are maintained	Controls are adequate as long as they are maintained	No controls are required because contaminated media removed
Permanence	No	LUCs are permanent as long as controls are maintained	Cover system is permanent as long as it is maintained	Excavation of media will be permanent
Reduction of Mobility, Toxicity, or Volume				
Type of Reduction	No reduction	No reduction	No reduction	No reduction

Table 8. Comparison of ECODS L-3 Subunit Alternatives against the CERCLA Evaluation Criteria *(continued/end)*

Criterion	A-1 No Action	A-2 Land Use Controls	A-3 Soil Cover with LUCs	A-4 Excavation and Disposal
Short-Term Effectiveness				
Amount of Hazardous Material Destroyed or Treated	No reduction	No reduction	No reduction	No reduction
Risk to Remedial Worker	No risk	No risk	Minimal; Health and Safety Plan will be implemented to minimize potential for injury to remedial workers	Minimal; Health and Safety Plan will be implemented to minimize potential for injury to remedial workers
Risk to Community	None	None	None	None
Risk to Environment	None	None	None	None
Time to Implement and achieve RAO	Never	6 Months	12 Months	12 Months
Implementability				
Availability of Materials, Equipment, Contractors	N/A	Readily available	Readily available	Readily available
Ability to Construct and Operate the Technology	N/A	Proven technology at SRS	Proven technology at SRS	Proven technology at SRS
Ability to Obtain Permits/Approvals from Other Agencies	N/A	Prior history with similar permits/ approvals at SRS	Prior history with similar/ permits/ approvals at SRS	Prior history with similar permits/ approvals at SRS
Cost				
Total Capital Cost	$0	$32,030	$1,006,950	$1,654,216
Present Worth O&M Cost	$0	$350,528	$221,762	$0
Total Cost	$0	$382,558	$1,228,712	$1,654,216

Table 9. Comparison of the LRP 131-4L Subunit Alternatives against the CERCLA Evaluation Criteria

Criterion	B-1 No Action	B-2 Land Use Controls	B-3 Soil Cover with LUCs	B-4 Excavation and Disposal
Overall Protection of Human Health and the Environment				
Human Health	Not protective of the future resident or on-site worker because there are no controls or remediation.	Meets the requirement by limiting exposure to the contaminated media through the use of administrative and engineering controls.	Meets the requirement by placement of a soil cover to eliminate the direct exposure pathways	Meets the requirement by excavation of the contaminated media to eliminate the direct exposure pathways.
Environment	Not applicable as contaminants are not at levels that pose a threat to the environment.	Not applicable as contaminants are not at levels that pose a threat to the environment.	Not applicable as contaminants are not at levels that pose a threat to the environment.	Not applicable as contaminants are not at levels that pose a threat to the environment.
Compliance with ARARs				
Chemical-Specific	No ARARs exist	Meets the requirement by limiting exposure to the contaminated media through the use of administrative and engineering controls.	No ARARs exist	No ARARs exist
Location-Specific	No ARARs exist	No ARARs exist	No ARARs exist	No ARARs exist
Action-Specific	No ARARs exist	ARARs for institutional controls and deed restrictions can be achieved.	ARARs for control of the minimization of sediment erosion and management of storm water can be achieved.	ARARs for control of the minimization of sediment erosion, management of storm water and transportation of solid waste can be achieved.
Long Term Effectiveness				
Adequacy of Controls	None	Controls are adequate as long as they are maintained	Controls are adequate as long as they are maintained	No controls are required because contaminated media removed
Permanence	No	LUCs are permanent as long as controls are maintained	Cover system is permanent as long as it is maintained	Excavation of media will be permanent
Reduction of Mobility, Toxicity, or Volume				
Type of Reduction	No reduction	No reduction	No reduction	No Reduction

Table 9. Comparison of the LRP 131-4L Subunit Alternatives against the CERCLA Evaluation Criteria *(Continued/End)*

Criterion	B-1 No Action	B-2 Land Use Controls	B-3 Soil Cover with LUCs	B-4 Excavation and Disposal
Short-Term Effectiveness				
Amount of Hazardous Material Destroyed or Treated	No reduction	No reduction	No reduction	No reduction
Risk to Remedial Worker	No risk	No risk	Minimal; Health and Safety Plan will be implemented to minimize potential for injury to remedial workers	Minimal; Health and Safety Plan will be implemented to minimize potential for injury to remedial workers
Risk to Community	None	None	None	None
Risk to Environment	None	None	None	None
Time to Implement and achieve RAO	Never	6 Months	12 Months	12 Months
Implementability				
Availability of Materials, Equipment, Contractors	N/A	Readily available	Readily available	Readily available
Ability to Construct and Operate the Technology	N/A	Proven technology at SRS	Proven technology at SRS	Proven technology at SRS
Ability to Obtain Permits/Approvals from Other Agencies	N/A	Prior history with similar permits/ approvals at SRS	Prior history with similar permits/ approvals at SRS	Prior history with similar permits/ approvals at SRS
Cost				
Total Capital Cost	$0	$32,030	$1,294,659	$7,671,286
Present Worth O&M Cost	$0	$386,406	$248,679	$0
Total Cost	$0	$418,436	$1,543,338	7,671,286

Table 10. Land Use Controls for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU

Type of Control	Purpose of Control	Duration	Implementation	Affected Areas[a]
1. Property Record Notices[b]	Provide notice to anyone searching for records about the existence and location of contaminated areas.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Notice recorded by USDOE in accordance with state laws at County Register of Deeds office if the property or any portion thereof is ever transferred to non-federal ownership.	ECODS L-3 and LRP 131-4L subunits identified in this ROD where hazardous substances are left in place at levels requiring land use restrictions
2. Property record restrictions[c] A. Land Use	Restrict use of property by imposing limitations.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Drafted and implemented by USDOE upon any transfer of affected areas. Recorded by USDOE in accordance with state law at County Register of Deeds office.	ECODS L-3 and LRP 131-4L subunits as identified in this ROD where hazardous substances are left in place at levels requiring land use restrictions.
3. Other Notices[d]	Provide notice to city &/or county about the existence and location of waste disposal and residual contamination areas for zoning/planning purposes.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Notice recorded by USDOE in accordance with state laws at County Register of Deeds office if the property or any portion thereof is ever transferred to non-federal ownership.	ECODS L-3 and LRP 131-4L subunits as identified in this ROD where hazardous substances are left in place at levels requiring land use restrictions.
4. Site Use Program[e]	Provide notice to worker/developer (i.e., permit requestor) on extent of contamination and prohibit or limit excavation/penetration activity.	As long as property remains under USDOE control	Implemented by USDOE and site contractors Initiated by permit request	ECODS L-3 and LRP 131-4L subunits as identified in this ROD where hazardous substances are left in place at levels requiring land use restrictions.

Table 10. Land Use Controls for the ECODS L-3, LRP 131-1L, and LRP 131-4L OU *(Continued/End)*

Type of Control	Purpose of Control	Duration	Implementation	Affected Areas[a]
5. Physical Access Controls[f] (e.g., fences, gates, portals)	Control and restrict access to workers and the public to prevent unauthorized access.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Controls maintained by USDOE.	Security is provided at site boundaries in accordance with SRS procedures. Signs will be placed at the perimeter of the ECODS L-3 and LRP 131-4L subunits where hazardous substances are left in place at levels requiring land use restrictions.
6. Warning Signs[g]	Provide notice or warning to prevent unauthorized uses.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Signage maintained by USDOE.	Warning signs will be posted in accordance with applicable site procedures and will be placed at perimeter of the ECODS L-3 and LRP 131-4L subunits where hazardous substances are left in place at levels requiring land use restrictions.
7. Security Surveillance Measures	Control and monitor access by workers/public.	Until the concentration of hazardous substances associated with the unit have been reduced to levels that allow for unlimited exposure and unrestricted use.	Established and maintained by USDOE Necessity of patrols evaluated upon completion of remedial actions or property transfer.	Patrol of waste management areas identified in this ROD, as necessary.

a - Affected areas – Specific locations for the ECODS L-3 and LRP 131-4L subunits will be identified in the OU-specific LUCIP or subsequent post-ROD documents. Unit boundaries are shown in Figure 4 for the ECODS L-3 subunits and Figure 6 for the LRP 131-4L subunit
b - Property Record Notices – Refers to any non-enforceable, purely informational document recorded along with the original property acquisition records of USDOE and its predecessor agencies that alerts anyone searching property records to important information about residual contamination, waste disposal areas in the property.
c - Property Record Restrictions – Includes conditions and/or covenants that restrict or prohibit certain uses of real property and are recorded along with original property acquisition records of USDOE and its predecessor agencies.
d - Other Notices – Includes information on the location of waste disposal areas and residual contamination depicted on a survey plat, which is provided to a zoning authority (i.e., city planning commission) for consideration in appropriate zoning decisions for non-USDOE property.
e - Site Use Program – Refers to the internal USDOE/USDOE contractor administrative program(s) that requires the permit requestor to obtain authorization, usually in the form of a permit, before beginning any excavation/penetration activity (e.g., well drilling) for the purpose of ensuring that the proposed activity will not affect underground utilities/structures, or in the case contaminated soil or groundwater, will not disturb the affected areas without the appropriate precautions and safeguards.
f - Physical Access Controls – Physical barriers or restrictions to entry.
g - Signs – Posted command, warning or direction.

Table 11. Cost Estimates for the Selected Remedy - ECODS L-3 Alternative A-2 - Land Use Controls

Institutional Controls Estimate
Alternative A-2
Land Use Controls Only - ECODS L-3

Item	Quantity	Units	Unit Cost	Total Cost
Direct Capital Costs				
ECODS L-3				
Institutional Controls				
Posting of Warning Signs	4	ea	$500	$2,000
Land Use Control Implementation Plan	1	ea	$5,000	$5,000
Deed Restrictions	1	ea	$5,000	$5,000
Subtotal - Direct Capital Cost				$12,000
Mobilization/Demobilization	9%	of subtotal direct capital		$1,080
Site Preparation/Site Restoration	9%	of subtotal direct capital		$1,080
Total Direct Capital Cost				**$14,160**
Indirect Capital Costs				
Engineering & Design	14%	of direct capital		$1,982
Project/Construction Management	25%	of direct capital		$3,540
Health & Safety	6%	of direct capital		$850
Overhead	30%	of direct capital + indirect capital		$6,160
Contingency	26%	of direct capital + indirect capital		$5,338
Total Indirect Capital Cost				**$17,870**
Total Estimated Capital Cost				**$32,030**
Direct O&M Costs	1.2%	3 Year Discount Rate [1]		
Annual Costs (Existing System during Post-ROD Design & Const)	2	years O&M		*Years 2027-2028*
Access Controls	1	ea	$500	$500
Maintenance	1	ea	$1,425	$1,425
Subtotal - Annual Costs				$1,925
Present Value Cost				**$3,782**
	2.0%	30 Year Discount Rate [1]		
Annual Costs	30	years O&M		*Years 2028-2057*
Access Controls	1	ea	$500	$500
Annual Inspection/Maintenance	1	ea	$1,425	$1,425
Subtotal - 30 Year Annual Costs				$1,925
Present Value Cost				**$43,118**
Five Year Costs	6			
Remedy Review	1	ea	$15,000	$15,000
Subtotal - Five Year O&M Costs				$15,000
Present Value Cost				**$64,555**
Total Present Value Direct O&M Cost				**$111,456**

Table 11. Cost Estimates for the Selected Remedy - ECODS L-3 Alternative A-2 - Land Use Controls *(Continued/End)*

Institutional Controls Estimate
Alternative L-1
Land Use Controls Only ECODS L-3

Indirect O&M Costs		
Project/Admin Management	146% of direct O&M	$162,725
Health & Safety	19% of direct O&M	$21,177
Overhead	30% of direct O&M + indirect O&M	$33,437
Contingency	20% of direct O&M + indirect O&M	$21,734
Total Present Worth Indirect O&M Cost		$239,072
Total Estimated Present Worth O&M Cost		**$350,528**
TOTAL ESTIMATED COST		**$382,558**

[1]
Interest rates for costs with 3-year and 30-year durations are based on SRNS Technical Memorandum ERTEC-2017-00002.
Real Interest Rates for OMB Circular No. A-94
Treasury Notes and Bonds of Specified Maturities

Table 12. Cost Estimates for the Selected Remedy – LRP 131-4L Alternative B-2 – Land Use Controls

Institutional Controls Estimate
Alternative B-2
Land Use Controls Only 131-4L

Item	Quantity	Units	Unit Cost	Total Cost
Direct Capital Costs				
131-4L				
Institutional Controls				
Posting of Warning Signs	4	ea	$500	$2,000
Land Use Control Implementation Plan	1	ea	$5,000	$5,000
Deed Restrictions	1	ea	$5,000	$5,000
Subtotal - Direct Capital Cost				$12,000
Mobilization/Demobilization	9%	of subtotal direct capital		$1,080
Site Preparation/Site Restoration	9%	of subtotal direct capital		$1,080
Total Direct Capital Cost				**$14,160**
Indirect Capital Costs				
Engineering & Design	14%	of direct capital		$1,982
Project/Construction Management	25%	of direct capital		$3,540
Health & Safety	6%	of direct capital		$850
Overhead	30%	of direct capital + indirect capital		$6,160
Contingency	26%	of direct capital + indirect capital		$5,338
Total Indirect Capital Cost				**$17,870**
Total Estimated Capital Cost				**$32,030**
Direct O&M Costs	1.2%	3 Year Discount Rate [1]		
Annual Costs (Existing System during Post-ROD Design & Const)	2	years O&M		*Years 2027-2028*
Access Controls	1	ea	$500	$500
Maintenance	1	ea	$1,894	$1,894
Subtotal - Annual Costs				$2,394
Present Value Cost				**$4,702**
	2.0%	30 Year Discount Rate [1]		
Annual Costs	30	years O&M		*Years 2028-2057*
Access Controls	1	ea	$500	$500
Annual Inspection/Maintenance	1	ea	$1,894	$1,894
Subtotal - 30 Year Annual Costs				$2,394
Present Value Cost				**$53,606**
Five Year Costs	6			
Remedy Review	1	ea	$15,000	$15,000
Subtotal - Five Year O&M Costs				$15,000
Present Value Cost				**$64,555**
Total Present Value Direct O&M Cost				**$122,864**

Table 12. Cost Estimates for the Selected Remedy – LRP 131-4L Alternative B-2 – Land Use Controls *(continued/end)*

Institutional Controls Estimate
Alternative B-2
Land Use Controls Only 131-4L

Indirect O&M Costs		
Project/Admin Management	146% of direct O&M	$179,381
Health & Safety	19% of direct O&M	$23,344
Overhead	30% of direct O&M + indirect O&M	$36,859
Contingency	20% of direct O&M + indirect O&M	$23,958
Total Present Worth Indirect O&M Cost		$263,543
Total Estimated Present Worth O&M Cost		**$386,406**
TOTAL ESTIMATED COST		**$418,436**

[1] Interest rates for costs with 3-year and 30-year durations are based on SRNS Technical Memorandum ERTEC-2017-00002.
Real Interest Rates for OMB Circular No. A-94
Treasury Notes and Bonds of Specified Maturities

APPENDIX A

RESPONSIVENESS SUMMARY

This page was intentionally left blank.

Responsiveness Summary

The 45-day public comment period for the Statement of Basis/Proposed Plan for the Early Construction and Operational Disposal Site (ECODS) L-3 (no building number [NBN]), L-Area Rubble Pit (131-1L) (LRP 131-1L), and L-Area Rubble Pit (131-4L) (LRP 131-4L) Operable Unit began on February 5, 2026 and ended on March 22, 2026. There were no comments received during the public comment period.

This page was intentionally left blank.