Savannah River
NUCLEAR SOLUTIONS℠

Land Use Control Assurance Plan for the Savannah River Site

WSRC-RP-98-4125

Revision 1.1

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SAVANNAH RIVER SITE • AIKEN, SOUTH CAROLINA

DISCLAIMER

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and
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Aiken, South Carolina
—
Program Management & Integration
Environmental Compliance & Area Completion Projects

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LIST OF ACRONYMS AND ABBREVIATIONS

ACP	Area Completion Projects
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
ECODS	Early Construction and Operational Disposal Site
FFA	Federal Facility Agreement for the Savannah River Site
IOU	Integrator Operable Unit
LUC	Land Use Control
LUCAP	Land Use Control Assurance Plan
LUCIP	Land Use Control Implementation Plan
MOA	Memorandum of Agreement
NBN	No Building Number
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
RUNK	R-Area Unknown
SCDHEC	South Carolina Department of Health and Environmental Control
SROO	Savannah River Operations Office
SRNS	Savannah River Nuclear Solutions, LLC
SRS	Savannah River Site
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency
WADB	Wetland Area at Dunbarton Bay
WSRC	Washington Savannah River Company

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1.0 INTRODUCTION

On April 21, 1998, the United States Environmental Protection Agency (USEPA) Region 4 Federal Facilities Branch issued a memorandum entitled *Assuring Land Use Controls at Federal Facilities* (Johnston 1998). By implementing this policy, USEPA Region 4 sought development of Land Use Control Assurance Plans (LUCAPs) by federal facilities that utilize land use controls (LUCs) as components of Resource Conservation and Recovery Act (RCRA)/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedies. The United States Department of Energy (USDOE)-Savannah River Operations Office (SROO) recognizes the memorandum as setting forth policy guidance that does not carry the force of law as is established through rulemaking. Thus, as a matter of comity and cooperation and, most importantly, for the purpose of advancing the goal of protecting human health and the environment at the Savannah River Site (SRS), this LUCAP has been developed as a means to facilitate accomplishment of this shared objective.

The USDOE-SROO, the USEPA, and the South Carolina Department of Health and Environmental Control (SCDHEC) are herein after referred to as "the Parties".

Definitions for terms used in this document are provided in Appendix A.

2.0 SITE DESCRIPTION

2.1 Savannah River Site Description

The SRS covers 310 square miles, encompasses parts of Aiken, Barnwell, and Allendale counties in western South Carolina, and borders the Savannah River. The SROO manages SRS as a controlled area with limited public access. Open fields and pine and hardwood forests comprise 73 percent of the SRS; wetlands, streams, and two large reservoirs cover approximately 22 percent; and production and support areas, roads, and utility corridors account for the remaining 5 percent. Land adjacent to the SRS is used mainly for forest and agricultural purposes.

2.2 SRS Land Use Planning Process

SRS utilizes a comprehensive planning process. This entails a systematic method for ensuring a site-wide approach to moving the site from the present into the future based on SRS strategic planning. A comprehensive plan is developed that addresses such things as land use, facilities, infrastructure, cultural resources, and natural resources. A site procedure (SRS Manual 1D, *Site Infrastructure and Services*, Procedure 3.02, *Site Real Property Configuration Control*) is in place to ensure that proposed land and facility activities are considered for consistency with the comprehensive plan. This process, along with the Site Use Permit system, ensures that sites selected for an activity are the most appropriate and that any potential conflicts or problems are identified and solved prior to approval.

2.3 Environmental Restoration Program Description

The goal of the SRS Area Completion Projects (ACP) Program is to investigate, and if needed, remediate releases of hazardous substances to minimize or eliminate potential risks to human health and the environment. SRS personnel began inventorying waste units in 1981 and have identified 515 inactive waste and groundwater units to date. The waste units range in size from a few square feet to tens of acres and include basins, pits, piles, burial grounds, landfills, tanks, and groundwater contamination. Soil, groundwater, and surface water have been contaminated with radionuclides and hazardous chemicals as a result of 40 years of site operations (WSRC 1998).

Remediation of the waste units is regulated under the RCRA 3004 (u), 3004 (v), 3005, and CERCLA. In 1993, SRS entered into a Federal Facility Agreement (FFA) with the USEPA and the SCDHEC to ensure that the environmental impacts associated with past and present activities at SRS were thoroughly investigated, and that appropriate corrective/remedial action would be taken to protect public health and welfare and the environment. Figure 1 depicts the watersheds within the SRS. The current industrial areas with buffers, heavy industrial (nuclear facility) areas, heavy industrial (non-nuclear facility) areas, and administrative facility areas are also shown on Figure 1. Figures 2 through 7 show the ACP waste units that have been, are currently undergoing, or are planned for investigation and remediation, if needed, within each watershed. Tables 1 through 6 provide a list of the waste units within each watershed that have LUCs/institutional controls as part of the selected remedy. As the three Parties agree upon remedial decisions, the figures and tables will be updated to highlight those waste units that require LUCs as part of the remedial decision. Appendix C provides a more comprehensive listing of the waste units in each watershed.

Because the SRS is currently and will likely remain under Federal ownership, the SROO desires future site remedy decisions that take land use into account. The Parties agree that when LUCs are necessary to assure the reliability of land use assumptions, a plan is needed to ensure that LUCs will be maintained for as long as necessary to keep the selected remedy fully protective of human health and the environment.

LUCs include, but are not limited to, institutional controls, and are defined in Appendix A of this document. Institutional controls are actions that may be used to supplement engineering controls to prevent or limit exposure to contaminants at a site to ensure protection of human health. Institutional controls may be applied to limit or prevent exposures to contaminants and to ensure that selected land uses are maintained. The advantage of these administrative mechanisms is that they can be employed to provide flexibility in the risk decision-making process. Institutional controls also mitigate health risks by physically restricting land use at a waste unit. These controls may include fences, security guards, warning signs, deed restrictions, and land-use restrictions.

3.0 LAND USE CONTROL GOALS, OBJECTIVES, AND STRATEGIES

3.1 Purpose

This LUCAP was developed to assure the effectiveness and reliability of the required LUCs for as long as any LUCs continue to be required in order for the response action to remain protective. The requirements described herein are only applicable to those waste units listed in the FFA (FFA 1993) Appendices C and H, for which LUCs were selected as part of the corrective/remedial action.

For the units in Appendix H, the LUC requirements are discussed and approved as part of the closure/post-closure/permit application process for these waste units.

As the corrective/remedial action that includes LUCs is selected for individual waste units, a unit-specific Land Use Control Implementation Plan (LUCIP) will be developed. Appendix B of this LUCAP contains the unit-specific LUCIPs. As LUCIPs are finalized and appended to this LUCAP, Appendix B will be updated to reflect any additions or deletions of units that require LUCs as part of the selected remedy. Table B-1 provides a list of all LUCIPs that are a part of this LUCAP. Copies of all updates will be distributed to the USEPA and the SCDHEC for inclusion in their copies of the LUCAP.

3.2 Access Controls

3.2.1 On-Site Workers

In accordance with procedures in place and maintained at SRS, use of all lands and waters on the SRS shall be coordinated via the Site Use Program. No use of land (i.e., excavation or any other land use) shall be undertaken without prior approval documented by a Site Use Permit. Also, in accordance with procedures, all work at SRS that adds or modifies features or facilities portrayed on the SRS development maps (i.e., plot plans of facilities/utilities at SRS) is authorized by a Site Clearance Permit before execution. All Site Clearance requests are reviewed to verify that either an approved Site Use Permit has been obtained, or that an existing Site Use Permit has sanctioned the request. Verification of the USDOE approval for intended land use must be obtained before issuance of a Site Clearance Permit. The Site Use and Site Clearance processes are applicable to all activities and personnel on site (including subcontractors). The processes are controlled within the SRS Quality Assurance Program.

The SRS identifies all buildings and facilities on maps used in the Site Use/Site Clearance Program and includes a 200-foot buffer zone around each facility. Each waste unit is identified on these maps.

Any work proposed at the waste units will be strictly controlled and workers will be appropriately trained and briefed about health and safety requirements if work is deemed necessary for maintenance. Any changes in the use or disturbance of the waste units will require advance notification to the USEPA and the SCDHEC before the disturbance occurs. To prevent unknowing entry and to ensure that unrestricted use of the waste units do not occur while under the ownership of the government, identification signs will be posted at the waste unit access points. Figures will be included in the unit-specific LUCIPs that

indicate where the signs will be posted. The signs will be legible from a distance of at least 25 feet. The signs will read:

> Waste Unit Name and Building Number
> "Danger – Unauthorized Personnel Keep Out.
> This waste unit was used to manage hazardous substances.
> Do not dig or excavate. Do not enter without contacting the waste site custodian."
> Custodian: Manager, Post Closure Maintenance
> Phone: (803) 725-PAGE (19192)

3.2.2 Trespassers

Additionally, while under the ownership of the USDOE, access control of the entire SRS will continue to be maintained in accordance with the 2013 RCRA Permit Renewal Application, Volume I, Section F.1. This section describes the security procedures and equipment (R.61-79.264.14; 270.14(b)(4)), 24-hour surveillance system (R.61-79.264.14(b)(1)), artificial or natural barriers (R.61-79.264.14(b)(2)(i)), control entry systems (R.61-79.264.14(b)(2)(ii)), and warning signs (R.61-79.264.14(c)) in place at the SRS boundary to comply with the security requirements for a RCRA-permitted facility.

3.3 Federal Facility Program and Point-of-Contact

The person responsible for ensuring that unit-specific LUCIPs and the LUCAP are monitored, maintained, and enforced is the Manager of the SROO. The SROO Assistant Manager for Infrastructure and Environmental Stewardship is the point-of-contact and can be reached as follows:

US Department of Energy
Assistant Manager for Infrastructure and Environmental Stewardship
P. O. Box A
Aiken, SC 29802

Phone: (803) 952-6371

3.4 Funding

The Parties expect that all obligations of the SROO arising under the LUCAP will be fully funded through congressional appropriations. Consistent with congressional limitations on future funding, the USDOE SROO will use its best efforts to request timely funding to meet its obligations under this plan.

If appropriate funds are not available to fulfill SROO's obligations, USEPA and SCDHEC will be notified as soon as the SROO is aware of the potential shortfall.

3.5 Decision Documents

The Parties agree when unit-specific LUCs are to be implemented, an adequate description of the LUCs, along with conditions for their use, should be included in the appropriate decision documents (i.e., proposed plan, record of decision (ROD), RCRA permit, as appropriate, etc.) that reflects the selected remedy for a unit. Additionally, Appendix D of this document contains a sample of the standard language for inclusion in such decision documents.

During the 5-year remedy reviews or RCRA permit renewals, the need for LUCIPs for decision documents approved prior to April 21, 1998, in which LUCs were selected as part of the remedy, will be decided. A LUCIP will then be developed as agreed to by the three Parties.

3.6 Land Use Control Implementation Plan

As a component of the post-ROD documentation for waste units that require LUCs as part of the corrective measure/remedial action, a unit-specific LUCIP must be developed and approved following remedy selection through the unit-specific ROD and permit modification. The LUCIP should:

a) identify the area that is under restriction via a survey plat that is certified by a professional land surveyor. In the case of LUCs and groundwater, an appropriate survey will be prepared to delineate the groundwater under LUCs;

b) identify each LUC objective for the waste unit (e.g., prohibit residential use, etc.); and

c) specify the specific controls and mechanisms required to achieve each identified objective (e.g., install/maintain a fence, post warning signs, etc.).

For waste units where the corrective measure/remedial action is institutional controls only, a single post-ROD document identifying the LUCs will be developed. For waste units where institutional controls are combined with an active corrective measure/remedial action, the LUCIP will be developed as an appendix to the agreed upon post-ROD document (i.e., the Corrective Measures/Remedial Design Work Plan, the Corrective Measures/Remedial Design Report, the Corrective Measures/Remedial Action Work Plan, Corrective Measures Implementation/Remedial Action Implementation Plan, Remedial Action Completion Report, Post-Construction Report, etc., or any combination of the listed documents). Since March 2004, LUCIPs have been developed as separate documents. Upon approval, each unit-specific LUCIP will be appended to this LUCAP to serve as a single source for documenting all LUCs.

If a 5-year remedy review or RCRA permit renewal analysis determines that a LUCIP should be required for any LUC selected in a decision document approved prior to April 21, 1998, that LUCIP will be developed and included in Appendix B.

3.7 Monitoring and Field Inspections

For waste units that require LUCs, quarterly on-unit monitoring will be performed throughout the remediation period, unless the Parties, in the unit-specific LUCIP, approve another monitoring frequency. Justification for a different monitoring frequency will be provided in the unit-specific LUCIP, where appropriate. In addition, field inspections will be conducted at least annually to assess the conditions of all units subject to LUCs. These inspections are to be conducted to determine whether the current land use remains protective and consistent with all corrective measure/remedial action objectives outlined in the unit-specific decision documents (e.g., engineering controls remain in place, etc.). The mechanisms and methodology for the monitoring and field inspections will be established in the unit-specific LUCIPs.

3.8 Notifications

3.8.1 Major Land Use Changes

In the event that SROO anticipates any "major changes in land use" for the waste units subject to LUCs, the SROO shall determine whether the contemplated changes will or will not necessitate the need for re-evaluation of the selected response action or implementation of specific measures to ensure continued protection of human health and the environment. The SROO shall evaluate such changes that impact RODs pursuant to 40 CFR 300.430(f)(3)(ii) and 40 CFR 300.435(c)(2). The SROO will notify the USEPA and the SCDHEC in writing of such changes at least sixty (60) days prior to the initiation of such changes to obtain USEPA and SCDHEC positions on the proposed changes. Each notification shall include:

a) an evaluation of whether the anticipated land use change will pose unacceptable risks to human health and the environment or negatively impact the effectiveness of the remedy;

b) an evaluation of the need for any additional remedial action(s) resulting from the anticipated land use changes; and

c) a proposal for any necessary changes to the selected remedial action and identification of documentation requirements (e.g., ROD amendments, ROD Explanation of Significant Differences, RCRA permit modification, etc.) for the proposed changes.

Upon notification by the SROO of an anticipated major land use change, the USEPA and the SCDHEC shall evaluate the information provided and shall issue comments within sixty (60) days so as to minimize any potential adverse impacts to the SRS activities or operations. Together with such comments, the USEPA and SCDHEC will each indicate their agreement or disagreement with USDOE's determinations as to whether the anticipated change in use, considering any changes to the selected remedial action(s) and/or implementation of additional measures proposed by USDOE, will ensure continued protection of human health and the environment. In the event USDOE proceeds with a major land use change that USEPA and/or SCDHEC determine will render a selected remedial action no longer protective of human health and the environment, USEPA and/or

SCDHEC may take any action consistent with their respective authorities under applicable laws to ensure continued protection of human health and the environment.

The Parties agree that "major changes in land use" are defined as:

a) a change in land use that is inconsistent with the exposure assumptions in the risk assessment that was the basis for the LUCs (either human health or ecological risk assessment). Examples include: the human health risk assessment assumed that a unit is in "caretaker" status with a worker visiting the waste unit once a week for 2 hours, and the proposed change would have the worker at the waste unit for 8 hours a day, 5 days a week; any change from industrial, commercial, or recreational land use to a more sensitive land use, such as housing, schools, hospitals, and/or daycare centers is a major land use change; any change from industrial or commercial land use to recreational land use; any change in a land use that has been prohibited in order to protect the environment;

b) any action that may disrupt the effectiveness of the remedial action. For example, excavation at a landfill, groundwater pumping that may impact a groundwater pump and treat system, or a construction project that may result in unacceptable exposure to an ecological habitat protected by the remedy; and

c) any other action that might alter or negate the need for the LUC. For example, any plan to actively remediate a waste unit subject to LUCs in order to allow for unrestricted land use.

In addition, the SROO will immediately notify the USEPA and the SCDHEC upon discovery of any activity inconsistent with any LUCIP. This notification will provide all pertinent information as to the nature and extent of the change and describe any measures implemented or to be implemented (to include a timetable for future completion) to reduce or prevent human health or ecological impacts.

3.8.2 Property Transfer

In the event that the SROO determines to enter into any contract for the sale or transfer of any of the SRS, the SROO will comply with the requirements of Section 120(h) of CERCLA, 42 United States Code § 9620(h), in effectuating that sale or transfer, including all notice requirements. In addition, the SROO will include notice of the FFA in any document transferring ownership or operation of the SRS to any subsequent owner and/or operator of any portion of the SRS and will notify USEPA and SCDHEC of any such sale or transfer at least ninety (90) days prior to such sale or transfer while the FFA is in effect. No property transfer of the SRS or any portion thereof or notice pursuant to Section 120(h) of CERCLA, 42 United States Code § 9620(h), will relieve the SROO of its obligation to perform remediation pursuant to the FFA. No property transfer of the SRS or any portion thereof will be consummated by the SROO without provision for continued maintenance of any containment system, treatment system, or other response action(s) installed or implemented pursuant to the FFA. In the event of any property transfer of the SROO or

any portion thereof, USDOE will consider the need for measures to ensure continued maintenance of any LUCs selected as part of a response action associated with the unit subject to transfer. The USDOE will include in the above-referenced notice of transfer a discussion of its conclusions regarding the need for any such measures and any specific measures to be employed attendant to the transfer.

3.9 Certification

The Manager, SROO, will annually certify that SRS is in compliance with all unit-specific LUCIP requirements in the FFA Annual Progress Report. The annual report will also serve to notify the USEPA and the SCDHEC of any change in the designated officials or of land use changes that are not considered major as described in Section 3.8.1 of this document.

3.10 Change in Applicable or Relevant and Appropriate Standards

Nothing included in this LUCAP should be construed to preclude SRS from proposing at any time or from the Parties otherwise agreeing to effect the deletion of any unit from coverage under the terms of this LUCAP on account of either:

a) a post-remedy implementation change to applicable or relevant and appropriate Federal or State cleanup standards; or

b) a change in previously documented contaminant concentration levels allowing for unrestricted use.

3.11 Future Communications

In accordance with FFA Section XXVIII, the FFA Project Managers shall receive all correspondence and communications on behalf of the Parties pertaining to all matters falling under the terms of this LUCAP.

3.12 Site Access

All Parties agree to use the procedures set forth in the FFA, Section XXX. Access/Data/Document Availability, regarding site access and data and document availability with regards to this LUCAP.

3.13 Reservation of Rights

It is agreed and understood that the USEPA and SCDHEC reserve all rights and authorities each agency may currently have or hereafter acquire by law to require SRS to comply with those Federal and State laws and regulations applicable to the investigation, cleanup, and near- and long-term maintenance of those waste units to be covered by this LUCAP. It is also understood that the SROO herein reserves those rights and authorities granted to the SROO by Federal or State law, regulation, or executive order. The SROO further reserves the right to put all property under its domain to those uses deemed necessary for mission accomplishment or otherwise deemed necessary by appropriate authority to meet the needs of the SROO.

3.14 Anti-Deficiency Act

No provision in this document shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act (31 United States Code §1341).

3.15 Amendments

Any minor modifications to the LUCAP Memorandum of Agreement (MOA) and/or this LUCAP incorporated herein shall be made effective upon written approval of the Parties' FFA Project Managers. Any major modification shall be made effective upon the written approval by each of the signatories to the MOA (or their successors). A modification will be considered major if so determined by any of the three Parties hereto.

3.16 Effective Date

The LUCAP shall become effective on the date that the last of the authorized representatives of the Parties signs the MOA incorporating this LUCAP. The LUCAP requirements shall then apply to LUCs in any corrective measure/remedial action for which the decision document was approved on or after April 21, 1998.

4.0 REFERENCES

Federal Facility Agreement (FFA), 1993. *Federal Facility Agreement for the Savannah River Site*, Administrative Docket Number 89-05-FF, Effective Date: August 16, 1993, WSRC-OS-94-42.

Johnston, J. D. (EPA-Region 4), 1998. *EPA Region IV Policy, Assuring Land Use Controls at Federal Facilities*, Letter to T. Heenan (DOE-SR) (April 21).

WSRC, 1998. *Management Action Plan*, WSRC-MS-95-0054, Revision 5.0, Westinghouse Savannah River Company, Aiken, SC (May).

5.0 APPENDICES

Appendix A - Definitions

Appendix B - Operable Unit-Specific Land Use Control Implementation Plans

Appendix C - Maps and Tables of Waste Units Within Each Watershed

Appendix D - Sample Land Use Control Language for Inclusion in Decision Documents

Appendix E - Memorandum of Understanding

Appendix F - Modification Record

Appendix G - Annual Land Use Certification Required Under Section 3.9

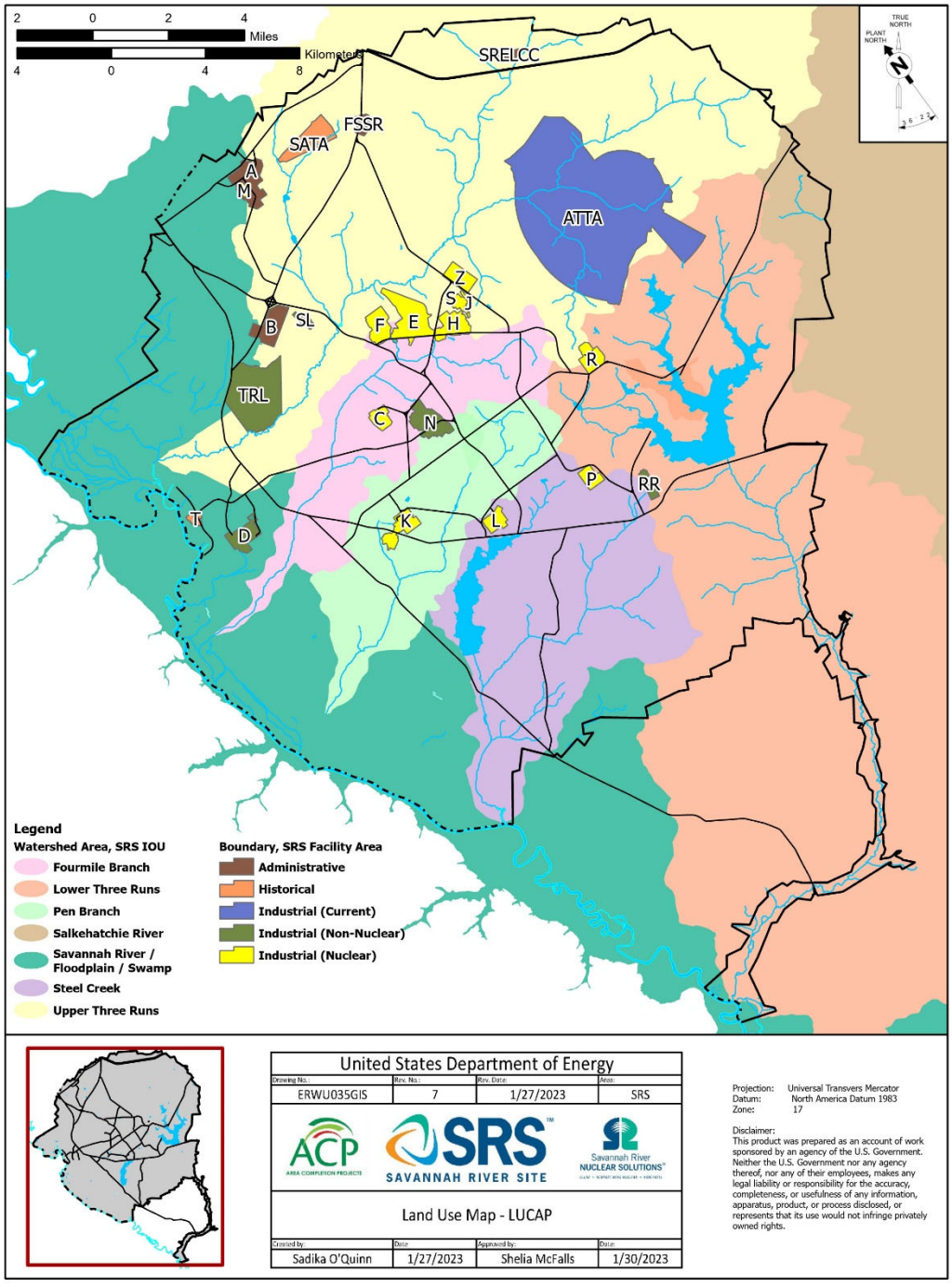

Figure 1. SRS Land Use Map

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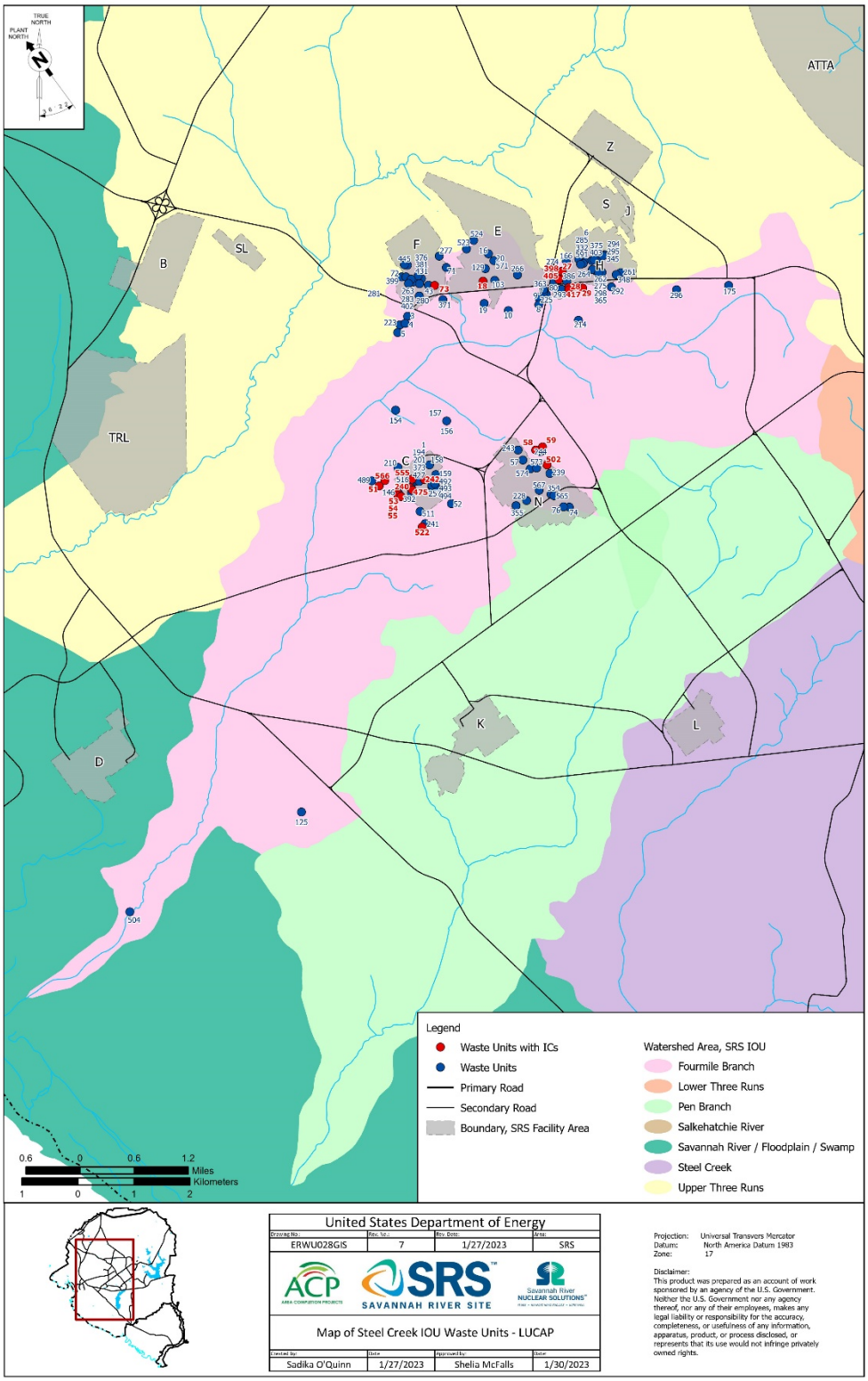

Figure 2. Fourmile Branch Watershed Operable Units that have Land Use Controls/Institutional Controls as a Component of the Selected Remedy

Table 1. Fourmile Branch Watershed Operable Units That Have Land Use Controls / Institutional Controls As A Component of the Selected Remedy

Unit No.	Unit Name
18 29 28 417 27 405 398	General Separations Area Consolidation Unit (consists of Old Radioactive Waste Burial Ground [Including Solvent Tanks], 643-E, HP-52 Ponds, H-Area Retention Basin, 281-3H, Spill on 05/01/1956 of Unknown of Retention Basin Pipe Leak, NBN, Warner's Pond, 685-23G, Spill on 03/08/1978 of Unknown Seepage Basin Pipe Leak in H-Area Seepage Basin, NBN, and Spill on 02/08/1978 of Unknown of H-Area Process Sewer Line Cave-in, NBN)
51	C-Area Burning/Rubble Pit Operable Unit, 131-C
566	Old C-Area Burning/Rubble Pit, NBN
240 242 475 522 555	C-Area Operable Unit Early Action (consists of Potential Release from C-Area Disassembly Basin, Potential Release from C-Area Reactor Cooling Water System, C-Area Cask Car Railroad Tracks as Abandoned, Early Construction and Operational Disposal Site [ECODS] C-1, C-Area Process Sewer Lines as Abandoned)
53	C-Area Reactor Seepage Basin, 904-66G
54	C-Area Reactor Seepage Basin, 904-67G
55	C-Area Reactor Seepage Basin, 904-68G
577	C-Reactor Complex Early Action
58	Central Shops Burning/Rubble Pit, 631-1G
59	Central Shops Burning/Rubble Pit, 631-3G
73	F-Area Retention Basin, 281-3F
502	Heavy Equipment Wash Basin, NBN

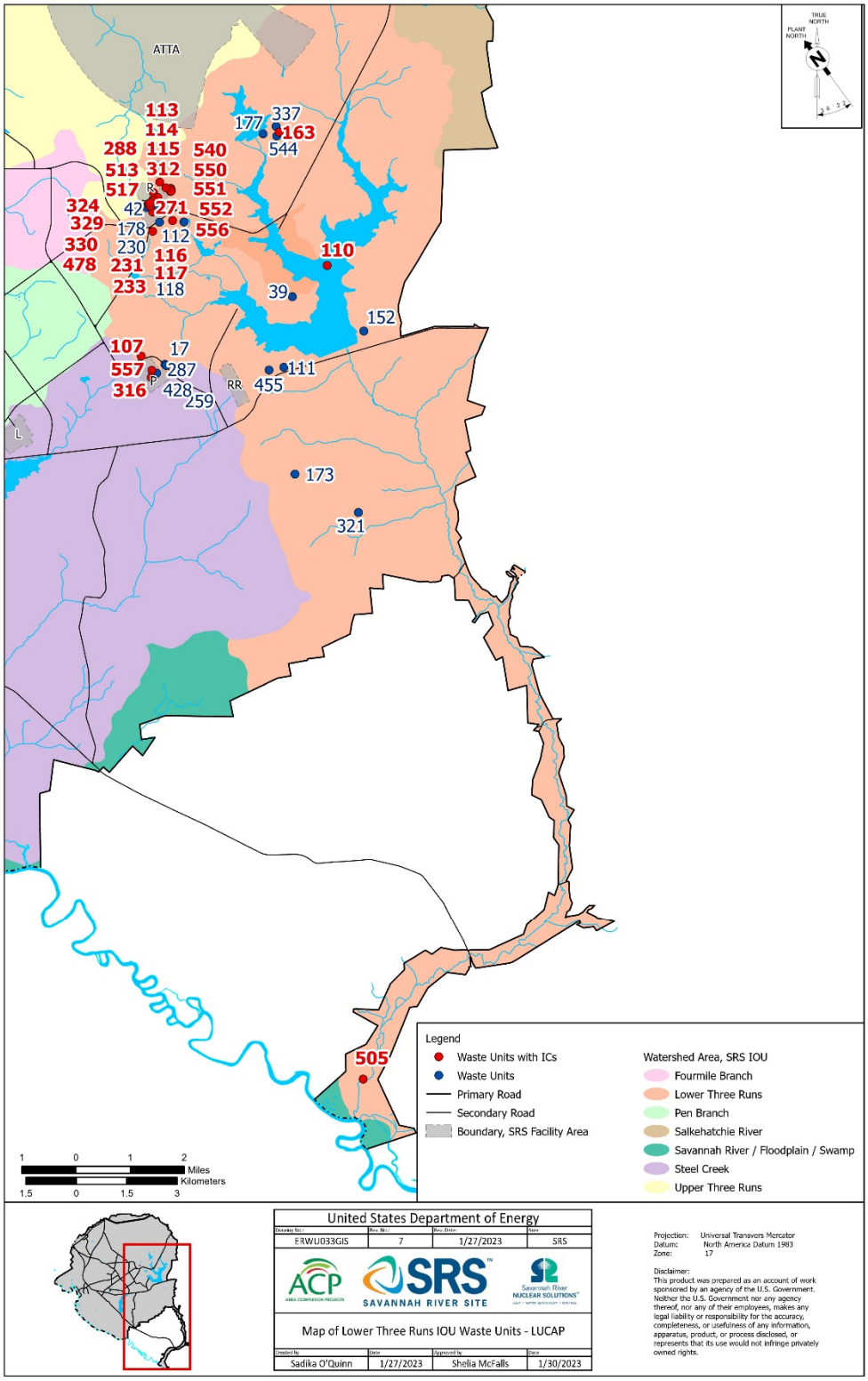

Figure 3. Lower Three Runs Watershed Operable Units that have Land Use Controls/Institutional Controls as a Component of the Selected Remedy

Table 2. Lower Three Runs Watershed Operable Units That Have Land Use Controls / Institutional Controls As A Component of the Selected Remedy

Unit No.	Unit Name
540	ECODS R-1A, -1B, -1C
163 337 544	Gunsite 012 Operable Unit (consists of Gunsite 012 Rubble Pile, NBN, Rubble Pile Across from Gunsite 012, NBN, and ECODS G-3 [Adjacent to Gunsite 012], NBN)[1]
505	Lower Three Runs Integrator Operable Unit (IOU) Tail Portion (Middle and Lower Subunits)
505 110 312	Lower Three Runs IOU (Upper Subunit) (consists of PAR Pond [Including the Pre-Cooler Ponds and Canals], 685-G and Old R-Area Discharge Canal, NBN)
107	P-Area Bingham Pump Outage Pit, 643-4G
113	R-Area Bingham Pump Outage Pits, 643-10G
114	R-Area Bingham Pump Outage Pits, 643-8G
115	R-Area Bingham Pump Outage Pits, 643-9G
116	R-Area Burning/Rubble Pit, 131-1R
117	R-Area Burning/Rubble Pit, 131-R
550	R-Area Unknown Pit #1 (RUNK-1), NBN
551	R- Area Unknown Pit #2 (RUNK-2), NBN
552	R- Area Unknown Pit #3 (RUNK-3), NBN
231 233 271 288 324 329 330 478 513 517 556	R Area Operable Unit (consists of Area on the North Side of Building 105-R, Laydown Area North of 105-R, and Release from the Decontamination of R-Area Reactor Disassembly Basin, NBN, Combined Spills North of Building 105-R, NBN, Cooling Water Effluent Sump, 107-R, Potential Release from R-Area Disassembly Basin, NBN, Potential Release of $NaOH/H_2SO_4$ from 183-2R, NBN, R-Area Ash Basin, 188-0R, R-Area Groundwater, R-Area Process Sewer Lines as Abandoned, NBN, R-Area Reactor Area Cask Car Railroad Tracks as Abandoned, NBN)

[1] A remedy of No Action was selected for Rubble Pile Across from Gunsite 012 and ECODS G-3 (Adjacent to Gunsite 012).

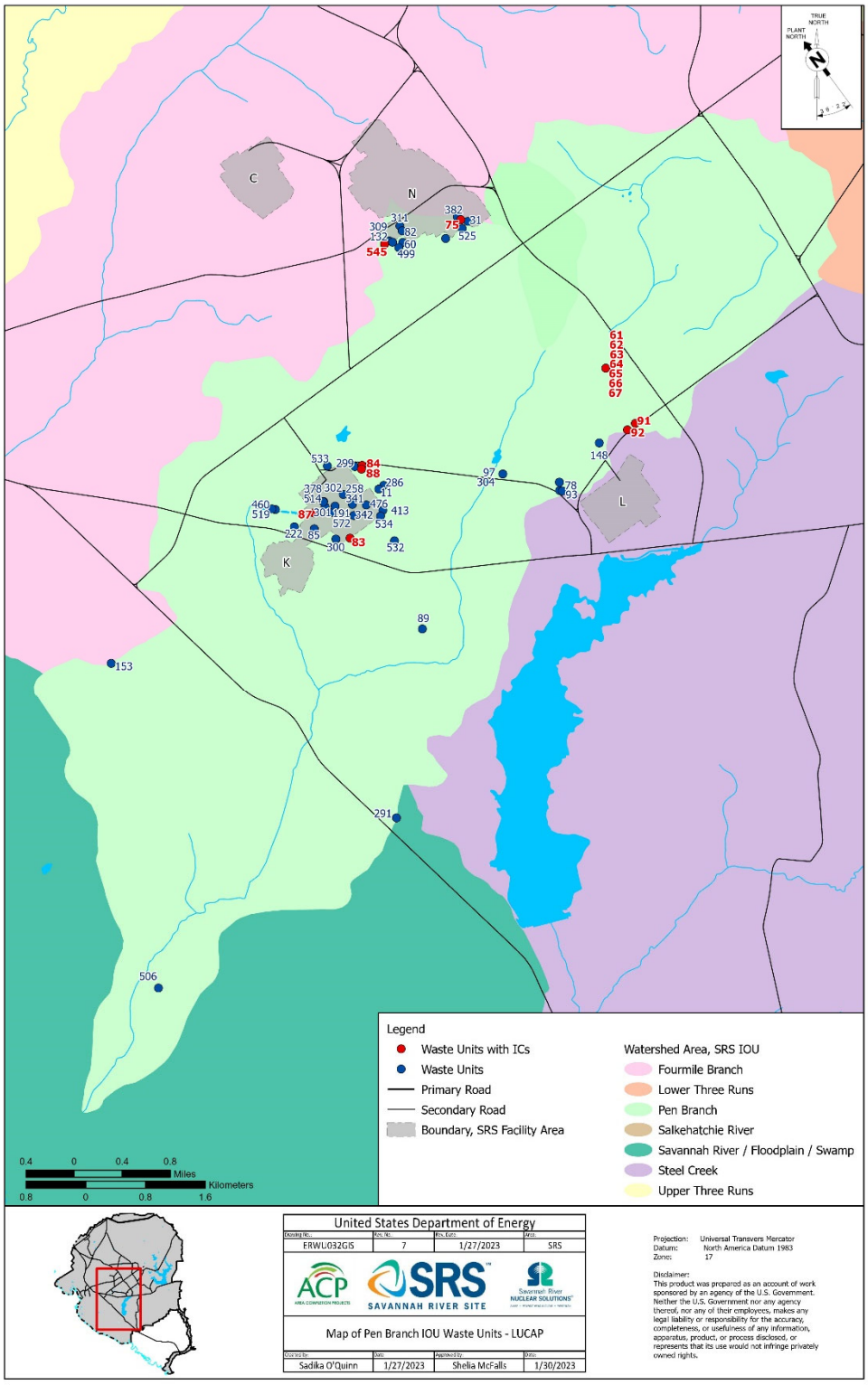

Figure 4. Pen Branch Watershed Operable Units that have Land Use Controls/Institutional Controls as a Component of the Selected Remedy

Table 3. Pen Branch Watershed Operable Units That Have Land Use Controls / Institutional Controls As A Component of the Selected Remedy

Unit No.	Unit Name
545	ECODS N-2
75	Ford Building Seepage Basin, 904-91G
83	K-Area Bingham Pump Outage Pit, 643-1G
84	K-Area Burning/Rubble Pit, 131-K
87	K-Area Reactor Seepage Basin, 904-65G
88	K-Area Rubble Pile, 631-20G
583	K-Reactor Complex Early Action
91	L-Area Bingham Pump Outage Pit, 643-2G
92	L-Area Bingham Pump Outage Pit, 643-3G
61	Chemical, Metals, and Pesticides (CMP) Pits, 080-170G
62	CMP Pits, 080-171G
63	CMP Pits, 080-180G
64	CMP Pits, 080-181G
65	CMP Pits, 080-182G
66	CMP Pits, 080-183G
67	CMP Pits, 080-190G

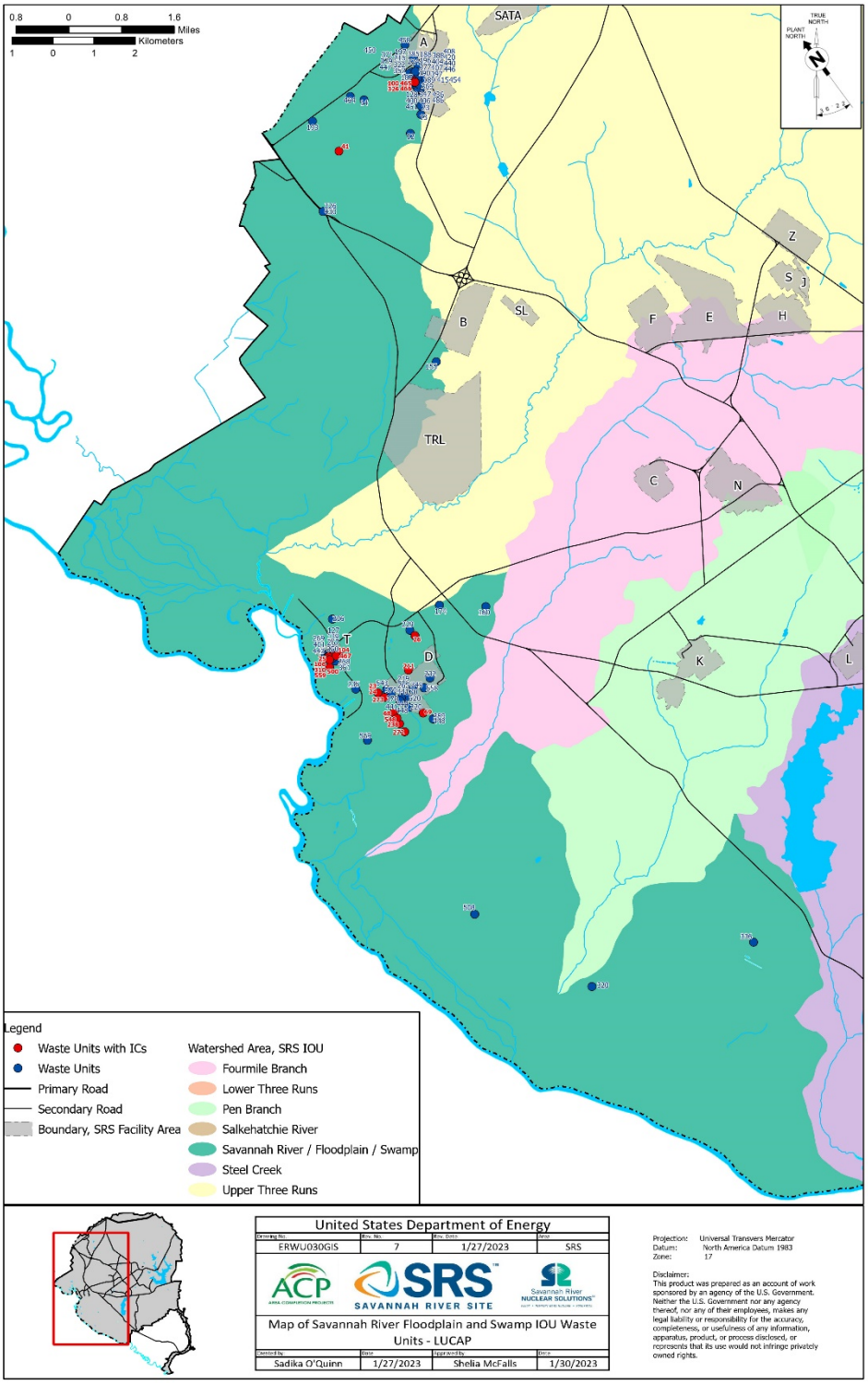

Figure 5. Savannah River and Floodplain Swamp Watershed Operable Units that have Land Use Controls/Institutional Controls as a Component of the Selected Remedy

Table 4. Savannah River and Floodplain Swamp Watershed Operable Units That Have Land Use Controls / Institutional Controls As A Component of the Selected Remedy

Unit No.	Unit Name
25 106 104 139 127	TNX Area Operable Unit (consists of TNX Groundwater , 082-G, Old TNX Seepage Basin, 904-076G, New TNX Seepage Basin, 904-102G, and TNX Burying Ground, 643-5G [Including Spill on 01/12/53 of ½ ton of Uranyl Nitrate, NBN])
26	D-Area Oil Seepage Basin, 631-G
32	D-Area Burning/Rubble Pit, 431-1D
33	D-Area Burning/Rubble Pit, 431-D
41	Silverton Road Waste Site, 731-3A
68 273	D-Area Expanded Operable Unit (consists of D-Area Rubble Pit, 431-2D & D-Area Ash Basin, 488-D)
69 70 211 265 558 570	D Area Operable Unit Early Action (consists of Combined Spills from 483-D and Associated Areas, NBN, D-Area Asbestos Pit, 080-20G, D-Area Coal Pile Runoff Basin, 489-D, D-Area Process Sewer Lines as Abandoned, NBN, D-Area Waste Oil Facility, 484-10D[2], D-006 Petroleum Release Site, NBN)
238 272 548	D-Area Operable Unit Second Early Action (consists of the 488-1D Ash Basin [including Inlet Basins], 488-2D Ash Basin, 488-4D Ash Landfill, and 489-D Coal Pile Runoff Basin [Southern 75%])[3]
100	M-Area Inactive Process Sewer Lines Operable Unit, 081-M (consists of 313-M and 320-M Inactive Clay Process Sewers to Tims Branch, NBN)[4]
310 467 500 559	T Area Operable Unit (consists of Neutralization Sump, 678-T; X-001 Outfall Drainage Ditch, NBN; TNX Outfall Delta, Lower Discharge Gully, and Swamp, NBN; & TNX-Area Process Sewer Lines and Tile Fields as Abandoned, NBN)

[2] This refers to the environmental media associated the 484-10D Facility.
[3] No remedial action is needed for the 489-D Coal Pile Runoff Basin (Southern 75%) or the Inlet Basins portion of 488-1D Ash Basin.
[4] The M-Area Inactive Process Sewer Lines Operable Unit is divided between Savannah River and Floodplain Swamp Watershed and Upper Three Runs Watershed.

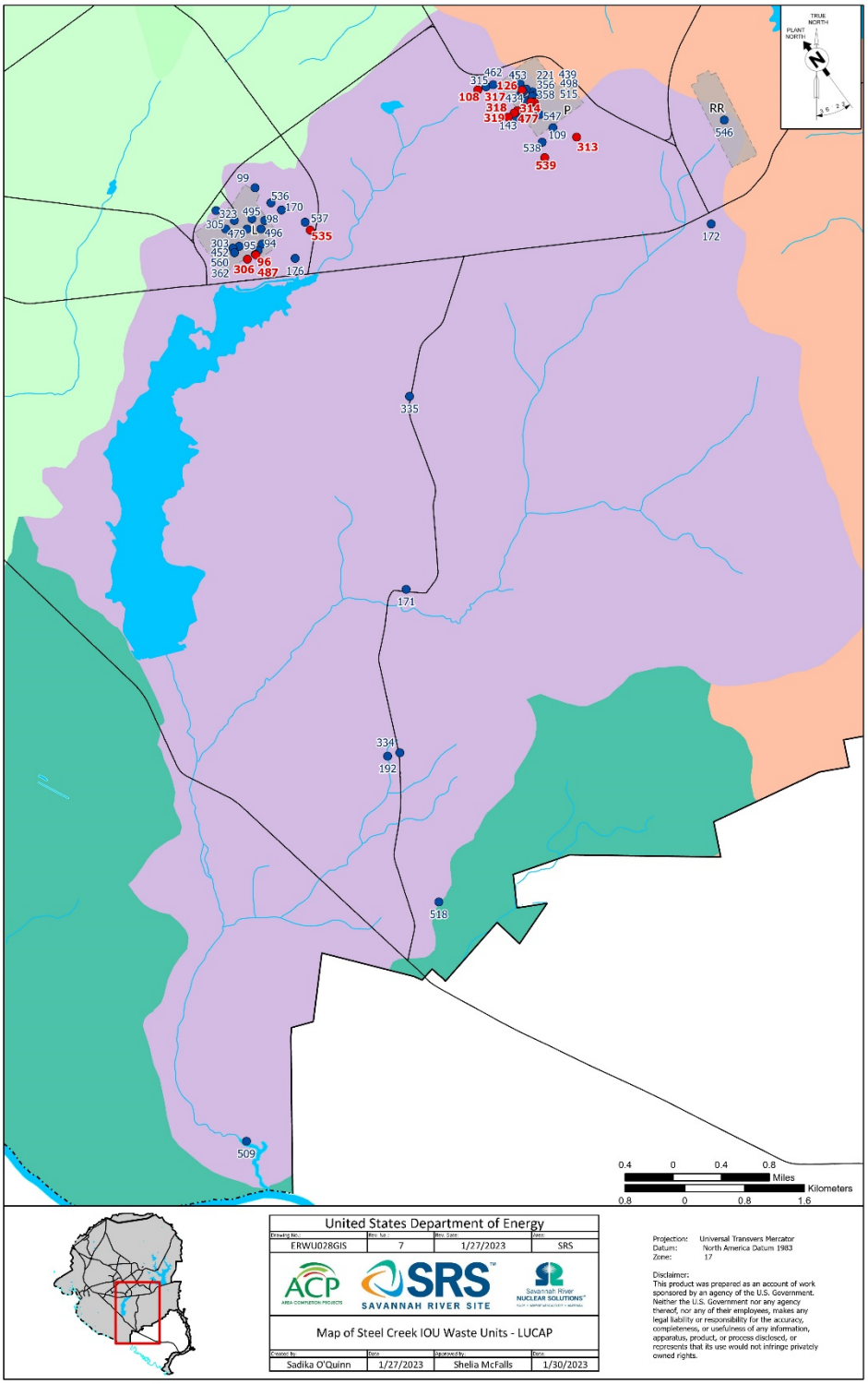

Figure 6 Steel Creek Watershed Operable Units that have Land Use Controls/Institutional Controls as a Component of the Selected Remedy

Table 5. Steel Creek Watershed Operable Units That Have Land Use Controls / Institutional Controls As A Component of the Selected Remedy

Unit No.	Unit Name
96	L-Area Oil/Chemical Basin, 904-83G
584	L-Reactor Complex Early Action
108	P-Area Burning/Rubble Pit, 131-P
306	L-Area Reactor Seepage Basin, 904-064G
126 313 314 316 477 557	P Area Operable Unit (consists of P-Area Ash Basin [Including Outfall P-007], 188-P; P-Area Process Sewer Lines as Abandoned, NBN and Spill on 03/15/79 of 5500 Gallons of Contaminated Water, NBN; P-Area Reactor Area Cask Car Railroad Tracks as Abandoned, NBN; Potential Release from P-Area Disassembly Basin, NBN; Potential Release from P-Area Reactor Cooling Water System, 186/190-P)
317	P-Area Reactor Seepage Basin, 904-61G
318	P-Area Reactor Seepage Basin, 904-62G
319	P-Area Reactor Seepage Basin, 904-63G
535	ECODS L-1
539	ECODS P-2
487	L-Area Southern Groundwater
509[5]	Wetland Area at Dunbarton Bay

[5] This unit number is associated with Steel Creek IOU, which includes the Wetland Area at Dunbarton Bay (WADB). Portions of the WADB have been remediated; Steel Creek IOU has not.

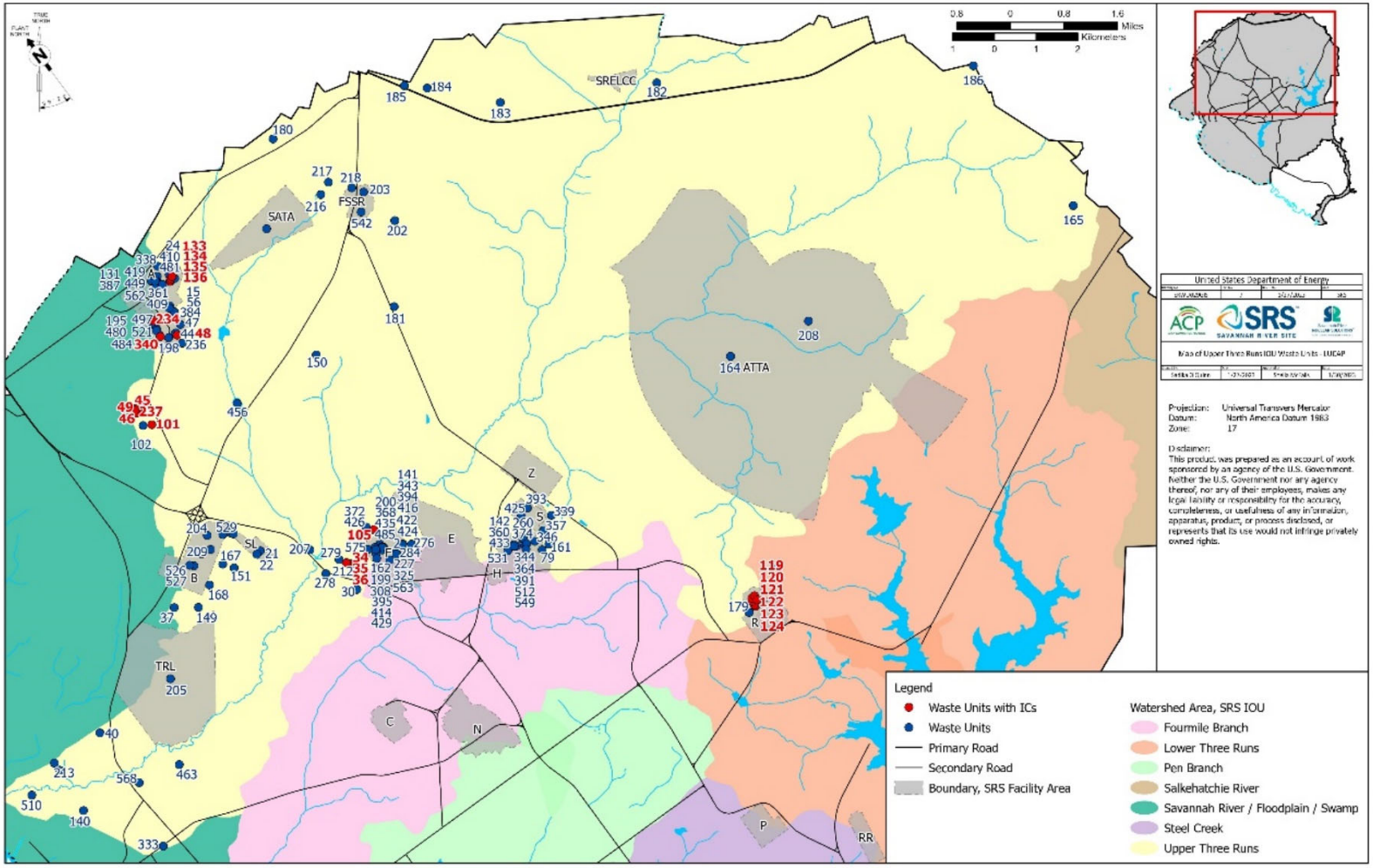

Figure 7 Upper Three Runs Watershed Operable Units that have Land Use Controls/Institutional Controls as a Component of the Selected Remedy

Table 6. Upper Three Runs Watershed Operable Units That Have Land Use Controls / Institutional Controls As A Component of the Selected Remedy

Unit No.	Unit Name
237	A-Area Ash Pile, 788-2A
45	A-Area Burning/Rubble Pit, 731-1A
46	A-Area Burning/Rubble Pit, 731-A
48	A-Area Miscellaneous Rubble Pile, 731-6A
49	A-Area Rubble Pit, 731-2A
593 528 530	B Area Operable Unit (consists of 770-U Test Reactor Building [HWCTR], ECODS B-3 [East of B Area, South of Road C], and ECODS B-5 [Adjacent to ECODS B-3])
34	F-Area Burning/Rubble Pits, 231-1F
35	F-Area Burning/Rubble Pits, 231-2F
36	F-Area Burning/Rubble Pits, 231-F
234	M-Area Inactive Process Sewer Lines Operable Unit, 081-M (consists of 313-M and 320-M Inactive Clay Process Sewers to Tims Branch, NBN)[6]
465 466 340 326[7]	M Area Operable Unit (consists of Underground Sump 321 M #001, Underground Sump 321 M #002, Salvage Yard, 741-A, and Potential Release of TCT, TET TCE, HNO3, U, Heavy Metals from 321-M Abandoned Sewer Line, NBN)
101	Miscellaneous Chemical Basin, 731-4A
105	Old F-Area Seepage Basin, 904-49G
119	R-Area Reactor Seepage Basin, 904-103G
120	R-Area Reactor Seepage Basin, 904-104G
121	R-Area Reactor Seepage Basin, 904-57G
122	R-Area Reactor Seepage Basin, 904-58G
123	R-Area Reactor Seepage Basin, 904-59G
124	R-Area Reactor Seepage Basin, 904-60G
133	SRL Seepage Basin, 904-51G1
134	SRL Seepage Basin, 904-53G2
135	SRL Seepage Basin, 904-54G
136	SRL Seepage Basin, 904-55G

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[6] The M-Area Inactive Process Sewer Lines Operable Unit is divided between Savannah River and Floodplain Swamp Watershed and Upper Three Runs Watershed.
[7] Unit Number 326 is a subunit of M-Area Operable Unit; however, it is located in the Savannah River and Floodplain Swamp Watershed and is shown on Figure 5 and included in Table C-4.