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.

2022 Highlights

Permitting

SRS managed 515 operating and construction permits. SRS did not receive any Notices of Violation (NOVs).

Remediation (Environmental Restoration and Cleanup)

As of December, SRS completed the cleanup of 412 of the 515 operable units containing or having contained solid or hazardous waste. The Site is currently remediating an additional eight operable units.

Radioactive Waste Management

- The annual reviews for the E-Area Low-Level Waste (LLW) 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.
- SRS sent 16 transuranic (TRU) waste shipments to the Waste Isolation Pilot Plant (WIPP) for deep geologic disposal.

Resource Conservation and Recovery Act (RCRA)

- The U.S. Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (SCDHEC) conducted the unannounced RCRA Compliance Evaluation Inspection (CEI) for FY 2022 at select RCRA facilities on December 1-2. The inspection noted one deficiency, which SRS corrected on the spot.
- SCDHEC performed a Comprehensive Groundwater Monitoring Evaluation on September 27, 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 (MWMF), and F- and H-Area HWMFs. The inspection did not note any deficiencies.

Air Quality and Protection

- SRS met all Clean Air Act (CAA) requirements.
- SCDHEC issued the Air Operating Permit (Title V) for Air Quality and Protection for the Site on January 19 with an effective date of April 1, 2022.

2022 Highlights (continued)

Water Quality and Protection

- All 33 SRS Industrial stormwater outfalls in the General Permit complied with the Site's Stormwater Pollution Prevention Plan (SWPPP). The outfalls are covered by the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges associated with Industrial Activities (Except Construction) (General Permit) and are included in the SWPPP. As required by the new General Permit, SRS updated and issued the SWPPP in August 2022.

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 873 National Environmental Policy Act (NEPA) reviews to identify potential environmental impacts from proposed federal activities. SRS identified 817 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 (EPCRA); the Superfund Amendments and Reauthorization Act (SARA), Title III; the Endangered Species Act (ESA); the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA); the National Historic Preservation Act (NHPA); and the Migratory Bird Treaty Act (MBTA).

Release Reporting

SRS made two regulatory notifications pertaining to releases to the environment. On February 8, a lift station had a failure and discharged approximately 8,000 gallons of sewage onto soil. Sewage flowed to a nearby drainage ditch, which leads to the H-12 NPDES Outfall. An estimated 200 gallons reached the outfall. The Site notified SCDHEC, which performed a walkdown the following day.

On March 19, routine facility checks detected acidic liquid material upstream of NPDES-permitted Outfall H-12. A bladder was installed to minimize flow to the outfall, but it failed on March 22. At that time, SRS reported an estimated release of 1,300 pounds, exceeding a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) reportable quantity (RQ) of 1,000 pounds for nitric acid. The Site notified SCDHEC, the EPA Region 4, and the National Response Center, as required. Upon further investigation and identification of the source, SRS revised the amount released to 83 pounds, which is below the CERCLA RQ of 1,000 pounds, and communicated this to SCDHEC and the National Response Center. The regulatory agencies did not require further action. More information on these releases is in Section 3.3.9.

2022 Highlights (continued)

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 (FERC) performed a dam safety inspection in May.

Tank Closure (Radioactive Liquid Waste Processing and Dispositioning)

- The Salt Waste Processing Facility (SWPF) treated more than 2.4 million gallons of salt solution.
- More than 3.3 million gallons of waste was processed into grout and disposed of in the SDF.
- The Defense Waste Processing Facility (DWPF) filled 58 canisters with 218,200 pounds of glass waste mixture, immobilizing 992,000 curies of high-level radioactive waste.
- The F- and H-Area Effluent Treatment Facility (ETF) processed approximately 4.8 million gallons of treated wastewater.

3.1 INTRODUCTION

Complying with environmental regulations and DOE Orders is integral to 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 EPA, and SCDHEC—integrates CERCLA and 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 web page.

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 the SRS RCRA permit covers. At the end of fiscal year (FY) 2022, 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 2022* explains the status of FFA activities at SRS for FY 2022.

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.

SRS prepared the following reports to satisfy CERCLA requirements:

- *Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Geosynthetic or Stabilization/Solidification Cover Systems*. SRS received approval from the EPA on August 1 and from SCDHEC on August 23, respectively. SRS issued the report to the public on December 28.
- *Sixth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating Systems*. DOE submitted the report to SCDHEC and the EPA on December 20.

SRS issued the Record of Decision (ROD) for the Lower Three Runs (LTR) Integrator Operable Unit (IOU) in December 2021. In 2022, the Site completed planning and documentation for implementing the LTR IOU remedial action in 2023. The D-Area Groundwater OU treatability study that began in 2021 is ongoing to support a remedial investigation report (due in 2024) and an evaluation of remedial alternatives (due in 2026).

SRS negotiated a preferred remedial action and regulatory strategy for the remaining SRS coal ash and coal fines operable units, decommissioned the D-Area Coal Handling Houses and associated facilities, and began field characterization at the Early Construction and Operational Disposal Site (ECODS) L-3, L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit.

Coal Ash and Coal Fines Operable Units Strategy

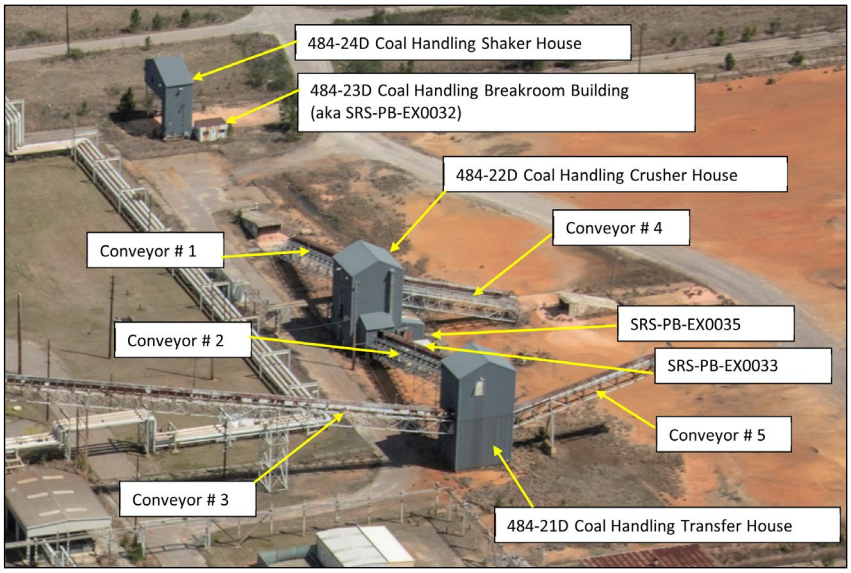
Over the last several years, SRS has implemented remedial decisions for several units containing coal ash and residual coal. SRS has closed these units in accordance with their individual remedial decisions and schedules. These units include, but are not limited to, the P- and R-Area Ash Basins, A-Area Ash Pile (788-2A), D-Area Ash Basins (488-488-1D and 48-2D), and Wetland Area at Dunbarton Bay and associated buffer area.

SRS proposed a comprehensive remedial approach to address the additional 10 units depicted in Figure 3-1 more cost-effectively and efficiently. The remaining units are A-Area Coal Pile Runoff Basin (788-3A), A-Area Ash Pile (788-A), D-Area Effluent Discharge Canal (no building number [NBN]) and Ash Area Adjacent to and Easterly of D-Area Ash Basins 488-1D and 488-2D (NBN) (referred to as the D-Area Ash Overflow), D-Area Ash Basin Wetlands (NBN), K-Area Ash Basin (188-K), Wetland Area at Dunbarton Bay (Phase II), L-Area Ash Basin (188-L), H-Area Ash Basin (288-H), H-Area Coal Pile Runoff Basin (289-H), and F-Area Ash Landfill (288-F). SRS combined units for maximum efficiency in preparing regulatory documents, engineering design, project planning, and construction execution and cost. Regulatory decision documents will aid in prioritizing and revising FFA milestones to implement cost-effective remedies. The recommended paths maximize the footprint reduction of the ash and coal fines units at SRS.

Figure 3-1 Remaining Ash and Coal Fines Operable Units

DOE, the EPA, and SCDHEC (known as the Core Team) met throughout 2022 to reach an agreement on the end-state vision for the remaining ash and coal fines operable units at SRS. The Core Team agreed on preferred remedial and administrative strategies for the remaining coal and ash units. The team grouped the A-Area Coal Pile Runoff Basin (788-3A), A-Area Ash Pile (788-A), F-Area Ash Landfill (288-F), H-Area Ash Basin (288-H), K-Area Ash Basin (188-K), and L-Area Ash Basin (188-L) to a preferred remedial alternative of Land Use Controls (LUCs) with Beneficial Reuse. The LUCs will be used to prevent exposure until they are excavated for beneficial reuse. The preferred remedial action for the Wetland Area at Dunbarton Bay (NBN) (Phase II) is to expand the existing LUCs. The documentation for this exists in *Explanation of Significant Difference for the Revision 1 Record of Decision (ROD) Remedial Alternative Selection for the*

Wetland Area at Dunbarton Bay in Support of Steel Creek Integrator Operable Unit, which was submitted in January 2023. DOE issued the ROD on June 20, 2018. The remedial decision for the D-Area Ash Basin Wetlands (NBN) will be either No Further Action or LUCs because it is within the Savannah River floodplain, and excavating more than 90 acres would damage a sensitive ecological habitat. The H-Area Coal Pile Runoff Basin (289-H) and the D-Area Effluent Discharge Canal (NBN) and Ash Area Adjacent to and Easterly of D-Area Ash Basins 488-1D and 488-2D (NBN) (referred to as the D-Area Ash Overflow) will be evaluated as part of the Savannah River and Floodplain Swamp Integrator Operable Unit.



Aerial View of Coal Handling Facilities before Decommissioning

D-Area Coal Handling Houses and Associated Facilities

The D-Area Coal Handling system was south of the 484-D Powerhouse and consisted of three major structures (Coal Handling Shaker House [484-24D], Coal Handling Crusher House [484-22D], and Coal Handling Transfer House [484-21D]) as well as track hoppers, coal feeders, conveyors, chutes, a coal crusher, magnetic pulleys, a tripper car, a reclaim hopper, and equipment to move the coal within the coal yard (front-end loaders and bulldozers). The coal handling system supplied coal to the 484-D Powerhouse, which was on the south side of D Area. The 484-D Powerhouse primarily provided steam and electric power for the 400-D Area, power for the 681-5G Pump House, supplemented standby power for all other SRS areas, and provided start-up power for the 100 Areas. A system of coal-handling facilities was necessary to deliver the fuel source to the 484-D Powerhouse to generate the power. Those facilities include the following:

Portable Buildings:

- 484-23D—Coal Handling Breakroom Building (also known as SRS-PB-EX0032)

D-Area Coal Handling Crusher House (484-22D) after Decommissioning (Looking East)

D-Area Coal Handling Transfer House (484-21D) after Decommissioning (Looking Southwest)

- SRS-PB-EX0033—Coal Handling Breakroom Building for Crusher House
- SRS-PB-EX0033—Coal Handling Breakroom Building for Crusher House
- SRS-PB-EX0035—Storage Shed for Portable Equipment, Lube, and Spare Parts

D-Area Coal Handling Shaker House (484-24D) after Decommissioning (Looking North)

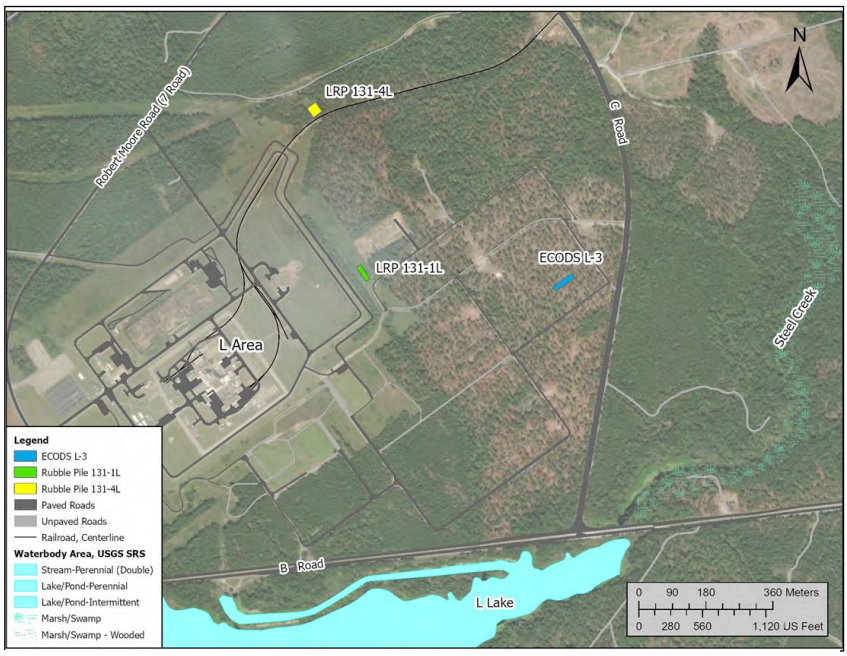
Coal Conveyor Systems:

- Conveyor #1 from 484-24D to 484-22D
- Conveyor #2 from 484-22D to 484-21D
- Conveyor #3 from 484-21D to 484-D Powerhouse
- Conveyor #4 from Reclaim Hopper to 484-22D
- Conveyor #5 from 484-21D to Coal Pile in 484-17D

SRS demolished the coal-handling houses and associated facilities, leaving in place the remaining concrete slabs, underground portions of concrete conveyor tunnels, and the basins for the track hoppers and reclaim hopper. The concrete slabs for 484-22D, 484-21D, SRS-PB-EX0033, and SRS-PB-EX0035 all remain. SRS completed decommissioning in accordance with federal and state regulations. The remaining structures are free of physical, chemical, and radiological hazards; therefore, they do not need further decommissioning, evaluation, surveillance, or maintenance because they pose no threat to human health or the environment while awaiting area completion.

ECODS L-3, L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit

ECODS L-3 subunit is 1 of 25 similar sites, which Site personnel identified during a review of early 1950s aerial photographs. SRS used these sites during the construction and early operation of the Site to dispose of construction debris and other nonradioactive waste materials such as rubble and concrete. The subunit is estimated to have been in use from



Location of ECODS L-3, L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit

November 1953 to June 1954, and there are no records of hazardous or radioactive waste disposal at the subunit. Sections of the trenches may have been used as a burn pit, used to dispose of combustible waste. Based on the 2002 site evaluation of the subunit, the characterization data is of sufficient quality and quantity to conduct a baseline risk assessment and contaminant migration analysis to support remedial decision-making.

ECODS L-3 Unit in 2022

The L-Area Rubble Pit (LRP) (131-1L) subunit is a former waste disposal area reportedly used for various types of construction debris. Records indicate SRS disposed of materials such as metal, lumber, poles, and concrete in the subunit. No characterization activities have been conducted at this subunit before sampling in 2022.

L-Area Rubble Pit (131-1L) Unit in 2022

The LRP (131-4L) subunit is an unlined pit that reportedly operated from 1973 to 1983, before SRS filled and seeded it in 1983. The subunit received inert rubble from the L-Area Powerhouse Stack and Silo demolition. The rubble consisted primarily of concrete and asphalt material with some metal. Operating procedures indicate the pit was to receive inert, nonhazardous materials. Records indicate that no hazardous or radioactive materials were disposed there. A site evaluation of the subunit was conducted from 1992 to 1994; however, the data is not of sufficient quality and quantity to warrant a baseline risk assessment and contaminant migration evaluation to support remedial decision-making.

L-Area Rubble Pit (131-4L) Unit in 2022

In 2022, DOE developed and SCDHEC and the EPA approved the RCRA Facility Investigation (RFI) and RCRA Investigation (RI) document, *RFI/RI Work Plan for the Early Construction and Operational Disposal Site L-3, L-Area Rubble Pit (131-1L), and L-Area Rubble Pit (131-4L) Operable Unit (U)*. DOE based this document on the characterization data required to define the nature and extent of contamination, to screen for risks,

and to identify problems and the likely response to them. This document specified the strategy for characterizing LRP 131-1L and LRP 131-4L, including ground-penetrating radar, soil sampling and analysis, and visually inspecting for the presence of asbestos-containing material during sampling at LRP 131-1L and LRP 131-4L. Characterization sampling at LRP 131-1L began in October 2022 and ended in November 2022. Sampling at LRP 131-4L began in November 2022 and ended in January 2023.

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 3-2 depicts.

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.*

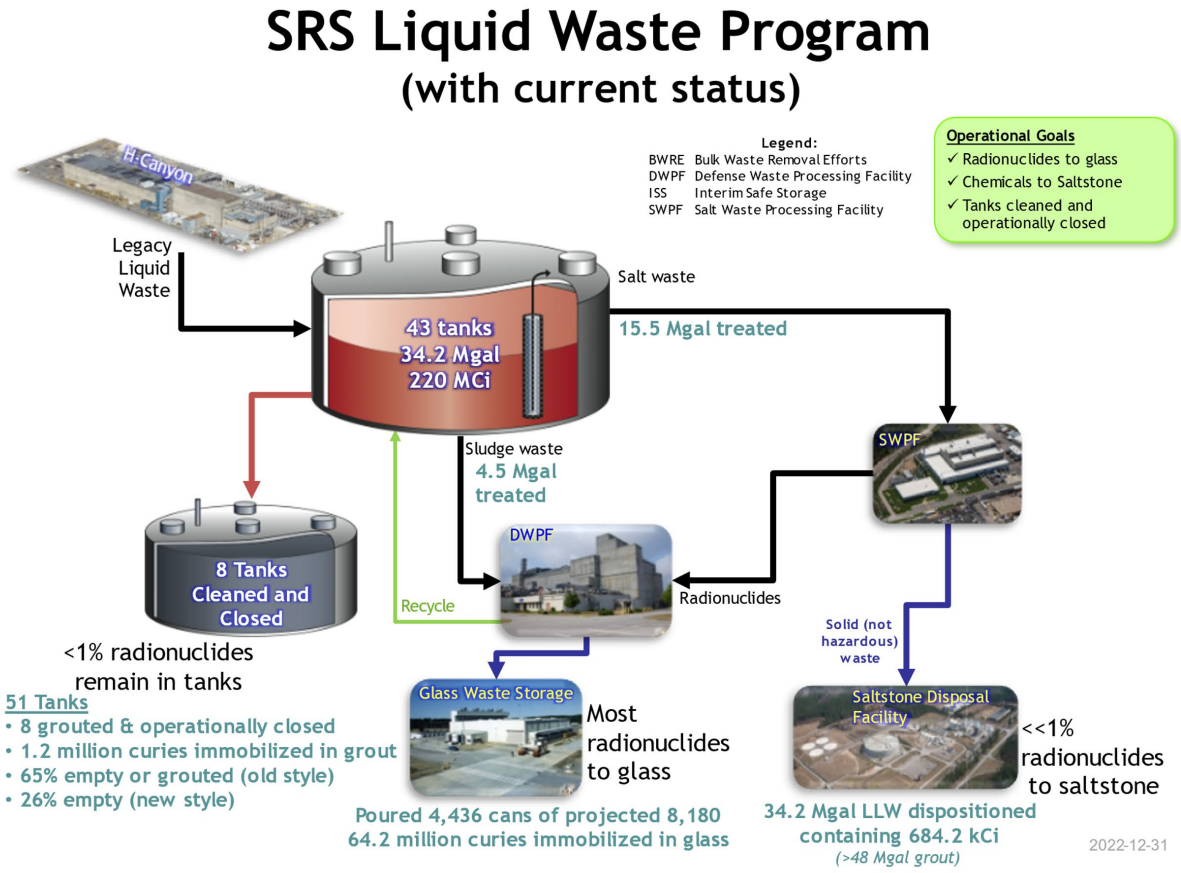


Figure 3-2 Processing and Dispositioning Radioactive Liquid Waste at SRS

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.

FDB-5 After Entombment

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 2022, DOE supported NRC monitoring F-Tank Farm and H-Tank Farm under Section 3116 of the NDAA by providing routine documentation (for example, groundwater monitoring reports and PA maintenance plan), as the NRC requested. The NRC did not conduct onsite observation visits for the liquid waste tank farms in 2022; however, several virtual meetings were held between the NRC, DOE, and DOE Contractor staff. Prior to SRS closing 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 2022. 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.

In 2022, the Site completed the first operational closures of ancillary structures in the liquid waste tank farms. SRS completed internal grouting of F-Area Diversion Box (FDB)-5 in 2021 and internal grouting of FDB-6 in 2022. Both structures were entombed in concrete in 2022, thereby completing the operational closure of these structures and meeting the FFA commitment to operationally close FDB-5 and FDB-6 by the end of 2022.

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 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 operation 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 2.4 million gallons of salt solution in 2022.

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, which are submerged in the water table.

3.2.2.3 Salt Disposition

After ARP/MCU and TCCR interim processing, the decontaminated salt solution is processed into grout waste at the Saltstone Production Facility and disposed of in the 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.

Construction in Progress on SDU-8, SDU-9, SDU-10, and SDU-11

During 2022, DOE supported the NRC in monitoring the SDF under Section 3116 of the NDAA by providing routine documentation (groundwater monitoring reports and PA maintenance plan), as requested. The NRC did not conduct an onsite observation visit for salt waste disposal during 2022; however, several virtual meetings between the NRC, DOE, and DOE Contractor staff took place.

In 2022, SRS continued permanently disposing of waste, processing more than 3.3 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-foot diameter vaults having a capacity of 2.8 million gallons each. In 2022, SRS continued constructing SDU-8 and SDU-9 and initiated construction of SDU-10, all with capacities of 34.5 million gallons each. In addition, excavation and groundwork were initiated for SDU-11 and SDU-12, the final mega-vaults currently planned.

3.2.2.4 Sludge Waste Processing—Vitrification of High-Activity Waste

SCDHEC permits 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 3-2 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 58 canisters, collectively containing 218,200 pounds of glass and immobilizing 992,000 curies of radioactivity during 2022. Since DWPF began operating in March 1996, it has produced more than 4,346 canisters collectively, containing 16.8 million pounds of glass and immobilizing 64.2 million curies of radioactivity.

3.2.2.5 Low-Level Liquid Waste Treatment

The F- and H-Area 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 2022. 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 2022.

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 (LLW, high-level waste [HLW], and 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 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.

TRU Drum Ready for Characterization in Real-time Radiography Unit

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 2021 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 annual *SRS Environmental Report.*

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 job waste such as clothing, tools, rags, residues, debris, and other items contaminated with trace amounts of plutonium. SRS sends TRU waste to 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 16 TRU shipments to WIPP for disposal in 2022.

3.3.2 Resource Conservation and Recovery Act (RCRA)

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 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. It also issues permits to implement RCRA.

Final View of the SSTs

Through the SCDHEC-issued RCRA hazardous waste permit, SRS closed the referenced Solvent Storage Tanks (SSTs) S33–S36 and submitted the final certification of closure to SCDHEC in October 2019. 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 (effective on December 15). 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 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. SRS submitted and requested approval of the SSTs postclosure plan to SCDHEC in December 2022. Until final closure, the area surrounding the SSTs is a designated Underground Radioactive Material Area.

Recovery Well RWM 17B

SRS submitted Revision 3 of the 2013 RCRA Permit Renewal Application, M-Area and Metallurgical Laboratory (Met Lab) HWMFs Post-closure (Volume III), to SCDHEC on September 26, 2022. 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 Operable Unit 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 since the stripper was approved for permanent shutdown in 2021. Four wells were abandoned, and two wells were converted to monitoring wells. At the end of 2022, SCDHEC was in the process of reviewing the Revision 3 application.

During 2022, SRS installed Electrical Resistivity Tomography (ERT) as a technology demonstration at the F-Area HWMF (Figures 3-3 and 3-4). Installation and startup were completed on August 17, 2022. This DOE technology demonstration is a collaborative effort between Savannah River Nuclear Solutions (SRNS), Savannah River National Laboratory, and Pacific Northwest National Laboratory with approximately five years of data collection. This technology demonstration evaluates the application and feasibility of ERT and its potential application within the DOE complex. This study is being performed under SCDHEC acknowledgement.

Figure 3-3 Trench Installation to Bury Electrode Cables

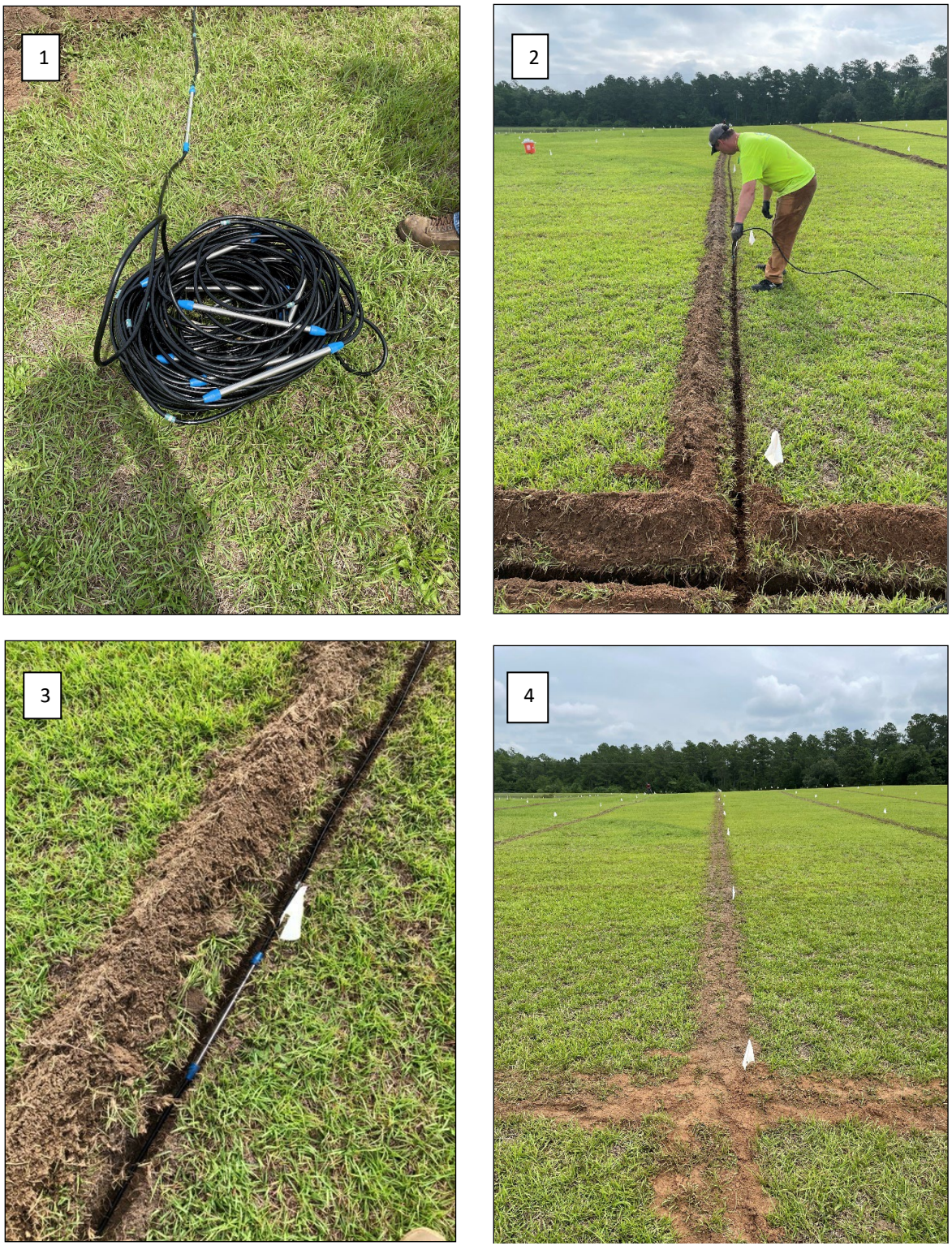


Figure 3-4 Installation of ERT Electrode Cables

The purpose of the study is to evaluate the application of ERT as a nonintrusive, long-term monitoring technology of the F-Area HWMF RCRA cover system performance. ERT is a geophysical measurement tool that images the electrical conductivity distribution of the subsurface beneath the cover. For this application, ERT will monitor subsurface conductivity to identify areas where soil moisture is changing beneath the cover system's low-permeability clay layer. The images taken of soil moisture content over an estimated five-year study period will be compared and used to diagnose anomalous conditions, such as a breach or failure of the low-permeability layer of the cap system. Lines of horizontally placed electrodes were installed into the top 6 inches of soil (called arrays) across the north end of the F-Area HWMF Seepage Basin cap (Basin F-3). SRS believes that this is the first application of ERT to measure changes in soil moisture beneath a low-permeability cover system.

3.3.2.2 Solid Waste Permit Activities

SRS 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.). All solid waste landfills were active and operated in compliance with their permits during 2022. SCDHEC conducted quarterly landfill inspections of the 632-G and 288-F landfills and monthly SDF inspections in 2022 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 permitted USTs, each requiring an annual compliance certificate from SCDHEC. SCDHEC performed its annual inspection on December 16, 2021, 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 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 August 25 to discuss the 2022 update. Consistent with prior years, the parties agreed to a reduced scope update for 2022, consisting of only revised appendices to Volumes I and II. SRS submitted the STP 2022 Update to SCDHEC on November 10. SCDHEC approved the STP 2021 Update on October 13, 2022. 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 2022, SRS and SCDHEC held STP Cleanup Credit validation meetings in January, May, August, and November. SRS earned 789 validated Cleanup Credits during FY 2022.

3.3.4 Toxic Substances Control Act (TSCA)

Infectious Waste is Treated and Disposed of in Accordance with SCDHEC Regulations.

SRS complies with TSCA regulations when storing and disposing of lead, asbestos, and organic chemicals, including polychlorinated biphenyl compounds (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 two shipments of PCB waste to offsite hazardous waste facilities in 2022. On April 5, SRS submitted an exception report to the EPA Region 4, documenting the delayed receipt of a signed manifest from the contracted waste management vendor for one of the offsite shipments in accordance with 40 CFR 761.217(a)(2). Also on April 5, SRS submitted a one-year exception report for a container included in that shipment in accordance with 40 CFR 761.219(b).

SRS also generates radioactive waste contaminated with PCBs. SRS disposes of low-level radioactive PCB bulk product waste onsite. PCB waste contaminated with TRU requires disposal at WIPP. SRS made eight shipments of PCB-containing TRU waste to WIPP in 2022.

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, which it must submit to the EPA by July 15 of each year for the preceding calendar year. SRS submitted the 2022 annual report to the EPA for this reporting period on July 11, 2023.

On March 24, SRS and the EPA Region 4 PCB staff met virtually to establish a dialogue regarding PCB topics specifically relevant to the Site. This is intended to become an annual dialogue, as done with other federal facilities in the region, to improve communication and knowledge transfer**.**

3.3.5 South Carolina Infectious Waste Management Regulation

SRS 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 2022, the vendor picked up 13 shipments. Once offsite, the vendor treats and disposes of the waste in accordance with SCDHEC regulations. In 2022, 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 for most types of air emissions to SCDHEC. 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 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)

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 five 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, as well as 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 Air Quality Operating Permit (TV-0080-0041), which became effective April 1, 2021. The Site also has two active construction permit applications, which are listed above.

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 2022.

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 2022 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 mandated phasing down HFCs, which are potent greenhouse gases, by 85% over a period ending 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.

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 and do not guarantee the availability of the regulated HFC covered. They allow only for the quantity to be manufactured and imported under the 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 calendar year (CY) 2022, it anticipates submitting an inventory every year. The inventory for CY 2022 emissions is due March 31, 2023.

3.3.6.5 National Emission Standard for Hazardous Air Pollutants (NESHAP)

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 2022 annual report will be submitted in June 2023. SRS transmitted the *SRS Radionuclide Air Emissions Annual Report for 2021* on June 23, 2022, to the EPA, SCDHEC, and DOE Headquarters.

There were no unplanned radiological releases to the atmosphere during 2022.

SRS estimated the maximally exposed individual effective dose equivalent during 2022 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 180 asbestos notifications and conducted three permitted renovations and demolitions involving asbestos in 2022. 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 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 SRNS and 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 2022

Asbestos Type	Nonradiological, Friable	Nonradiological, Nonfriable	Radiologically Contaminated Asbestos
Linear Feet Disposed	231	576	12
Square Feet Disposed	28	9,547	10
Cubic Feet Disposed	6	36	0
Disposal Site	Three Rivers Solid Waste Authority Landfill	SRS Construction and Demolition Landfill	SRS E-Area LLW 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 2022, 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/CERCLA exemption from 40 CFR 63 Subpart GGGGG – Site Remediation NESHAP. SRS is actively determining impacts to its operations in response to this action.

3.3.7

3.3.7 Water Quality and Protection

3.3.7.1 Clean Water Act (CWA)

Except for Ameresco, which has its own CWA NPDES permit, SRS operated pursuant to the following CWA permits in 2022:

- Land Application Permit (Permit No. ND0072125)
- NPDES Permits for Discharge to Surface Waters (Permit Nos.: SC0000175 and SC0047431 [closed May 31, 2022])—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 Waster Permit for Utility Water Discharges (Permit No. SCG250000)
- NPDES General Permit for Discharges from Application of Pesticides (Permit No. SCG160000)

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 two NPDES permits for industrial activities that discharge to surface water: one covering D Area (SC0047431 [closed May 31, 2022]) and the other for the remainder of the Site (SC0000175). Throughout the year, SRS monitors 11 of 28 NPDES-permitted industrial wastewater outfalls across the Site on a frequency the permits specify. The remaining 17 industrial wastewater outfalls have no current flow and will be removed when the Industrial Wastewater NPDES Permit (SC0000175) is renewed. Monitoring requirements vary from as much 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 2022, following issuance of the new Industrial Stormwater General Permit.
- SCDHEC did not require construction stormwater monitoring on any of the active construction projects underway at SRS during 2022.
- SRS undertook permitting actions 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 2022, SCDHEC approved the interim closure of the A-2 Air Stripper System.
- In April 2022, SRS submitted a Discharge Monitoring Report for Industrial Stormwater Outfall H-07B indicating it did not monitor discharge during the previous year.

Chapter 4 of this report summarizes the sampling results of both industrial and stormwater outfalls.

3.3.7.1.2 Section 404(e) Dredge and Fill Permits

Wetlands make up 25% of the total SRS area, or 48,973 acres. SRS wetlands account for more than 80% of the wetlands across the entire DOE complex nationwide. 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. The program is for projects that have minimal impact on the aquatic environment.

SRS wetlands staff reviewed 60 site-use applications for potential wetland impacts in 2022. During this time, SRS permitted the following actions under the NWP program:

- FM-1H Environmental Monitoring Station Maintenance and Upgrades under NWP 5—Scientific Measurement Devices

- L3R-2 Environmental Monitoring Station Maintenance and Upgrades under NWP 5—Scientific Measurement Devices
- Tadpole Depuration Study under NWP 5—Scientific Measurement Devices
- D-Area Wildlife Study under NWP 5—Scientific Measurement Devices
- Biofilm Study under NWP 5—Scientific Measurement Devices
- Monitoring Uptake of Legacy Radiocesium and Trace Element Contaminants on SRS Biota under NWP 5—Scientific Measurement Devices
- Contaminant Distribution and Transport in Aquatic Systems Study under NWP 5—Scientific Measurement Devices
- Biotic Sampling in SRS Streams under NWP 5—Scientific Measurement Devices
- Deployment and Long-term Monitoring of Sensors at F-Area Wetlands under NWP 5—Scientific Measurement Devices

3.3.7.2 Safe Drinking Water Act (SDWA)

SCDHEC regulates drinking water facilities under the 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 2022 bacteriological samples for the A-Area drinking water system that SRS collected met state and federal drinking water quality standards.

The Advanced Tactical Training Academy (ATTA) drinking water system was placed on quarterly bacteriological monitoring following a positive total coliform sample SCDHEC collected in November 2021. SCDHEC collected samples in all four quarters of 2022; none indicated the presence of total coliform bacteria. The ATTA system will be back on annual monitoring beginning in 2023. In 2022, SRS sampled for lead and copper at 20 locations throughout the A-Area drinking water system. The sampling results met all state and federal drinking water standards. SRS samples the A-Area drinking water system for lead and copper on a three-year cycle. The next sampling will be in 2025.

There were no sanitary surveys of the SRS drinking water systems in 2022. However, SCDHEC performed a site visit of the ATTA drinking water system in 2022. This inspection identified no issues or concerns. SCDHEC is expected to conduct sanitary surveys of the A-Area and ATTA drinking water systems in 2023.

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, SRS 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 2022, 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 surface water more than 3 million gallons during any one month. SRS has a surface water withdrawal permit and reports annual water use to SCDHEC. In 2022, SRS surface water use was within permitted limits.

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 873 NEPA reviews of proposed activities in 2022 (Table 3-2). Categorical Exclusion (CX) determinations accounted for more than 90% of completed reviews. The SRS NEPA web page contains additional information on SRS NEPA activities.

The following major NEPA reviews were either completed or in progress in 2022:

- *Supplement Analysis for the Spent Nuclear Fuel Accelerated Basin De-inventory Mission for H-Canyon at the Savannah River Site* (EIS-0279-SA-07). DOE issued this Supplement Analysis (SA) in March 2022. It evaluates DOE's proposal to implement the Accelerated Basin De-inventory mission, which allows SRS to process all remaining spent nuclear fuel in L Basin through H Canyon

Table 3-2 Summary of 2022 NEPA Reviews

Type of National Environmental Policy Act (NEPA) Review	Number
Categorical Exclusion (CX) Determinations[a]	817
"All No" Environmental Evaluation Checklist (EEC) Determinations[a]	22
Previous NEPA Review[a]	32
Environmental Impact Statement (EIS)	1
Supplement Analysis (SA)	1
Interim Action	0
Revised Finding of No Significant Impact	0
Environmental Assessment	0
Total	**873**

[a] Proposed action that requires no further NEPA action

without the recovery of highly enriched uranium and immobilize the resulting dissolved material to be disposed of at a future repository.

- Amended Record of Decision (ROD) to the *Savannah River Site Spent Nuclear Fuel Management Final Environmental Impact Statement* (SRS SNF EIS) (DOE/EIS-0279). On April 14, 2022, DOE amended its August 7, 2000, ROD to the *SRS SNF EIS.* The changes to the August 7, 2000, ROD memorialize DOE's decision to manage approximately 29.2 metric tons of heavy metal of SNF and target materials (hereafter referred to collectively as SNF), using conventional processing without the recovery of uranium at the H-Canyon facility at SRS.
- *Final Versatile Test Reactor Environmental Impact Statement* (VTR EIS) (DOE/EIS-0542). On May 20, 2022, DOE announced the availability of the *Final Versatile Test Reactor Environmental Impact Statement,* which evaluates the potential environmental impacts of proposed alternatives for constructing and operating a new test reactor, as well as the associated facilities needed to perform postirradiation evaluation of test articles and manage SNF and the activities necessary for VTR driver fuel production.
- *Record of Decision for the Final Versatile Test Reactor Environmental Impact Statement* (VTR EIS) (DOE/EIS-0542). On August 3, 2022, DOE announced the decision to implement its Preferred Alternative, to construct and operate a VTR at the Idaho National Laboratory (INL) Site, and to establish, through modifications and construction, colocated facilities for postirradiation examination of test products and for managing spent VTR driver fuel at INL. DOE has not decided whether to establish VTR driver fuel production capabilities at the INL Site, SRS, or a combination of the two sites. Once a Preferred Alternative or option for VTR driver fuel production is identified, DOE will announce its preference in a Federal Register (FR) notice.

The following drafts are in progress and not included in Table 3-2:

- Draft Environmental Assessment (EA) for the South Carolina Army National Guard *Proposal to Construct and Operate Training Facilities and Infrastructure on 750 Acres at the Department of Energy Savannah River Site* (DOE/EA-1999)
- *Draft Environmental Impact Statement/Overseas Environmental Impact Statement for Disposal of Decommissioned, Defueled Ex-Enterprise (CVN 65) and Its Associated Naval Reactor Plants* (DOE/EIS-0524). On August 19, 2022, the U.S. Department of the Navy, with DOE as a cooperating agency, prepared the Draft Environmental Impact Statement/Overseas Environmental Impact Statement (EIS/OEIS) to evaluate the potential environmental impacts of alternatives for disposal of the decommissioned, defueled ex-Enterprise (CVN 65) aircraft carrier, including its reactor plants.
- *Draft Environmental Impact Statement for the Surplus Plutonium Disposition Program* (DOE/EIS-0549) (Draft SPDP EIS). In December 2022, the National Nuclear Security Administration (NNSA) prepared the Draft SPDP EIS to evaluate the potential environmental impacts of dispositioning 34 metric tons of plutonium using capabilities at multiple sites across the nation. NNSA's preferred alternative would implement a dilute and dispose strategy, which includes processing surplus plutonium to plutonium oxide, diluting it with an adulterant to inhibit plutonium recovery, and disposing the resulting contact-handled TRU waste in the existing WIPP facility. The Draft SPDP EIS analyzes the preferred alternative including various subalternatives that would require capabilities at SRS, Los Alamos National Laboratory in New Mexico, the Pantex Plant

in Texas, the WIPP facility in New Mexico, and the Y-12 National Security Complex in Tennessee. The Draft SPDP EIS also analyzes a No Action Alternative.

- *Draft Environmental Assessment for the Commercial Disposal of Savannah River Site Contaminated Process Equipment* (DOE/EA-2154). On December 21, 2021, DOE published the *Draft Environmental Assessment for the Commercial Disposal of Savannah River Site Contaminated Process Equipment.* The Draft EA evaluates the potential impacts from a proposed action to dispose of certain SRS-contaminated process equipment at a commercial low-level radioactive waste (LLW) disposal facility outside of South Carolina, licensed by either the NRC or an Agreement State pursuant to NRC's regulations for land disposal of radioactive waste.

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

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 report on February 28, 2023. SRS submitted the 2021 hazardous chemical storage information to state and local authorities on February 23, 2022. The 2021 report included 50 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 those above each threshold value to the EPA. SRS will submit the annual report for this reporting period in June 2023. SRS submitted the 2021 annual report on June 29, 2022, for each of the following regulated chemicals: ammonia, chromium compounds, lead compounds, mercury compounds, naphthalene, nitrate compounds, nitric acid, and sodium nitrite. Details are on the EPA TRI Program website.

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

The objective of 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 pesticide application. 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 per 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 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, 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.

Gopher Tortoise, Subject of SREL Study

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 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 2022, the USFS-SR, SREL, and the South Carolina Department of Natural Resources partnered to restore wetland and upland habitats to maintain viable gopher frog populations onsite.

SRS is One of Two State Strongholds for the Carolina Gopher Frog

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 2022, golden eagles were recorded at SRS. The mid-winter bald eagle survey shows an active nest site and bald eagles present on both Par Pond and L Lake.

The USFS-SR actively manages more than 65,000 acres in the red-cockaded woodpecker (RCW) habitat management areas. It further improved RCW habitat in 2022 by prescribe burning 13,987 acres and thinning forests, and by removing brush and small hardwoods from more than 1,500 acres through mechanical or chemical treatments. Restoring the natural fire regime improves native plant diversity in the understory, enhancing 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 2022, active RCW clusters increased from 5 to 163 due to successful habitat restoration. As of 2022, the USFS-SR managed 180 cluster sites for the RCW, with an average expected population growth rate of 5% each year. The growth rate over the past five years at SRS has been an outstanding average of 12%. In addition to managing endangered wildlife species, the USFS-SR actively manages six endangered plant populations: four smooth coneflower and two pondberry.

The USFS-SR continues to perform biological evaluations to determine whether forest implementation plans are likely to affect federally listed endangered or threatened species due to beneficial, insignificant, or discountable effects.

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 Christmas Bird Count is conducted annually in December. The 2022 SRS count found 89 species, which is down from the number of species normally observed due to unfavorable weather on the day of the survey.

Active Bird Nest

In 2022, SRS conducted walkdowns of 122 bird nests at 87 locations for MBTA compliance. The walkdowns identified 77 active nests with incubating eggs or chicks and 45 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*), 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 2022, the USFS-SR found an Osprey (*Pandion haliaetus*) nest on a platform staff built in 2014. This marked the seventh 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*), wisteria (*Wisteria sinensis*), chinaberry (*Melia azedarach*), 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.

Wild Pigs at SRS

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 57 acres each year to control across target areas that either contain former homesites and community areas or that are in proximity 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 2022, the USFS-SR applied chemical and mechanical treatment to 70 acres of NNIPS infestations to support RCW habitat improvement utilizing contracts and internal resources. Additionally, USFS-SR employees treated six new infestations as part of early detection and rapid response efforts. All 2021 treatments were monitored in 2022 to assess treatment efficacy and retreatment needs.

Wild pigs 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 pigs present safety hazards due to vehicle collisions and disease transmission, and 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 pigs onsite. In 2022, the USFS-SR removed 1,200 pigs 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 pig 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 2022, SRARP investigated 370 acres onsite for cultural resource management, including conducting 27 field surveys and testing. It recorded 7 newly discovered sites and revisited 15 previously recorded sites.

3.3.9 Release Reporting

Releases to the air, water, and land must comply with legally enforceable licenses, permits, regulations, or orders. 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 EPCRA, CERCLA, CWA, and CAA require SRS to send a notice to either the National Response Center or applicable state agencies, or both.

In 2022, SRS made two regulatory notifications pertaining to releases to the environment. On February 8, a lift station had a failure and discharged approximately 8,000 gallons of sewage onto soil. Sewage flowed to a nearby drainage ditch, which leads to the H-12 NPDES Outfall, with an estimated 200 gallons reaching the outfall. SRS notified SCDHEC, which performed a walkdown the following day. SCDHEC requested that the Site measure pH at the H-12 Outfall; pH results were within permit limits. Site personnel operated the lift station pump manually to stop the overflow. Additionally, SRS placed sandbags at the low point upstream of H-12 to minimize impact to the outfall. Most of the wastewater was recovered and disposed at the onsite wastewater treatment plant. Disinfectant was also applied to the affected areas.

On March 19, routine facility checks detected acidic liquid material upstream of NPDES-permitted Outfall H-12. SRS personnel installed a bladder to minimize flow to the outfall, but it failed on March 22. At that time, SRS reported an estimated release of 1,300 pounds, exceeding a CERCLA RQ of 1,000 pounds for nitric acid. SRS notified SCDHEC, the EPA Region 4, and the National Response Center, as required. Upon further investigation and identification of the source, SRS revised the amount released to 83 pounds, which is below the CERCLA RQ of 1,000 pounds. SRS communicated the revised amount to SCDHEC and the National Response Center. The regulatory agencies required no further action.

3.3.10 Permits

SRS had 515 construction and operating permits in 2022 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	4[a]
U.S. Army Corps of Engineers (USACE—Nationwide Permits)	9
Asbestos Demolition Licenses/Abatement Licenses/Temporary Storage of Asbestos Waste Notices	187
Asbestos Abatement Group License	1
Asbestos Temporary Storage of Waste License	1
Domestic Water	99
Industrial Wastewater Treatment	55
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	92
South Carolina Department of Health and Environmental Control (SCDHEC) 401	0
SCDHEC Infectious Waste Registration	1
SCDHEC Bureau of Drug Control Controlled Substances Registration	5
Nondispensing Drug Outlet License	4
SCDHEC Navigable Waters	0
Underground Injection Control	10
Scientific Collecting Permits[c]	7
Groundwater Withdrawal	9
Surface Water Withdrawal	1
Total	**515**

[a] This count includes the Ameresco CAA permit (TV-00800-144).
[b] This count includes the Ameresco NPDES 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. SRNS and SREL 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 436.1*, 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 2022.

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 2022 audits and inspections. During 2022, 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 2022 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.
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 September 27. 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 (ATTA [Advanced Tactical Training Academy] 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 did not conduct any Sanitary Surveys of SRS Drinking Water systems in 2022. Sanitary Surveys of the A-Area and ATTA Drinking Water systems are expected to be conducted in 2023.	While no Sanitary Surveys of SRS Drinking Water systems were conducted in 2022, SCDHEC did perform a “Site Visit” on the ATTA Drinking Water system. No issues or concerns were noted during the visit.
Interim Sanitary Landfill and the F-Area Railroad Crosstie Pile Landfill Post-Closure Inspection	SCDHEC conducted an annual review of the closed landfills in September.	SCDHEC identified no compliance issues.

Table 3-4 Summary of 2022 External Agency Audits/Inspections of the SRS Environmental Program and Results (continued)

Audit/Inspection	Action	Results
Air Compliance Inspection	SCDHEC conducted a site Air Compliance Inspection on March 23, 2022. This inspection included a review of facility operational information, control device data, and regulatory compliance reports	SCDHEC identified no issues.
Resource Conservation and Recovery Act (RCRA) Compliance Evaluation Inspection (CEI)	The Environmental Protection Agency (EPA) and SCDHEC conducted the unannounced RCRA CEI for fiscal year (FY) 2022 on December 1-2.	The inspectors identified one labeling deficiency during the FY 2022 inspection, which was corrected on the spot.
Underground Storage Tank (UST) CEI	SCDHEC inspected 17 USTs on December 16, 2021.	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) CEI	SCDHEC did not conduct a CEI in 2022 covering permit SC0000175. SCDHEC did complete an inspection of four wastewater treatment plants	SCDHEC identified no compliance issues.

3.7 KEY FEDERAL LAWS COMPLIANCE SUMMARY

The CFR 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 2022 compliance status with applicable key federal environmental laws.

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

Regulatory Program Description	2022 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 FY 2021 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).	The SRS NPDES program complies with all NPDES Permits.
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	2022 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 and sets annual work priorities and establishes 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 (55 milestones met on or ahead of schedule in FY 2022).
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 NRC and SCDHEC.	SRS provided routine documents as requested by the NRC to support monitoring of 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, or the Saltstone Disposal Facility. However, 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 USTs 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	2022 Status
The Safe Drinking Water Act (SDWA) protects drinking water and public drinking water resources.	All drinking water samples of the A-Area Drinking Water System taken in 2022 met drinking water quality standards. SCDHEC collected a sample from the Advanced Tactical Training Academy (ATTA) Drinking Water System in November 2021, which was positive for total coliform. The system was placed back into normal operations after disinfection and two confirmed negative samples. SCDHEC's bacteriological sampling of this system increased from annually to quarterly for 2022. No further positive results were seen.
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

SRS was not involved in any environmental lawsuits during 2022. No Notices of Violation (NOVs) were issued in 2022. Table 3-6 summarizes the NOVs/Notices of Alleged Violation (NOAVs) SRS received from 2017–2022.

Table 3-6 NOV/NOAV Summaries, 2017–2022

	Notice of Violation (NOV)/Notice of Alleged Violation (NOAV)				
Program Area	**2018**	**2019**	**2020**	**2021**	**2022**
Clean Air Act (CAA)	1[a]	0	0	0	0
Clean Water Act (CWA)	0	1	1	0	0
Resource Conservation and Recovery Act (RCRA)	1[b]	0	0	0	0
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	0	0	0	0	0
Others	0	0	0	0	0
Total	**2**	**1**	**1**	**0**	**0**

[a]This NOV was issued to Ameresco, a direct contractor to DOE.

[b]NOAV

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