Chapter 3 Compliance Summary

The Savannah River Site (SRS) implements programs to meet the requirements of applicable federal and state environmental laws and regulations, and U.S. Department of Energy (DOE) Orders, notices, directives, policies, and guidance. Our goal is to comply with regulatory requirements and eliminate or minimize any environmental impacts. SRS continues our commitment to protect human health and the environment.

2017 Highlights

Permitting

SRS managed more than 375 operating and construction permits. SRS received five Notices of Violation (NOVs). More information on the NOVs can be found below and in Sections 3.3.6.5, 3.3.7.1.1, 3.3.7.2, 3.5, and 3.8.

Remediation (Environmental Restoration and Cleanup)

SRS completed the cleanup of 408 of the 515 waste units containing or having contained solid or hazardous waste by the end of fiscal year (FY) 2017. An additional 10 waste units are currently under remediation.

Tank Closure (Radioactive Liquid Waste Processing and Dispositioning)

- SRS procured the Tank Closure Cesium Removal (TCCR) system to expedite treating salt waste and accelerate tank closure. SRS completed the TCCR design and fabrication.
- The Defense Waste Processing Facility (DWPF) filled 52 canisters with approximately 190,000 pounds of glass waste mixture, immobilizing 926,000 curies of high-level radioactive waste.
- The Saltstone facilities processed 170,000 gallons of low-activity waste.
- SRS completed construction and operational testing of SDU-6 16 months ahead of schedule and $25 million under budget.

Radioactive Waste Management

- The annual reviews for the E-Area Low-Level Waste Facility Performance Assessment (PA) and the Saltstone Disposal Facility PA showed that SRS continued to operate these facilities in a safe and protective manner.

Resource Conservation and Recovery Act (RCRA)

- SRS submitted TRU Pad 2 Closure Certification to SCDHEC in September.
- SRS submitted the Solvent Storage Tanks (SSTs) S33-S36 Closure Plan in May.

2017 Highlights (continued)

Resource Conservation and Recovery Act (RCRA) (continued)

- SRS reached 15 consecutive years without a violation by assuring that all 19 underground storage tanks containing usable petroleum fuel remained in compliance.

Air Quality and Protection

SRS received three of the five NOVs for not complying with air permits:

- Not conducting a relative accuracy test and certifying a new flow transmitter at the 291-F Stack
- Not complying with the requirements of 40 CFR 63 Subpart DDDDD at the 784-7A boiler facility
- Not complying with work practice requirements for a nonfriable asbestos project related to packaging, transporting, and disposing of 160 linear feet of asbestos- containing waste

Water Quality and Protection

SRS received two of the five NOVs for not complying with water permits, as described below:

- SRS sampled drinking water monthly to ensure it met SCDHEC and U.S. Environmental Protection Agency (EPA) standards. All samples obtained and tested in 2017 met drinking water quality standards. SRS received an NOV on February 9, 2017 for failing to collect all the required monthly drinking water samples in December 2016.
- SRS monitored 28 industrial outfalls as the National Pollutant Discharge Elimination System (NPDES) permit required. Outfall L-7A had a fecal coliform exceedance in October, which resulted in one of the five NOVs. Except for the exceedance associated with the NOV, all analyses results complied with the NPDES permit and contributed to a 99.9% compliance rate.

All 34 SRS Industrial storm water outfalls covered under a Stormwater Pollution Prevention Plan (SWPPP) complied with plan requirements. The SWPPP describes how SRS prevents contamination and controls sedimentation and erosion.

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 mrem per year. (Chapter 5, *Radiological Environmental Monitoring Program*, provides details of the air and water discharges; Chapter 6, *Radiological Dose Assessment,* explains the public dose.)

Environmental Protection and Resource Management

- SRS conducted 504 National Environmental Policy Act (NEPA) reviews to identify potential environmental impacts from proposed federal activities. SRS identified 452 of these as categorical exclusions that did not require action from the Site under NEPA.
- SRS continued to comply with many other federal laws, including the Emergency Planning and 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).

2017 Highlights (continued)

Release Reporting

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

External Environmental Audits and Inspections

SCDHEC conducted audits, inspections, and site visits of various SRS environmental programs to ensure regulatory compliance. The Federal Energy Regulatory Commission (FERC) performed a dam safety inspection in October.

3.1 INTRODUCTION

Complying with environmental regulations and DOE Orders is integral to SRS operations. The rest of 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, EPA and South Carolina, integrates CERCLA and RCRA requirements to achieve 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 identified in the FFA in accordance with applicable regulations, whether they are from the state, the federal government, or both.

3.2.1 Remediation (Environmental Restoration and Cleanup)

SRS has 515 waste units subject to the FFA, including RCRA/CERCLA units, Site Evaluation Areas, and facilities covered by the SRS RCRA permit. At the end of FY 2017, SRS had completed the surface and groundwater cleanup of 408 of these units and was in the process of remediating an additional 10 units. Appendix C, *RCRA/CERCLA Units List*; Appendix G, *Site Evaluation List*; and Appendix H, *Solid Waste Management Units Evaluation* of the FFA list all of SRS's 515 waste units. The *Federal Facility Agreement Annual Progress Report for Fiscal Year 2017* explains the status of FFA activities at SRS for FY 2017.

CERCLA requires 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 completed. Remedies are evaluated to determine if they are functioning as designed and are still protecting human health and the environment.

The *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Groundwater Remedies* was issued to the public on February 2, 2017. SCDHEC and EPA approved the *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Engineered Cover Systems* in December 2017 and January 2018, respectively. This report was issued to the public on February 21, 2018. SCDHEC and EPA approved the *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with*

Geosynthetic or Stabilization/Solidification Cover Systems in January 2018 and February 2018, respectively. This report was issued to the public on March 27, 2018. DOE submitted the *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating Equipment* to EPA and SCDHEC in December.

The FFA also governs how the Site closes the ash basins associated with the D-Area coal-fired powerhouse closure. The ash basins located adjacent to the inactive D-Area powerhouse hold ash, a byproduct of generating power at SRS.

SRS completed both the 488-2D basin and the 488-4D landfill closures in November 2016. The Site started construction on the 488-1D basin in July 2016 and had made significant progress by the end of 2017. In 2017, SRS continued progress on a five-year project that is consolidating the coal ash that covers 90 acres near the former coal-fired powerhouse in D Area. During the year, SRS continued constructing the cover system and made significant progress on the last ash basin (488-1D) and coal pile runoff basin (Figure 3-1).

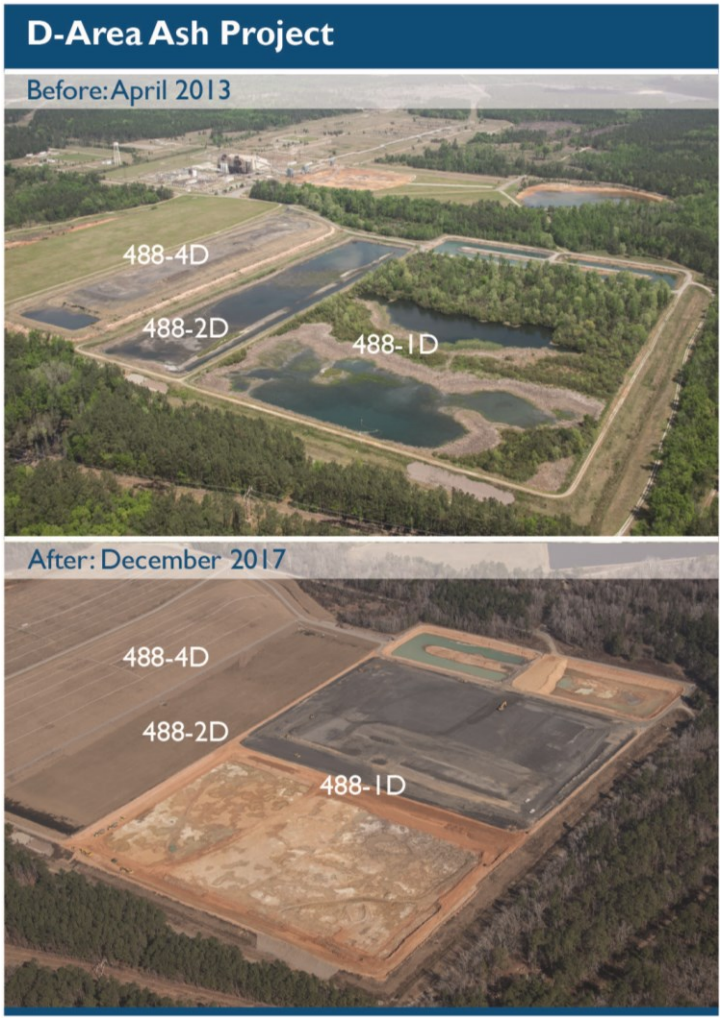


Figure 3-1 D-Area Ash Project

For decades, pipes carried a hazardous watery ash-laden solution from the powerhouse to the basins. Now, consolidating the ash into two large mounds underneath a protective cap and grassy cover is eliminating the risk to human health, ecology, and groundwater in the area.

The EPA and SCDHEC submitted comments on *The Removal Action Report for the 488-2D Ash Basin and the 488-4D Ash Landfill* (Revision 0) in 2017. The revised document was submitted to the regulators in October. SCDHEC made additional comments, but EPA approved the report.

3.2.2 Tank Closure (Radioactive Liquid Waste Processing and Dispositioning)

SRS generates liquid radioactive waste as a byproduct of processing nuclear materials (legacy liquid waste). The waste is stored in underground waste tanks grouped into two tank farms (F-Tank Farm and H-Tank Farm). While the waste is stored in the tanks, a sludge settles on the bottom of the tank and a liquid salt waste resides on top of the sludge. The waste removed from the tanks feeds the sludge and salt waste processing programs, as Figure 3-2 depicts.

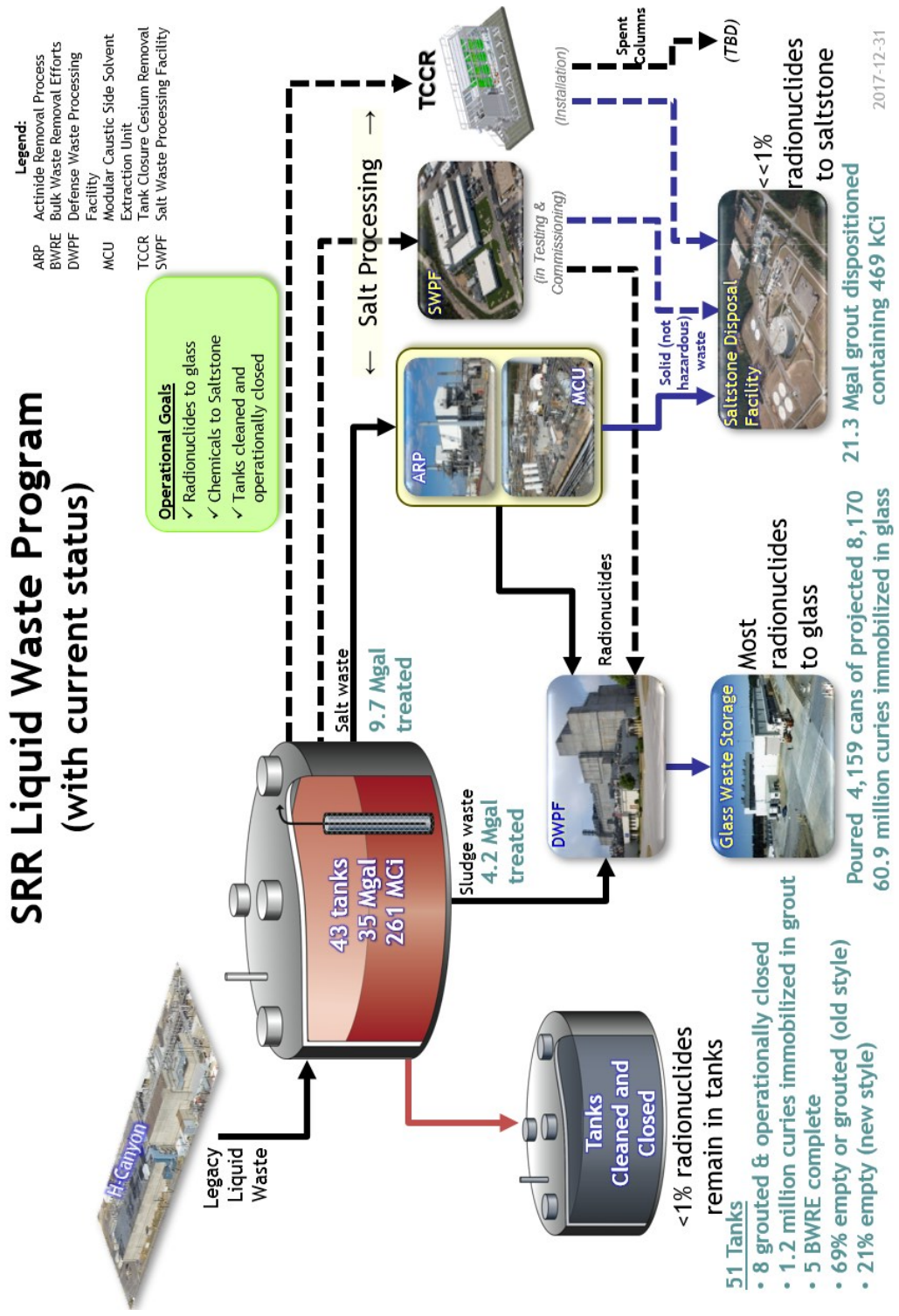


Figure 3-2 Pathway for Processing and Dispositioning Radioactive Liquid Waste at SRS

3.2.2.1 Tank Closure

SCDHEC permits the F-Tank Farm and H-Tank Farm under the industrial wastewater regulations through the provisions of the FFA, Section IX, *High-Level Radioactive Waste Tank System(s).* The FFA contains enforceable closure schedules for the liquid waste tanks. In addition, tank closures are subject to DOE Order 435.1, *Radioactive Waste Management*; federal regulations; and Section 3116 of the Ronald W. Reagan National Defense Authorization Act (NDAA) for Fiscal Year 2005.

NDAA Section 3116(a) is legislation that allows the secretary of energy, in consultation 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, in coordination with SCDHEC, monitors the disposal actions DOE takes to assess compliance with the performance objectives of 10 CFR Part 61, Subpart C. Additionally, EPA may participate in NRC monitoring activities. *Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site* and *Section 3116 Determination for Closure of H-Tank Farm at the Savannah River Site* demonstrate that the stabilized tanks and ancillary structures in the F-Tank Farm and H-Tank Farm meet the necessary criteria and will not need to be permanently isolated in a deep geologic repository.

During 2017, DOE supported the NRC in NRC's F- and H-Tank Farm monitoring role under Section 3116 of the NDAA by providing routine documentation (for example, groundwater monitoring reports, PA maintenance plan) as the NRC requested. There were no NRC on-site observation visits for F- and H-Tank Farms during 2017. 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 activities are complete, DOE receives regulatory confirmation that the tanks are ready to be stabilized by grouting.

The first step in this process is Bulk Waste Removal Efforts (BWRE). Preparation for BWRE is typically a multiyear engineering and modification process to install specialized equipment that meets strict nuclear safety standards. DOE began the Tank 15 BWRE in 2016 and declared it complete in September 2017, six weeks ahead of the FFA deadline. SRS met all the tank closure commitments the FFA required for FY 2017. The next step in closing Tank 15 is to remove the residual waste, known as the heel, using mechanical and, if necessary, chemical cleaning methods. This process will continue in 2018.

You will find more information on tank closure on the Tank Farms at the Savannah River Site web page.

3.2.2.2 Salt Processing

Several processes are being used at SRS to disposition the salt waste from the liquid waste tanks, as Figure 3-2 shows. The Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit (ARP/MCU) is an interim salt waste processing system. SCDHEC permitted ARP/MCU under South Carolina industrial wastewater regulations. The salt form of the liquid waste comprises more than 90% of the volume and contains about half of the radioactivity in the tank farms. The ARP/MCU process removes actinides, strontium, and cesium from the salt waste taken from the liquid waste tank farms. In FY 2017, MCU processed about 397,000 gallons of salt solution. The higher activity portion of the salt waste—a very small stream—is sent to the Defense Waste Processing Facility (DWPF). The remaining portion is a low-activity salt solution sent to the Saltstone facilities. The Salt Waste Processing Facility (SWPF) will replace the ARP/MCU process, as Figure 3-2 shows. SRS completed SWPF construction in 2016. During 2017, the

facility underwent testing and commissioning in preparation for startup of operations. SRS procured the Tank Closure Cesium Removal (TCCR) system to treat salt waste, increase salt processing capability, and to expedite tank closure. TCCR design and fabrication were completed in 2017.

More information is available in the Salt Processing fact sheet on the SRS web page.

3.2.2.3 Salt Disposition

Salt Disposal Unit 6 (SDU-6)

After ARP/MCU interim processing, the low-activity salt solution is sent to the Saltstone Production Facility for processing into grout. The grout waste is then disposed in the Saltstone Disposal Facility (SDF). SCDHEC permits the SDF to operate under South Carolina solid waste industrial landfill regulations. SRS disposes of treated low-level salt waste in the SDF based on the secretary of energy's determination pursuant to Section 3116 of the NDAA legislation. The basis for this determination is found at *Section 3116 Determination for Salt Waste Disposal at the Savannah River Site.* NDAA Section 3116(b) requires that NRC, in coordination with SCDHEC, monitor the disposal actions DOE takes to assess if it is complying with the objectives of 10 CFR Part 61.

In FY 2017, Saltstone facilities processed and disposed of 170,000 gallons of waste. In 2017, SRS continued to use cylindrical Saltstone Disposal Units (SDUs) for disposal. SRS completed construction and the operational testing of SDU-6 in May, 16 months ahead of schedule and $25 million under budget. The mega-vault, a 32.8 million-gallon concrete rubber-lined tank, is expected to begin operating in 2018. DOE approved 13 months of construction to ready the site for SDU-7, the second mega-vault to be built.

More information on SDUs is available in the Saltstone Disposal Units fact sheet on the SRS web page.

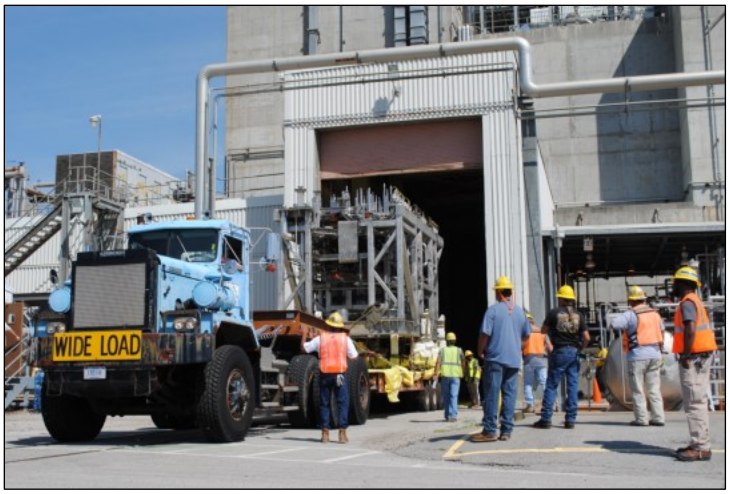
3.2.2.4 Sludge Waste Processing—Vitrification of High-Activity Waste

SCDHEC permits DWPF to operate under South Carolina industrial wastewater regulations. The sludge waste comprises less than 10% of the volume of waste stored in the tanks and contains about half of the radioactivity, as shown in Figure 3-2. DWPF receives the high-activity portion of both the sludge and salt wastes, where it is combined with frit and sent to the plant's melter. In the melter, electricity is used to heat the waste/frit mixture to nearly 2,100 degrees Fahrenheit, until molten. This molten glass-waste mixture is poured 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, in preparation for final disposal in a federal repository.

DWPF Melter 2 reached the end of its operational life in February, lasting nearly seven times longer than its design life. Melter 2 poured 2,819 canisters, or 16 million pounds of glass, in its lifetime. Melter 2 was removed and moved to an onsite underground vault for safe storage. Savannah River Remediation LLC (SRR) replaced Melter 2 with Melter 3 over the summer after a specialized robot cleaned the melt cell. The robot was a commercially available machine the Savannah River National Laboratory (SRNL) modified to remove the radioactive debris on the melt cell floor left over from Melter 2 operations and removal. Installing Melter 3 into DWPF was complex and took several months. Extensive testing of the melter-related components, as well as supporting systems, was completed to ensure melter startup would be safe and comply with regulations. On December 29, Melter 3 topped off a half-filled canister that was left over from Melter 2 operations.

In FY 2017, DWPF produced 52 canisters with more than 190,000 pounds of vitrified glass, immobilizing approximately 926,000 curies of radioactivity. Since DWPF began operating in March 1996, more than 16 million pounds of vitrified glass have been produced, and 60.9 million curies have been immobilized.

More information is available in the Waste Solidification fact sheet on the SRS web page.



Melter 3 Arrives at DWPF

3.2.2.5 Low-Level Liquid Waste Treatment

The F- and H-Area Effluent Treatment Project (ETP) treats low-level radioactive wastewater from the tank farms. ETP 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 NPDES-permitted outfall. ETP processed 5.4 million gallons of treated wastewater in FY 2017. SCDHEC permitted the ETP under the South Carolina industrial wastewater regulations. ETP remained in compliance with the industrial wastewater permit and the NPDES permit throughout 2017.

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. All radioactive waste management (LLW, HLW and TRU) is governed by DOE Order 435.1 to protect the public, workers and the environment. Only low-level waste is disposed of at SRS, at the E-Area Low-Level Waste Facility and the Saltstone Disposal Facility. Low-level waste is radioactive waste not classified as high-level or TRU waste.

As required by DOE Manual 435.1-1, *Radioactive Waste Management Manual*, DOE prepares performance assessments (PAs) to evaluate the potential impacts of low-level radioactive waste disposal and closure activities (for example, 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 low-level waste disposal facilities and other interacting sources of radioactive material after closure.

SRS performs a comprehensive annual PA review for disposal facilities. This review ensures any developing information does not alter the original PA conclusions and that there is a reasonable expectation the facility will continue to meet the performance objectives of the DOE Order. In addition, SRS performs an annual CA review to evaluate the adequacy of the 2010 SRS CA and verify that SRS activities were conducted within the bounds of the 2010 analysis. The FY 2016 annual reviews for the disposal facilities and the 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 this document.

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 transuranic isotopes (elements with atomic numbers greater than uranium) per gram of waste with radiological half-lives greater than 20 years. At SRS, examples of TRU waste include clothing, tools, rags, residues, debris, and other items associated with trace amounts of plutonium. SRS TRU waste is sent to the Waste Isolation Pilot Plant (WIPP), a deep geologic repository located near Carlsbad, N.M. for permanent disposal. Many different federal and state agencies (EPA, 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 and toxic waste regulations. SRS sent nine TRU shipments to WIPP for disposal in 2017.

3.3.2 Resource Conservation and Recovery Act (RCRA)

RCRA establishes regulatory standards for generating, transporting, storing, treating, and disposing of solid waste; hazardous waste, such as flammable or corrosive liquids; and underground storage tanks. SRS has a RCRA hazardous waste permit, multiple solid waste permits, and multiple underground storage tank permits (Table 3-3).

3.3.2.1 Hazardous Waste Permit Activities

The EPA authorizes SCDHEC to regulate hazardous waste and the hazardous components of mixed waste. SCDHEC issued a RCRA hazardous waste permit to SRS.

In May, SRS submitted a closure plan for the RCRA-permitted Solvent Storage Tanks. The plan called for environmental media sampling, viewing the tank contents, and removing as much of the tank contents as possible before grouting the tanks in place.

Solvent Storage Tanks

On May 25, SRS submitted the third revision to the TRU Pads RCRA Permit Application. It included the following:

- An allowance for loaded/closed TRU shipments to be staged outside of regulated TRU Pads for less than seven days to prepare for shipment to WIPP (as approved by SCDHEC in a Temporary Authorization issued to SRS in March)
- A clarification that container labels should be both legible and visible
- An update of emergency contact information
- An update of fire protection information
- An update of the EPA acceptable test methods used for waste analysis
- Minor editorial changes in the permit application

SRS completed a RCRA-approved closure of TRU Pad 2 in 2017. The RCRA Closure Certification Report was submitted to SCDHEC on September 5.

3.3.2.2 Solid Waste Permit Activities

SRS has solid waste permits for the 632-G Construction and Demolition Debris Landfill, the 288-F Industrial Solid Waste Landfill, the 488-4D Industrial Solid Waste Landfill (closure is being done under the FFA [see section 3.2.1]) and the Z-Area Saltstone Industrial Solid Waste Landfill (see section 3.2.2.3). Except for the 488-4D facility, which is undergoing closure, all the solid waste landfills are active and operated in compliance with their permits in 2017.

3.3.2.3 Underground Storage Tank Permits

Subtitle I of RCRA regulates 19 underground storage tanks (USTs) containing usable petroleum products. These tanks require an annual compliance certificate from SCDHEC. A SCDHEC inspection and audit on October 25 found that all 19 tanks complied, marking 15 consecutive years without a violation.

3.3.3 Federal Facility Compliance Act (FFCA)

The Federal Facility Compliance Act (FFCA) was signed into law in October 1992 as an amendment to the Solid Waste Disposal Act. It adds provisions to apply certain requirements and sanctions to federal facilities. A Site Treatment Plan (STP) Consent Order (95-22-HW, as amended) was obtained and implemented in 1995, as required by the FFCA. The consent order required annual updates to the STP. SCDHEC executed *A Statement of Mutual Understanding for Cleanup Credits in October 2003*, allowing SRS to earn credits for certain accelerated cleanup actions. Credits can then be applied to the STP commitment schedules. Following a revision to the STP in 2011, DOE now prepares and submits an annual STP update to SCDHEC every five years.

In November 2017, SRS received comments on the *Savannah River Site Treatment Plan, 2016 Update* from SCDHEC. The update will be finalized in 2018.

SRS and SCDHEC held STP Cleanup Credit validation meetings in January, May, August, and November. A total of 144 Cleanup Credits were earned and validated during FY 2017.

3.3.4 Toxic Substances Control Act (TSCA)

SRS complies with Toxic Substances Control Act (TSCA) regulations when storing and disposing of lead, asbestos, and organic chemicals, including polychlorinated biphenyl 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 also generates radioactive waste contaminated with PCBs. Low-level radioactive PCB bulk product waste is disposed of onsite. PCB waste that is contaminated with TRU requires disposal at WIPP, located in New Mexico. SRS made nine shipments to WIPP in 2017, but none of the shipments contained PCBs.

SRS completed the 2017 annual PCB document log on May 9, 2018 and submitted the 2017 annual report of onsite PCB disposal activities to EPA on July 9, 2018, meeting applicable requirements.

3.3.5 South Carolina Infectious Waste Management Regulation

SRS is a large-quantity generator of infectious waste registered under the SCDHEC Infectious Waste Management Program. SRS contracts with a vendor for monthly pickup of infectious waste. It made 13 shipments in 2017. Once offsite, the waste is treated and disposed of in accordance with the SCDHEC regulations. In 2017, SRS managed all infectious wastes in compliance with the state regulations. SCDHEC did not inspect the SRS Infectious Waste Management Program.

3.3.6 Air Quality and Protection

3.3.6.1 Clean Air Act (CAA)

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

- Part 70 Air Quality Permit (TV-0080-0041)
- 784-7A Biomass Boiler Construction Permit (TV-0080-0041a-CG-R1)
- 784-7A Oil Boiler Construction Permit (TV-0080-0041a-CF-R1)

- Ameresco Federal Solutions, Inc. ("Ameresco") Biomass Facilities Permit (TV-0080-0144)
- Mixed Oxide Fuel Fabrication Facility (MFFF) (TV-0080-0139-CA-R1)
- Building 235-F D&D Construction Permit (TV-0080-0041-C1)

Under the CAA, SRS is considered a "major source" of nonradiological air emissions and, therefore, 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: 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 Part 70 Operating Permit requires SRS to demonstrate compliance through air dispersion modeling and by submitting an emissions inventory of air pollutant emissions every three years.

The current CAA Permit expired on March 31, 2008. SRS submitted a complete renewal application of the current permit prior to the expiration date. SCDHEC granted an application shield, effective on September 21, 2007, allowing the Site to continue operating under the expired permit. In 2017, the Site continued to operate under the expired Part 70 Air Quality Permit.

3.3.6.2 Accidental Release Prevention Program

The CAA Amendments of 1990, Section 112(r) requires 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, SRS has not been required to develop a risk management plan. Additionally, no reportable 112(r)-related hazardous or extremely hazardous chemical releases occurred at SRS in 2017.

3.3.6.3 Ozone-Depleting Substance (ODS)

The CAA mandates air quality standards to protect the stratospheric ozone. Releases of chemical gases widely used as refrigerants, insulating foams, solvents, and fire extinguishers cause ozone depletion. Some of these ODSs include chlorofluorocarbons, hydrofluorocarbons, and halons. SRS complies with the standards for emissions reduction and the systematic reduction of ODSs to ensure no ODS is knowingly or willfully released into the atmosphere. SRS reported no exceedances in 2017.

3.3.6.4 Air Emissions Inventory

SCDHEC Regulation 61-62.1, Section III (*Emissions Inventory*), requires compiling 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 on the emission thresholds in the regulations.

SRS submitted the 2015 emissions inventory electronically on March 31, 2016. SRS emissions have dropped below the threshold that requires an annual air emissions inventory. Therefore, SCDHEC concurred that SRS' interpretation of the rule was correct, and SRS could now be on a three-year submittal

cycle. SRS will submit the next required inventory for 2017 before March 31, 2018. The most recent information on the EPA National Emission Inventories is available on the website.

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.

SRS received three NOVs under NESHAPs programs in 2017.

- An NOV dated March 10, 2017 under 40 CFR 61, National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities and SC R.61-62.1, Section II, Permit Requirements. The flow meter associated with the stack at F-Canyon failed on May 31, 2016. The flow meter was replaced on October 26, 2016, but SRS did not perform a relative accuracy test to certify the accuracy of the new flow meter it installed. Subsequently, SCDHEC issued the NOV that required SRS perform a relative accuracy test. SRS completed the test, and SCDHEC accepted the test results in April 2017. No fines or civil penalties were associated with this NOV.
- An NOV dated July 25, 2017 for violating the Part 70 (Title V) Operating Permit 0080-0041, 40 CFR 63 Subpart DDDD, and SC R. 61-63 Subpart DDDDD as a result of a SCDHEC inspection on August 1, 2016 at the 784-7A Boiler facility. SCDHEC noted that SRS did not comply with the record keeping, monitoring, and work practice standards contained in the permit. SRS began implementing corrective actions immediately after the 2016 inspection. The NOV required SRS to take immediate corrective action to ensure it was complying with the work practice standards, monitoring, and record-keeping requirements of the regulations. No fines or civil penalties were associated with this NOV.
- An NOV dated December 15, 2017 under 40 CFR 61, National Emission Standards for Hazardous Air Pollutants and SC R.61-86.1 Standards of Performance for Asbestos Projects. SRS did not comply with the disposal requirements for nonfriable asbestos while performing an abatement project in building 735-A. An internal inspection on October 26, 2017 identified work had been performed without following proper disposal requirements. SRS removed approximately 160 linear feet of cove base from building 735-A and had not labeled it and disposed of it correctly. SRS made a verbal disclosure to SCDHEC on November 20 and a written follow-up on November 30. No fines or civil penalties were associated with this NOV.

3.3.6.5.1 NESHAP Radionuclide Program

SRS complies with the NESHAP Radionuclide Program by performing all required inspections and maintaining monitoring systems. Subpart H of the NESHAP regulations requires SRS to determine and report annually (by June 30) the highest effective dose from airborne emissions to any member of the public at an offsite point. SRS transmitted the *SRS Radionuclide Air Emissions Annual Report for 2016* on June 13, 2017 to EPA, SCDHEC, and DOE Headquarters.

During 2017, SRS estimated the maximally exposed individual (MEI) effective dose equivalent to be less than 1% of the EPA standard of 10 millirem (mrem) per year. Chapter 6, *Radiological Dose Assessment*, contains details on this dose calculation.

3.3.6.5.2 NESHAP Nonradionuclide Program

In 2013, NESHAP emission standards applicable to stationary RICE equipment—such as portable generators, emergency generators, and compressors—became effective. These regulations impact numerous pieces of SRS's RICE equipment. RICE equipment must also comply with the New Source Performance Standards. In January and July 2017, SRS submitted the semiannual compliance reports, demonstrating it was complying with the regulations.

3.3.6.5.3 NESHAP Asbestos Abatement Program

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

SRS issued 150 asbestos notifications and conducted 72 permitted renovations and demolitions involving asbestos in 2017. Table 3-1 summarizes these removals. Certified personnel removed and disposed of friable (easily crumbled or pulverized) and nonfriable asbestos. Both disposal sites for nonradiological asbestos waste are SCDHEC-approved landfills for the disposal of regulated and nonregulated asbestos.

SRS maintains a SCDHEC Temporary Storage Containment Area License that facilitates removing and disposing of waste generated from nonradiological operations and maintenance activities and minor and small projects. Additionally, SRS maintains a SCDHEC Asbestos Group License that allows Savannah River Nuclear Solutions, LLC (SRNS) and SRR to operate as a long-term, in-house asbestos abatement contractor for DOE-Savannah River.

Table 3-1 Summary of Quantities of Asbestos Materials Removed in 2017

Asbestos Type	Nonradiological, Friable	Nonradiological, Nonfriable	Radiologically Contaminated Asbestos
Linear Feet Disposed	60	413	63
Square Feet Disposed	180	7,359	111
Cubic Feet Disposed	12	10	7
Disposal Site	Three Rivers Solid Waste Authority Landfill	SRS Construction and Demolition Landfill	SRS E-Area Low-Level Waste Facility

3.3.7 Water Quality and Protection

3.3.7.2 Clean Water Act (CWA)

Except for Ameresco, which has its own CWA National Pollutant Discharge Elimination System (NPDES) permit, SRS operated pursuant to the following CWA permits in 2017:

- Land Application Permit (ND0072125)
- General Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction) (SCR000000)

- Permit for Discharge to Surface Waters (SC0000175)
- Permit for Discharge to Surface Waters (SC0047431)
- General Permit for Stormwater Discharges from Construction Activities (SCR100000)
- General Permit for Utility Water Discharges (SCG250000)
- General Permit for Discharges from Application of Pesticides (SCG160000)
- General Permit for Vehicle Wash Water Discharges (SCG750000)
- General Wastewater Construction Permit (SCG580000)
- General Construction Permit for Water Supply Distribution Systems (151218)
- General Permit for Land Disturbing Activities at SRS

Information on these permits is available at the EPA's Enforcement and Compliance History Online (ECHO) database.

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 explained in the previous section, SCDHEC issued multiple NPDES permits to SRS to govern different types of discharges to surface water. A major goal of the NPDES program is to control or eliminate discharges of toxic pollutants, oil, hazardous substances, sediment, and contaminated storm water to protect the quality of our nation's water. To achieve this goal, SRS is required to prepare the following plans:

- Best Management Plan to identify and control the discharge of hazardous and toxic substances
- Storm Water Pollution Prevention Plan (SWPPP) to address the potential discharge of pollutants in storm water
- Spill Prevention, Control, and Countermeasure (SPCC) 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 (Permit No. SC0047431 NPDES Permit for Discharge to Surface Waters) and the other for the remainder of the Site (Permit No. SC0000175 NPDES Permit for Discharge to Surface Waters). Throughout the year, SRS monitors a total of 28 NPDES-permitted industrial wastewater outfalls across the Site on a frequency specified by the permits. 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 required by the permit. Chapter 4, *Nonradiological Environmental Program*, provides additional information about sampling required to remain compliant with SRS's NPDES permits.

The following are highlights under the NPDES program:

- In October 2017, the SRS NPDES program had a permit exceedance at the L-7A outfall. SCDHEC issued a NOV in December 2017 to SRS for exceeding the fecal coliform permit limit for the L-7A outfall. No fines or civil penalties were associated with this NOV.
- In September 2016, SCDHEC conducted the annual compliance evaluation inspection (CEI) and issued a satisfactory rating, the highest grade possible. SCDHEC sent the results from the outfall

sampling phase of the CEI in September 2017, and all the analytical results met applicable permit requirements.

- In December 2017, SRS met with SCDHEC NPDES permitting personnel to discuss the renewal application of NPDES Industrial Wastewater Outfall H-16 and the initial application of Outfall H16-8H.
- The 2017 update to the SRS SWPPP contains information on the 34 SRS industrial storm water outfalls and outfall facilities.
- SCDHEC did not require construction storm water monitoring on any of the active construction projects underway at SRS during 2017.
- Constructing, operating, and closing industrial wastewater treatment facilities are permitted under the NPDES program. Facilities permitted are broad in scope and include those involved with groundwater remediation, radioactive liquid waste processing, and nuclear nonproliferation. In 2017, SCDHEC issued a construction permit for the tank closure cesium removal system and for an additional recovery well and associated piping for the M-1 Air Stripper remediation system. SCDHEC also concurred with SRS's proposal to adjust the expiration of the construction permit for the Waste Solidification Building to January 2022.

You will find the results from sampling of both industrial and storm water outfalls in the 2017 Environmental Monitoring Program Data Report (SRNS 2018) and a summary of the sampling and results in Chapter 4 of this report.

3.3.7.1.2 Section 404(e) Dredge and Fill Permits

Wetlands make up 48,973 acres, or 25%, of the total SRS area. SRS wetlands account for more than 80% of the wetlands across the entire DOE complex. Permits under Section 404 are required when work will be conducted in a wetland area. The Nationwide Permits (NWPs) program (general permits under Section 404[e]) are within the jurisdiction of the U.S. Army Corps of Engineers. Permits issued under the NWPs program are for projects that have minimal impact on the aquatic environment.

SRS wetlands staff reviewed 463 Environmental Evaluation Checklists (EECs) and 70 Site Use applications for potential wetland impacts in 2017. During this time, SRS had four open permits under the NWPs program, as follows:

- SRS completed dam construction on an unnamed tributary to Fourmile Branch for the Mixed Waste Management Facility Groundwater Interim Measures project in 2000 under NWP 38, *Hazardous Waste Cleanup*. However, mitigation for the impact to wetlands was pending approval from the U.S. Army Corps of Engineers to use wetland mitigation credits from the SRS wetland mitigation bank.
- The University of Georgia's Savannah River Ecology Laboratory (SREL) installed water sampling equipment in Tims Branch and adjacent wetlands to research uranium transport.
- SRNL installed three shallow wells in wetlands adjacent to Steel Creek to monitor a contaminated groundwater plume originating from legacy operations in P Area.
- The U.S. Forest Service installed a prefabricated plastic floating dock on PAR Pond.

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 pump houses, use small drinking water systems or bottled water. All 2017 bacteriological samples for drinking water were collected and met the state and federal drinking water quality standards.

SCDHEC requires SRS to collect 10 bacteriological samples each month from the domestic water system that supplies drinking water to most areas at SRS. SRS usually exceeds this requirement by collecting 15 samples each month from various areas. Bacteriological analyses are performed on all samples. The sample results consistently meet SCDHEC and EPA drinking water quality standards, confirming the absence of harmful bacteria. In February 2017 SRS received an NOV for the 2016 noncompliance. The December 2016 noncompliance was for SRS collecting only 7 samples instead of the required 10 samples. Results for the seven bacteriological samples taken in December of 2016 met drinking water quality standards. No fines or civil penalties were associated with this NOV.

SRS samples domestic water systems for lead and copper on a three-year, rotating cycle. Based on this cycle, SRS will sample the A-Area water system for lead and copper in 2019.

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 to support informed environmentally sound decision-making regarding the design and implementation of the proposed activities.

The NEPA program complies with DOE Order 451.1B. SRS initiates the required NEPA evaluation by completing an environmental evaluation checklist (EEC) for new projects or changes to existing projects. 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 504 NEPA reviews in 2017 (Table 3-2). Categorical exclusion (CX) determinations accounted for 90% of completed reviews. Additional information on SRS NEPA activities is on the SRS NEPA web page.

The following major NEPA reviews were either completed or in progress in 2017:

- Final Environmental Impact Statement for the Disposal of Greater-than-Class-C (GTCC) Low-Level Radioactive Waste and GTCC-Like Waste *(DOE/EIS-0375) (In progress).* DOE is evaluating disposal of GTCC low-level radioactive waste (LLRW) and GTCC-like LLRW in a geologic repository, in intermediate-depth boreholes, and in enhanced near-surface disposal facilities. SRS is an alternative location for these disposal facilities.
- Supplement Analysis of the Mark-18A Target Material Recovery Program at the Savannah River Site *(DOE/EIS-0220-SA-02, DOE/EIS-0279-SA-06).* This SA evaluates whether the proposed action requires supplementing the existing *Final Environmental Impact Statement: Interim Management of Nuclear Materials at the Savannah River Site (IMNM EIS)* (DOE/EIS-0220) and the *Savannah River Site Spent Nuclear Fuel Management Environmental Impact Statement (SRS SNF EIS)* (DOE/EIS-0279). Based on the analysis prepared for the IMNM EIS and SRS SNF EIS, the impacts of

this action are very small. The Proposed Action would therefore not constitute a substantial change relevant to environmental concerns reported in the IMNM EIS and SRS SNF EIS. Therefore, neither a supplement to the IMNM EIS, a supplement to the SRS SNF EIS, nor a new EIS is required.

- Finding of No Significant Impact for the Final Environmental Assessment for the Acceptance and Disposition of Spent Nuclear Fuel Containing U.S.-Origin Highly Enriched Uranium from the Federal Republic of Germany *DOE/EA-1977).* DOE prepared this *Spent Nuclear Fuel from Germany EA* to evaluate potential environmental impacts of receiving, storing, processing, and disposing of certain spent nuclear fuel (SNF) from a research and development program of the Federal Republic of Germany (Germany). DOE is considering the feasibility of accepting this SNF containing U.S.-origin highly enriched uranium (HEU) at SRS for processing and disposition. Based on the analysis in the *Spent Nuclear Fuel from Germany EA*, DOE determined that the proposed action is not a major federal action significantly affecting the quality of the environment within the context of NEPA, and thus does not require the preparation of an environmental impact statement. This Finding of No Significant Impact (FONSI) does not constitute a decision to select any alternative, and it is not a decision to proceed with the project.

The *Environmental Assessment 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) is in progress.

Table 3-2 Summary of 2017 NEPA Reviews

Type of NEPA Review	Number
CX Determinations[a]	452
"All No" Environmental Evaluation Checklist (EEC)	39
Previous NEPA Review[a]	9
Environmental Impact Statement (EIS)	1
Supplement Analysis (SA)	1
Interim Action	0
Revised Finding of No Significant Impact (FONSI)	0
Environmental Assessment (EA)	2
Total	**504**

Note:

[a] Proposed actions that require no further NEPA action

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. SRS submitted the 2017 hazardous chemical storage information to state and local authorities on February 14, 2018. The report included 60 reportable chemical categories, compared to 58 in the previous year.

As required by Section 313, *Toxic Chemical Release Inventory*, of EPCRA, SRS must file an annual TRI 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 EPA. SRS submitted the 2017 Toxic Release Inventory Report on June 21, 2018 for each of the following regulated chemicals: ammonia, chromium compounds, lead compounds, mercury compounds, naphthalene, nickel compounds, nitrate compounds, nitric acid, sodium nitrite, and sulfuric acid. Details are on the EPA Toxic Release Inventory 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 use 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 the application of pesticides. This permit authorizes applying pesticides to surface water in accordance to limitations set forth in the NPDES general permit.

SRS procedures implement the FIFRA requirements for pesticide application, application record keeping, 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 very limited basis, following label requirements and using state-certified pesticide applicators. Application records for general use and restricted use pesticides are generated and maintained for each application.

3.3.8.4 Endangered Species Act (ESA)

The ESA designates and protects wildlife, fish, and plants in danger of becoming extinct. This federal law also protects and conserves their critical habitats. 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.

In addition, SRS is home to the gopher tortoise, a candidate for protection under the ESA. SRS is one of the first DOE sites to conduct experimental translocations of gopher tortoises, where they are captured, transported, and released to another location. Conservation organizations use protocols developed during the SRS translocation studies to establish viable populations elsewhere in the species' range.

South Carolina has enacted legislation that lists 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

U.S. Forest Service personnel prepares to mount on tree a nesting box for red-cockaded woodpeckers

swallow-tailed kite. While the bald eagle is no longer on the federally listed endangered or threatened species list, nesting bald eagles and wintering golden eagles remain protected by the Bald and Golden Eagle Protection Act. Bald eagles nest on SRS and are considered year-round residents. Golden eagles use SRS as a wintering habitat. The U.S. Forest Service-Savannah River (USFS-SR) manages programs onsite to enhance the habitat and survival of these species.

The USFS-SR actively manages more than 65,000 acres in the red-cockaded woodpecker habitat management area by removing vegetation mechanically, chemically, and by prescribed fires. These methods create and improve habitat by restoring the natural fire regime, improving native plant diversity in the understory, and enhancing native pine stands. Additionally, the USFS-SR inserts artificial cavities into living pine trees to supplement the available cavities for roosting and nesting. From 1985 through FY 2017, active red-cockaded woodpecker clusters increased from 3 to 105 due to successful habitat restoration. As of 2017, the USFS-SR managed 112 cluster sites for the red-cockaded woodpecker, 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 growth rate of 9.5%.

During FY 2017, while implementing the *United States Department of Energy Natural Resources Management Plan for SRS*, USFS-SR developed two SRS watershed management plans for standard USFS-SR project plans, resulting in two biological evaluation reviews for timber, research, and wildlife-related management. The biological evaluations determined that forest implementation plans are not likely to adversely affect federally listed endangered or threatened species due to beneficial, insignificant, or discountable effects.

3.3.8.5 National Historic Preservation Act (NHPA)

The NHPA requires all federal agencies to consider the impacts to historic properties in all their undertakings. SRS ensures compliance with the NHPA through several processes. 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) provides cultural resource management guidance to DOE to ensure fulfillment of compliance commitments. SRARP also serves as a primary facility to investigate archaeological research problems associated with cultural development within the Savannah River valley. The results are used to help DOE manage more than 2,000 known archaeological sites at SRS.

SRARP evaluates and documents all locations being considered for activities, such as construction, to ensure that archaeological or historic sites are not impacted. In FY 2017, 191 acres of land on SRS were investigated for cultural resource management, including 29 field surveys and testing. Eighteen newly discovered sites were recorded, and eight previously recorded sites were revisited.

The 2017 SRARP annual report will be available after DOE review.

3.3.8.6 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 authorized by the U.S. Department of the Interior under a valid permit. To support migratory bird monitoring, a one-day Christmas Bird Count is conducted annually in December. The 2017 count found 105 species. A one-day bald eagle survey is conducted every year in January. The 2017 eagle survey found 11 eagles.

Killdeer nest enclosed within barricade to protect fledglings

In 2017, 11 active bird nests were discovered on large mobile equipment, on structures, or on the ground in areas actively used by SRS personnel. Nest locations were barricaded until fledglings left the nests or adult birds abandoned the nests. Bird species consisted of Northern Mockingbird (*Mimus polyglottos*) (three nests), Eastern Bluebird (*Sialia sialis*) (two nests), Killdeer (*Charadrius vociferus*) (one nest), Barn Swallow (*Hirundo rustica*) (three nests), Northern Rough-winged Swallow (*Stelgidopteryx serripennis*) (one nest), and Great Crested Flycatcher (*Myiarchus crinitus*) (one nest).

Also in 2017, USFR-SR staff found an osprey (*Pandion haliaetus*) nest on a platform they built in 2014. This marked the third year that ospreys nested on the platform after their nest had been moved from a power pole at the L-Lake Dam.

3.3.9 Release Reporting

Federally permitted 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 reportable quantity of a hazardous substance (including radionuclides) occurs, EPCRA, CERCLA, CWA, and the CAA require a notice be sent to the National Response Center and applicable state agencies.

SRS did not have any reportable CERCLA releases in 2017.

3.3.10 Permits

SRS had 376 construction and operating permits in 2017 that specified operating levels to each permitted source. Table 3-3 identifies the number of permits by the permit type. These numbers reflect permits for all organizations at SRS, except Ameresco.

Table 3-3 SRS Permits

Type of Permit	Number of Permits
Air	6
U.S. Army Corps of Engineers (USACE—Nationwide Permits)	4
Asbestos Demolition/Abatement/Temporary Storage of Asbestos Waste	72
Asbestos Abatement Group Permit	1
Asbestos Temporary Storage of Waste	1
Domestic Water	96
GA Department of Natural Resources Scientific Collecting Permit	1
Industrial Wastewater	64
NPDES Permits	11
Construction Storm Water Grading Permit	7
RCRA Hazardous Waste	1
RCRA Solid Waste	4
RCRA Underground Storage Tank	7
Sanitary Wastewater	89
SC Department of Natural Resources Scientific Collecting Permit	2
SCDHEC 401	0
SCDHEC Navigable Waters	0
Underground Injection Control	10
Total	**376**

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 451.1B, *Administrative Change 3, National Environmental Policy Act Compliance Program*. See the NEPA section of this chapter.
- DOE Order 436.1*, Departmental Sustainability*. See Chapter 2, *Environmental Management Systems.*
- DOE Order 458.1, *Administrative Change 3, Radiation Protection of the Public and the Environment*. See Chapter 5, *Radiological Environmental Monitoring Program*; and Chapter 6, *Radiological Dose Assessment,* of this report.
- DOE Order 435.1, *Change 1, Radioactive Waste Management*. See Radioactive Waste Management Section in this chapter.
- DOE Order 231.1B, *Environment, Safety and Health Reporting*, requires the preparation of this Annual 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).* The ORPS ensures that the DOE complex and the National Nuclear Security Administration 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. Of the 110 ORPS-

reportable events at SRS in FY 2017, there were zero ORPS reportable events within ORPS Group 5 (Environmental) and three ORPS reportable events within ORPS Group 9 (Noncompliance Notification). (DOE ORPs reports are compiled on a fiscal year basis, and this annual report is for the calendar year (CY) 2017. SRS received a total of five NOVs or Noncompliance Notifications in CY 2017, as previously discussed in this chapter.)

- 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.

3.5 REGULATORY SELF-DISCLOSURES

SRS made three regulatory self-disclosures in 2017. SRS made two notifications regarding the asbestos regulations and one notification regarding the fecal coliform exceedance at outfall L-7A. Two of the self-disclosures resulted in NOVs previously discussed in this chapter.

3.6 ENVIRONMENTAL AUDITS

SCDHEC, EPA, and the United States Army Corps of Engineers (USACE) inspected and audited the SRS environmental program for regulatory compliance. Table 3-4 summarizes the results of the 2017 audits and inspections.

Table 3-4 Summary of 2017 External Agency Audits/Inspections of the SRS Environmental Program and Results

Audit/Inspection	Action	Results
632-G C&D Landfill, 288-F Ash Landfill, 488-4D Ash Landfill Inspections	SCDHEC conducted four quarterly inspections of the 632-G and 288-F landfills and three of four quarterly inspections for 488-4D (SCDHEC decided not to inspect again until post-closure).	No issues were identified.
Federal Energy Regulatory Commission (FERC) Inspection	FERC evaluated PAR Pond Dam; Steel Creek Dam (L Lake); and Ponds B, C, 2, 4, and 5 in May 2016. FERC issued its report to DOE on March 8, 2017. FERC also performed another inspection in October 2017, but the reports have not been issued.	The March 2017 FERC report (May 2016 inspection) stated the dams are adequately operated and maintained, and identified recommendations for improvements.
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 18-19. A records review of groundwater-related files was also completed.	Inspectors identified the grout column at well RWM018 has fallen below ground surface. The grout column was brought up to grade on September 20. SCDHEC noted no other issues.
Industrial Wastewater Construction Permit Inspections	SCDHEC inspected Liquid Waste Tank 12H and associated appurtenances on January 11 to support closing the tank.	No issues were identified.
Environmental Laboratory Certification On-site Evaluations	SCDHEC inspected the Waste Treatment Plant Lab at the Central Sanitary Waste Treatment Facility for recertification of the lab on March 7 and for the addition of analytical methods on December 13.	The Waste Treatment Plant Lab was recertified for three years, and the additional analytical methods were approved for use.

Table 3-4 Summary of 2017 External Agency Audits/Inspections of the SRS Environmental Program and Results (continued)

Audit/Inspection	Action	Results
SCDHEC Sanitary Survey of SRS Drinking Water Systems	SCDHEC conducted the biannual inspections of the wells, tanks, and treatment systems supporting the A-Area and ATTA drinking water systems on March 23.	No issues were identified. A-Area and ATTA water systems complied with State Primary Drinking Water Regulations.
Interim Sanitary Landfill and the F-Area Railroad Crosstie Pile Landfill Post-Closure Inspection	SCDHEC conducted an annual review of the landfills.	No issues were identified.
Air Compliance Inspection	No inspections or outside audits were conducted by SCDHEC in 2017.	
RCRA Compliance Evaluation Inspection (CEI)	SCDHEC inspected seven facilities and reviewed hazardous waste program requirements (i.e., notifications and reports to SCDHEC, plans, training records, internal inspections, and waste documentation) during its August 29-30 CEI.	SCDHEC did not observe any deficiencies during the inspection.
Underground Storage Tank (UST) CEI	SCDHEC inspected 19 USTs.	No issues were identified.
Z-Area Saltstone Solid Waste Landfill Inspections	SCDHEC performed monthly inspections of the Saltstone Disposal Facility (SDF). This included reviewing facility procedures and performing walk downs of the SDF.	No issues were noted.

3.7 KEY FEDERAL LAWS COMPLIANCE SUMMARY

Federal laws are implemented by the Code of Federal Regulations or state regulations if the federal agency has delegated the program to the state. You can find additional information online at epa.gov. Table 3-5 summarizes SRS's 2017 compliance status with applicable key federal environmental laws.

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

Regulatory Program Description	2017 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 2016 annual reviews for the SRS Performance Assessments showed that radioactive low-level waste 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 continues to operate under a CAA Permit that expired on March 31, 2008. SRS received three NOVs, with no fines assessed, for air monitoring and asbestos noncompliance.
The Clean Water Act regulates liquid discharges at outfalls (e.g., drains or pipes) that carry effluent to streams (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 maintained a 99.9% compliance rate. SCDHEC issued a Notice of Violation (NOV) to SRS in December for exceeding the fecal coliform permit limit for the L-7A outfall. There were no fines or penalties.
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 FFA.
The Emergency Planning and Community Right-to-Know Act (EPCRA), also referred to as SARA, Title III, requires SRS to report hazardous substances and their releases to EPA, state emergency response commissions, and local planning units.	SRS complied with all reporting and emergency planning requirements.

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

Regulatory Program Description	2017 Status
The Endangered Species Act (ESA) prevents the extinction of federally listed endangered or threatened species and conserves critical habitats.	SRS continued to protect these species and their habitats as outlined in the Natural Resource Management Plan for SRS.
The Federal Facility Agreement (FFA) for the Savannah River Site between the EPA, DOE, and SCDHEC integrates CERCLA and RCRA requirements to achieve a comprehensive remediation of high-level radioactive waste tanks at SRS.	SRS met all the commitments contained within the FFA.
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.
National Defense Authorization Act, Section 3116(a) (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 SRS facilities in accordance with NDAA 3116(a). NRC did not conduct on-site monitoring observation visits to F- and H-Tank Farms in 2017.

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

Regulatory Program Description	2017Status
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 is in compliance 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.
The Resource Conservation and Recovery Act (RCRA) governs the management of hazardous and non-hazardous solid waste 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, nonhazardous solid waste, and USTs in compliance with RCRA.
The Safe Drinking Water Act (SDWA) protects drinking water and public drinking water resources.	All drinking water samples taken in 2017 met drinking water quality standards. SCDHEC issued an NOV to SRS in February 2017 for failing to collect the required samples in December 2016.
The Toxic Substances Control Act (TSCA) regulates polychlorinated biphenyls (PCBs), radon, asbestos, and lead and requires users to evaluate and notify EPA when new chemicals are used and significant new uses of existing chemicals occur.	SRS managed all TSCA-regulated materials in compliance with all requirements. The 2017 annual PCB report was submitted on July 9, 2018.

3.8 ENVIRONMENTAL COMPLIANCE SUMMARY

SRS was not involved in any environmental lawsuits during 2017. SRS received five NOVs in 2017; one was for a December 2016 water noncompliance. Table 3-6 summarizes the NOVs SRS received from 2013–2017.

Table 3-6 NOV Summaries, 2013–2017

Program Area	Notice of Violation (NOV)				
	2013	2014	2015	2016	2017
Clean Air Act (CAA)	0	0	1	0	3
Clean Water Act (CWA)	2	0	0	1	2
Resource Conservation and Recovery Act (RCRA)	0	0	0	0	0
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	0	0	0	0	0
Others	0	0	0	0	0
Total	**2**	**0**	**1**	**1**	**5**