
Compliance Summary

Michele Wilson

Environmental Compliance & Area Completion Projects



It is the policy of the U S Department of Energy (USDOE) that all activities at the Savannah River Site (SRS) will fully comply with applicable federal, state, and local environmental laws and regulations, and with DOE orders, notices, directives, policies, and guidance. Compliance with environmental regulations and with DOE orders related to environmental protection is a critical part of safe operations at SRS.

The purpose of this chapter is to report the status of SRS compliance with applicable statutes and programmatic documents. Key federal environmental regulations with which SRS must comply are listed in table 3-1.

The chapter is divided into five separate sections: Compliance Status, Other Environmental Issues/Actions, Continuous Release Reporting, Unplanned Releases, and Permits.

The Compliance Status section identifies the various environmental laws, regulations, and DOE orders with which SRS must comply, and the status of the site's compliance programs.

The Other Environmental Issues/Actions section provides information on any Notices of Violation (NOVs) or Notices of Alleged Violation (NOAVs) issued to SRS in 2011 by the U.S. Environmental Protection Agency (EPA) or the South Carolina Department of Health and Environmental Control (SCDHEC). NOVs/NOAVs are the formal regulatory notices that allege violations of an organization's permits, or of environmental laws or regulations. SRS was in compliance with environmental laws and regulations and received no NOVs or NOAVs in 2011.

No releases required reporting to local emergency planning committees, as noted in the Continuous Release Reporting and Unplanned Releases sections.

Compliance Status

This section includes discussions of compliance with applicable environmental laws and regulations, DOE orders, and agreements with regulators. It addresses environmental remediation, waste management, radiation protection, air and water quality and protection, and other environmental statutes and DOE orders.

Environmental Restoration and Waste Management

Remediation/Cleanup

SRS was placed on the National Priority List (NPL) in December 1989, under the legislative authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The site was added to the NPL because there have been releases or threatened releases of hazardous substances, pollutants, or contaminants, which EPA evaluated through a hazard ranking system on the likelihood that a release occurred, on the characteristics of the waste, and on the environment affected by the releases. Placement on the NPL indicated SRS warranted further investigation to assess the nature and extent of the public health and environmental risks associated with the releases, and to determine the appropriate remedial action(s), if any. DOE, EPA Region 4, and SCDHEC in accordance with Section 120 of CERCLA, entered into the Federal Facility Agreement (FFA) that became effective August 16, 1993, and which directs the comprehensive environmental remediation of the site. The FFA, which integrates CERCLA and Resource Conservation

Table 3-1 Key Federal Environmental Laws and Regulations Applicable to SRS

Legislation	What it Requires
Atomic Energy Act of 1954 , 42 U.S.C. § 2011 <i>et seq.</i> , (1954)	The AEA provides authority to the DOE to develop applicable standards (DOE Orders) for protecting the environment from radioactive materials. DOE Order 435.1, and implementing Manual 435.1-1, Radioactive Waste Management, provide requirements for high level and low level radioactive waste management, waste characterization, storage, treatment, and disposal, and closure.
CAA Clean Air Act (1970)	The establishment of air quality standards for criteria pollutants, such as sulfur dioxide and particulate matter, and of hazardous air emissions, such as radionuclides and benzene.
CAAA Clean Air Act Amendments of 1990	The establishment of a national permit program, and of provisions for addressing acid rain, ozone depletion, and toxic air pollution
CERCLA: SARA Comprehensive Environmental Response, Compensation, and Liability Act (1980); Superfund Amendments and Reauthorization Act (1986)	The establishment of liability, compensation, cleanup, and emergency response for hazardous substances released to the environment. The Federal Facility Agreement (FFA) (WSRC-OS-94-42) between EPA, DOE, and SCDHEC integrates CERCLA and RCRA requirements to achieve a comprehensive remediation of SRS. The FFA governs the corrective/remedial action process, sets annual work priorities, and establishes milestones for activities. The agreement also coordinates administrative and public participation requirements.
CWA Clean Water Act (1977)	The regulation of liquid discharges at outfalls (e.g., drains or pipes) that carry effluents to streams (NPDES, Section 402); regulation of dredge and fill of U.S. waters (Section 404) and associated water quality for those activities (WQC, Section 401).
EPCRA Emergency Planning and Community Right-to-Know Act (1986)	The reporting of SRS hazardous substances (and their releases) to EPA, state emergency commissions, and local planning units.
ESA Endangered Species Act (1973)	The protection of critically imperiled species from extinction
FFCA Federal Facility Compliance Act (1992)	Federal Agencies must comply with all substantive and procedural requirements of federal, state, and local solid/hazardous waste laws—in the same manner as any private party. Requires DOE to have a plan known as a Site Treatment Plan, for the development of treatment capacities and technologies to treat all of the mixed wastes at SRS and a Consent Order requiring compliance with such plan. The Act also requires EPA and authorized states to conduct annual RCRA inspections of all federal facilities.
FIFRA Federal Insecticide, Fungicide, and Rodenticide Act (1947)	The regulation of restricted-use pesticides through a state-administered certification program
MBTA Migratory Bird Treaty Act (1918)	Provides protection for migratory birds, including their eggs and nests.
NEPA National Environmental Policy Act (1969)	The evaluation of the potential environmental impacts of proposed federal activities and alternatives
NHPA National Historic Preservation Act (1966)	The preservation of historical and archaeological sites.

Legislation	What it Requires
RCRA Resource Conservation and Recovery Act (1976) amended by Hazardous and Solid Waste Amendments (1984)	The management of hazardous and non hazardous solid wastes and of underground storage tanks containing hazardous materials and wastes.
RHA Rivers and Harbors Act of 1899, Section 10	The regulation of construction over or obstruction of navigable waters of the U.S.
Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA) , Section 3116(a), Pub. Law 108-375, (2005)	Section 3116 allows the Secretary of Energy, in consultation with the Nuclear Regulatory Commission, to determine that certain waste from reprocessing is not high level radioactive waste if it meets the criteria set forth in Section 3116(a).
SDWA Safe Drinking Water Act (1974)	The protection of drinking water and public drinking water resources.
TSCA Toxic Substances Control Act (1976)	The regulation of PCBs, radon, asbestos, and lead, as well as evaluation and notification to EPA of new chemicals and significant new uses of existing chemicals

and Recovery Act (RCRA) requirements to achieve a comprehensive remediation of SRS, governs the corrective/remedial action process, sets annual work priorities, and establishes milestones for activities. The agreement also requires coordination of administrative and public participation requirements.

SRS has 515 waste units in the Area Completion Projects program, including RCRA/CERCLA units, Site Evaluation Areas, and facilities covered under the SRS RCRA permit. At the beginning of FY2011, surface and groundwater cleanup of 386 of these units were complete or in the remediation phase (373 complete and 13 in the remediation phase). At the end of FY2011, 400 units were complete or in the remediation phase (380 complete and 20 in remediation). A summary of the FFA Milestones for FY2011 follows.

RCRA Facility Investigation/Remedial Investigation (RFI/RI) Field Starts were initiated for the following units:

- C Area Operable Unit
- Pen Branch Integrator Operable Unit [Including Indian Grave Branch] (Third Phase II)
- Wetland Area at Dunbarton Bay (No Building Number)

Remedial Actions were initiated at the following units:

- C-, K-, and L-Reactor Complexes (Early Action)
- P-Area Operable Unit
- R-Area Operable Unit

Remedial Actions were completed and Post-Construction Reports (PCRs) or Post-Construction Report/Corrective Measures Implementation Report/ Remedial Action Completion Reports (PCR/CMIR/RACRs) or CMIR/RACRs were submitted for the following units:

- C-Area Burning/Rubble Pit (131-C) and Old C-Area Burning/Rubble Pit Operable Unit (Effectiveness Monitoring Report with PCR Data)
- E-Area Low Level Waste Disposal Facility, 643-26E (Slit Trench Disposal Units 1 – 5) (Interim PCR)
- Early Construction and Operational Disposal Site (ECODS) L-1, N-2, P-2, and R-1A, -1B, -1C (CMIR/RACR)

A Record of Decision (ROD) was submitted for the following unit:

- L-Area Northern Groundwater

A ROD or Early Action ROD was approved for the following units:

- D-Area Operable Unit (Early Action)
- Gunsite 012 Rubble Pile, Rubble Pile Across from Gunsite 012, and Early Construction and Operational Disposal Site G-3
- L-Area Northern Groundwater

RODs or Early Action RODs were issued for the following units:

- D Area Operable Unit (Early Action)
- Gunsite 012 Rubble Pile, Rubble Pile Across from Gunsite 012, and ECODS G-3
- Gunsite 218 Rubble Pile (631-23G)
- L-Area Northern Groundwater
- R Area Operable Unit

Section X (“Site Evaluations”) of the FFA requires SRS to submit Site Evaluation (SE) reports to EPA and SCDHEC for (1) those areas with potential or known releases of hazardous substances not identified before the effective date of the Agreement (referred to as Removal SE Reports), and (2) those areas listed in Appendix G.1 of the Agreement (referred to as Remedial SE Reports). SRS did not submit any Remedial SE Reports in 2011.

SRS submitted one Revision Removal SE Report:

- C-Area Process Sewer Line as Abandoned

The FFA requires, by January 1 of each year, submittal of an annual removal action report describing all removal actions performed during the previous fiscal year. On December 13, 2011, SRS submitted the report to the EPA and SCDHEC. The FY2011 report described 18 active removal actions areas and 43 maintenance activities.

A listing of all 515 waste units at SRS can be found in Appendices C (“RCRA/CERCLA Units List”) and G (“Site Evaluation List”) of the FFA (<http://www.srs.gov/general/programs/soil/ffa/ffa.pdf>).

DOE Order 435.1

SRS manages low-level, high-level and TRU waste in compliance with DOE Order 435.1, “Radioactive Waste Management,” within a number of storage and disposal units. The 2011 annual review of the Performance Assessments (PA) and Composite Analysis (CA) (Reference: Savannah River Site DOE 435.1 Composite Analysis, Volumes I and II, SRNL-STI-2009-00512, Rev.0, June 10, 2010) showed that operations in FY2011 were within the performance envelope analyzed in the PAs, CA, and Special Analyses.

Liquid Radioactive Waste Tank Closure

Liquid radioactive waste is generated at the SRS as byproducts from the processing of nuclear materials for national defense, research and medical programs, and stored in 51 underground tanks in the F- and H-Area Tank Farms on site. Forty-four of these tanks currently

store approximately 38 million gallons. Of the other seven, two tanks (17F and 20F) were stabilized with grout and closed in 1997; two tanks (18F and 19F) are prepared for closure in 2012; two tanks (5F and 6F) are empty and undergoing preparations for closure. Tank 16H leaked soon after construction in the 1960’s and was emptied. As seen in table 3-1, tank closures at SRS have key Federal requirements, as well as requirements under the Federal Facility Agreement (FFA) for the Savannah River Site, an agreement between DOE, South Carolina Department of Health and Environmental Control (SCDHEC) and U.S. Environmental Protection Agency (EPA)[WSRC-OS-94-43].

The F- and H-Area Tank Farms are permitted under the SCDHEC Industrial Wastewater Regulations through the provisions of Section IX, High-Level Radioactive Waste Tanks System(s), of the FFA, and the SCDHEC industrial wastewater treatment facility construction program [Regulation R.61-67]. Section IX.E of the FFA requires DOE to submit a waste removal plan and schedule for the old style waste tank systems. In addition, DOE is required to remove the tanks from service according to the approved plan and schedule. Once the tanks are emptied and cleaned, they are prepared for closure and then closed with grout (i.e., a cement-like material).

Closure of these tanks is overseen by SCDHEC and EPA through the protocols DOE has established in the Industrial Wastewater General Closure Plans for both the F-Area and H-Area Tank Farms. In January 2011, the General Closure Plan for the F-Area Tank Farm, which describes the general waste removal and closure strategy for the old style high level radioactive waste tank systems, was approved by the State of South Carolina pursuant to SCDHEC’s regulations implementing South Carolina’s Pollution Control Act. As described in the General Closure Plan, Closure Modules are developed to describe the specific history, waste removal efforts, and closure strategy for each tank. Closure activities can only begin after the disposing of the waste in the tanks. The Closure Module describes the waste removal and tank closure phases culminating in grouting. These processes are Bulk Waste Removal efforts, Mechanical Heel Removal, Chemical Cleaning, Cooling Coil and Annulus Cleaning, Final Sampling, Isolation and Stabilization by Grouting.

The Atomic Energy Act of 1954 (table 3-1) provides authority to the DOE to implement DOE Order 435.1, Radioactive Waste Management, for the protection of the environment from defense related radioactive materials. Under Manual 435.1-1, Radioactive Waste

Management, DOE is required to perform risk-informed assessments to evaluate the potential impacts of tank closures to the public. The risk-informed assessments, called Performance Assessments (PAs), are reviewed by the U.S. Nuclear Regulatory Commission (NRC), SCDHEC, EPA and the public. A PA was previously developed for the F-Tank Farm (FTF PA) to provide the technical basis and evaluation needed to demonstrate compliance with DOE Order 435.1 and the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (NDAA), Section 3116(a). The FFA required DOE to submit the PA for the H-Area Tank Farm to SCDHEC and EPA by March 30, 2011. On March 23, 2011, Revision 0 of the H-Tank Farm PA was issued to SCDHEC, EPA and the NRC for comment and review.

As described in table 3-1 above, NDAA Section 3116(a) allows the Secretary of Energy, in consultation with the NRC, to determine that certain waste from reprocessing is not high level radioactive waste if it meets the criteria set forth in Section 3116(a). The Basis for Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site (DOE/SRS-WD-2010-001) demonstrates compliance with the Section 3116(a) requirements and provides the basis for the Secretary of Energy's determination on the residual waste in the FTF Tanks. The Basis for Section 3116 Determination was previously submitted to the NRC and DOE received NRC recommendations in October 2011. NRC provided their review results and recommendations in accordance with NDAA Section 3116(a) to DOE.

In 2011, as tank closure documentation progressed, so did the field activities described in these documents. Eleven liquid radioactive waste tanks in both F- and H-Area Tank Farms underwent at least one phase in waste removal or tank cleaning. Bulk waste removal efforts were completed on three tanks, final sampling took place in two tanks (Tanks 5F and 6F), and four tanks were isolated from the mechanical, electrical and transfer systems (Tanks 18F, 19F, 5F and 6F). Grout preparations commenced on two tanks (Tanks 18F and 19F).

Resource Conservation and Recovery Act

Congress enacted the RCRA in 1976. RCRA established a system for managing hazardous and nonhazardous solid wastes in an environmentally sound manner. Specifically, it provides for the management of hazardous wastes from the point of origin to the point of final disposal ("cradle to grave"). RCRA also promotes resource recovery and waste minimization.

The Hazardous and Solid Waste Amendments

(HSWA) of 1984 expanded the scope and increased the requirements of RCRA. HSWA addressed congressional concern about the adequacy of existing requirements to prevent uncontrolled releases of hazardous constituents or hazardous wastes from hazardous waste management units. Three of the HSWA initiatives were especially noteworthy in preventing or addressing hazardous waste/ constituent releases:

- Congress directed EPA to develop what is now known as the Land Disposal Restrictions (LDR) Program-under which the land disposal of untreated wastes is prohibited.
- Facilities are required to satisfy minimum technology requirements (i.e., liners and leachate collection systems) for surface impoundments, waste piles, land treatment units, and landfills to prevent hazardous wastes and/or constituents from migrating into the groundwater and to allow releases to be detected when they occur.
- When a facility seeks a RCRA permit, EPA is granted the authority to require corrective action for releases of hazardous waste and hazardous constituents from any solid waste management unit, regardless of when the waste was placed in the unit.

Nineteen SRS underground storage tanks contain petroleum products, as defined by CERCLA and are regulated under Subtitle I of RCRA. These tanks require an annual compliance certificate from SCDHEC. The SCDHEC inspection and audit on October 6, 2011 found all 19 tanks to be in compliance, marking nine straight years without a violation.

The 1984 RCRA amendments established Land Disposal Restrictions to minimize the threat of hazardous constituents migrating to groundwater sources. The same restrictions apply to mixed (hazardous and radioactive) waste.

SRS received final certification from SCDHEC on September 21, 2011, for the RCRA closures of the N-Area Permitted Facilities (Buildings 645-N, 645-2N and 645-4N, Solid Waste Storage Pads 1-3) and Building 710-B. The closure plan for the Transuranic Waste Pad 1 (TRU Waste Pad 1) was submitted to regulators August 1, 2011. Closure activities for this facility continued throughout 2011.

Mixed Waste Management

The Federal Facility Compliance Act (FFCAct) was signed into law in October 1992 as an amendment to the Solid Waste Disposal Act to add provisions concerning the application of certain requirements and sanctions to

federal facilities. A Site Treatment Plan (STP) (WSRC-TR-94-0608) consent order (95-22-HW, as amended) was obtained and implemented in 1995, as required by the FFCAct. A Statement of Mutual Understanding for Cleanup Credits was executed by SCDHEC in October 2003, allowing SRS to earn credits for certain accelerated cleanup actions. Credits then can be applied to the STP commitment schedules. SRS submitted the 2010 annual update (SRNS-TR-200800101, Rev 2) of the approved STP to SCDHEC in November 2010 and it was approved on May 26, 2011. The update identifies changes in mixed waste treatment and inventory.

On July 7, 2011 DOE requested a revision to the annual frequency for updating the STP. SCDHEC agreed that DOE shall submit an Annual STP Update to SCDHEC for 2011 and thereafter follow a 5-year frequency of preparing future updates, with the next document being due in 2016. A meeting with SRS and SCDHEC staff will be held annually to discuss the status of the STP.

The STP 2011 Update documents storage of 146,262.03 m³ of mixed waste as of July 1, 2011 versus 142,901.34 m³ stored in 2010. The volumes on hand are summarized in Volume II Chapter 11 with additional details for transuranic (TRU) and High Level Waste (HLW) included in Chapters 4 and 5, respectively.

Previous volumes for Waste Stream SR-W009 (silver-coated packing material) reported the volume of the containment culvert and not the primary waste container itself. SRS has implemented refinements in accounting practices and now will only report the primary waste container volume instead of the containment. No SR-W009 waste was shipped.

The Volume II Chapter 5 update also revised the language for discussions concerning the status of facility, regulatory and budget issues and uncertainties that exist.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) is the federal government’s basic charter for ensuring the protection and wise use of the “human environment.” NEPA procedures require that federal agencies identify and consider the potential environmental consequences of their proposed actions early in the planning process so they can make informed, environmentally sound decisions regarding project design and implementation. The NEPA process at SRS is initiated by completing an Environmental Evaluation Checklist (EEC). The EEC is used to characterize the proposed action, identify any

Table 3–2 Summary of SRS-Related NEPA Reviews in 2011

Type of NEPA Review	Number
Categorical Exclusion Determinations	296
“All No” EEC Determinations ^a	77
Actions Tiered to Previous NEPA Reviews	26
Environmental Impact Statements ^b	3
Supplement Analysis ^c	2
Interim Action	3
Revised FONSI	0
Environmental Assessments ^d	1
Total SRS-Related NEPA Reviews	408

^a Proposed actions that require no further NEPA review

^b DOE/EIS-0283-S2 (in progress) DOE/EIS-0375(in progress) DOE/EIS-0423 (in progress)

^c SA for SRS Spent Nuclear Fuel Management FEIS DOE/EIS-0279 (in progress), SA for the Savannah River Site High-Level Waste Tank Closure Environmental Impact Statement DOE/EIS-0303-SA-01

^d DOE/EA-1606

potential environmental concerns, and determine which level of NEPA review (if any) will be required; i.e., categorical exclusion (CX) determination, environmental assessment (EA), or environmental impact statement (EIS)]. A total of 408 SRS-related NEPA reviews were conducted in 2011 (see table 3-2). For additional information on SRS NEPA activities visit the NEPA webpage, <http://www.srs.gov/general/pubs/envbul/nepal.htm>. The following is a listing of major NEPA reviews conducted during 2011, some of which are scheduled to be completed in 2012:

- *Supplement Analysis (SA) for the Savannah River Site High-Level Waste Tank Closure Environmental Impact Statement (DOE/EIS-0303-SA-01)* - In this SA, DOE is reviewing the use of current technologies and the waste determination process legislated by Congress to implement DOE’s decision to stabilize tanks by filling them with grout. Publication of the SA is expected in 2012. An amended ROD is not required however an environmental bulletin and a *Federal Register* notice will be published in 2012.
- *Surplus Plutonium Disposition (SPD) Supplemental EIS (DOE/EIS-0283-S2)* - In this ongoing Supplemental EIS (SEIS) DOE and National Nuclear Security Administration (NNSA) evaluated alternatives for disposition of surplus non-pit plutonium and surplus clean metal and oxide plutonium materials.

The Tennessee Valley Authority (TVA) is a cooperating agency, and the SEIS will evaluate the impacts of using mixed oxide fuel in TVA reactors. Additional alternative studies were begun in May 2011 and concluded in October 2011. These studies have identified additional reasonable alternatives, and DOE will issue an Amended Notice of Intent and conduct additional public scoping. DOE anticipates that a ROD for the SPD SEIS would be approved in the first or second quarter of FY2013.

- *EIS for the Disposal of Greater-Than-Class-C Low-Level Radioactive Waste (GTCC LLW) (DOE/EIS-0375)* - In this EIS, DOE will evaluate the impacts of disposing GTCC LLW in a geologic repository, in intermediate-depth boreholes, or in enhanced near-surface disposal facilities. Candidate DOE sites still being considered at the end of 2010 for these disposal facilities included SRS, Idaho National Laboratory, Los Alamos National Laboratory, WIPP, Nevada Test Site, Oak Ridge, Hanford, and Yucca Mountain. DOE also will consider generic commercial disposal of GTCC LLW at arid and humid locations. Disposal alternatives being considered for SRS include an intermediate-depth borehole facility and an enhanced near-surface facility. The draft EIS was published February 2011. The final EIS is scheduled for December 2012. The ROD schedule is uncertain.
- *SA: SRS Spent Nuclear Fuel Management FEIS (DOE/EIS-0279)* - In this SA, DOE is summarizing the environmental impacts of managing aluminum-clad spent nuclear fuel from foreign and domestic reactors by processing in H-Canyon rather than using the Melt-and-Dilute process. DOE would issue an amended ROD to document the decision. No projected approval dates had been established for the SA or amended ROD by the end of 2011.
- *Environmental Assessment for the Proposed Use of SRS Lands for Military Training (DOE/EA-1606)* - In this EA, DOE evaluated the potential impacts associated with the use of SRS lands for non-live-fire tactical maneuver training by the U.S. Departments of Defense and Homeland Security. The purpose of the action is to provide the referenced agencies with greater flexibility in developing training missions and strategies in response to rapidly changing world conditions. The EA and Finding of No Significant Impact (FONSI) were published in December 2011.
- *EIS for the Storage and Management of Elemental Mercury (DOE/EIS-0423)* -As directed by the Mercury Export Ban Act of 2008, DOE evaluated seven sites (including SRS) for the long-term storage of elemental mercury. DOE issued the

final EIS in January 2011. DOE has not issued a ROD. The Waste Control Specialists facility near Andrews, Texas, is the preferred alternative site listed in the final EIS.

- *Amended Interim Action Determination for the Disposition of Plutonium Materials from the DOE Standard 3013 Surveillance Program at SRS* – DOE is preparing the SPD SEIS (DOE/EIS-0283-S2). In December 2008, DOE-SR approved an Interim Action Determination, *Processing of Plutonium Materials from the DOE Standard 3013 Surveillance Program in H-Canyon at the Savannah River Site*. This Amended Interim Action Determination amends the 2008 Determination by adding a second alternative, disposition as transuranic waste at the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico, for up to about 95 kilograms of plutonium from the 3013 surveillance program.
- *Interim Action for the Flexible Manufacturing Capability for the Mixed Oxide Fuel Fabrication Facility (MFFF) at the Savannah River Site* – DOE is preparing the SPD SEIS (DOE/EIS-0283-S2). This Interim Action Determination provides DOE and Shaw-Areva MOX Services (the MFFF contractor) the capability to manufacture fuel suitable for the variety of reactor technologies that exist in the current nuclear power reactors, and the flexibility to manufacture fuel for the next generation of power reactors.
- *Interim Action Determination for Disposition of Certain Plutonium Materials Stored at the Savannah River Site* – DOE is preparing the SPD SEIS (DOE/EIS-0283-S2). In order to reduce storage requirements and reduce the risk inherent in storing nuclear materials, DOE will prepare and ship up to 500 kilograms of plutonium-contaminated materials to the WIPP. These materials currently are within the scope of the SPD SEIS. However, because of the small quantity involved relative to the six metric tons of non-pit plutonium materials being evaluated in the SPD SEIS, and because this material does not lend itself to disposition using the other SPD SEIS alternatives, disposal of this material as TRU waste would not affect DOE's ultimate selection of disposition alternatives. This action will result in about 880 cubic meters of TRU waste and 120 shipments to WIPP. DOE estimates that this process would take place over a period of approximately three years.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) gives EPA comprehensive authority to identify and control chemical

substances manufactured, imported, processed, used, or distributed in commerce in the United States. Reporting and record keeping are mandated for new chemicals and for any chemical that may present a substantial risk of injury to human health or the environment.

Polychlorinated biphenyls (PCBs) have been used in various SRS processes. The use, storage, and disposal of these organic chemicals are specifically regulated under 40 CFR 761, which is administered by EPA. SRS has a well-structured PCB program that complies with this TSCA regulation, with DOE orders, and with site policies.

The site's 2010 PCB document log was completed in full compliance with 40 CFR 761, and the 2010 annual report of onsite PCB disposal activities was submitted to EPA Region 4 in July 2011, meeting applicable requirements. The disposal of nonradioactive PCBs routinely generated at SRS is conducted at EPA-approved facilities within the regulatory period which is one year from the date of generation. In 2011, SRS decommissioned 35 large oil filled circuit breakers and 19 transformers that previously were used in various electrical power distribution substations on site. PCB components such as insulators (bushings) and bushing potential devices were present in many of these items. This resulted in the generation of a significant volume of non-radioactive PCB waste, all of which was shipped for disposal at appropriately permitted facilities.

For some forms of radioactive PCB wastes, specifically those contaminated with TRU radionuclides, disposal capacity is not immediately available. Such wastes must remain in long-term storage pending necessary processing and packaging that will allow them to be shipped for disposal to the Waste Isolation Pilot Plant (WIPP) in New Mexico. These wastes are held in TSCA-compliant storage facilities in accordance with 40 CFR 761. In 2011, SRS made 67 shipments to WIPP that included containers of PCB/TRU waste. Additional containers of PCB/TRU waste will be processed and shipped to WIPP in 2012.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) regulates the application of restricted-use pesticides (RUPs) at SRS through a state-administered certification program. All pesticides applied on site are approved by the SRS Pesticide Use Task Group and the SRNS Chemical Management Center (CMC). Usage is documented in the Pesticide Activity Report database, which allows Environmental Compliance (EC) personnel

to monitor application practices as well as to report total annual chemical inventories or usage to meet Emergency Planning and Community Right-to-Know Act (EPCRA) reporting responsibilities.

On October 31, 2011, the South Carolina legislative stay delaying the implementation of the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Application of Pesticides (PGP) was lifted. As a result, the PGP, which is designed to cover application of pesticides (pesticides, herbicides, biocides) in, over, and at water's edge as well as right-of-way treatments of intrusive vegetation, became immediately effective. While it is not believed SRS will exceed reporting thresholds that would necessitate the submission of a SCDHEC Notice of Intent (NOI), SRNS will monitor applicable pesticide applications for all organizations on site in 2012. Following the enactment of the PGP, SRNS revised the Pesticide Activity Report database, which is used by SRNS personnel to capture all on-site pesticide applications, to distinguish PGP-related applications.

Radiation Protection

DOE Order 5400.5/458.1

DOE Order 5400.5, "Radiation Protection of the Public and the Environment," was replaced with DOE Order 458.1, "Radiation Protection of the Public and the Environment," in February 2011. DOE Order 458.1 was not incorporated into the SRNS contract until November 2011. Development of a Compliance Assessment and Implementation Report will be completed in 2012.

This DOE Order specifies radiation dose standards for individual members of the public. The dose standard to the general public of 100 millirem (mrem) (1 millisievert (mSv)) per year includes doses a person receives from routine DOE operations through all exposure pathways. To demonstrate compliance with the all-pathway dose standard, SRS conservatively combines the airborne pathway and liquid pathway dose estimates, even though the two doses are calculated for hypothetical individuals residing at different geographic locations.

The highest potential dose to the maximally exposed individual from all pathways (liquid and atmospheric) in 2011 was 0.21 mrem (0.0021 mSv). This dose is 0.21 percent of the DOE dose standard. The 2011 all-pathway dose is about 91 percent more than the reported 2010 dose of 0.11 mrem (0.0011 mSv). Most of the increase is caused by the addition of the irrigation pathway dose. Without the irrigation pathway, the 2011 all-pathway dose would have been 0.12 mrem (0.0012 mSv), which

is just 9 percent more than the 2010 comparable all-pathway dose.

Nontypical exposure pathways, which are not included in the standard calculations of the doses to the maximally exposed individual, are considered and quantified separately because they apply to low-probability scenarios, such as consumption of fish caught exclusively from the mouths of SRS streams, or to unique scenarios, such as volunteer deer hunters. During 2011, the maximum dose that could have been received by an actual onsite hunter was estimated at 14.7 mrem (0.147 mSv), or 14.7 percent of DOE's 100-mrem all-pathway dose standard.

A detailed discussion of this subject may be found in Chapter 6, "Radiological Dose Assessments."

Air Quality and Protection

Clean Air Act

The Clean Air Act (CAA) of 1970 and the Clean Air Act Amendments (CAAA) of 1990 provide the basis for protecting and maintaining air quality. Though EPA still maintains overall authority for the control of air pollution, regulatory authority for all types of emission sources has been delegated to SCDHEC. Therefore, SCDHEC must ensure that its air pollution regulations are at least as stringent as the federal requirements. This is accomplished through SCDHEC Regulation 61-62, "Air Pollution Control Regulations and Standards." The various CAA titles covered by these SCDHEC regulations are discussed below.

Title V Operating Permit Program

Under the CAA, and as defined in federal regulations, SRS is classified as a "major source" and, as such, falls under the CAA Part 70 Operating Permit Program. SCDHEC's Bureau of Air Quality issued SRS its Part 70 Air Quality Permit (TV-0080-0041), February 19, 2003, with an effective date of April 1, 2003. The Title V Operating Permit, which initially expired March 31, 2008, was extended with the September 18, 2007, submittal of an application for renewal, as required by SC R61-62.70. The site expects to receive the new Part 70 Air Permit in 2012. Until SCDHEC renews the permit, SRS will continue to operate in accordance with requirements of the extended permit.

The Part 70 Air Quality Permit regulates both radioactive and nonradioactive toxic and criteria pollutant emissions from 19 nonexempt emission units, with each emission unit having specific emission limits, operating conditions, and monitoring and reporting

requirements. The permit also contains a listing, known as the Insignificant-Activities List, identifying approximately 500 SRS sources that are exempt based on insignificant emission levels, or on equipment size or type.

In 2007, DOE-SR proposed replacement of the existing D-Area Powerhouse prior to its current Title V permit expiring June 20, 2012. Construction of the new plant continued in 2011. Construction and start-up of the biomass cogeneration facility at Burma Road under the SCDHEC issued construction permit No. 0080-0144CA (November 12, 2008) requires permanent removal from operation the existing coal-fired boilers at the D-Area Powerhouse. On November 8, 2011 Ameresco Federal Solutions supplied electricity to SRS facilities, triggering transition and closure activities at the D-Area facility. On December 19, 2011, DOE SR issued the Final Acceptance Certificate for the completion of construction of the DOE Savannah River Site Biomass Cogeneration Facility installed under an energy savings performance contract (ESPC) awarded to Ameresco Federal Solutions in May 2009. Following a series of performance tests on the newly operational plant, the 20-megawatt (MW), 34 acre, renewable energy facility is on-schedule to provide the necessary process steam to the site as well as provide approximately 30% of the power for the site once fully operational in 2012. After more than 60 years of operation, the D-Area Powerhouse will be removed from service prior to expiration of the Title V Permit, May 6, 2012. No revision to the D-Area Powerhouse Part 70 Air Quality Permit was issued in 2011.

MFFF, a part of the SRS Nuclear Nonproliferation Program, was issued an air construction permit (00800139CA) on August 22, 2006. Construction of the MFFF, which began August 1, 2007, continued throughout 2011. Compliance with the SRS Part 70 Air Quality Permit conditions last was evaluated by SCDHEC March 15, 2010.

Accidental Release Prevention Program

Under Title III of the CAA, EPA established a program for the prevention of accidental releases of large quantities of hazardous chemicals. As outlined in Section 112(r), any facility that maintains specific hazardous or extremely hazardous chemicals in quantities above specified threshold values must develop a risk management program (RMP). The list of chemicals and their threshold quantity can be found in 40 CFR Part 68.130. The RMP establishes methods that will be used for the containment and mitigation of large chemical spills.

SRS maintains hazardous and extremely hazardous chemical inventories below the threshold value. This cost-effective approach minimizes the regulatory burden of 112(r) but does not eliminate any liability associated with the general duty clause, as stated in 112(r)(1). No reportable 112(r)-related hazardous or extremely hazardous chemical releases occurred at SRS in 2011.

Ozone-Depleting Substances

The CAA mandates air quality standards for the protection of stratospheric ozone. The CAA Title V operating permit program (TV-00800041, Condition 4.B.6) requires that SRS comply with the standards for recycling and emissions reduction pursuant to 40 CFR 82. The permit specifies compliance with the requirements of Subpart B (“Servicing of Motor Vehicle Air Conditioners”), Subpart E (“The Labeling of Products Using Ozone-Depleting Substances”), and Subpart G (“Significant New Alternatives Policy Program”). Accordingly, all large (greater than or equal to 50-pound charge) heating, ventilation, and air conditioning/chiller systems leak repair data are reported monthly. Incidental discharges from refrigerant sources at SRS during 2011 totaled 3,435 pounds.

Additionally, the Title V operating permit also specifies that SRS comply with the requirements of halon emissions reduction and recycling found in 40 CFR 82, Subpart H (“Halon Emissions Reduction”). Halon is used as a fire suppression agent in some facilities at SRS. The SRS Fire Department (SRSFD) maintain and recharge halon-containing equipment, and manage the national halon repository (Savannah River Halon Repository). Halon is maintained at this repository to support existing missions at SRS for the life of the missions. The repository also maintains halon supplies for other sites in the DOE complex.

According to the SRS Halon Management Plan (F-ESR-G-00120, November 16, 2005), all halon systems in service at SRS are scheduled to remain in service for the life of SRS’s existing missions. As missions cease, halon will be recovered, recycled, and stored at the SRS repository in support of continuing missions. When stored halon exceeds the amount needed for support of SRS and other DOE sites, the excess is shipped to the U.S. Department of Defense (DOD), or offered to the General Services Administration as excess. SRS continues to phase out its use of halon as part of an overall goal to eliminate halon use in the United States.

The SRSFD details the total halon inventory at SRS in its annual “Halon Report” to DOE. As of December 31, 2011 there were approximately 52,144 pounds in the SRS

inventory, including 19,704 pounds in 85 installed fire suppression systems, and 7,075 pounds of unprocessed halon stored in original containers. The balance, 25,365 pounds of halon, has been processed and is stored on site in 1-ton bulk containers. In addition to the SRS inventory, halon totaling 31,690 pounds is maintained in the national halon repository at SRS.

Air Emissions Inventory

SCDHEC Regulation 61-62.1, Section III (“Emissions Inventory”), requires compilation of an air emissions inventory to locate all sources of air pollution and to define and characterize the various types and amounts of pollutants. To demonstrate compliance, SRS personnel conducted the initial comprehensive air emissions inventory in 1993, which identified approximately 5,300 radiological and nonradiological air emission sources. Source operating data and calculated emissions from 1990 were used initially to establish the SRS baseline emissions and to provide data for air dispersion modeling.

Regulation 61-62.1, Section III, was revised in 2010 to require annual reporting of air inventories, beginning with 2010, by March 30 for the previous calendar year. Both SRS operating permits, TV0080-0041 (SRS general) and TV-0300-0036 (D-Area Powerhouse) 2010 emissions were submitted on March 28, 2011. EPA created the National Emissions Inventory as a comprehensive and detailed estimate of air emissions of both criteria and hazardous air pollutants from all air emissions sources, including SRS. The most recent information can be found at the following EPA website, <http://www.epa.gov/ttn/chief/eiinformation.html>.

National Emission Standards for Hazardous Air Pollutants

The National Emission Standards for Hazardous Air Pollutants (NESHAP) is a CAA-implementing regulation that sets air quality standards for hazardous air pollutants, such as radionuclides, benzene, and asbestos.

NESHAP Radionuclide Program

The current list of 187 hazardous air pollutants includes all radionuclides as a single item. Regulation of these pollutants has been delegated to SCDHEC; however, EPA Region 4 continues to regulate some aspects of NESHAP radionuclides.

NESHAP Radionuclide Program Subpart H of 40 CFR 61 was issued December 15, 1989, after which an evaluation of all air emission sources was performed to determine compliance status. DOE-SR and EPA Region

4 signed a Federal Facility Compliance Agreement (FFCA) on October 31, 1991, providing a schedule to bring SRS's emissions monitoring into compliance with regulatory requirements. The FFCA was officially closed and the site declared compliant by EPA Region 4 on May 10, 1995. Subpart H was revised by EPA on September 9, 2002, with an effective date of January 1, 2003. This revision added inspection requirements for existing SRS sources and allowed the use of ANSI N13.1-1999 for establishing monitoring requirements. SRS is performing all required inspections, has monitoring systems compliant with the regulation, and remains in compliance with Subpart H of 40 CFR 61. SRS is required under Subpart H to determine the highest effective dose to any member of the public at an offsite point. The site must report this information annually by June 30 to both EPA headquarters and the regional office. SRS transmitted the SRS Radionuclide Air Emissions Annual Report for 2010" on June 3, 2011 to EPA, SCDHEC, and DOE Headquarters (HQ).

During 2011, the maximally exposed individual effective dose equivalent, calculated using the NESHAP-required CAP88 computer code, was estimated to be 1.53E-02 mrem (1.53E-04 mSv), which is 0.00153 percent of the 10 mrem per year (0.10 mSv per year) EPA standard (Chapter 6).

SRS compliance with 40 CFR 61, Subpart H ("National Emission Standards for Emissions of Radionuclides Other Than Radon from Department of Energy Facilities") last was evaluated by SCDHEC in June 2008 as part of a Title V radiological NESHAP inspection. SCDHEC did not conduct a Subpart H inspection at SRS in 2011.

NESHAP Nonradionuclide Program

SRS uses many chemicals identified as toxic or hazardous air pollutants, but most of them are not regulated under the CAA or under federal NESHAP regulations. Except for asbestos, SRS facilities and operations do not fall into any of the "categories" listed in the original subparts. EPA in December 1993 issued a final list of hazardous air pollutant-emitting source categories potentially subject to maximum achievable control technology (MACT) standards; SRS currently is not impacted by any promulgated MACT standards for source categories.

NESHAP Asbestos Abatement Program

SRS began its asbestos management program in 1988 and continues to manage asbestos-containing material (ACM) by "best management practices."

Site compliance for asbestos operations and maintenance (O&M) activities, minor and small jobs as well as building renovations and demolitions falls under SCDHEC and federal regulations, including South Carolina Regulations 61-86.1 (Standards of Performance for Asbestos Projects), 40 CFR 61, Subpart M (National Emission Standards for Hazardous Air Pollutants - Asbestos), and 29 CFR 1926.1101 (Occupational Safety and Health Administration [OSHA] Asbestos Standard). SRS conducted 75 permitted renovations and demolitions in 2011.

Pursuant to the requirements of the SRS Asbestos Abatement Group License, issued annually by SCDHEC, O&M activities, minor and small licensed jobs are managed through the SRS Asbestos Disturbance Notice (ADN) procedure. ADN notifications are issued to each area of the site on a quarterly basis, which allows SRS to report amounts of ACM removed and disposed of during each quarter. SRS issued 62 ADN notifications in 2011. SRS certified personnel removed and disposed of 178 linear feet and 199 square feet of friable (regulated) ACM, and 543 linear feet, 6,835 square feet and 8 cubic feet of nonfriable (unregulated) ACM during 2011. Approximately 200 SRS asbestos specialists received training in 2011 and were certified by SCDHEC in the planner, air sampler, inspector, supervisor, worker, and O&M worker disciplines.

SRS disposed of 325 linear and 1,030 square feet of radiologically contaminated asbestos waste in 2011 at the SRS E-Area low-level vaults, engineered trenches, and slit trenches, which are authorized by SCDHEC as asbestos waste disposal sites. Nonradiological asbestos waste was disposed of at the Three Rivers Solid Waste Authority Landfill and the Construction and Demolition (C&D) Landfill (623-G), both of which are also SCDHEC-approved landfills.

Water Quality and Protection

Clean Water Act

National Pollutant Discharge Elimination System

The Clean Water Act (CWA) of 1972 created the National Pollutant Discharge Elimination System (NPDES) program, which is administered by SCDHEC under EPA authority. The program is designed to protect surface waters by limiting releases of effluents into streams, reservoirs, and wetlands.

SRS had five NPDES permits in 2011:

- Two permits for industrial wastewater discharges (SC0047431, which covered the D-Area Powerhouse,

and SC0000175, which covered the remainder of the site).

- Two general permits for stormwater discharges (SCR000000 for industrial and SCR100000 for construction). Permit SCR000000 expired December 31, 2010; renewal of the permit became effective January 1, 2011.
- One General Utility Water Permit Number SC250273 issued May 5, 2011.

The site also had one No-Discharge permit for land application of biosolids (ND0072125). This permit was renewed in 2010 and is applicable for another 10 years. More information about SRS's NPDES permits can be found in Chapter 4.

The results of monitoring for compliance with the industrial wastewater discharge permit at SRS were reported to SCDHEC in the site's monthly discharge monitoring reports, as required by the permit. SRS had no permit limit exceptions during 2011, a compliance record that has been attained only two other times (2007 and 2010).

SCDHEC generally conducts an unscheduled "NPDES 3560 Compliance Sampling Inspection" of the site's permitted outfalls annually. The March 2010 inspection, resulted in a "Satisfactory" rating, the highest achievable. There was no "NPDES 3560 Compliance Sampling Inspection" performed in 2011.

A SCDHEC renewal of the NPDES General Permit for Storm Water Discharges (SCR000000) associated with Industrial Activity became effective on January 1, 2011. The permit requires control measures be selected, installed, implemented, and maintained to ensure that storm water discharges do not result in an exceedance of water quality standards in receiving streams. Although one outfall exceeded benchmark levels and required installation of additional control measures, no violations of this permit were experienced in 2011. Results from sampling of storm water outfalls appear in an effluent monitoring data table 4-9 in the "Environmental Data/ Maps - 2011" section of the CD housed inside the back cover of this report. The SRS Storm Water Pollution Prevention Plan, a requirement under the NPDES Storm Water General Permit, was finalized in March 2011.

One permit for industrial wastewater discharge (Permit No. SC0049107, Outfall G-05) has been issued to Ameresco Federal Solutions for discharges associated with the Biomass Cogeneration Facility. This permit is independent of the site's permits and has not been included in the list of permits held by SRS.

Dredge and Fill; Rivers and Harbors

The CWA, Section 404, "Dredge and Fill Permitting," as amended, and the Rivers and Harbors Act (RHA) of 1899, Sections 9 and 10, "Construction Over and Obstruction of Navigable Waters of the United States," protect U.S. waters from dredging/filling and construction activities by the permitting of such projects. Dredge-and-fill operations in U.S. waters are defined, permitted, and controlled through implementation of federal regulations in Titles 33 and 40 of the Code of Federal Regulations.

In 2011, SRS had two open permits under the Nationwide Permits (NWP) program (general permits under Section 404), and one open permit under the RHA of 1899, Section 10, as follows:

- Dam construction on an unnamed tributary to Fourmile Branch for the Mixed Waste Management Facility Groundwater Interim Measures project was completed in 2000 under NWP 38, "Hazardous Waste Cleanup." However, mitigation for the impact to wetlands was still pending in 2011 and must be addressed before the permit can be considered closed. SRNS has requested approval from DOE to use wetland mitigation bank credits to satisfy the mitigation issue and close the permit.
- SRS initiated a project during 2009 to dredge sediments out of the 681-3G and 681-5G pumphouse canals to allow for better flow to the water intake of each pumphouse. An RHA of 1899 Section 10 permit, (SAC-2008-1156) was obtained from the U.S. Army Corps of Engineers (COE) March 24, 2009, to allow the dredging work to begin. Both canals were successfully dredged and returned to their original design. Maintenance dredging of accumulated sediments in the 681-5G canal was conducted in November 2011. The Section 10 permit will remain open until March 31, 2014, to allow for additional maintenance dredging as required.
- Area Completion Projects (ACP) installed three wells under NWP 5-in the Savannah River flood-plain wetlands east of T-Area in August 2011 for groundwater sampling activities.

Construction in Navigable Waters

SCDHEC Regulation 19-450, "Permit for Construction in Navigable Waters," protects South Carolina's navigable waters. The only state navigable waters at SRS are Upper Three Runs Creek (through the entire site), Lower Three Runs Creek (upstream to the base of the PAR Pond Dam), and the Savannah River (along the site's southwestern border).

A navigable waters permit (P/N 2008-1156-6IJ) was issued to Washington Savannah River Company December 4, 2008, for the sediment dredging project of the 681-3G and 681-5G pumphouse canals. The permit, transferred to SRNS on January 14, 2009, was issued by SCDHEC simultaneously with the WQC, and was extended by SCDHEC in August 2011 to expire on March 31, 2014.

Water Quality Certification (WQC)

Section 401, "Water Quality Certification," of the CWA is administered by SCDHEC to ensure the maintenance of water quality during dredge-and-fill projects.

Safe Drinking Water Act

The Federal Safe Drinking Water Act (SDWA) was enacted in 1974 to protect public drinking water supplies. SRS domestic water is supplied by groundwater sources. The A-Area and D-Area drinking water facilities are actively regulated by SCDHEC, while the remaining smaller water systems receive a reduced level of regulatory oversight.

Samples are collected and analyzed periodically by SRS and SCDHEC to ensure that all site domestic water systems meet SCDHEC and EPA bacteriological and chemical drinking water quality standards. All samples collected in 2011 met these standards.

Due to a three-year rotating cycle, the water systems were not sampled under the state lead and copper Rule in 2011. The D-Area system will be sampled for lead and copper in 2012 and A-Area is scheduled for 2013.

Other Environmental Requirements

EPCRA/SARA Title III

EPCRA (enacted in 1986) 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 Chemical Release Inventory, i.e., Toxics Release Inventory (TRI), report to include source reduction and recycling activities.

Executive Order 12856

Executive Order 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements," requires that all federal facilities comply with right-to-know laws and pollution prevention requirements. SRS complies with the appropriate reporting requirements for EPCRA, and incorporates the

applicable TRI chemicals into its pollution prevention efforts.

Chemical Inventory Report (Tier II)

Under Section 312 of EPCRA, SRS completes an annual Tier II Chemical Inventory Report for all hazardous chemicals present at the site in excess of specified quantities during the calendar year. Hazardous chemical storage information is submitted to state and local authorities electronically by March 1 for the previous calendar year. For 2010 SRS submitted the Tier II on February 22, 2011.

Toxics Release Inventory Report (Form R)

Under Section 313 ("Toxic Chemical Release Inventory") of EPCRA, SRS must file an annual TRI report by July 1 for the previous year. SRS calculates chemical releases to the environment for each regulated chemical and reports the each regulated chemical that exceeds its established threshold value to EPA electronically on Form R of EPCRA Section 313. Threshold values are those quantities of regulated chemicals (as defined by EPCRA Section 313) above which additional reporting is required using Form R.

Form R for 2010 was submitted electronically to EPA on July 1, 2011. SRS reported the following chemicals that exceeded their thresholds: barium, chlorine, chromium, copper, fluorine, formic acid, hydrochloric acid, lead, manganese, mercury, nickel, nitrate, nitric acid, sodium nitrite, sulfuric acid, and zinc. (NOTE: The term "exceeded" in an EPCRA context does not indicate a violation. Per EPA regulations, SARA chemical limits are established, and reporting requirements are based on these threshold values.) Specific details, including release amounts and detailed information about toxic release inventory reporting, can be viewed on the EPA website at <http://www.epa.gov/tri/tridata>.

Endangered Species Act

The Endangered Species Act of 1973, as amended, provides for the designation and protection of wildlife, fish, and plants in danger of becoming extinct. The act also protects and conserves the critical habitats on which such species depend.

Several endangered species exist at SRS, including the wood stork, the red-cockaded woodpecker, the Atlantic sturgeon, the shortnose sturgeon, the pondberry, and the smooth purple coneflower. Although the bald eagle no longer is on the endangered species list, it still is protected under the Bald and Golden Eagle Protection Act. Programs are in place on site to enhance the habitat and survival of such species.

During 2011, implementing the United States Department of Energy Natural Resources Management Plan for the Savannah River Site (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5208304.pdf), the United States Department of Agriculture Forest Service-Savannah River (USFS-SR) personnel developed three biological evaluations for timber-related activities, and one as requested to assist other site missions in the P-Area Ash Basin. The biological evaluations determined that implementation may affect but not adversely affect threatened and endangered species due to beneficial, insignificant, or discountable effects. The implementation may also adversely affect three animal species of conservation concern (Southern hognose snake, Pine snake, and the Gopher frog), but not result in a trend toward federal listing or result in the loss of population viability. Additionally, a biological evaluation was prepared by the Department of the Army in support of DOE/EA-1606, Environmental Assessment for the Proposed Use of Savannah River Site Lands for Military Training, and concluded that the proposed action was not likely to adversely affect endangered species. The U.S. Fish and Wildlife Service concurred with the Army's findings.

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, Section 106, governs archaeological and historical resources. SRS ensures that it is in compliance with the NHPA through several processes. The Cold War Programmatic Agreement and "SRS's Cold War Built Environment Cultural Resource Management Plan" are being implemented. The site's artifact selection team, which includes DOE, SRNS, and the University of South Carolina's Savannah River Archaeological Research Program (SRARP) is responsible for overseeing the selection, collection, and curation of Cold War-era artifacts from buildings prior to decommissioning and demolition activities.

The Site Use Program is another process used to ensure compliance with NHPA. All locations being considered for activities, such as construction, are evaluated by SRARP personnel to ensure that archaeological or historic sites are not impacted. Reviews of timber compartment prescriptions include surveying for archaeological resources and documenting areas of importance with regard to historic and prehistoric significance.

The following information is summarized from the "Annual Review of Cultural Resources Investigations by the Savannah River Archaeological Research Program, Fiscal Year 2011", Savannah River Archaeological

Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, 2011.

Archaeological survey of Site Use Permit Application and Timber Compartment Prescription projects by SRARP staff continued through FY2011. During FY2011, archaeological reconnaissance and survey was conducted on 38 proposed projects through the subsurface inspection of 985 acres with a total of 3,853 Shovel Test Pits excavated. Altogether, 13 new sites were recorded and delineated, and 4 previously recorded sites were revisited during FY2011. Based on the level of survey sampling conducted at all new and previously recorded sites, adequate information was not obtained for most sites to allow National Register of Historic Places (NRHP) eligibility determinations. As such, these sites will be completely avoided by SRS contractors during any land disturbing activities. At the time these sites are due to be impacted by future undertakings, the SRARP will conduct the appropriate level of archaeological investigation to resolve eligibility determinations.

A total of 54 Site Use Permit Applications were received by the SRARP during FY2011. Each permit application underwent review by SRARP management for proposed land modification. Of these, 11 Site Use projects required field reconnaissance or archaeological survey in addition to one ongoing project last fiscal year. These Site Use projects comprised 550 acres (56%) of the total survey coverage in FY2011.

The SRARP management reviews each Timber Compartment Prescription to determine the level of survey required for each timber stand slated for timbering. The review process involves determining the potential for archaeological resources in each timber stand. Surveys of log decks and timber stands were conducted in 24 timber compartments, which involved 435 acres (44%) of the total survey area coverage in FY2011.

As a result of the analysis of artifacts recovered through daily compliance activities and the analysis of artifacts recovered from excavations conducted at the Greene site (38AK953) and Flamingo Bay (38AK469) approximately 19,026 artifacts were curated over the course FY2011. Compliance related excavations conducted throughout the year account for 1,044 of these artifacts. Primary analysis of artifacts from 38AK469 yielded approximately 10,000 artifacts, while analysis of artifacts from 38AK953 totaled 7,982 artifacts.

In addition, SRARP staff maintained continued support to DOE Cold War Cultural Resources Management Plan (CRMP) efforts through participation on DOE's Cold War Artifact Selection Team and at Heritage Tourism Board meetings.

Section 110 of the National Historic Preservation Act requires an inventory of all cultural resources on public lands. As of this report, the SRARP has surveyed approximately 66,055 acres (34.0%) out of a total of 193,276 (97.4%) of SRS acreage suitable for survey (i.e., excluding SRS wetlands and developed areas). In total, the SRS comprises 198,344 acres or 310 sq. mi. These efforts have resulted in the inventory of 1,901 sites (931 prehistoric, 492 historic, and 478 with both prehistoric/historic components) recorded to date.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) is the domestic law that governs the protection of migratory birds, including eggs and nests. The MBTA prohibits the taking, possession, import, export, transport, selling, purchase, or barter of, or offering for sale, purchase or barter, any migratory bird or its eggs, parts, and nests, except as authorized under a valid permit.

In 2011, several nests protected under the MTBA were found in large mobile equipment located at various site locations. The equipment was either barricaded until the hatchlings fledged or the nests were determined by SRNS, with concurrence by the U.S. Fish and Wildlife Service to no longer be viable, or the nests were relocated to a safer adjacent location.

DOE Orders/Executive Orders for Environmental Systems

Summary of EMS Programs

DOE Orders 450.1A, "Environmental Protection Program," and 430.2B, "Departmental Energy, Renewable Energy and Transportation Management," describe DOE's requirements and responsibilities for implementing Executive Order (EO) 13423, "Strengthening Federal Environmental, Energy and Transportation Management." EO 13423 directs each federal agency to use an Environmental Management System (EMS) as the framework to implement, manage, measure, and continually improve upon sustainable environmental, energy, and transportation practices. Additional information on these and other sustainability programs may be found in Chapter 2 ("Environmental Management System") and in the SRS FY2011 Site

Sustainability Plan, issued in December 2010.

DOE Order 436.1/EO13514 Greenhouse Gas Reductions

DOE Order 436.1 was approved to incorporate new requirement in Executive Orders 13514, 13423 and other related statutes, administrative requirements and goals. Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance," established greenhouse gas (GHG) reduction goals of 28 percent for Scope 1 and 2 items (power generation facilities) and 13 percent for Scope 3 items (business and employee travel) by 2020 from the 2008 baseline. Reducing energy intensity, completing construction of a Biomass Cogeneration Facility and continuing operation of several satellite biomass plants, and increasing the use of alternative fuels and alternative-fuel vehicles are some of the ways SRS made progress toward this goal in 2011. Details of this progress against sustainability goals are provided in Chapter 2 of this report.

2011 Waste Minimization and Pollution Prevention Program Results and Highlights

The SRS Waste Minimization and Pollution Prevention Program (WMin/P2) continued to achieve significant results in 2011. All required site waste generator organizations demonstrated active participation in the program through documented pollution avoidance and/or direct mission support activities for site recycling. Site employees' P2 awareness was increased through online articles and both general employee and job-specific training.

The WMin/P2 Program met all DOE and regulatory agency reporting requirements. Program accomplishments during 2011 included the following:

- SRS documented 19 P2 projects resulting in a DOE-SR approved annualized avoidance of 2,009 m³ of hazardous and radioactive waste in FY2011 significantly exceeding the FY2011 P2 Program waste avoidance performance goal of 357 m³. Annual cost avoidance resulting from the documented P2 projects is approximately \$2.5 million.
- SRS won an Environmental Management (EM) Best-in-Class Honorable Mention Award and two 2011 DOE EStar Awards for its nominations: "Renewable Energy Technology Deployment, and Education in South Carolina - A Collaboration Between Savannah River National Laboratory & Economic Development Partnership of South Carolina" and "Savannah River Site Tritiated Debris Remediation Project". In 2011, only 15 EStar Awards were

granted from 186 nominations. SRS was represented at the awards ceremony held at DOE headquarters and shared lessons learned with a presentation of the award-winning projects to DOE complex staff. SRS submitted 5 nominations in FY2012 documenting FY2011 notable projects.

SRS participates in EPA voluntary P2 Programs by maintaining its EPA Waste Wise and EPA National Partnership for Environmental Priorities (NPEP) memberships. SRS received an award from the NPEP Program recognizing SRNS for achievements in chemical reduction. In total, over 250,000 pounds of DOE radiologically associated lead have been shipped for reprocessing into commercial nuclear products exceeding the SRS NPEP goal by over 600%. The award nomination was submitted in FY2010 and recognized by EPA in FY2011. Recycle provides a cost-effective and an environmental preferable option for this stream versus disposal as a RCRA hazardous and radioactive waste.

SRS continued to support federal government electronics recycle and sustainability program objectives. SRS reported 138,480 pounds of electronics recycled in FY2011 and is in compliance with Department of Energy Acquisition Regulations (DEAR) for Energy Star and Electronic Products Environmental Assessment Tool (EPEAT) electronics procurement.

The Sanitary Waste Program (municipal solid waste) managed over 83,000 metric tons (MT) of materials in FY2011. Thirty-five percent (35.5%) of the routine (i.e. office type waste) municipal solid waste stream was recycled (813 MT) meeting the 35% performance objective for this waste stream established to support Aiken County reporting to SCDHEC. Twenty-two percent (22.5%) of the total routine and industrial streams, excluding C&D waste, was recycled (2,118 MT). Operation of the on-site C&D landfill avoided over \$4.3 million in commercial landfill fees.

SRS issued a new subcontract with Three Rivers Material Recovery Facility (MRF) to provide municipal solid waste recycle services beginning in FY2012. This contract provides for recycle services to recover greater than 50% of the routine (i.e. office type waste) municipal solid waste stream and will reduce waste processing and transport costs.

The Pollution Prevention Team supports P2 awareness on site and in the local community.

- On site employee awareness is increased through on-line articles and general employee and job-specific training.

- The Program provided volunteer support and student handouts for the Central Savannah River Area (CSRA) Environmental Science Education Cooperative's (ESEC) EcoMeet event held at Thurmond Lake. The event was a success with 30 middle school teams from Georgia and South Carolina competing in a day-long, hands-on environmental education challenge.
- The Program supported CSRA ESEC Environmental Teacher of the Year Award ceremony held in Augusta, Georgia.
- SRS Earth Day support included: Providing photos with captions for posters that DOE-HQ used to highlight winning Environmental Sustainability projects displayed over Earth Day week and providing four articles to the on-site newsletter to increase employees' environmental awareness.

EO 11988/11990 Floodplain Management/ Wetlands

Under 10 CFR 1022 ("Compliance with Floodplains and Wetlands Environmental Review Requirements"), DOE establishes policies and procedures for implementing its responsibilities in terms of compliance with Executive Orders 11988 ("Floodplain Management") and 11990 ("Protection of Wetlands"). Part 1022 includes DOE policies regarding the consideration of floodplains/wetlands factors in planning and decision making. It also includes DOE procedures for identifying proposed actions involving floodplains/wetlands, providing early public reviews of such proposed actions, preparing floodplains/wetlands assessments, and issuing statements of findings for actions in floodplains.

A floodplains/ wetlands assessment was developed in 2010 to support a NEPA evaluation for the installation of a temporary road for access to a portion of the earthen cap over the waste unit on the west side of T-Area. The road also was to provide access for cap maintenance and to a monitoring well in the area. The scope of the project was changed to make the road permanent, and the floodplains/wetlands assessment was revised in 2011 to support this change. The floodplains/wetlands assessment was made final and approved by DOE in September 2011.

Other Environmental Issues/ Actions Lawsuits

SRS was not involved in any active environmental lawsuits during 2011.

Table 3-3 NOV/NOAV Summary, 2007-2011

Program Area	NOV/NOAV				
	2011	2010	2009	2008	2007
CAA	0	2	0	1	0
CWA	0	0	0	2	0
RCRA	0	0	0	0	0
CERCLA	0	0	0	0	0
Others	0	0	0	0	0
Total Violations	0	2	0	3	0

SRS as Potentially Responsible Party in Superfund Cleanup

Alternate Energy Resources, Inc. (AER) operated commercial hazardous waste storage and treatment facility in Augusta, Georgia, until 2000, when the facility was abandoned and the owners declared bankruptcy. The facility was placed on the NPL in 2006. Nonradioactive SRS waste was processed at this facility; as a result, EPA named SRS one of 50 potentially responsible parties in the cleanup of this location. SRS responded to multiple Department of Justice requests regarding documents relevant to AER on October 26, 2010 and June 28, 2011.

Notice of Violation / Notice of Alleged Violation

No NOV's or NOAV's were received in 2011. NOV's/NOAV's received from 2007-2011 are summarized in table 3-3.

Environmental Occurrences

The Occurrence Reporting and Processing System (ORPS), mandated by DOE Order 232.2 ("Occurrence Reporting and Processing of Operations Information"), is designed to "...ensure that the DOE and the NNSA are informed about events that could adversely affect the health and safety of the public or workers, the environment, DOE missions, or the credibility of the Department." Also, the ORPS system promotes "organizational learning consistent with DOE's Integrated Safety Management System goal of enhancing mission safety, and sharing effective practices to support continuous improvement and adaptation to change."

Of the 115 ORPS-reportable events at SRS in 2011 (including all contractors), there were no ORPS reportable events within ORPS Group 5 (Environmental) or ORPS Group 9 (Noncompliance Notifications).

Environmental Audits

The SRS environmental program is overseen by a number of organizations, both outside and within the DOE complex. In 2011, the site's environmental appraisal program again consisted of self and independent assessments. The program ensures the recognition of noteworthy practices, the identification of performance deficiencies, and the initiation and tracking of associated corrective actions until they are satisfactorily completed. The primary objectives of the assessment program are to ensure compliance with regulatory requirements and to foster continuous improvement. The program, an integral part of the site's Integrated Safety Management System, supports the SRS EMS, which continues to meet the guidelines of International Organization for Standardization Standard 14001. (ISO 14000 is a family of voluntary environmental management standards and guidelines.) The Site Tracking, Analysis, and Reporting (STAR) system is a database used for scheduling self-assessments, as well as for (1) documenting their results and any issues or concerns identified, (2) tracking corrective actions to closure, and (3) trending accumulated data for process improvement. DOE-SR conducted 260 assessments that included aspects of the environmental protection functional area. SRNS conducted 341 environmental protection functional area assessments in 2011.

SRNS also conducted several environmental program-level assessments in 2011. The self-assessment titles, the environmental topical areas (in parentheses), and brief summaries of some of these assessments follow.

- *Surface Water Quality-Facility Permitting (Industrial Wastewater Treatment)* – This self-assessment was conducted from August 11 through September 30, 2010. The purpose was to evaluate the SRS industrial wastewater treatment program against the SCDHEC Industrial Wastewater Permitting Program, including wastewater treatment plant (and

associated collection system) design, operation, maintenance, permitting and closeout. The assessment, which included document/procedure reviews and interviews with engineering and environmental compliance personnel, resulted in three findings and five opportunities for improvement (OFIs). Corrective actions, including revisions to site- and facility-level procedures, were identified and completed during 2010 and 2011.

- *Air Quality Protection – Title V Operating Permit, Air Dispersion Modeling*—This self-assessment was conducted from June 1 through 21, 2011. As part of the air permitting process, facilities in South Carolina are required to demonstrate the potential emissions coming from their sources will not cause the violation of any applicable South Carolina air pollution control regulations or standards. Air dispersion modeling is typically used to demonstrate compliance. This self-assessment focused on the modeling associated with Title V activities. The SRS demonstrates the potential emissions coming from its sources will not cause the violation of any applicable South Carolina air pollution control regulations or standards with the use of AERMOD modeling. Modeling input files are generated by EC personnel and Savannah River National Laboratory (SRNL) atmospheric technologies personnel utilize the required AERMOD model to demonstrate the site's compliance with SCDHEC Standards no. 2, 7, and 8. The assessment identified two OFIs to take advantage of the movement of the modeling files being generated in the existing Air Information Reporting System (AIRS) to the new opsAir™ system.
- *Waste Management – Underground Storage Tanks*—This self-assessment was conducted from June 7 through July 20, 2011 to evaluate the SRS underground storage tanks (UST) program and ensure USTs are being managed to minimize the potential for releases to the environment and are compliant with all applicable DOE, federal, state, and local requirements. Inspection records were reviewed to verify that the USTs are inspected annually for tank and line tightness and were completed in the last 12 months. Assessors verified monthly leak detection tests were being conducted and records are available. SRNS staff also verified annual tank permits were up-to-date and that corrosion protection testing of USTs had been completed within the last three years. There were two OFIs and no findings.
- *Groundwater – Data Acquisition, Management, and Reporting* – This self-assessment was conducted from June 1 through 27, 2011. The purpose of this assessment was to confirm that SRS has programs in place to identify sources of groundwater contamination, develop formal plans for their characterization, identify constituents of concern, and define the extent of any groundwater plumes. Recent characterization documents were reviewed and CERCLA, characterization, and engineering personnel were interviewed. The assessment determined that the SRS has well established programs and procedures in all of the subject areas. There were no findings and one OFI related to groundwater assessment of petroleum-related sites. Consolidation of assessment activities under Environmental Compliance and Area Completion Projects has addressed this OFI.
- *Waste Management – Non-hazardous Waste Management* – This self-assessment was conducted from July 18 through 21, 2011 to evaluate solid waste management activities at the 632-G Construction and Demolition (C&D) Landfill. The assessors gathered information for this assessment by document review, interviews of cognizant personnel, and inspection of the 632-G (C&D) debris landfill. The assessors found that the landfill is operated according to Manual Y10.10, procedure 9-38045, Operation, and Inspection of 632-G Landfill and Borrow Pit. There is a program in place to detect prohibited wastes by inspections of loads when deposited and prior to compaction, by trained personnel, and if necessary, by notification of SCDHEC if it is suspected that hazardous waste or PCB waste has been deposited at the landfill. Prohibited waste is removed from the working face (location where new waste is being placed) prior to the end of the working day. Generators who deposit prohibited waste are required to remove it and place it into an appropriate container for disposal. The observed working face did not exceed a slope of 33%. Waste was observed to be spread in uniform layers and compacted to the smallest practical volume. Clean soil from site construction activities was stockpiled to use as cover. Records of clean soil, no less than six inches in depth, being placed over exposed waste at least every 30 days are being maintained. The roles and responsibilities of the landfill first line manager and manager are clearly defined. There were no findings or OFIs.
- *NEPA Compliance* – This self-assessment was conducted from April 21 through May 2, 2011 to evaluate NEPA compliance for the Cell 11 Remediation/ Repackaging Program. The assessment evaluated whether a formal program is in place that establishes requirements and responsibilities for the implementation of NEPA regulation and for compliance

with DOE Order 451.1B Chg1; Procedure Manual 3Q ECM 5.1; 10 CFR 1021; MCR-14. Appropriate NEPA documentation was completed and approved as required and the necessary permits were revised as needed to cover the project.

- *Environmental Radiation Protection-Environmental Radiological Surveillance* – This was conducted from August 7 through 31, 2011 to identify the drivers for the aquatic fish program and to examine it for any potential streamlining. The data from the fish program is used to satisfy various DOE Orders and an agreement between SRS, South Carolina Department of Health and Environmental Control and Georgia Department of Natural Resources (GDNR). Electrofishing was observed and was conducted in a safe manner with the correct PPE in use at all times. SRS submitted the 2012-2016 SRS Fish Sampling and Analytical Plan (FMP) to SCDHEC on December 1, 2011. The FMP outlines the methods for sampling, preparing, analyzing and quantifying the radionuclide concentrations in fish collected in streams from the SRS that would flow into the Savannah River. The results obtained from fish sampling are used to assess and calculate the risk and dose to the public from ingestion of fish and to identify and evaluate any impacts from the SRS operations on contaminant levels in fish. SRS clarified the radionuclide sampling requirements for both the edible and non-edible portions of the fish.

SCDHEC and EPA personnel conducted external inspections and audits of the SRS environmental program for regulatory compliance. Routine audits and the resulting noncompliances for the past five years are summarized in table 3-4. Agency representatives

performed several comprehensive compliance inspections and audits in 2011, as follows:

- *RCRA Compliance Evaluation Inspection* – The RCRA compliance evaluation inspection was conducted by SCDHEC April 15 through 21, 2011. The May 20, 2011 SCDHEC inspection report letter noted that no violations were found.
- *Annual Underground Storage Tank Inspection* – SCDHEC inspected the site’s underground storage tanks (USTs) October 6, 2011. All were found to be in compliance with applicable regulations for the ninth straight year.
- *632-G C&D Landfill, 288-F Ash Landfill, and 488-4D Ash Landfill Inspections* – SCDHEC conducted eleven routine inspections-each of which covered the 632-G C&D, the 288-F Ash, and the 488-4D Ash landfills; the facilities were found to be satisfactory, with no observed deficiencies.
- *Z-Area Saltstone Solid Waste Landfill Inspections* – Saltstone Disposal Facility inspections by SCDHEC continued to be completed weekly or biweekly. Moisture areas were again observed on the walls of the facility’s Vault 4, and were reported to SCDHEC in accordance with the facility’s contingency plan. (NOTE: “Moisture areas” are areas on the external walls of the facility’s cells that appear damp due to a combination of saltstone shrinkage from curing, bleeding, and process water accumulation at the inner cell walls, and from hydrostatic pressure that causes the water to weep through preexisting construction cracks.) For any new moisture areas, facility personnel conduct an engineering evaluation. Saltstone personnel inspected the Vault 4 exterior condition of cells that were in operation

Table 3-4 Routine Environmental External Audit and Inspection Summary

Audit	Frequency	Noncompliances				
		2011	2010	2009	2008	2007
RCRA CEI	Annually	0	0	0	0	0
UST Inspection	Annually	0	0	0	0	0
Landfill Inspection	At least bimonthly	0	0	0	0	0
Saltstone Inspection	Weekly or bi-weekly	0	0	0	0	0
Interim Sanitary Landfill (postclosure)	Annually	0	0	0	0	0
Air Programs Compliance Inspection	Annually	0	0	0	0	*
NPDES CSI Inspection	Annually	0	0	0	0	*
CME Inspection of Groundwater Facilities	Annually	0	0	0	0	0
Small Domestic Water Systems Inspection	Triennially	NA	0	NA	NA	0

*No inspections of these programs conducted in 2007

on a daily basis and communicated the discovery of any new moisture areas to SCDHEC, per the facility contingency plan. SCDHEC performed weekly or biweekly onsite inspections of Vault 4 to observe existing and potential moisture areas. The SCDHEC inspectors detailed the results of their inspections in the Saltstone Disposal Facility Vault 4 Inspection Checklist. SCDHEC has not mandated any additional actions other than monitoring of Vault 4 via the aforementioned inspections. No additional actions are pending.

- *On-Site Laboratory Evaluation of the D-Area Powerhouse Lab* - In support of renewing the laboratory certification, a SCDHEC Office of Environmental Laboratory Certification representative conducted an onsite audit of SRS's D-Area Powerhouse laboratory December 9, 2010. SCDHEC's report of the audit, also issued in December 2010, noted minor deficiencies related to standard operating procedures for laboratory methods. These deficiencies were addressed, and the laboratory certification of the D-Area Powerhouse laboratory was renewed February 4, 2011.
- *Interim Sanitary Landfill* – SCDHEC personnel conducted an annual post-closure inspection of the Interim Sanitary Landfill on September 26, 2011. The landfill was found to be satisfactory (the highest possible rating), with no observed deficiencies.
- *On-site Laboratory Evaluation of the Waste Treatment Plant* – SCDHEC Office of Environmental Laboratory Certification representatives conducted an onsite audit of SRS's Waste Treatment Plant (also known as the Central Sanitary Waste Treatment Facility) on March 10, 2011 in support of renewing the laboratory certification. SCDHEC's report of the audit, issued on May 17, 2011, indicated changes needed on various standard operating procedures and related laboratory records. Additionally, SCDHEC identified that the off-site contract laboratory used by the SRS laboratory was not SCDHEC certified for biosolids preparation of fecal coliform biosolid samples. The off-site contract laboratory became certified for the preparation method and the standard operating procedures and laboratory records were revised. The laboratory certification of the Waste Treatment Plant was renewed on September 2, 2011.
- *Compliance Sampling Inspection (CSI) of NPDES Facilities* – A SCDHEC representative inspected NPDES facilities March 1 through 4, 2011. SRS earned the highest ratings possible in all nine categories evaluated.
- *CSI of D-Area NPDES Facilities* – SCDHEC representatives inspected NPDES wastewater outfalls at the D-Area Powerhouse August 16, 2011. No findings or other concerns were noted.
- *Compliance Air Inspection* – SCDHEC representatives inspected continuous emission monitoring systems at the D-Area Powerhouse on September 29, 2011. The inspection report stated that “No violations of permit requirements or applicable regulations were observed during this evaluation.”
- *Comprehensive Monitoring Evaluation* – SCDHEC representatives inspected SRS groundwater facilities-associated with the F-Area and H-Area Seepage Basins, M-Area Settling Basin, Metallurgical Lab Basin, Mixed Waste Management Facility (MWMF) and Sanitary Landfill on March 21 through 22, 2011. The inspection resulted in no findings and one observation of two damaged well signs. One sign was located at the F-Area Seepage Basin and the other at the MWMF. On May 13, 2011, SRS submitted a letter to SCDHEC informing them that the two damaged signs had been replaced with new signs.
- *Domestic Water Systems Inspection* – SCDHEC representatives inspected SRS's A-Area and D-Area domestic water systems March 21, 2011. SCDHEC found these systems to be operating in compliance with the State Primary Drinking Water Regulations.
- *Domestic Water Permit Inspections* – SCDHEC inspectors issued a new operating permit on July 14, 2011 for the domestic water system that serves the new administration building at the Advanced Tactical Training Area Range.
- *Industrial Wastewater Construction Permit Inspections* – Personnel from the SCDHEC Local Office conducted inspections to approve the operation or closure of a variety of industrial wastewater treatment projects including upgrades to the H-12 Outfall Humic Acid Chemical Injection System, the 105-C Disassembly Basin Evaporators, the D-Area Coal Pile Runoff Basin, the Waste Concentrate Hold Tank at the Effluent Treatment Facility, and the Caustic Storage Tank located in the H-Area Tank Farm throughout 2011.

Regulatory Self-Disclosures

Management of Nickel-Cadmium and Lithium batteries at SRNL- During an internal waste management audit at SRNL, several nickel-cadmium (Ni-Cad) batteries that should have been managed as universal waste were found in a storage room. Universal waste regulations

streamline hazardous waste management standards for certain widely generated wastes, such as batteries, pesticides, lamps and mercury-containing equipment, enabling collection and recycling. Eight of these batteries were marked as “spent” and exhibited dates more than one year old; dates ranged from August 20, 1999 to November 24, 2009. Also with the Ni-Cad batteries were some lithium (Li) batteries. SRS policy at the time of the audit was to manage Li batteries as hazardous waste. SRS recognizes that all of the Ni-Cad batteries should have been labeled as universal waste, dated, and transported to an off-site reclaiming facility within one year. Subsequent to the discovery, all of the Ni-Cad batteries have been managed as universal waste and are being recycled. The Li batteries were placed into a hazardous waste satellite accumulation area after discovery. SRS also has established a contract to recycle Li batteries, and all Li batteries at SRS are now being managed as universal waste. These battery issues were reviewed on April 19, 2011 by a SCDHEC inspector during the Compliance Evaluation inspection (CEI); the inspector accepted the explanations and actions. Closure on this item was completed when SRNS received the May 20, 2011 letter from SCDHEC documenting successful completion of the CEI.

The Management of a B-12 container in a 90-day Accumulation Area the R-Reactor Building - An audit of the inspection records for a 90-day accumulation area at R-Reactor found that a B-12 container was placed into the area for several days without a properly dated label. On September 2, 2010, the container was labeled and dated with its original start date of August 18, 2010. In addition, the inspection records show that the B-12 container was periodically removed from the 90-day accumulation area and taken back into the reactor building so that additional waste could be placed in the container. The area within the reactor building where the waste was generated was not an established 90-day accumulation area. The container was transported to permitted storage within 90 days of its start date. This 90-day accumulation area issue was reviewed on April 18, 2011 by a SCDHEC inspector during the CEI; the inspector accepted the explanation and actions. Closure on this item was completed when SRNS received the May 20, 2011 letter from SCDHEC documenting successful completion of the CEI.

The Operation of Dynamic Underground Stripping (DUS) Industrial Wastewater Demonstration Project - During a startup review of documentation, it was discovered that the temporary DUS approval had expired. As soon as this was realized, DUS soil vapor

extraction and groundwater extraction systems were shut down. Negotiations with SCDHEC resulted in approval to continue to operate the project until December 2012, contingent upon submittal of an Industrial Wastewater Permit Application for the project and summary report of the pilot study within 60 days of completion of the study. SRS submitted the permit application and review is ongoing by SCDHEC.

Continuous-Release Reporting

EPCRA (40 CFR 355.40) requires that reportable releases of extremely hazardous substances or CERCLA hazardous substances be reported to any local emergency planning committees and state emergency response commissions likely to be affected by the release. SRS had no EPCRA-reportable releases in 2011.

Unplanned Releases

Federally permitted releases 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 (RQ) of a hazardous substance (including radionuclides) occurs, CERCLA requires notification to the National Response Center. Reportable quantities are those quantities of a hazardous substance greater than or equal to values specified in table 302.4 (“Designation of Hazardous Substances”) of 40 CFR 302 (“Designation, Reportable Quantities, and Notification”). SRS had no CERCLA reportable releases in 2011. The CWA requires SRS to notify the National Response Center if an oil spill causes sheen on navigable waters, such as rivers, lakes, or streams. Oil spill reporting has been reinforced with liability provisions in the CERCLA National Contingency Plan.

No SCDHEC required notifications were made in 2011 due to the small quantities involved with each spill. However, one petroleum spill, a ruptured fuel hose that released 25 gallons of diesel fuel at the MOX Project, was reported to the SCDHEC local office in Aiken for informational purposes. The site recorded and cleaned up the following spills that did not require reporting under CERCLA or to SCDHEC, (because they were below the RQ): eight chemical, five sewage, and 80 petroleum product spills. None of the small oil spills that occurred in 2011 required a call to the National Response Center.

No unplanned environmental releases (radioactive and nonradioactive) occurred at SRS in 2011 that required sampling and analytical services.

Permits

SRS had 509 construction and operating permits in 2011 that specified operating levels for each permitted source. Table 3-5 identifies these permits. These numbers, which reflect permits for all primary contractors and tenant organizations at SRS, with the exception of Ameresco, include some permits that were voided or closed during 2011.

Table 3-5 SRS Construction and Operating Permits, 2011

Type of Permit	Number of Permits
Air	9
U.S. Army Corps of Engineers — Section 10, Rivers & Harbors Act of 1899	1
U.S. Army Corps of Engineers Nationwide Permit	2
U.S. Army Corps of Engineers — 404 Permit (Dredge and Fill)	1
Asbestos Demolition/Abatement	20
Domestic Water	222
Industrial Wastewater	76
NPDES Discharge	2
NPDES No Discharge	1
NPDES General Utility Water Permit	1
Stormwater Discharge	1
Construction Stormwater Grading Permit	10
RCRA Hazardous Waste	1
RCRA Solid Waste	5
RCRA Underground Storage Tank	7
Sanitary Wastewater	119
SC Department of Natural Resources Scientific Collecting Permit	1
SCDHEC 401	1
SCDHEC Navigable Waters	1
Underground Injection Control	28
Total	509

Note: The “Compliance Summary” chapter is unique in that its number of contributing authors is far greater than the number for any other chapter in this report. Space/layout constraints prevent us from listing all of them and their organizations on the chapter’s first page, so we list them here instead. Their contribution, along with those of the report’s other authors, continue to play a critical role in helping us produce a quality document—and are very much appreciated.

Savannah River Nuclear Solutions

Art Timms	Lori Coward
Ben Terry	Lynn Martin
Bill Maloney	Mike Griffith
Carl Shealy	Nancy Lowry
Cary Stevens	Reginald Robinson
Charles Bishop	Robert Backer
Ginger Humphries	Rod Hutto
Greta Fanning	Shelia McFalls
Hal Morris	Stephanie Yazzie
Jeff Lintern	Ted Millings
Jim Fudge	Tim Faugl
John Harley	Timothy Jannik
Keith Dyer	Tracy Bryant
Kim Wolfe	Vivian Cato
Larry Eldridge	

Savannah River Remediation WSI-SRS

Ron Campbell	Julie Wilson
Keith Liner	
Owen Stevens	

Shaw-Areva MOX Services Ameresco

Carl Mazzola	Ken Chacey
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Parsons Savannah River Archaeological Research Program

Richard Gurske	Keith K. Stephenson
----------------	---------------------

Savannah River Ecology Laboratory

Donald Mosser