Chapter 3: **Compliance Summary**

The Savannah River Site (SRS) implements programs to meet the requirements of applicable federal and state environmental laws and regulations, as well as U.S. Department of Energy (DOE) Orders, notices, directives, policies, and guidance. The Site's goal is to comply with regulatory requirements and eliminate or minimize any environmental impacts. SRS has a decades-long commitment to environmental compliance and protecting human health and the environment.

2023 Highlights

Permitting

SRS managed 613 operating and construction permits. SRS received one Notice of Violation (NOV) as discussed below and in Section 3.3.7.1.1.

Remediation (Environmental Restoration and Cleanup)

At the end of Fiscal Year (FY) 2023, SRS had completed the surface and groundwater cleanup of 412 of these units and was in the process of remediating an additional 8 units containing or having contained solid or hazardous waste.

Radioactive Waste Management

- The annual reviews for the E-Area Low-Level Waste Facility Performance Assessment (PA) and the Saltstone Disposal Facility (SDF) PA showed that SRS continued to operate these facilities in a safe and protective manner.
- In calendar year 2023, SRS sent 16 transuranic waste shipments of downblended plutonium from K Area to the Waste Isolation Pilot Plant (WIPP) for deep geologic disposal. The number of shipments to WIPP in 2023 was 28.

Resource Conservation and Recovery Act (RCRA)

- The South Carolina Department of Health and Environmental Control (SCDHEC) conducted the unannounced RCRA Compliance Evaluation Inspection (CEI) for FY 2023 at select RCRA facilities on March 15−16, 2023. The inspection identified container management deficiencies, which were corrected prior to receiving SCDHEC's CEI Report.
- The U.S. Environmental Protection Agency (EPA) and SCDHEC conducted the unannounced RCRA CEI for FY 2024 at select RCRA facilities on October 30 to November 1, 2023. The inspection noted container management deficiencies.
- SCDHEC performed a RCRA Comprehensive Groundwater Monitoring Evaluation on May 9, 2023, inspecting groundwater monitoring systems and corrective actions at the M-Area and Metallurgical Laboratory Hazardous Waste Management Facilities (HWMFs), Sanitary Landfill, Mixed Waste Management Facility, and F- and H-Area HWMFs. The inspection did not note any deficiencies.

2023 Highlights (continued)

Air Quality and Protection

- SRS met all Clean Air Act requirements.

Water Quality and Protection

- Industrial stormwater outfalls are covered by the National Pollutant Discharge Elimination System (NPDES) Permit (SCR000000) for Stormwater Discharges Associated with Industrial Activities (Except Construction) (the Industrial Stormwater General Permit) and are included in the Site's Stormwater Pollution Prevention Plan (SWPPP). All 33 SRS industrial stormwater outfalls complied with the SWPPP.
- In April 2023, SRS received an NOV for not conducting a sampling requirement of its NPDES Industrial Wastewater Permit. SRS identified and completed corrective actions (Section 3.3.7.1.1).

Radiation Protection of the Public and the Environment

- SRS air and water discharges containing radionuclides were well below the DOE public dose limit of 100 millirem (mrem) per year. (Chapter 6, *Radiological Dose Assessment*, explains the public dose.)

Environmental Protection and Resource Management

- SRS conducted 913 National Environmental Policy Act (NEPA) reviews to identify potential environmental impacts from proposed federal activities. SRS identified 843 of these as Categorical Exclusions (CXs) that did not require action from the Site under NEPA.
- SRS continued to comply with many other federal laws, including the Emergency Planning and Community Right-to-Know Act; the Superfund Amendments and Reauthorization Act, Title III; the Endangered Species Act; the Federal Insecticide, Fungicide, and Rodenticide Act; the National Historic Preservation Act; and the Migratory Bird Treaty Act.

Release Reporting

- SRS did not have any releases exceeding the Comprehensive Environmental Response, Compensation, and Liability Act Reportable Quantity.

External Environmental Audits and Inspections

- In addition to site visits, the EPA and SCDHEC audited and inspected various SRS environmental programs to ensure regulatory compliance.
- The Federal Energy Regulatory Commission performed a dam safety inspection on May 24, 2023.

2023 Highlights (continued)

Tank Closure (Radioactive Liquid Waste Processing and Dispositioning)

- The Salt Waste Processing Facility (SWPF) treated more than 2.6 million gallons of salt solution.
- More than 4.2 million gallons of waste was processed into grout and disposed of in the SDF.
- The Defense Waste Processing Facility filled 54 canisters with 198,916 pounds of glass waste mixture, immobilizing approximately 5.14 million curies of high-level radioactive waste.
- The F- and H-Area Effluent Treatment Facility processed approximately 1.32 million gallons of treated wastewater.

3.1 INTRODUCTION

Complying with environmental regulations and U.S. Department of Energy (DOE) Orders is integral to Savannah River Site (SRS) operations. This chapter summarizes how SRS complies with applicable environmental regulations and programmatic requirements.

3.2 FEDERAL FACILITY AGREEMENT

The 1993 *Federal Facility Agreement (FFA) for the Savannah River Site*—a tri-party agreement between DOE, the U.S. Environmental Protection Agency (EPA), and South Carolina Department of Health and Environmental Control (SCDHEC)—integrates Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) requirements for a comprehensive remediation strategy and to coordinate administrative and public participation requirements. The FFA governs remedial actions, sets annual work priorities, and establishes milestones for cleanup and tank closure. SRS conducts remediation and closure activities as the FFA identifies and in accordance with applicable regulations, whether they are from the state, the federal government, or both. Additional information regarding the FFA commitments discussed in Chapter 3 can be found on the SRS webpage.

3.2.1 Remediation (Environmental Restoration and Cleanup)

SRS has 515 operable units (OUs), also known as waste units, subject to the FFA. These include RCRA and CERCLA units, site evaluation areas, and facilities included in the SRS RCRA permit. At the end of fiscal year (FY) 2023, SRS had completed the surface and groundwater cleanup of 412 of these units and was in the process of remediating an additional 8 units. Appendix C, *RCRA/CERCLA Units List*; Appendix G, *Site Evaluation List*; and Appendix H, *Solid Waste Management Units,* of the FFA list all of SRS's 515 OUs. The *Federal Facility Agreement Annual Progress Report for Fiscal Year 2023* explains the status of FFA activities at SRS for FY 2023.

CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan require remedy reviews every five years for sites that have hazardous substances remaining at levels that do not allow for

unrestricted use of the area after a remedy is in place. Due to the rising number of SRS remedial decisions requiring five-year remedy reviews and new EPA guidance and format requirements, DOE, the EPA, and SCDHEC agreed in 2014 to submit future SRS Five-Year Remedy Review Reports in phases rather than combining all OU reviews into a single document. The OUs are in groups of the following five remedy types: 1) native soil cover or land use controls, or both; 2) groundwater; 3) engineered cover systems; 4) geosynthetic or stabilization and solidification cover systems; and 5) operating equipment. To ensure that SRS completes reviews of all remedy types within five years, it looks at a different remedy type each year. The Site evaluates remedies to determine whether they are functioning as designed and are still protecting human health and the environment.

In 2023, SRS prepared the following reports to satisfy CERCLA requirements:

- *Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating Equipment*. DOE submitted the Revision 0 report to SCDHEC and the EPA on December 20, 2022. SRS received comments from the EPA and SCDHEC on March 17, 2023, and March 21, 2023, respectively. DOE submitted the Revision 1 report on July 12, 2023. The EPA and SCDHEC approved the report on August 24, 2023. DOE, SCDHEC, and the EPA signed the report on October 13, 2023, November 1, 2023, and December 6, 2023, respectively. SRS issued the report to the public on December 22, 2023.
- *Seventh Five-Year Remedy Review Report for Savannah River Site Operable Units with Native Soil Covers and/or Land Use Controls.* DOE submitted the Revision 0 report to SCDHEC and the EPA on December 21, 2023.

Lower Three Runs Integrator Operable Unit

The Lower Three Runs (LTR) Integrator Operable Unit (IOU) is one of six IOUs on SRS. SRS IOUs are defined as surface water bodies (for example, stream, lakes, and ponds) and associated wetlands and floodplains, including surface water; either sediment or soil or both (stream channel or floodplain sediment and floodplain or wetland soil); and related biota that correspond to a respective watershed. A watershed describes an area of land that contains a common set of streams and rivers that all drain into a single larger body of water, such as a river, a lake, or an ocean. For SRS, the larger body of water is the Savannah River.

The LTR IOU originates in the northeast portion of SRS and consists of a series of cooling water ponds (including PAR Pond) and canal systems that meander approximately 25 miles along a southerly direction, ultimately discharging into the Savannah River (Figure 3-1). The LTR watershed drains about 180 square miles and includes 2 main industrial OUs: P-Area OU including P Reactor, and R-Area OU including R Reactor. The LTR IOU was predominately contaminated with cesium-137 from historical releases associated with reactor operations in P and R Areas.

The LTR IOU is delineated into Upper, Middle, and Lower subunits for administrative purposes (Figure 3-2). The Upper subunit is located upgradient of the PAR Pond Dam and includes PAR Pond, the precooler ponds, and the canal systems that received P- and R-Area Reactor cooling water discharges during operations. The Middle and Lower subunits are below the PAR Pond Dam and consist of the LTR stream.

Figure 3-1 Lower Three Runs IOU Ponds and Canal System

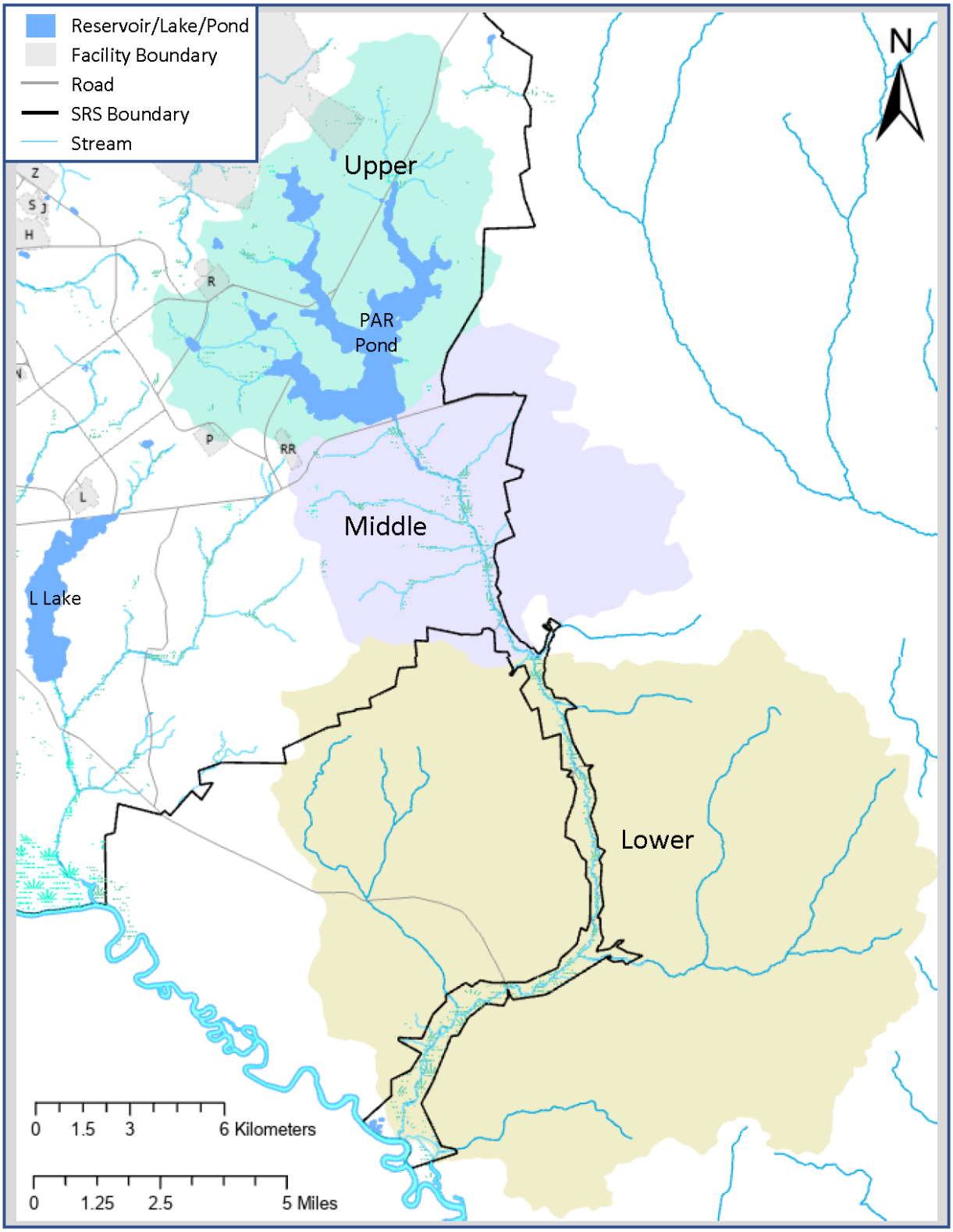

Figure 3-2 Lower Three Runs IOU Subunits

The remedial decision for the Middle and Lower subunits, excavation and disposal of sediment or soil or both from three locations (approximately 1 acre each) and land use controls (LUCs), was previously addressed and documented in the *Explanation of Significant Differences (ESD) for the Revision 0 Interim Action Record of Decision Remedial Alternative Selection: PAR Pond Unit Lower Three Runs Integrator Operable Unit Tail Portion (Middle and Lower Subunits) (U).* As documented in the ESD, no additional data collection, risk assessment, or response evaluation was necessary for the Middle and Lower subunits. LUCs were documented as the final action for the Middle and Lower subunits in the LTR IOU Record of Decision that was issued in December 2021.

In 2022, the SRS completed planning and documentation for implementing the LTR IOU Upper subunit remedial action. A remedial action was needed because cesium-137 and cobalt-60 (to a lesser degree) are present in sediment, soil, or both, and cesium-137 and mercury are present in fish tissue at levels that may pose a threat to human health and the environment.

Due to the complexity of the Upper subunit, multiple remedial actions were implemented to address the nature and extent of contamination within the subunit. These remedial actions include:

- LUCs with Monitored Natural Recovery (MNR) for the entire Upper subunit
- Excavation, treatment, and disposal of principal threat source material (PTSM) sediment, soil, or both from one location within Pond A, including the R-Area Discharge Canal exposure area, to reduce exposure and mitigate migration of sediment, soil, or both
- Maintain Water in Ponds (Pond B, PAR Pond, and Pond C) to reduce exposure and mitigate migration of sediment, soil, or both

SRS began implementing the remedial actions on January 24, 2023, and was physically complete on June 20, 2023.

LUCs remedial action—includes engineering controls such as signs, gates, or both at access points and administrative measures (deed restrictions and other SRS worker protection programs) to effectively reduce exposure of contaminated media to human receptors. MNR is a component to the remedy that uses the ongoing, naturally occurring recovery process to contain, destroy, or reduce the bioavailability or

SRS Uses Signs to Control Access to Lower Three Runs IOU.

toxicity of contaminants in sediment, soil, or both. The MNR component will assess the natural decay of cesium-137 in the Upper subunit over time. Cesium-137 levels are expected to decay below the PTSM threshold (144 picoCuries/gram) in the Upper subunit in approximately 50 years; the need to continue with the MNR component of the remedy will be reevaluated at that time. PTSM is described as highly toxic materials that would present a significant risk to human health or the environment should exposure occur.

Excavation, Treatment, and Disposal of PTSM sediment, soil, or both remedial action—reduces toxicity, mobility, or volume of contaminants through treatment and adding a drying agent for the excavated sediment, soil, or both. The treatment technology was applied to reduce contaminant mobility and allow for safe transport and disposal.

Maintain Water in Ponds remedial action—includes inspections and periodic maintenance of the physical attributes of the dam structures, such as dams, weirs, and control gates so that water retention is viable and allows for natural fluctuations of water levels. The presence and maintenance of the dam structures also controls sediment movement downstream of the Upper subunit.

Because contaminants have been left in place at the LTR IOU at levels that do not allow for unlimited use and unrestricted exposure, LUCs manage the entire IOU (Upper, Middle and Lower subunit), which is subject to five-year remedy reviews to ensure the remedy remains protective of human health and the environment.

Wetland Area at Dunbarton Bay

SRS began early infrastructure development between 1951 and 1955, including constructing P Reactor, which operated between 1954 and 1991. Similar to each reactor at SRS, P Area used a coal-fired powerhouse to generate steam and electricity, producing coal ash (coal combustion products) as a waste of boiler operations. In P Area, this ash was disposed of via a sluice line to the P-Area Ash Basin (PAB) (188-P). During characterization of the PAB in summer of 2010, an area of ash overflow was initially discovered and named the Wetland Area at Dunbarton Bay (WADB).

An Aerial Photograph Shows the Wetland Area at Dunbarton Bay.

WADB is southeast of the PAB within the Steel Creek IOU boundary near the headwaters of Meyers Branch and extends approximately 2,500 feet into Dunbarton Bay. Dunbarton Bay is a designated wetland because it is a Carolina Bay, a unique wetland environment found in the southeastern United States.

Based on the evaluation of characterization data, the only problems warranting action at WADB are those related to human receptors exposed to coal-related metals and radionuclides in surface soil and ash that exceed a risk greater than 1E-06. The risk threshold of 1E-06 indicates a probability of 1 in 1,000,000

individuals developing cancer. No problems warranting action were identified for the ecological receptors or contaminant migration pathway.

On June 20, 2018, the *Record of Decision Remedial Alternative Selection for the Wetland Area at Dunbarton Bay in Support of the Steel Creek Integrator Operable Unit (U)* was issued to the public. The selected remedial action described in the Record of Decision (ROD) was excavation of 22,000 cubic yards of ash and contaminated soil media, extending from the PAB to the edge of a 100-foot buffer around the Dunbarton Bay (wetland area), and disposing of the excavated material in an approved off-SRS permitted disposal facility. The remedy also included LUCs for approximately 25 acres of ash and contaminated soil that were not excavated with a 100-foot buffer along the northern edge of the bay to protect the sensitive Carolina Bay ecosystem.

An Access Control Sign at Dunbarton Bay Limits Entry to the Wetland Area.

The selected remedy for WADB consisted of two distinct areas of ash excavation: the North Ash Remediation Area (NARA) and the South Ash Remediation Area (SARA). The volume of ash removed from the NARA and SARA (Zone 1) was approximately 22,670 cubic yards. Excavation for these areas began in January 2019 and was completed in November 2019. The LUC boundary access warning signs were installed in January 2020. These activities supported unrestricted land use in NARA and LUCs in SARA (Zone 1).

During the initial stages of excavation at SARA, the presence of shallow perched water and additional ash (approximately 1 acre) outside the limits of the SARA ash boundary were discovered. Due primarily to the saturated conditions in the remediation area, but also to the discovery of additional ash and restrictions on disposal volume and moisture content that were imposed by the disposal facility, DOE, the EPA, and SCDHEC decided to suspend excavating the remaining SARA (Zones 2 to 4) until disposition alternatives for all coal combustion residual units listed in the FFA were evaluated.

The saturated conditions and additional ash volume made continued excavation impracticable. In 2022, instead of further excavation, DOE, the EPA, and SCDHEC agreed to expand the LUCs for the remaining ash at WADB, including the ash deposits remaining in SARA and the additional ash discovered outside of the boundary of SARA. This decision was documented in the *Explanation of Significant Difference for the Revision 1 Record of Decision Remedial Alternative Selection for the Wetland Area at Dunbarton Bay in Support of the Steel Creek Integrator Operable Unit (U),* which was issued to the public on August 20, 2023. Adding LUC signs and repositioning existing LUC warning signs to encompass the expanded area were completed in October 2023.

Because contaminants have been left in place at WADB at levels that do not allow for unlimited use and unrestricted exposure, the unit is subject to five-year remedy reviews to ensure the remedy in place remains protective of human health and the environment.

3.2.2 Tank Closure: Radioactive Liquid Waste Processing and Dispositioning

SRS generates liquid radioactive waste as a byproduct of processing nuclear materials. The waste is stored in underground waste tanks grouped into two tank farms (F-Tank Farm and H-Tank Farm). Sludge settles on the bottom of the tanks, and liquid salt waste rises to the top. The waste removed from the tanks feeds the sludge and salt waste processing programs, as Figure 3-3 depicts.

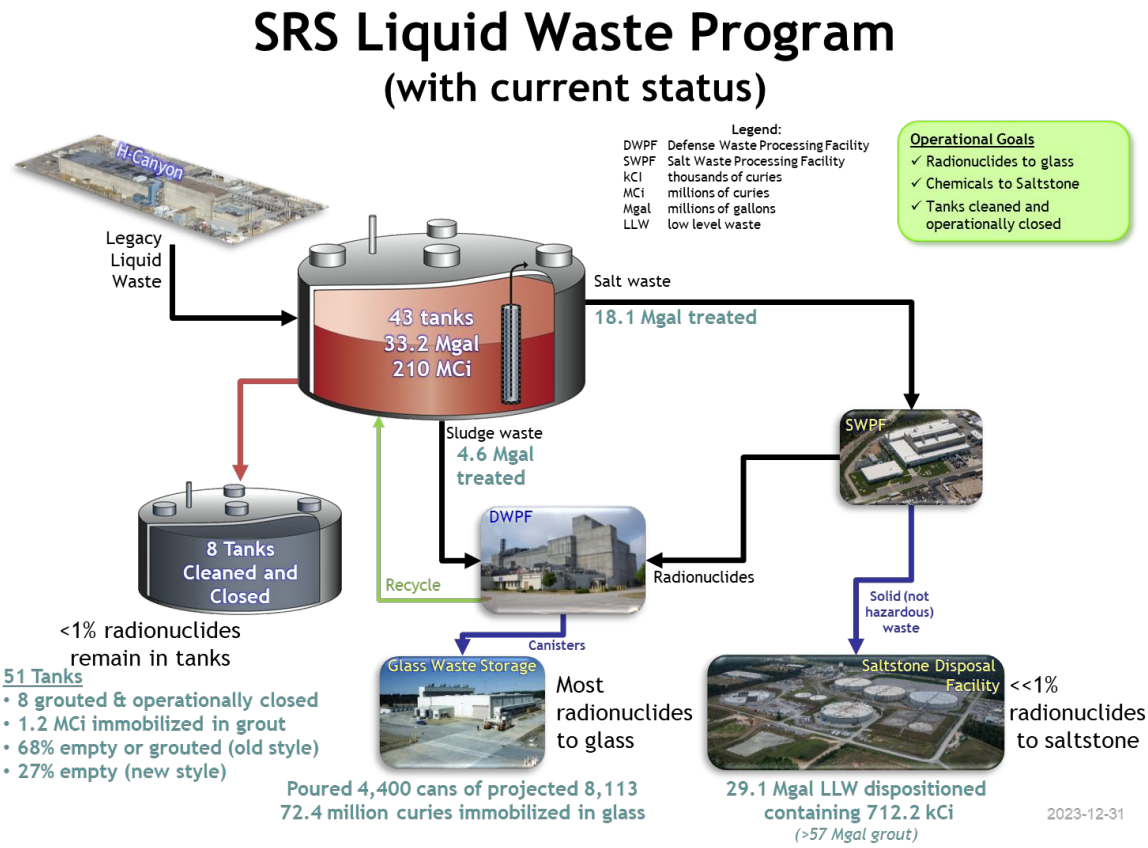

Figure 3-3 Processing and Dispositioning Radioactive Liquid Waste at SRS

3.2.2.1 Tank Closure

SRS operates F-Tank Farm and H-Tank Farm under SCDHEC industrial wastewater regulations; however, FFA Section IX, *High-Level Radioactive Waste Tank System(s)*, establishes requirements to prevent and mitigate releases from these tank systems. The FFA also contains enforceable closure schedules for the liquid waste tanks. Tank closures are subject to DOE Order 435.1, *Radioactive Waste Management*; federal regulations; and Section 3116 of the *Ronald W. Reagan National Defense Authorization Act (NDAA) for Fiscal Year 2005.*

NDAA Section 3116(a) is legislation that allows the Secretary of Energy to consult with the Nuclear Regulatory Commission (NRC) to determine that certain waste from spent fuel reprocessing is not high-level radioactive waste and does not need to be disposed of in a deep geologic repository. The NRC coordinates with SCDHEC to monitor the steps DOE takes to dispose of the waste to assess whether it is complying with the performance objectives of 10 Code of Federal Regulations (CFR) Part 61, Subpart C.

Additionally, the EPA may participate in the NRC monitoring. *Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site* (DOE 2012) and *Section 3116 Determination for Closure of H-Tank Farm at the Savannah River Site* (DOE 2014) demonstrate that the stabilized tanks and ancillary structures in F-Tank Farm and H-Tank Farm meet the necessary criteria and will not need to be permanently isolated at a deep geologic repository.

During 2023, DOE supported the NRC monitoring of F-Tank Farm and H-Tank Farm under Section 3116 of the NDAA by providing routine documentation (for example, groundwater monitoring reports and Performance Assessment [PA] maintenance plan), as the NRC requested. The NRC did not conduct onsite observation visits for the liquid waste tank farms in 2023; however, several virtual meetings were held between the NRC, DOE, and DOE Contractor staff. Before SRS closes the tanks, they undergo an extensive waste removal process that includes specialized mechanical cleaning and isolation from the waste transfer and chemical systems. Once these steps are complete, DOE receives regulatory confirmation that the tanks are ready to be stabilized by grouting.

No FFA waste tank closure commitments were required for 2023. In 2022, DOE, SCDHEC, and the EPA signed the *2022 High Level Waste Tank Milestones Agreement*, which has since been added to the FFA. The agencies agreed on new Preliminary Cease Waste Removal dates and Operational Closure dates for a specified number of tanks as well as additional issues. The Preliminary Cease Waste Removal dates and new Operational Closure dates replace the previously suspended Bulk Waste Removal Efforts and operational closure dates.

3.2.2.2 Salt Processing

SRS is using several processes to dispose of the salt waste from the liquid waste tanks. The Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit (ARP/MCU) was an interim salt waste processing system. SCDHEC permitted ARP/MCU under South Carolina industrial wastewater regulations. The salt form of the liquid waste is 90% of the waste volume stored in the tanks and contains about half of the radioactivity. Before the Salt Waste Processing Facility (SWPF), the ARP/MCU process removed actinides, strontium, and cesium from the salt waste taken from the liquid waste tank farms. The facilities underwent lay-up activities to be placed in a safe, stable suspended operations state in 2019, which allowed SRS to complete final SWPF tie-ins. ARP/MCU has remained in a suspended operations state since that time.

With construction of the SWPF project complete, SRS received approval to begin facility operations in 2020. Hot commissioning of SWPF was completed in January 2021, and Parsons Corporation, which designed and built the first-of-a-kind facility, completed its first year of operations on January 17, 2022. Savannah River Mission Completion (SRMC) took over management of the Liquid Waste program in late February 2022 and management of SWPF in late March 2022. SWPF processed more than 2.6 million gallons of salt solution in 2023.

SRS procured the Tank Closure Cesium Removal (TCCR) system to treat salt waste, increase salt processing capability, and to expedite tank closure. The Site completed TCCR design and fabrication in 2017 and installation and readiness assessments in 2018. The TCCR started operating in January 2019. It processed more than 71,700 gallons of salt solution in 2022. In July 2022, SRS suspended TCCR operations and initiated lay up of the TCCR Unit to accelerate overall risk reduction (removal of waste) for several waste tanks submerged in the water table. The TCCR Unit was deinventoried in 2023 and has been placed in a

safe state. In 2023, significant progress was made in removing waste from several tanks that are submerged in the water table. Of the six remaining tanks fully or partially submerged in the water table, three of the tanks were actively going through waste removal activities in 2023, two others continued with field activities to prepare them for waste removal, and one was supporting waste removal activities for other tanks in the water table.

3.2.2.3 Salt Disposition

After SWPF processing, the decontaminated salt solution is processed into grout waste at the Saltstone Production Facility and disposed of in the Saltstone Disposal Facility (SDF). SCDHEC permits the SDF to operate under South Carolina solid waste industrial landfill regulations. SRS disposes of treated low-level salt waste in the SDF, based on the Secretary of Energy's determination pursuant to *Section 3116 Determination for Salt Waste Disposal at the Savannah River Site* (DOE 2006). NDAA Section 3116(b) requires the NRC, in coordination with SCDHEC, to monitor the disposal actions DOE takes to assess whether it is complying with the objectives of 10 CFR Part 61.

During 2023, DOE supported the NRC in monitoring SDF under Section 3116 of the NDAA by providing routine documentation (groundwater monitoring reports and PA maintenance plan), as requested. The NRC conducted an onsite observation visit for salt waste disposal during 2023. In addition, several virtual meetings between the NRC, DOE, and DOE contractor staff took place.

In 2023, SRS continued permanently disposing of waste, processing more than 4.2 million gallons into grout and disposing of it in cylindrical concrete Saltstone Disposal Units (SDUs). These include SDU-6, the 375-foot in diameter rubber-lined mega-vault with a capacity of 32.8 million gallons; SDU-7, with a capacity of 34.5 million gallons; and SDU-3 Cells A and B, which are 150 feet in diameter vaults having a capacity of 2.8 million gallons each. In 2023, SRS completed constructing SDU-8 and continued constructing SDU-9 and SDU-10, all with capacities of 34.5 million gallons. In addition, excavation and groundwork were completed for SDU-11 and SDU-12, the final mega-vaults currently planned.

An Aerial Photograph Depicts Construction in Progress on SDU-9, SDU-10, SDU-11, and SDU-12.

3.2.2.4 Sludge Waste Processing—Vitrification of High-Activity Waste

SCDHEC permits the Defense Waste Processing Facility (DWPF) to operate under South Carolina industrial wastewater regulations. The sludge waste makes up less than 10% of the waste volume stored in the tanks and contains about half of the radioactivity, as Figure 3-3 shows. At DWPF, SRS combines the high-activity portion of both the sludge and salt waste from the tank farms with frit before sending the mixture to the plant's melter. The melter heats the mixture to nearly 2,100 degrees Fahrenheit, until molten, and pours the resulting glass-waste mixture into stainless steel canisters to cool and harden. This process, called "vitrification," immobilizes the radioactive waste into a solid glass form suitable for long-term storage and

disposal. SRS stores these canisters temporarily in the Glass Waste Storage Buildings to prepare for final disposal in a federal repository.

DWPF produced 54 canisters, collectively containing 198,916 pounds of glass and immobilizing approximately 5.14 million curies of radioactivity during 2023. Since DWPF began operating in March 1996, it has produced more than 4,400 canisters collectively, containing 17.0 million pounds of glass and immobilizing 72.4 million curies of radioactivity.

3.2.2.5 Low-Level Liquid Waste Treatment

The F- and H-Area Effluent Treatment Facility (ETF) treats low-level radioactive wastewater from the tank farms. The ETF removes chemical and radioactive contaminants from the water before releasing it into Upper Three Runs Creek, an onsite stream that flows to the Savannah River. The point of discharge is a South Carolina National Pollutant Discharge Elimination System (NPDES)-permitted outfall. The ETF processed approximately 4.8 million gallons of treated wastewater in 2023. SCDHEC permitted the ETF under the South Carolina industrial wastewater regulations. The ETF remained in compliance with the industrial wastewater permit and the NPDES permit throughout 2023.

3.3 REGULATORY COMPLIANCE

This section summarizes how SRS complies with the applicable federal and state environmental laws and regulations.

3.3.1 Atomic Energy Act/DOE Order 435.1, "Radioactive Waste Management"

SRS waste and materials management is complex and includes numerous facilities that DOE Orders and federal and state regulations govern. DOE Order 435.1 covers all radioactive waste management (low-level waste [LLW], high-level waste [HLW], and transuranic [TRU] waste) to protect the public, workers, and the environment. LLW is the only radioactive waste SRS disposes of onsite, at the E-Area LLW Facility and the SDF. LLW is radioactive waste not classified as HLW or TRU waste and not containing any Resource Conservation and Recovery Act (RCRA) hazardous waste.

DOE Manual 435.1-1, *Radioactive Waste Management Manual,* requires DOE to prepare PAs to evaluate the potential impacts of low-level radioactive waste disposal and closure (the tank farms) to the workers, the public, and the environment. The PAs provide the technical basis and evaluation needed to demonstrate compliance with DOE Order 435.1. The Order also requires a composite analysis (CA) to assess the combined impact of multiple LLW disposal facilities and other interacting sources of radioactive material after closure.

SRS performs a comprehensive annual PA review for disposal facilities. This review ensures any developing information does not alter the original PA conclusions and that there is a reasonable expectation the facility will continue to meet the performance objectives of the DOE Order. In addition, SRS performs an annual CA review to evaluate the adequacy of the 2010 SRS CA and verify that SRS conducted activities within the bounds of the 2010 analysis. The FY 2022 annual reviews for the E-Area Solid Waste Management Facility, the SDF, and the SRS CA determined that SRS continues to comply with the performance objectives of DOE Order 435.1. Based on the reporting and approval cycle for the PA and CA annual reviews, there is a one-year lag in reporting this information in the *SRS Environmental Report,* which is published yearly.

TRU waste is another category of radioactive waste that SRS generates. DOE Orders define TRU waste as waste containing more than 100 nanocuries of alpha-emitting TRU isotopes (elements with atomic numbers greater than uranium) per gram of waste with radiological half-lives greater than 20 years. At SRS, TRU waste consists of down-blended excess plutonium material from K Area and job waste such as clothing, tools, rags, residues, debris, and other items contaminated with trace amounts of plutonium. SRS sends TRU waste to the Waste Isolation Pilot Plant (WIPP), a deep geologic repository located near Carlsbad, New Mexico, for permanent disposal. Many different federal and state agencies (the EPA, the NRC, DOE, and the State of New Mexico), along with multiple regulations, govern TRU waste management and disposal. SRS manages TRU waste under DOE Orders and federal and state hazardous waste regulations. SRS sent 28 TRU shipments to WIPP for disposal in 2023.

3.3.2 Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) establishes regulatory standards to generate, transport, store, treat, and dispose of solid waste, hazardous waste (such as flammable or corrosive liquids), and underground storage tanks (USTs). SRS has a RCRA hazardous waste permit, multiple solid waste permits, and multiple UST permits, as Section 3.3.10, *Permits*, identifies.

3.3.2.1 Hazardous Waste Permit Activities

Under RCRA, the EPA establishes requirements for treating, storing, and disposing of hazardous waste. The EPA authorizes SCDHEC to regulate hazardous waste and the hazardous components of mixed waste. SCDHEC also issues permits to implement RCRA.

Through the SCDHEC-issued RCRA hazardous waste permit, SRS closed Solvent Storage Tanks (SSTs) S33–S36 and submitted the final certification of closure to SCDHEC in October 2019 (Figure 3-4). In November 2020, SCDHEC conducted the onsite verification of the closure. SCDHEC recognized that SRS had satisfied the conditions of the approved closure plan in early 2022. The SST Facility was added to the postclosure portion of the SRS Hazardous and Mixed Waste Permit SCDHEC issued on November 30, 2022 (effective December 15, 2022). This section of the permit requires the SST Facility to submit a postclosure plan and a plan to implement a groundwater monitoring system to SCDHEC by December 2022. To satisfy this requirement, SRS reevaluated the SST soil data used to generate the *SST Closure Certification Report* to determine the constituents to monitor during the postclosure care period. The reevaluation of the data concluded that the soil associated with the closed SST Facility meets the threshold for unrestricted land, and the detected concentration of constituents were less than residential thresholds or were indistinguishable from SRS background concentration. After review and discussion of the reevaluated data, SCDHEC concluded that the SST postclosure plan would not need to include implementing a groundwater monitoring system. In December 2022, SRS submitted the SSTs S33–S36 Postclosure Plan to SCDHEC. SCDHEC responded in November 2023 with comments on the Postclosure Plan. SRS is drafting comment responses to be submitted to SCDHEC in 2024.

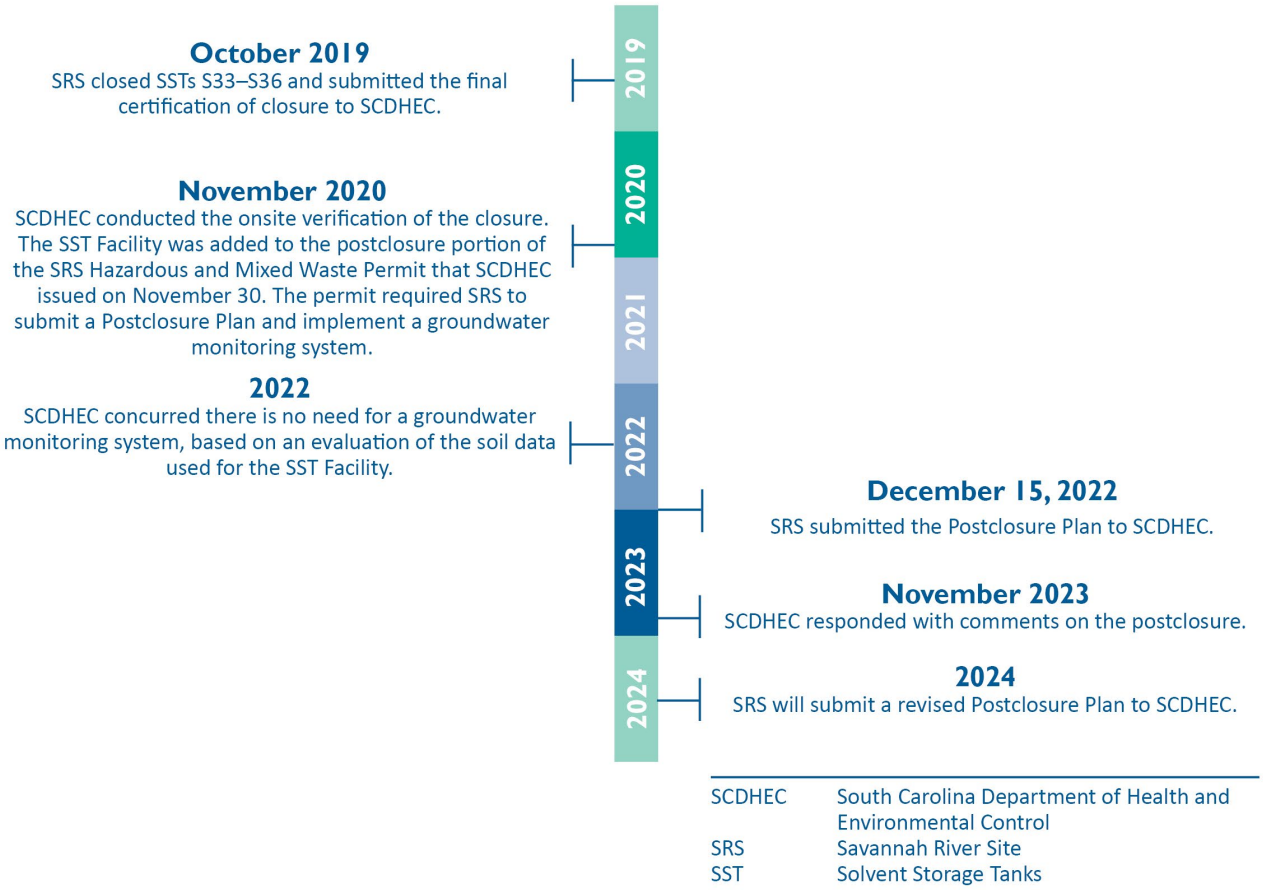

Figure 3-4 SST Closure Plan, from Certification to Postclosure

The Savannah River Site submitted Revision 3 of the 2013 RCRA Permit Renewal Application, M-Area and Metallurgical Laboratory (Met Lab) Hazardous Waste Management Facility's (HWMFs) Postclosure (Volume III), to SCDHEC on September 26, 2022 (Figure 3-5). This submittal was in accordance with the schedule for corrective action in the Final Permit Decision that was issued on November 30, 2021, and effective on December 15, 2021. The revision included recommendations for the permanent shutdown of Met Lab HWMF recovery well RWM-17B, long-term monitoring of Met Lab HWMF groundwater protection standard and monitoring constituents, and future operations of various M-Area and Met Lab HWMFs soil vapor extraction systems. Two recovery wells, RWM-17B and RWM-17D, were installed within the Met Lab HWMF area in May 1996 as a corrective action system in that area. With SCDHEC approval, RWM-17D was abandoned in 2016, based on historic data trends being less than the groundwater protection standard and dry conditions in the area. Based on data trends and the expansion of the monitoring well network near RWM-17B, SCDHEC approved the temporary shutdown of the recovery well in September 2017, and the well was shut down in February 2018. Groundwater concentration standards continued to decline since 2018, and future operation of recovery well RWM-17B is not needed. Therefore, the well was proposed for abandonment. The Revision 3 submittal also proposed expanding the A-Area Burning/Rubble Pits/Miscellaneous Chemical Basin/Metals Burning Pit OU 1,4-dioxane characterization program, updates to the status of the Southern Sector recirculation wells, and changes to the status of the A-2 Air Stripper recovery wells because the stripper was approved for permanent shutdown in 2021. Four wells were

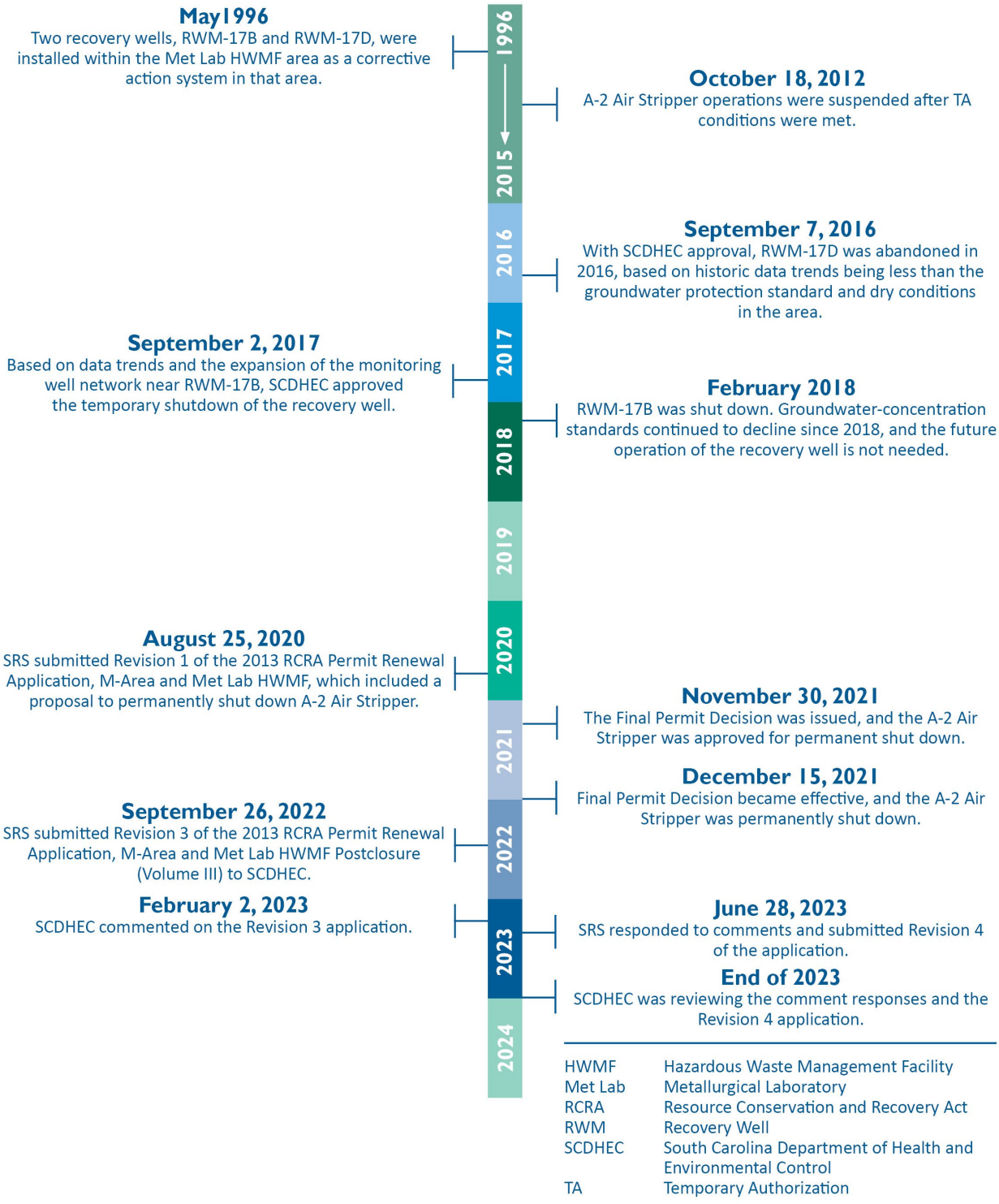

Figure 3-5 RCRA Permit Renewal

abandoned, and two wells were converted to monitoring wells. SCDHEC provided comments on the Revision 3 application on February 2, 2023. SRS responded to the comments and submitted Revision 4 of the application on June 28, 2023. At the end of 2023, SCDHEC was in the process of reviewing the comment responses and the Revision 4 application.

The current RCRA permit for General Information, Mixed Waste Management Facility (MWMF), Mixed Waste Storage Buildings (MWSBs), and Sanitary Landfill (SLF) expires on March 13, 2024. To follow South Carolina regulations, a renewal request must be submitted 180-days before the expiration date of the effective permit. This requirement was met by the submittal of the 2023 RCRA Permit Renewal Application, Revision 0, on September 12, 2023.

The renewal application is divided into four volumes: General Information (Volume I), MWMF (Volume II), MWSBs (Volume VIII), and SLF (Volume XXIII).

The General Information volume contains information common to all of the facilities at SRS. It includes descriptions of the Site emergency services, security, regional hydrogeology, and much of Part A of the application. Part A consists of required EPA Form 8700-23, maps, drawings, and photographs. Several of the more significant changes from the previous 2013 renewal application included updating the Part A information, the general introduction and process information for each facility's current operation status, and the hydrogeologic and groundwater monitoring information to reflect current conditions.

The MWMF landfill, which was originally 58 acres, received waste until 1985. It was certified closed in 1991. The landfill accepted lead gloves, coveralls, soils, construction debris, waste oils, solvent rags, and irradiated scrap metals. An additional 13 acres of the facility received waste until 1990 and was certified closed in 1999. This area received solvent rags. Groundwater below the MWMF contains a variety of contaminants, mostly tritium, solvents, and some heavy metals. There are no significant changes from the previous 2013 renewal application. Minor changes include updating text in Section E with current contaminant levels and revising maps with up-to-date data. There are no proposed changes to the existing corrective actions being implemented at the MWMF.

The MWSBs volume contains information on two buildings located in E Area near the center of the Site. They temporarily store hazardous waste, mixed waste, nonhazardous radioactive waste, and polychlorinated biphenyl (PCB) wastes. There are no significant changes from the previous 2013 renewal application. Minor changes include updated figures and text.

The SLF was built in 1974, received waste until 1994, and was certified closed in 1997. Originally 32 acres, the landfill was expanded to approximately 70 acres before it was closed. It generally accepted solid waste from administrative areas, cafeterias, and industrial activities, but it also received some solvent rags. The groundwater associated with the SLF contains a variety of contaminants, primarily solvents. In 1999, SRS performed an *in situ* bioremediation corrective action for the contaminated groundwater. Based on the regulatory agreement, the corrective action ceased operations in 2005. SRS is currently monitoring the groundwater to ensure that no further remediation of the groundwater is needed. The only significant change from the previous 2013 renewal application includes proposing to move 1,1-dichloroethane and cobalt from the compliance monitoring list to the corrective action list due to reductions in their respective groundwater protection standards. No additional corrective actions were proposed based on this change.

On November 14, 2023, SCDHEC stated that based on its review, the four volumes of the 2023 RCRA Permit Renewal Application are administratively complete with respect to the regulatory requirements of RCRA and the South Carolina Hazardous Waste Management Regulations (SCHWMR). At the end of 2023, SCDHEC continued its review to determine if the four volumes were technically accurate with respect to the specific requirements of SCHWMR.

3.3.2.2 Solid Waste Permit Activities

The Site has solid waste permits for the 632-G Construction and Demolition (C&D) Debris Landfill; the 288-F Industrial Solid Waste Landfill; and the SDF, identified as the Z-Area Saltstone Industrial Solid Waste Landfill in its permit (Section 3.2.2.3). These solid waste landfills are active and operated in compliance with their permits during 2023. SCDHEC conducted quarterly landfill inspections of the 632-G and 288-F landfills and monthly SDF inspections in 2023 and found no issues of noncompliance. In addition, SRS has two closed solid waste landfills: the Interim Sanitary Landfill and the F-Area Crosstie Landfill. SCDHEC conducted an annual inspection of these closed landfills in 2023 and found no issues of noncompliance.

3.3.2.3 Underground Storage Tank (UST) Permits

Subtitle I of RCRA regulates USTs containing usable petroleum products. Currently, SRS has 17 USTs managed under seven permits. Each UST requires an annual compliance certificate from SCDHEC. SCDHEC performed its annual inspection on May 8, 2023, finding all tanks in compliance. This annual inspection also confirmed the USTs supporting emergency power generators for DWPF, H Canyon, and Utilities and Operating Services successfully completed system testing and upgrades to meet the SCDHEC UST Release Detection regulations.

3.3.3 Federal Facility Compliance Act (FFCA)

The Federal Facility Compliance Act (FFCA) was signed into law in October 1992 as an amendment to the Solid Waste Disposal Act. It adds provisions to apply certain requirements and sanctions to federal facilities. SRS obtained and implemented a Site Treatment Plan (STP) Consent Order (95-22-HW, as amended) in 1995, as required by the FFCA. The consent order requires annual updates to the STP.

Personnel from SRS and SCDHEC met on May 12, 2023, to discuss the 2023 update. Consistent with prior years, the parties agreed to a reduced scope update for 2023, consisting of only revised appendices to Volumes I and II. SRS submitted the STP 2023 Update to SCDHEC on November 15, 2023. SCDHEC approved the STP 2022 Update on July 7, 2023. The 2006 update of the STP serves as the archive reference for STP Volumes I and II.

In October 2003, SCDHEC executed a Statement of Mutual Understanding for Cleanup Credits, allowing SRS to earn credits for certain accelerated cleanup actions. Credits can then be applied to the STP commitment schedules. In 2023, SRS and SCDHEC held STP Cleanup Credit validation meetings in February, May, August, and October. SRS earned 427 validated Cleanup Credits during FY 2023.

3.3.4 Toxic Substances Control Act (TSCA)

SRS complies with Toxic Substances Control Act (TSCA) regulations when storing and disposing of lead, asbestos, and organic chemicals, including polychlorinated biphenyl (PCBs). SRS disposes of routinely generated nonradioactive PCBs at an offsite EPA-approved disposal facility within the regulatory-defined period of one year from the date of generation. SRS made one shipment of PCB waste to offsite hazardous waste facilities in 2023.

SRS also generates PCBs waste contaminated with radionuclides. SRS disposes of low-level radioactive PCB bulk product and remediation waste onsite. PCB waste contaminated with transuranic (TRU) radionuclides

requires disposal at WIPP. SRS made three shipments of PCB-TRU waste to WIPP in 2023, disposing of five containers of PCB-TRU waste.

As required by TSCA regulations, SRS must prepare an annual written log by July 1 covering the previous calendar year (January through December). From the written annual log, SRS prepares an annual report to submit to the EPA by July 15 of each year for the preceding calendar year. SRS submitted the 2023 annual report to the EPA for this reporting period on July 8, 2024.

On April 13, EPA Region 4 PCB staff toured SRS and met in person to discuss PCB topics specifically relevant to the Site. This is the second year for this annual dialogue to improve communication and knowledge transfer**.**

3.3.5 South Carolina Infectious Waste Management Regulation

The Site is registered under the SCDHEC Infectious Waste Management Program as a large-quantity generator of infectious waste. SRS contracted with a permitted vendor to pick up infectious waste every four weeks. In 2023, the vendor picked up 13 shipments. Once offsite, the vendor treats and disposes of the waste in accordance with SCDHEC regulations. In 2023, SRS managed all infectious wastes in compliance with state regulations.

3.3.6 Air Quality and Protection

3.3.6.1 Clean Air Act (CAA)

The EPA has delegated regulatory authority to SCDHEC for most types of air emissions. SRS is required to comply with SCDHEC Regulation 61-62, *Air Pollution Control Regulations and Standards*. SRS facilities currently have the following air permits regulating activities on the Site:

- Part 70 Air Quality Operating Permit (TV-0080-0041)
- Ameresco Federal Solutions, Inc. (“Ameresco”) Biomass Facilities Permit (TV-0080-0144)
- Surplus Plutonium Disposition Project Construction Permit (TV-0080-0041-C4)
- Synthetic Minor Construction Permit to switch from formic acid to glycolic acid in the DWPF (TV-0080-0041-C4)
- Savannah River National Laboratory 791-A Stack Upgrade to a Potential Impact Category (PIC) 1 Construction Permit (CP-50000078 v.1.0, Air Agency Number 0080-0041)
- National Nuclear Security Administration (NNSA) Savannah River Plutonium Processing Facility (SRPPF) Project Construction Permit (CP-50000085 v.1.0, Air Agency Number 0080-0194)

The CAA considers SRS a “major source” of nonradiological air emissions and, therefore, the Site falls under the CAA Part 70 Operating Permit Program. The Part 70 Operating Permit regulates stationary sources with the potential to emit 5 tons or more per year of any criteria pollutant. Six of the most common air pollutants are ozone precursors, particulate matter, carbon monoxide, nitrogen oxides, sulfur dioxide, and lead. These major stationary sources are subject to operating and emission limits, emissions monitoring, and record-keeping requirements.

The EPA sets the National Ambient Air Quality Standards air pollution control standards, and SCDHEC regulates them. The Air Quality Permit requires SRS to demonstrate compliance through air dispersion modeling and by submitting an emissions inventory of air pollutant emissions every three years.

SRS received a renewal to its CAA Part 70 Air Quality Operating Permit (TV-0080-0041), which became effective April 1, 2021. The Site also has four active construction permits (listed at the beginning of this section). The NNSA SRPPF construction permit is not considered colocated with the SRS Title V permit (TV-0080-0041) because SRPPF does not share the same industrial grouping or falls under common control.

3.3.6.2 Accidental Release Prevention Program

The CAA Amendments of 1990, Section 112(r) require any facility that maintains specific hazardous or extremely hazardous chemicals in quantities above specified threshold values to develop a risk management plan. SRS has maintained hazardous and extremely hazardous chemical inventories below each threshold value; therefore, the CAA does not require SRS to develop a risk management plan. Additionally, no reportable 112(r)-related hazardous or extremely hazardous chemical releases occurred at SRS in 2023.

3.3.6.3 Refrigerants

Section 608 of the CAA prohibits knowingly releasing refrigerant during maintenance, service, repair, or disposal of air-conditioning and refrigeration equipment. Refrigerants include ozone-depleting substances and substitute refrigerants such as hydrofluorocarbons (HFCs). Releases of chemical gases widely used as refrigerants, insulating foams, solvents, and fire extinguishers cause ozone depletion or contribute to greenhouse gas emissions. SRS complied with 40 CFR Part 82 in 2023 to ensure it did not knowingly or willfully release refrigerants into the atmosphere.

The EPA issued 40 CFR 84 on October 5, 2021, to implement certain provisions of the American Innovation and Manufacturing (AIM) Act, as enacted on December 27, 2020. The AIM Act mandates phasing down HFCs, which are potent greenhouse gases, by 85% over a period ending in 2036. The requirements of 40 CFR 84 focus on reducing HFC manufacturing and importing. SRS does not manufacture or import HFCs; however, refrigerant-containing appliances and fire-suppression systems contain HFCs, thereby affecting the Site.

The EPA took several regulatory actions in managing HFCs in 2023. The Site provided comments and requested clarifications concerning these actions throughout 2023 and continuing into 2024. The Site provided comment in January 2023 to a proposed 40 CFR 84 Subpart B rulemaking. This subpart set forth dates by which manufactures could manufacture and sell equipment containing HFCs. When this regulation was published as final on October 24, 2023, the term “install” was first defined. (It had not been included in the proposed regulation.) On November 15, 2023, the Site submitted a request for concurrence to the EPA on its interpretation of this term and outlined multiple scenarios where a manufacturer would have provided the initial full charge but the completion of the circuit or the need to add refrigerant once received (due to damage, line loss, or other situations) would be necessary.

The EPA published a proposed rule in the Federal Register on October 19, 2023, which will be a new regulation under 40 CFR 84 Subpart C. This regulation will primarily address leak rate calculations, inspection, and repair requirements for equipment (refrigerant and fire suppression systems) containing HFCs. In December 2023, SRS provided comments on this proposed regulation to ensure its requirements were understandable and did not confuse certified technicians that currently work on ozone-containing

systems regulated under 40 CFR 82 Subpart F because these same technicians will perform the work regulated under the future 40 CFR 84 Subpart C.

The Site continues to manage and operate equipment containing HFCs in an environmental and technically sound manner. The environmental regulations do not prohibit storing HFCs when production is being phased down. Actions have been taken to procure and safely store inventories to ensure uninterrupted processes that rely on using equipment containing these HFCs.

Savannah River Tritium Enterprise (SRTE) established a relationship with the Department of Defense (DoD) to identify a pathway to request a Mission-Critical Military End Use (MCMEU) application-specific allowance from the DoD. An MCMEU is the use of a regulated HFC, which has a direct impact on mission capability, by a federal agency responsible for national defense. Under the regulation, the DoD has the authority to issue, manage, and assign MCMEU-specific allowances. MCMEU allowance requests are made annually for the following calendar year (CY) and do not guarantee the availability of the regulated HFC covered. They allow only for the quantity to be manufactured and imported under EPA regulations.

3.3.6.4 Air Emissions Inventory

SCDHEC Regulation 61-62.1, Section III (*Emissions Inventory*), requires SRS to compile an air emissions inventory to locate all sources of air pollution and to define and characterize the various types and amounts of pollutants.

The schedule for submitting the inventory is either every year or every three years, depending upon the emission thresholds in the regulations. SRS reviews emissions against these thresholds annually. SRS has been on the three-year cycle, but as of CY 2022, it anticipates submitting an inventory every year. The inventory for CY 2022 emissions was submitted March 28, 2023. SRS submitted the inventory for CY 2023 emissions on March 21, 2024.

3.3.6.5 National Emission Standard for Hazardous Air Pollutants (NESHAP)

The National Emission Standard for Hazardous Air Pollutants (NESHAP) is a CAA-implementing program that sets air quality standards for hazardous air pollutants, such as radionuclides, benzene, reciprocating internal combustion engines (RICE) emissions, and asbestos.

3.3.6.5.1 NESHAP Radionuclide Program

SRS complies with the NESHAP Radionuclide Program by performing all required inspections and maintaining monitoring systems. Additionally, Subpart H of NESHAP regulations requires SRS to determine and report annually the highest effective radiological dose from airborne emissions to any member of the public at an offsite point. The report is due by June 30 each year. The 2023 annual report was submitted on June 26, 2024. SRS transmitted the *SRS Radionuclide Air Emissions Annual Report for 2022* on June 29, 2023, to the EPA, SCDHEC, and DOE Headquarters.

There were no unplanned radiological releases to the atmosphere during 2023.

SRS estimated the maximally exposed individual effective dose equivalent during 2023 to be less than 1% of the EPA standard of 10 mrem per year. Chapter 6, *Radiological Dose Assessment*, contains details on this dose calculation.

3.3.6.5.2 NESHAP Asbestos Abatement Program

Work involving asbestos at SRS falls under SCDHEC and federal regulations. These activities—which include operation and maintenance repairs, removing asbestos, and demolishing buildings—require an asbestos notification, a renovation permit, or a demolition permit.

SRS issued 258 asbestos notifications and conducted 13 permitted renovations and demolitions involving asbestos in 2023. Table 3-1 summarizes these removals. Certified personnel removed and disposed of friable (easily crumbled or pulverized) and nonfriable asbestos. All disposal sites for nonradiological asbestos waste are SCDHEC-approved landfills for disposing of regulated and nonregulated asbestos.

SRS maintains a SCDHEC Temporary Storage Containment Area License that facilitates removing and disposing of waste generated from nonradiological operations and maintenance, as well as smaller projects. Additionally, SRS maintains a SCDHEC Asbestos Group License that allows Savannah River Nuclear Solutions (SRNS) and Savannah River Mission Completion (SRMC) to operate as long-term, in-house asbestos abatement contractors for DOE-Savannah River.

Table 3-1 Summary of Quantities of Asbestos Materials Removed in 2023

Asbestos Type	Nonradiological, Friable	Nonradiological, Nonfriable	Radiologically Contaminated Asbestos
Linear Feet Disposed	247	431	37
Square Feet Disposed	61	8,705	42
Cubic Feet Disposed	30	10	0
Disposal Site	Three Rivers Solid Waste Authority Landfill	SRS Construction and Demolition Landfill	SRS E-Area Low-Level Waste Facility

3.3.6.5.3 Other NESHAP Programs

In 2013, New Source Performance Standards (NSPS) under NESHAP were added (or became effective) for RICE equipment such as portable generators, emergency generators, and compressors. In 2023, SRS continued to operate in compliance with NSPS and NESHAP standards. The Site also complies with 40 CFR 63 Subpart DDDDD for its boilers.

On December 22, 2022, the EPA removed the RCRA/Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) exemption from 40 CFR 63 Subpart GGGGG—Site Remediation NESHAP. SRS applied for, and was granted, a one-year compliance extension and has started the design and procurement processes for a control device to be installed on the M-1 Air Stripper.

3.3.7 Water Quality and Protection

3.3.7.1 Clean Water Act (CWA)

The Site operated pursuant to the following Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES) permits in 2023:

- Land Application Permit (Permit No. ND0072125)

- NPDES Permits for Discharge to Surface Waters (Permit No.: SC0000175)—covers Industrial Wastewater discharges
- NPDES General Permit for Stormwater Discharges Associated with Industrial Activities (except construction) (Permit No. SCR000000)
- NPDES General Permit for Stormwater Discharges from Construction Activities (Permit No. SCR100000)
- NPDES Permit for Discharge to Surface Water Permit for Utility Water Discharges (Permit No. SCG250000)
- NPDES General Permit for Discharges from Application of Pesticides (Permit No. SCG160000)
- NPDES General Wastewater Construction Permit (SCG580000)

Ameresco has its own NPDES permit and is not included in the above-mentioned SRS permits.

3.3.7.1.1 National Pollutant Discharge Elimination System (NPDES)

SCDHEC administers the NPDES program, which protects surface waters by limiting releases of pollutants into streams, reservoirs, and wetlands. As the previous section explains, several different SCDHEC-issued permits for different types of discharges to surface water govern SRS operations. A major goal of the NPDES program is to control or eliminate discharges of toxic pollutants, oil, hazardous substances, sediment, and contaminated stormwater to protect the quality of the nation's water. To achieve this goal, SCDHEC requires SRS to prepare the following plans:

- Best Management Practices Plan to identify and control the discharge of hazardous and toxic substances
- Industrial Stormwater Pollution Prevention Plan (SWPPP) to address the potential discharge of pollutants in stormwater
- Spill Prevention, Control, and Countermeasures Plan to minimize the potential for discharges of oil, including petroleum, fuel oil, sludge, and oily wastewater

SRS has one NPDES permit for industrial activities that discharge to surface water (SC0000175). SRS monitors 21 NPDES-permitted industrial wastewater outfalls. Throughout the year, SRS monitors the outfalls across the Site on a frequency specified by the permits. Eight of the outfalls have no current flow and will be removed when the Industrial Wastewater NPDES Permit SC0000175 is renewed. Monitoring frequency requirements vary from as often as once a day at some locations to once a quarter at others, although typically they are conducted once a month. For each outfall, SRS measures physical, chemical, and biological parameters and reports them to SCDHEC in SRS monthly Discharge Monitoring Reports, as the permits require. Chapter 4, *Nonradiological Environmental Program,* provides additional information about NPDES permit-required sampling at SRS to remain compliant.

The following are highlights of the NPDES program at SRS:

- The SRS SWPPP for the 33 SRS industrial stormwater outfalls and related facilities was updated in 2023, following completion of the Comprehensive Site Inspection.
- SCDHEC did not require construction stormwater monitoring on any of the active construction projects underway at SRS during 2023.
- SRS undertook permitting for industrial wastewater treatment facilities pursuant to the CWA and the South Carolina Pollution Control Act. Facilities permitted are broad in scope and include those

involved with groundwater remediation, radioactive liquid waste processing, and nuclear nonproliferation. In 2023, SCDHEC issued the construction permit to consolidate the Effluent Treatment Facility and Saltstone Production Facility control rooms into one and the approval to place it into operation following completion of construction.

- In April 2023, SRS submitted a Discharge Monitoring Report for Industrial Stormwater Outfall H-07B, which indicated it did not monitor discharge during the previous year.

Chapter 4 of this report, *Nonradiological Environmental Monitoring Program,* summarizes the sampling results of both industrial and stormwater outfalls.

In April 2023, SRS received a Notice of Violation (NOV) from SCDHEC for not conducting Whole Effluent Toxicity sampling by February 2023. SRS conducted the sampling and reported the results in its October Discharge Monitoring Report. SRS also completed corrective actions to prevent reoccurrence.

3.3.7.1.2 Section 404(e) Dredge and Fill Permits

SRS wetlands make up 25%, or 48,973 acres, of the Site and account for more than 80% of the wetlands across the entire DOE complex. CWA Section 404 requires SRS to obtain a permit when it will conduct work in a wetland area. The U.S. Army Corps of Engineers (USACE) authorizes development in wetlands through a Nationwide Permit (NWP) program, which is for projects that have minimal impact on the aquatic environment.

SRS reviewed 72 site-use applications for potential wetland impacts in 2023. During this time, SRS permitted the following actions under the NWP program—Scientific Measurement Devices:

- Weir Construction for Wildfire Severity Study
- Cesium Separation Study
- Operations and Maintenance Activities for Environmental Monitoring Station L3R-1A
- Construction of Invasive Mammal Enclosures
- Concrete Pad Installation at Stream Gage Stations
- Operations and Maintenance Activities for Environmental Monitoring Station FM-6
- Operations and Maintenance Activities for Environmental Monitoring Station PB-3
- Rock Installation to Replace Boardwalk for Sampling Well HPZ-003

3.3.7.2 Safe Drinking Water Act (SDWA)

SCDHEC regulates drinking water facilities under the Safe Drinking Water Act (SDWA). SRS uses groundwater sources to supply drinking water to onsite facilities. The A-Area drinking water system supplies most Site areas. Remote facilities, such as field laboratories, barricades, and fire stations, use small drinking water systems or bottled water. SCDHEC requires SRS to collect 10 bacteriological samples each month from the domestic water system that supplies drinking water to most areas at SRS. The Site exceeds this requirement by collecting and analyzing approximately 15 samples each month throughout the system. All 2023 bacteriological samples for the A-Area drinking water system that SRS collected met state and federal drinking water quality standards.

SRS samples the A-Area drinking water system for lead and copper on a three-year cycle. The most recent lead and copper sampling was conducted in 2022. The sampling results met all state and federal drinking water standards. The next sampling will be in 2025.

SCDHEC inspected the SRS A-Area and Advanced Tactical Training Academy (ATTA) drinking water systems in 2023. Both systems received SCDHEC's highest rating of "Satisfactory." It is expected that the A-Area system as well as the three "state" systems (Par Pond Lab, L-Area Fire Station, and Central Sanitary Wastewater Treatment Facility [CSWTF]) will be next inspected in 2025. State systems refer to water systems that SCDHEC has issued Public Water System Operating Permits for and performs compliance inspections and monitoring on but do not meet the federal definition of a public water system because they have fewer than 15 service connections or serve fewer than 25 people 60 or more days a year.

3.3.7.3 Water Withdrawal

The South Carolina Groundwater Use and Reporting Act protects and conserves groundwater resources of the state. The act allows SCDHEC to designate certain geographic areas of the state as Capacity Use Areas, requiring a groundwater withdrawal permit be in place to withdraw or use groundwater equal to or greater than 3 million gallons in any month in these areas. The Western Capacity Use Area comprises all of Aiken, Allendale, Bamberg, Barnwell, Calhoun, Lexington, and Orangeburg counties. As the Site is within the Western Capacity Use Area, it has groundwater withdrawal permits from SCDHEC for systems (water supply, process, and remedial) located in A, B, D, H, S, T, and Z Areas. The act and permits require SRS to report annual water use to SCDHEC. In 2023, SRS groundwater use was within permitted limits.

The South Carolina Surface Water Withdrawal, Permitting Use, and Reporting Act regulates surface water withdrawals. This act applies to anyone withdrawing more than 3 million gallons of surface water during any one month. SRS has a surface water withdrawal permit and reports annual water use to SCDHEC. In 2023, SRS surface water use was within permitted limits.

SRS is participating in the newly formed Lower Savannah-Salkehatchie River Basin Planning Council, which is associated with South Carolina Department of Natural Resources (SCDNR). The council is responsible for developing a comprehensive water usage plan for the basin to ensure current and future needs are met.

3.3.8 Environmental Protection and Resource Management

3.3.8.1 National Environmental Policy Act (NEPA)

The NEPA process identifies the potential environmental consequences of proposed federal activities and the alternatives that support informed and environmentally sound decision-making regarding designing and implementing the proposed activities.

The SRS NEPA program complies with 10 CFR 1021, DOE regulations for compliance with NEPA. SRS initiates the required NEPA evaluation by completing an Environmental Evaluation Checklist (EEC) for new projects or changes to existing ones. SRS uses the EEC to review the proposed action, identify any potential environmental concerns, and determine the appropriate level of NEPA review required for the proposed activity. SRS conducted 913 NEPA reviews of proposed activities in 2023 (Table 3-2). Categorical Exclusion (CX) determinations accounted for more than 92% of completed reviews. The SRS NEPA web page contains additional information on SRS NEPA activities.

Table 3-2 Summary of 2023 NEPA Reviews

Type of National Environmental Policy Act (NEPA) Review	Number
Categorical Exclusion (CX) Determinations[a]	843
"All No" Environmental Evaluation Checklist (EEC) Determinations[a]	17
Previous NEPA Review[a]	48
Environmental Impact Statement (EIS)	2
Supplement Analysis (SA)	2
Interim Action	0
Revised Finding of No Significant Impact (FONSI)	0
Environmental Assessment (EA)	1
Total	**913**

[a] Proposed action that requires no further NEPA action

The following major NEPA reviews were either completed or in progress in 2023:

- **Final Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) for *Disposal of Decomissioned, Defueled Ex-Enterprise (CVN 65) and Its Associated Naval Reactor Plants* (DOE/EIS-0524).** On June 30, 2023, the Department of the Navy (DON), with DOE as a cooperating agency, announced it had prepared a Final EIS/OEIS to evaluate the potential environmental impacts of alternatives for disposal of the decommissioned and defueled ex-Enterprise (CVN 65) aircraft carrier, including its reactor plants.
- **Record of Decision (ROD) for *Disposal of Decommissioned, Defueled Ex-Enterprise (CVN 65) and Its Associated Naval Reactor Plants* (DOE/EIS-0524).** On September 5, 2023, the DON announced its decision to implement Alternative 3 (dismantlement of the ex-Enterprise at an authorized commercial dismantlement facility) because this alternative safely disposes of the ex-Enterprise, including its hazardous materials, in approximately 5 years compared to the 15 or more years for other analyzed alternatives. Additionally, this alternative will have the lowest greenhouse gas emissions and will be executed at approximately half the cost to the taxpayer compared to the other alternatives.
- **Amended ROD for the Final Supplemental Environmental Impact Statement (EIS) for the *Production of Tritium in a Commercial Light Water Reactor* (DOE/EIS-0288-S1),** which supplements DOE's 1999 Final EIS (DOE/EIS-0288). On September 14, 2023, NNSA amended its June 22, 2016, ROD for the Final Supplemental EIS, which was published in February 2016. NNSA's new decision is to choose the previously analyzed Alternative 4, which assumes that the Tennessee Valley Authority would irradiate up to a total of 5,000 tritium-producing burnable absorber rods every 18 months at the Watts Bar Nuclear Plant using its Watts Bar Unit 1 and 2 reactors.
- **Final Environmental Assessment (EA) for *Commercial Disposal of Savannah River Site Contaminated Process Equipment* (DOE/EA-2154).** On July 20, 2023, DOE announced the availability of DOE/EA-2154, which evaluated the potential impacts from a proposed action to dispose of certain SRS-contaminated process equipment at a commercial low-level waste (LLW)

disposal facility outside of South Carolina, licensed by an NRC Agreement State pursuant to the NRC's regulations for land disposal of radioactive waste.

- **Finding of No Significant Impact (FONSI) on the EA for *Commercial Disposal of Savannah River Site Contaminated Process Equipment* (DOE/EA-2154).** On July 20, 2023, DOE issued a FONSI announcing that, for both alternatives analyzed, the potential environmental impacts of disposing of certain SRS-contaminated process equipment at a commercial LLW disposal facility outside of South Carolina would entail minor impacts and low risks and would not constitute a major Federal action significantly affecting the quality of human environment.
- **Supplement Analysis (SA) for *Centralization and Upgrading of the Sanitary Wastewater System at the Savannah River Site* (DOE/EA-0878-SA-01).** On June 28, 2023, DOE published the SA to include the connection of K Area to the Central Sanitary Wastewater Treatment Facility (CSWTF) and closure of the existing K-Area Wastewater Treatment Plant. DOE concluded that the changes to the project described in the SA did not require a new EA, revised FONSI, or preparation of an EIS. No further NEPA documentation was required.
- **SA for *Domestic Water Supply Upgrades and Consolidation on the Savannah River Site* (DOE/EA-0943-SA-01).** On June 28, 2023, DOE published the SA to include installing a domestic water line to CSWTF and removing a groundwater well from use. DOE concluded that the changes to the project described in the SA did not require a new EA, revised FONSI, or preparation of an EIS. No further NEPA documentation was required.
- **Final Environmental Impact Statement for the *Surplus Plutonium Disposition Program* (Final SPDP EIS) (DOE/EIS-0549).** The SPDP EIS would employ the dilute and dispose strategy to safely and securely dispose of up to 34 metric tons of plutonium that is surplus to the nation's defense needs, using new, modified, or existing facilities at sites across the nation. The 34 metric tons of surplus plutonium covered in the EIS was previously intended for use in fabricating mixed oxide (MOX) fuel. After irradiation in commercial power reactors, the fuel would have been stored pending disposal in a deep geologic repository for spent nuclear fuel. DOE cancelled the MOX project in 2018. NNSA's preferred alternative, the dilute and dispose strategy, also known as "plutonium downblending," includes converting pit and non-pit plutonium to oxide, blending the oxidized plutonium with an adulterant, compressing it, encasing it in two containers, then overpacking and disposing of the resulting contact-handled transuranic (CH-TRU) waste underground in the Waste Isolation Pilot Plant (WIPP) in New Mexico. The approach would require new, modified, or existing capabilities at SRS in South Carolina, Los Alamos National Laboratory (LANL) in New Mexico, the Pantex Plant in Texas, and WIPP. Under the No Action Alternative, up to 7.1 metric tons of non-pit plutonium would be processed at either LANL or SRS. If the processing occurs at LANL, then the resulting plutonium oxide would be transported to SRS. If it occurs at SRS, then the resulting material would remain there. In both cases, the processed material would be diluted, characterized, packaged, and transported as CH-TRU defense waste to WIPP for disposal. The Under Secretary for Nuclear Security and Administrator, NNSA, (NA-1) approved the Final SPDP EIS for release on December 19, 2023.

The following draft was terminated and not included in Table 3-2:

- In October 2023, the South Carolina Army National Guard (SCARNG) concurred with DOE to cancel the action to draft an EA, *Proposal to Permit 750 Acres and New Training Operations at the*

Savannah River Site for Use by the State of South Carolina National Guard, (DOE/EA-1999) due to uncertainty of SCARNG resolving additional requirements imposed by the National Guard Bureau (NGB). DOE will prepare a new document if and when internal SCARNG and NGB issues are resolved.

3.3.8.2 Emergency Planning and Community Right-to-Know Act (EPCRA)/Superfund Amendment Reauthorization Act (SARA) Title III

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires facilities to notify state and local emergency planning entities about their hazardous chemical inventories and to report releases of hazardous chemicals. The Pollution Prevention Act of 1990 expanded the EPCRA-mandated Toxic Release Inventory (TRI) report to include waste management. SRS complies with the applicable EPCRA-reporting requirements and incorporates the applicable TRI chemicals into its pollution prevention programs.

As required by Section 312, Chemical Inventory Reporting of EPCRA, SRS completes an annual Tier II Chemical Inventory Report for all hazardous chemicals exceeding specified quantities present at SRS during the calendar year. The inventory is due by March 1 each year. SRS submitted the 2022 hazardous chemical storage information to state and local authorities on February 28, 2023. The February 2022 report included 87 reportable chemical categories. Due to necessary edits, the 2022 SRS Tier II chemical inventory report was resubmitted on September 28, 2023. The updated September 2022 report included 50 reportable chemical categories. SRS submitted the 2023 report on February 28, 2024. The February 2023 report included 55 reportable chemical categories.

As required by Section 313, Toxic Chemical Release Inventory of EPCRA, SRS must file an annual TRI facility report each year by July 1 for the previous year. SRS calculates chemical releases to the environment for each regulated chemical and reports to the EPA those above each threshold value. SRS submitted the annual report for this reporting period in June 2024. SRS submitted the 2022 annual report on June 28, 2023, for each of the following regulated chemicals: ammonia, chromium compounds, lead compounds, mercury compounds, naphthalene, nickel, nitrate compounds, nitric acid, and sulfuric acid. Details are on the EPA TRI Program website.

3.3.8.3 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

The objective of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) is to provide federal control of pesticide distribution, sale, and use. The EPA must register all pesticides used in the United States. Use of each registered pesticide must be consistent with directions contained on the package's label. SRS must comply with FIFRA and, on a state level, the South Carolina Pesticide Control Act.

SRS must also comply with the South Carolina NPDES General Permit for Discharges From Application of Pesticides. This permit authorizes applying pesticides to surface water according to limitations set forth in the NPDES general permit.

SRS procedures implement the FIFRA requirements for pesticide application, application recordkeeping, storage, and disposing of empty containers and excess pesticides. General-use pesticides (ready-to-use products that are available for public use) are applied at SRS according to the label instructions. SRS applies restricted-use pesticides on a limited basis, following label requirements and using state-certified pesticide applicators. SRS generates and maintains application records for general-use and restricted-use pesticides for each application.

3.3.8.4 Endangered Species Act (ESA)

Since 1973, the Endangered Species Act (ESA) has protected fish, wildlife, and plant species in danger of, or threatened with, extinction and strives to conserve the ecosystems upon which they depend. Several federally listed animal species exist at SRS, including the wood stork, the red-cockaded woodpecker (RCW), the shortnose sturgeon, and the Atlantic sturgeon, as well as plant species, including the pondberry and the smooth coneflower. Additionally, SRS is home to the gopher tortoise, a reptile species the state of South Carolina lists as endangered.

SRS is the only DOE site to conduct experimental translocations of gopher tortoises. The Site captures, transports, and releases tortoises to other locations. A study by the University of Georgia's Savannah River Ecology Laboratory (SREL) demonstrated that long-term (12 months) penning was an effective way to promote site fidelity, dramatically increasing the number of tortoises that settled into the release site. Conservation organizations use protocols developed from these SRS translocation studies to establish viable populations elsewhere in the species' range.

South Carolina's State Wildlife Action Plan of 2015 recognizes additional plants and animals not on the federal list to encourage conservation of these species. Those found on SRS include the Carolina gopher frog and the southern hognose snake, as well as numerous other animals and plants considered species of conservation concern. South Carolina lists gopher frogs as endangered, with SRS being one of two population strongholds in the state. The United States Forest Service-Savannah River (USFS-SR) considers these species sensitive. (The U.S. Fish and Wildlife Service [USFWS] lists some as at-risk species.) and evaluates potential impacts to them when developing forest management plans. SREL's head-starting program aims to increase survival of captive-bred gopher frogs released into the wild, and wetland assessments define ideal habitats for the frogs and aid informed management decisions. In 2023, USFS-SR, SREL, and SCDNR partnered to restore wetland and upland habitats to maintain viable gopher frog populations onsite.

While the bald eagle is no longer federally listed, the Bald and Golden Eagle Protection Act protects nesting bald eagles and wintering golden eagles. Bald eagles nest on SRS and are year-round residents; golden eagles use SRS as wintering habitat. In 2023, one golden eagle was recorded at SRS. The mid-winter bald eagle survey shows an active nest site and eight bald eagles present on both Par Pond and L Lake.

The USFS-SR actively manages more than 65,000 acres in the RCW habitat management areas. It further improved RCW habitat in 2023 by prescribed burning of 18,203 acres and thinning forests. It also removed brush and small hardwoods from more than 590 acres through mechanical or chemical treatments. Restoring the natural fire regime improves native plant diversity in the understory, which enhances the native longleaf pine and wiregrass communities. Additionally, USFS-SR personnel insert artificial cavities into living pine trees to increase the number of available cavities for roosting and nesting. From 1985 through 2023, active RCW clusters increased from 5 to 160 due to successful habitat restoration. As of 2023, the USFS-SR managed 185 cluster sites for the RCW, with an average expected population growth rate of 5% each year. The average growth rate over the past five years at SRS has been an outstanding average of 6%. In addition to managing endangered wildlife species, the USFS-SR actively manages two populations of the federally endangered plant pondberry and four populations of the federally threatened plant smooth coneflower.

The USFS-SR continues to perform biological evaluations to determine whether forest project plans are likely to cause beneficial, insignificant, or discountable effects to proposed, endangered, threatened, sensitive, and at-risk plant and animal species.

3.3.8.5 Migratory Bird Treaty Act (MBTA)

The MBTA prohibits taking, possessing, importing, exporting, transporting, selling, purchasing, bartering, or offering for sale any migratory bird or its eggs, parts, and nests, except as the U.S. Department of the Interior authorizes under a valid permit. To support migratory bird monitoring, a one-day bird count—the Audubon Christmas Bird Count—is conducted annually in December. The 2023 SRS count, which was hosted by the USFS-SR, found 87 species with more than 13,500 individual birds observed. The Audubon Christmas Bird Count has been conducted annually in the Western Hemisphere since 1900.

In 2023, SRS conducted walkdowns of 85 bird nests at 73 locations for MBTA compliance. The walkdowns identified 57 active nests with incubating eggs or chicks and 14 nests without eggs or chicks. The active nests belonged to Northern Mockingbirds (*Mimus polyglottos*), Barn Swallows (*Hirundo rustica*), House Finches (*Haemorhous mexicanus*), Common Grackles (*Quiscalus quiscula*), Mourning Doves (*Zenaida macroura*), Killdeer (*Charadrius vociferus*), Eastern Bluebird (*Sialis sialis*), Carolina Wrens (*Thryothorus ludovicianus*), Eastern Phoebe (*Sayornis phoebe*), and Eastern Kingbirds (*Tyrannus tyrannus*).

SRS allowed active nests to complete the nesting cycle and barricaded them when deemed appropriate. SREL relocated one active nest and removed one active nest in active work areas under an USFWS permit authorization.

Also in 2023, the USFS-SR found an Osprey (*Pandion haliaetus*) nest on a platform staff built in 2014. The Osprey nesting platform was constructed to deter power pole conflicts, which occurred before platform construction. This marked the eighth year that Ospreys nested on the platform after their nest had been moved from a power pole at the L-Lake Dam.

3.3.8.6 Invasive Species Management

The purpose of Executive Order 13751, *Safeguarding the Nation from the Impacts of Invasive Species,* is to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control established invasive species. The Site is surveying invasive plant and animal species and taking steps to control their populations.

Many of the former home and community sites that area residents left more than 70 years ago to allow for the government to construct SRS have since become primary sources of non-native invasive plant species (NNIPS). Escaping cultivation and containment for decades, aggressive plant species such as Chinese privet (*Ligustrum sinensis*), *w*isteria (*Wisteria sinensis*), chinaberry (*Melia azedarach*), Japanese climbing fern (*Lygodium japonicum*), and kudzu (*Pueraria montana*) now threaten native species onsite. Invasive species such as these are a major threat to national forests in the 21st century. NNIPS contribute to long-term ecosystem degradation due to the loss of diversity and their direct competition with native species. They also provide unwanted ladder fuels that can increase fire intensity during prescribed burning or wildfire.

Before 2012, there had been no sitewide effort to document NNIPS as part of the watershed prescription process. However, recently conducted plant surveys include recording observations and locations for NNIPS. This information is now being captured geospatially to include in compartment stand maps and

geographic information system layers for management planning. Historical records and image interpretations from photos and maps, compartment folders, and stand exam data helped identify developed openings, old home sites, and community places (churches, schools, cemeteries) that may contain robust sources of introduced NNIPS communities.

The USFS-SR conducts annual botanical surveys of 5,000 to 7,000 acres, which include 40-50 species of plants considered to be non-native and invasive. The USFS-SR chemically treats an average of 72 acres each year to control across target areas that either contain former homesites and community areas or that are close to RCW colony sites. When a forest stand is cut and regenerated, the USFS treats NNIPS populations discovered as part of the site preparation for replanting. In 2023, the USFS-SR applied chemical and mechanical treatment, using contracts and internal resources, to 124 acres of NNIPS infestations to support RCW habitat improvement. Additionally, USFS-SR employees treated nine new infestations as part of early detection and rapid response efforts. All 2022 treatments were monitored in 2023 to assess treatment efficacy and retreatment needs.

Wild hogs are an invasive species in the United States and abroad. As of 2016, the U.S. Department of Agriculture estimated that in the United States alone, these animals cost $1.5 billion each year in damages and control costs. At SRS, wild hogs present safety hazards due to vehicle collisions and disease transmission. They cause ecological impacts by negatively affecting water quality, disturbing soil, and constantly threatening rare and endangered plant populations. Two USFS-SR wildlife technicians are dedicated to oversee contractors who trap and remove wild hogs onsite. In 2023, the USFS-SR removed 1,490 hogs primarily through baiting and trapping. Additionally, the USFS-SR and the Southern Research Station, part of the USFS Research and Development organization, collaborate with SREL to further wild hog control options.

3.3.8.7 National Historic Preservation Act (NHPA)

The NHPA requires all federal agencies to consider the impacts to historic properties in all their undertakings. SRS ensures it complies with the NHPA through several processes. For example, SRS uses the Site Use Program, the *Cold War Programmatic Agreement,* and *SRS's Cold War Built Environment Cultural Resource Management Plan* to ensure it is complying with NHPA. The Savannah River Archaeological Research Program (SRARP) guides DOE in managing its cultural resources to ensure it fulfills its compliance commitments. SRARP also serves as a primary organization to investigate archaeological research problems associated with cultural development within the Savannah River valley. DOE uses the results to manage more than 2,000 known archaeological sites at SRS.

SRARP evaluates and documents all locations DOE is considering for activities, such as construction, to ensure that they do not affect archaeological or historic sites. In 2023, SRARP investigated 266 acres onsite for cultural resource management, including conducting 39 field surveys and testing. It recorded 7 newly discovered sites and revisited 11 previously recorded sites.

3.3.9 Release Reporting

Releases to the air, water, and land must comply with legally enforceable licenses, permits, regulations, or DOE Orders. SRS reports routine releases through implementation of the environmental monitoring program. If an unpermitted release to the environment of an amount greater than or equal to a Regulatory Limit or Reportable Quantity (RQ) of a substance (including radionuclides) occurs, multiple regulations—

such as the Emergency Planning and Community Right-to-Know Act (EPCRA); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Clean Water Act (CWA); and the Clean Air Act (CAA)—require SRS to send a notice to either the National Response Center or applicable state agencies, or both. SRS did not have any releases exceeding the CERCLA RQ in 2023.

3.3.10 Permits

SRS had 613 construction and operating permits in 2023 that specified operating levels to each permitted source. Table 3-3 identifies the number of permits by the permit type.

Table 3-3 SRS Permits

Type of Permit	Number of Permits
Air	6[a]
U.S. Army Corps of Engineers (USACE—Nationwide Permits)	8
Asbestos Demolition Licenses/Abatement Licenses/Temporary Storage of Asbestos Waste Notices	276
Asbestos Abatement Group License	1
Asbestos Temporary Storage of Waste License	1
Domestic Water	101
Industrial Wastewater Treatment	57
National Pollutant Discharge Elimination System (NPDES) Permits	9[b]
Construction Stormwater Grading Permit	10
Resource Conservation and Recovery Act (RCRA) Hazardous and Mixed Waste	1
Solid Waste	3
Underground Storage Tank	7
Sanitary Wastewater	95
South Carolina Department of Health and Environmental Control (SCDHEC) 401	0
SCDHEC Infectious Waste Registration	1
SCDHEC Bureau of Drug Control Controlled Substances Registration	2
Nondispensing Drug Outlet License	4
SCDHEC Navigable Waters	0
Underground Injection Control	10
Scientific Collecting Permits	7[c]
Groundwater Withdrawal	13
Surface Water Withdrawal	1
Total	**613**

[a] This count includes the Ameresco Clean Air Act permit (TV-00800-144) and the noncolocated Savannah River Plutonium Processing Facility construction air permit (CP-50000085 v.1.0, Air Agency Number 0080-0194).
[b] This count includes the Ameresco National Pollutant Discharge Elimination System permit (SC0049107).
[c] This count includes scientific collecting permits from the U.S. Fish and Wildlife Service, the U.S. Geological Survey, the South Carolina Department of Natural Resources, and the Georgia Department of Natural Resources. Savannah River Nuclear Solutions and the Savannah River Ecology Laboratory maintain three and four permits, respectively. This count does not include freshwater fishing licenses assigned to individuals.

The EPA's Enforcement and Compliance History Online (ECHO) database contains additional information on SRS permitting and compliance. ECHO identifies the following SRS facilities:

Enforcement and Compliance History Online (ECHO) Facility Identification	Facility Registry Service (FRS) Identification	Program Area
DOE AMERESCO Savannah River Site Biomass Cogen	110046328693	Air/Water
DOE/Westinghouse Savannah River Company (WSRC) Savannah River Site	110001120000	Resource Conservation and Recovery Act (RCRA)
Savannah River Site	110013700904	Air/Water
U.S. DOE Savannah River Site	110006909248	Air/Water

3.4 MAJOR DOE ORDERS FOR ENVIRONMENTAL COMPLIANCE

SRS complies with the following major DOE Orders in addition to state and federal regulations for environmental compliance:

- DOE Order 226.1B, *Implementation of Department of Energy Oversight Policy*—This order requires DOE to provide oversight related to protecting the public, workers, environment, and national security assets effectively through continuous improvement.
- DOE Order 231.1B, *Environment, Safety and Health Reporting*—This order requires the Site to prepare this *SRS Environmental Report*.
- DOE Order 232.2, *Administrative Change 1, Occurrence Reporting and Processing of Operations Information*—This order requires DOE to use the designated system called Occurrence Reporting and Processing System (ORPS). ORPS ensures that the DOE complex and the NNSA are informed of events that could adversely affect the health and safety of the public and workers, the environment, DOE missions, or DOE's credibility.
- DOE Order 414.1D, *Quality Assurance*—See Chapter 8, *Quality Assurance,* of this report.
- DOE Order 435.1, *Change 2, Radioactive Waste Management*—See Section 3.3.1 in this chapter of this report.
- DOE Order 436.1A*, Departmental Sustainability*—See Chapter 2, *Environmental Management Systems,* of this report.
- DOE Order 458.1, *Administrative Change 4, Radiation Protection of the Public and the Environment*—See Chapter 5, *Radiological Environmental Monitoring Program*, and Chapter 6, *Radiological Dose Assessment,* of this report.

3.5 REGULATORY SELF-DISCLOSURES

SRS did not make any regulatory disclosures in 2023.

3.6 ENVIRONMENTAL AUDITS

The Federal Energy Regulatory Commission (FERC), SCDHEC, and the EPA inspected and audited the SRS environmental program for regulatory compliance. Table 3-4 summarizes the results of the 2023 audits and inspections. During 2023, SRS conducted multiple internal audits for various facility programs throughout the Site. These reviews help identify opportunities for continuous improvement.

Table 3-4 Summary of 2023 External Agency Audits and Inspections of the SRS Environmental Program and Results

Audit/Inspection	Action	Results
632-G Construction and Demolition (C&D) Landfill and 288-F Ash Landfill Inspections	South Carolina Department of Health and Environmental Control (SCDHEC) conducted four quarterly inspections of the 632-G and 288-F landfills.	No compliance issues or violations resulted from the quarterly inspections.
Federal Energy Regulatory Commission (FERC) Inspection	FERC performed the annual inspection of PAR Pond Dam and Steel Creek Dam, and Ponds 2, 4, and 5 in May.	FERC visually inspected the dams and found no conditions indicating a concern for the immediate safety and permanence of the structures. FERC noted SRS adequately operates and maintains the facility, and the dams were in satisfactory condition based on visual inspection.
Resource Conservation and Recovery Act (RCRA) Comprehensive Groundwater Monitoring Evaluation	SCDHEC inspected groundwater facilities associated with the F- and H-Area Seepage Basins, M-Area Settling Basin, Metallurgical Laboratory Basin, Mixed Waste Management Facility, and Sanitary Landfill on May 9. SCDHEC also completed a records review of groundwater-related files.	The inspection noted no problems or concerns.
SCDHEC Sanitary Survey of SRS Drinking Water Systems	SCDHEC inspects the wells, tanks, and treatment systems supporting the primary SRS A-Area Drinking Water system biannually. SCDHEC also inspects four of the smaller SRS Drinking Water systems (Advanced Tactical Training Academy [ATTA]) Range, Central Sanitary Wastewater Treatment Plant, PAR Pond Lab, and L-Area Fire Station) on either a three- or a five-year rotation, depending on the classification of the system. SCDHEC conducted Sanitary Surveys of the SRS A-Area and ATTA Drinking Water systems in 2023.	Both SRS Drinking Water systems inspected in 2023 received SCDHEC's highest rating of "Satisfactory."
Interim Sanitary Landfill and the F-Area Railroad Crosstie Pile Landfill Postclosure Inspection	SCDHEC conducted an annual review of the closed landfills in September.	SCDHEC identified no compliance issues.

Table 3-4 Summary of 2023 External Agency Audits/Inspections of the SRS Environmental Program and Results (continued)

Audit/Inspection	Action	Results
RCRA Compliance Evaluation Inspection (CEI)	SCDHEC conducted the unannounced RCRA CEI for fiscal year (FY) 2023 from March 15-16, 2023. The Environmental Protection Agency (EPA) and SCDHEC conducted the unannounced RCRA CEI for FY 2024 on October 30 to November 1, 2023.	The inspectors identified container management deficiencies at two facilities during the FY 2023 inspection, which were corrected before receiving SCDHEC's CEI Report. The inspectors identified container management deficiencies during the FY 2024 inspection. Subsequently, Savannah River Mission Completion submitted a letter responding to the deficiencies and is awaiting a response from SCDHEC.
Underground Storage Tank (UST) CEI	SCDHEC inspected 17 USTs on May 8, 2023.	SCDHEC identified no issues.
Saltstone Disposal Facility (SDF), identified in the permit as Z-Area Saltstone Solid Waste Landfill, Inspections	SCDHEC performed monthly inspections of the SDF. This included reviewing facility procedures and performing walkdowns of the SDF.	SCDHEC identified no issues.
National Pollutant Discharge Elimination System (NPDES) 3560 CEI	SCDHEC completed an inspection of four wastewater treatment plants.	SCDHEC identified no compliance issues.
Industrial Wastewater Construction Permit Inspection	SCDHEC performed a final inspection of the consolidated control room for Effluent Treatment Facility and Saltstone Production Facility on November 6, 2023.	SCDHEC issued the approval to place the consolidated control room in operation.

3.7 KEY FEDERAL LAWS COMPLIANCE SUMMARY

The Code of Federal Regulations implements federal laws and state regulations that a federal agency has delegated to the state. Additional information is on the EPA website. Table 3-5 summarizes SRS's 2023 compliance status with applicable key federal environmental laws.

Table 3-5 Status of Key Federal Environmental Laws Applicable to SRS

Regulatory Program Description	2023 Status
The Atomic Energy Act/DOE Order 435.1 grants DOE the authority to develop applicable standards (documented in DOE Orders) to protect the public, workers, and environment from radioactive materials.	The fiscal year (FY) 2022 Performance Assessment (PA) and Composite Analysis (CA) annual reviews for SRS showed that radioactive low-level waste (LLW) operations were within the required performance envelope and the facilities continued to comply with performance objectives.
The Clean Air Act (CAA) establishes air quality standards for criteria pollutants, such as sulfur dioxide and particulate matter, and for hazardous air emissions, such as radionuclides and benzene.	SRS received a renewal to its CAA Air Quality Operating Permit (TV-0080-0041), which became effective April 1, 2021. The Site previously operated under an application shield the South Carolina Department of Health and Environmental Control (SCDHEC) granted in September 2007, as its previous Title V operating permit expired March 31, 2008; the Ameresco permit (TV-0080-0144); and other applicable CAA regulatory requirements.
The Clean Water Act (CWA) regulates liquid discharges at outfalls (for example, drains or pipes) that carry effluent to streams (National Pollutant Discharge Elimination System [NPDES], Section 402). It also regulates dredge and fill operations in Waters of the United States (Section 404) and water quality for those activities (Water Quality Criteria, Section 401).	SRS received a Notice of Violation (NOV) for failing to comply with a reporting requirement of its NPDES Permit. SRS completed corrective actions. See Section 3.3.7.1.1 and 3.8.
The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) establishes criteria for liability and compensation, cleanup, and emergency response requirements for hazardous substances released to the environment.	SRS continues to comply with CERCLA and the requirements of the Federal Facility Agreement (FFA).
The Emergency Planning and Community Right-to-Know Act (EPCRA), also referred to as Superfund Amendments and Reauthorization Act (SARA), Title III, requires SRS to report hazardous substances and their releases to the Environmental Protection Agency (EPA), state emergency response commissions, and local planning units.	SRS continues to comply with all reporting and emergency planning requirements.
The Endangered Species Act (ESA) prevents the extinction of federally listed endangered or threatened species and conserves critical habitats.	SRS continues to protect these species and their habitats as outlined in the Natural Resource Management Plan for SRS.

Table 3-5 Status of Key Federal Environmental Laws Applicable to SRS (continued)

Regulatory Program Description	2023 Status
The FFA for SRS between the EPA, DOE, and SCDHEC integrates CERCLA and Resource Conservation and Recovery Act (RCRA) requirements to achieve a comprehensive remediation strategy, set annual work priorities, and establish milestones to clean up and close the high-level radioactive waste tanks at SRS.	SRS continues to meet all the milestones contained within the FFA (51 milestones met on or ahead of schedule in FY 2023).
The Federal Facility Compliance Act (FFCA) requires federal agencies to comply with federal, state, and local solid and hazardous waste laws.	SRS continues to comply with the FFCA.
The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates restricted-use pesticides through a state-administered certification program.	SRS continues to comply with FIFRA requirements.
The Migratory Bird Treaty Act (MBTA) protects migratory birds, including their eggs and nests.	SRS continues to comply with the MBTA.
The National Defense Authorization Act (NDAA) allows the Secretary of Energy, in consultation with the Nuclear Regulatory Commission (NRC), to determine that certain waste from reprocessing is not high-level radioactive waste requiring deep geologic disposal if it meets the criteria set forth in Section 3116. Section 3116(b) addresses monitoring by the NRC and SCDHEC.	SRS provided routine documents as requested by the NRC to support monitoring SRS facilities in accordance with NDAA 3116(b). The NRC did not conduct any onsite monitoring observation visits to F-Tank Farm, H-Tank Farm, but did visit the Saltstone Disposal Facility. Additionally, several virtual meetings were held between the NRC, DOE, and DOE contractor staff.
The National Environmental Policy Act (NEPA) requires federal agencies to identify potential environmental consequences of proposed federal actions and alternatives to ensure informed, environmentally sound decision-making regarding design and implementing programs and projects.	SRS continues to comply with NEPA.
The National Historic Preservation Act (NHPA) protects historical and archaeological sites.	The Savannah River Archaeological Research Program (SRARP) provides cultural resource management guidance to DOE to ensure continued compliance with the NHPA.
RCRA governs hazardous and nonhazardous solid waste management and underground storage tanks (USTs) containing petroleum products, hazardous materials, and wastes. RCRA also regulates universal waste and recyclable used oil.	SRS continues to manage hazardous waste, nonhazardous solid waste, and underground storage tanks in compliance with RCRA. SRS is performing groundwater monitoring and corrective actions at the F- and H-Area Hazardous Waste Management Facilities (HWMFs), the M-Area and Metallurgical Laboratory HWMFs, the Sanitary Landfill, and the Mixed Waste Management Facility and performs surveillance and maintenance at closed HWMFs in accordance with the SRS RCRA Permit Renewal.

Table 3-5 Status of Key Federal Environmental Laws Applicable to SRS (continued)

Regulatory Program Description	2023 Status
The Safe Drinking Water Act (SDWA) protects drinking water and public drinking water resources.	All drinking water samples of the primary SRS drinking water system (A-Area Loop) taken in 2023 met drinking water quality standards. The Advanced Tactical Training Academy (ATTA) drinking water system also met drinking water standards.
The Toxic Substances Control Act (TSCA) regulates polychlorinated biphenyls (PCBs), radon, asbestos, and lead, and requires users to evaluate and notify the EPA when they use new chemicals and when significant new uses of existing chemicals occur.	SRS manages all regulated materials in compliance with TSCA requirements.

3.8 ENVIRONMENTAL COMPLIANCE SUMMARY

The Savannah River Site is committed to safe, efficient, and environmentally compliant operations. SRS was not involved in any environmental lawsuits during 2023. In April 2023, SRS received a Notice of Violation (NOV) for not conducting Whole Effluent Toxicity sampling by February 2023. SRS conducted the sampling and reported the results in its October Discharge Monitoring Report. SRS also completed corrective actions to prevent reoccurrence. Table 3-6 summarizes the NOVs and Notices of Alleged Violation (NOAVs) SRS received from 2019–2023.

Table 3-6 NOV/NOAV Summaries, 2019–2023

	Notice of Violation (NOV)/Notice of Alleged Violation (NOAV)				
Program Area	**2019**	**2020**	**2021**	**2022**	**2023**
Clean Air Act (CAA)	0	0	0	0	0
Clean Water Act (CWA)	1	1	0	0	1
Resource Conservation and Recovery Act (RCRA)	0	0	0	0	0
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	0	0	0	0	0
Others	0	0	0	0	0
Total	**1**	**1**	**0**	**0**	**1**