

Chapter 3

Environmental Compliance

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It is the policy of the U.S. Department of Energy (DOE) that all activities at the Savannah River Site (SRS) be carried out in full compliance 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 the operations at SRS. The purpose of this chapter is to report on the status of SRS compliance with these various statutes and programmatic documents. Some key regulations with which SRS must comply, and the compliance status of each, are listed in table 3-1.

This chapter also will provide information on Notices of Violation (NOV) issued by the U.S. Environmental Protection Agency (EPA) or the South Carolina Department of Health and Environmental Compliance (SCDHEC). NOV's are the regulatory tool used to inform organizations when their activities do not meet expected requirements. These can include NOV's against the organization's permitted activities or against the general contents of environmental regulations, such as failing to obtain construction permits prior to construction of new air release sources.

Compliance Activities

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) was passed in 1976 to address solid and hazardous waste management. The law requires that EPA regulate the management of solid and hazardous wastes, such as spent solvents, batteries, and many other discarded substances potentially harmful to human health and the environment. Amendments to RCRA regulate nonhazardous solid waste and some underground storage tanks.

Hazardous waste generators, including SRS, must follow specific requirements for handling these wastes. SRS received no RCRA-related NOV's during 2005.

Land Disposal Restrictions

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

Treatability variances are an option available to waste generation facilities if alternate treatment methods are appropriate for specific waste streams. SRS has identified three mixed waste streams that are potential candidates for a treatability variance. Because of special problems associated with radioactive components, these variances have been completed and sent to EPA, where they continue to await approval.

Federal Facility Compliance Act

The Federal Facility Compliance Act (FFCA) 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) consent order (95-22-HW, as amended) was obtained and implemented in 1995, as required by the FFCA. A Statement of Mutual Understanding (SMU) for Cleanup Credits was executed in October 2003. The SMU allows SRS to earn credits for certain accelerated cleanup actions. Credits then can be applied to the STP commitments. SRS submitted to SCDHEC an annual update to the approved STP in November 2005 that identified changes in mixed waste treatment and inventory. Changes in the 2005 update include the addition of the transuranic (TRU) mixed waste from the Battelle Columbus (Ohio) Site, (SR-W092). The changes identified and approved by SCDHEC for the 2004 STP update also have been included in the 2005 update. STP updates will continue to be produced annually unless provisions of the consent order are modified.

Underground Storage Tanks

The 19 underground storage tanks at SRS that house petroleum products and hazardous substances, as defined by the Comprehensive Environmental

Table 3–1
Some Key Regulations With Which SRS Must Comply

Legislation	What It Requires	Compliance Status
RCRA Resource Conservation and Recovery Act	The management of hazardous and nonhazardous wastes and of underground storage tanks containing hazardous substances and petroleum products	In compliance
FFCA Federal Facility Compliance Act	The development by DOE of schedules for mixed waste treatment to meet LDR requirements	In compliance
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	In compliance
CERCLA/Title III (EPCRA) Emergency Planning and Community Right-to-Know Act (1986)	The reporting of hazardous substances used on site (and their releases) to EPA, state, and local planning units	In compliance
NEPA National Environmental Policy Act (1969)	The evaluation of the potential environmental impact of federal activities and alternatives	In compliance
SDWA Safe Drinking Water Act (1974)	The protection of public drinking water systems	In compliance
CWA: NPDES Clean Water Act (1977); National Pollutant Discharge Elimination System	The regulation of liquid discharges at outfalls (e.g., drains or pipes) that carry effluents to streams	In compliance
CAA; NESHAP Clean Air Act (1970); National Emission Standards for Hazardous Air Pollutants	The establishment of air quality standards for criteria pollutants, such as sulfur dioxide and particulate matter, and hazardous air emissions, such as radionuclides and benzene	In compliance
TSCA Toxic Substances Control Act (1976)	The regulation of PCB use and disposal	In compliance

Response, Compensation, and Liability Act (CERCLA), are regulated under Subtitle I of RCRA. These tanks require a compliance certificate annually from SCDHEC to continue operations. SCDHEC conducts an annual compliance inspection and records audit prior to issuing the compliance certificate. SCDHEC's 2005 inspection and audit found all 19 tanks to be in compliance.

Liquid Radioactive Waste Tank Closure

The primary regulatory goal of SRS's waste tank closure process at the F-Area and H-Area liquid radioactive waste tank farms is to close the tank systems in a way that protects public health and the environment in accordance with SCDHEC's Regulation 61–82, "Proper Closeout of Wastewater Treatment Facilities."

Tanks 17F and 20F were closed in 1997. Waste heel removal was completed in 2003 for tanks 18F and 19F and the evaporator system. The residual material for these facilities has been sampled and characterized. These three systems have been isolated and require only administrative safety basis controls. The next action for these tanks is completion of a waste determination in accordance with Section 3116 of the National Defense Authorization Act prior to grouting and operational closure.

In 2003, the Federal Court for the District of Idaho ruled that DOE's process for determining that small quantities of residual waste could remain in high-level waste tanks was inconsistent with the Nuclear Waste Policy Act. On October 28, 2004, President George W. Bush signed

the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005. Section 3116 of the Act authorizes the Secretary of Energy, in consultation with the Nuclear Regulatory Commission, to determine that certain waste from reprocessing is not high-level waste. The criteria set forth in that section are as follows: (1) it does not require permanent isolation in a deep geologic repository for spent fuel or liquid radioactive waste; (2) it has had highly radioactive radionuclides removed to the maximum extent practical; (3) it does not exceed concentration limits for Class C low-level waste and will be disposed in accordance with Title 10, Subpart C, Part 61, of the Code of Federal Regulations and pursuant to a state-approved closure plan, or, if it exceeds Class C concentration limits, then will be disposed in accordance with Title 10, Section 61.55, of the Code of Federal Regulations and pursuant to a state-approved closure plan; and (4) it complies with performance objectives set out in subpart C of NRC regulations (10 CFR 61). DOE had begun preparation of the documentation by the end of 2004. A "Draft Section 3116 Determination for Closure of Tank 19 and Tank 18 at the Savannah River Site," dated September 30, 2005, has been issued to the NRC. DOE and the NRC have agreed to have several technical workshops open to the public to discuss issues related to the tank closure determination under Section 3116.

Activities are under way to revise the General Closure Plan and Tank Closure Modules for tanks 18F and 19F and the evaporator system, consistent with the new legislation to support closure. Federal Facility Agreement (FFA) dates for the operational closure of radioactive liquid waste tanks 18F and 19F were revised in 2004 with the approval of SCDHEC and EPA Region 4. The revised closure-complete dates for tanks 19F and 18F are October 31, 2006, and February 28, 2007, respectively, but DOE-SR will be renegotiating the FFA commitment in 2006.

Waste Minimization/Pollution Prevention (WMin/P2) Program

At the Savannah River Site (SRS), all operations are committed to increasing Pollution Prevention (P2) awareness and implementing waste management improvement opportunities. Pollution prevention is integral to the SRS Environmental Management Policy, Environmental Management System (EMS), and Integrated Safety Management System (ISMS). The Waste Minimization/Pollution Prevention Program provides SRS a safe, effective, and environmentally responsible strategy for implementing specific waste reduction techniques based on current and projected information on waste generation, waste characterization,

and ultimate waste disposal costs. SRS embraces pollution prevention as a primary strategy to operate in a compliant, cost-effective manner that protects the environment and the safety and health of employees and the public. SRS's P2 Program establishes the environmental management preference of source reduction and recycling over treatment, storage, and disposal, and the preferred use of energy efficient and resource conservative practices and operations.

The Waste Minimization/Pollution Prevention Program scope includes both infield generator and sitewide coordination programs. The generator program, responsible for implementation of facility-specific improvement initiatives, is funded through each generator's operating budget.

Sitewide program coordination, which is managed by the Waste Management Area Project organization, is separately funded and provides the following:

- management support of Waste Minimization/Pollution Prevention Program activities
- technical assistance for facility walkdowns, lifecycle waste cost analyses, and pollution prevention opportunity assessments
- forums for waste minimization and P2 information and technology exchanges
- employee P2 awareness and training programs
- contaminated-metal and large-equipment recycling and disposition
- mechanisms to increase waste generator accountability through the Solid Waste Management Committee
- completion of required annual plans and reports
- implementation of sitewide initiatives such as sanitary waste recycling, Green-Is-Clean (GIC) programs, and other cost-cutting measures
- establishing a P2 component into the Site Communication Plan to increase public awareness and support

P2 Program Results

The SRS Pollution Prevention Program is mature and well integrated with operations and cleanup activities. Accomplishments in 2005 included the following:

- SRS completed 44 documented P2 projects, resulting in an annualized avoidance of 5,684 cubic meters of waste in FY2005. Annual cost avoidance resulting from the 44 documented P2 projects was \$28.3 million.

- SRS has comprehensive industrial and office waste recycling programs that recycled over 3,470 tons of office and industrial waste, a total of 25 percent of these combined waste streams.
- Each year, DOE recognizes its top pollution prevention achievers through the DOE National P2 Awards Program. DOE–HQ announced that SRS won three National DOE P2 Awards in 2005 and was a co-winner of an additional award. DOE also initiated the P2 Star Award, which selects the best award winner in each of the six award categories. DOE–HQ, at its Earth Day Celebration, presented two P2 Star Awards to SRS.

Comprehensive Environmental Response, Compensation, and Liability Act

SRS was placed on the National Priority List in December 1989, under the legislative authority of CERCLA (Public Law 96–510), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA, Public Law 99–499). In accordance with Section 120 of CERCLA, DOE, EPA Region 4, and SCDHEC entered into the FFA, which became effective August 16, 1993.

SRS has 515 waste units in the Soil and Groundwater Closure Projects program. At the end of CY05, remediation was in progress, or had been completed, in 368 units and areas (320 complete and 48 in the remediation phase). Closure activities during FY05 included the following:

- Three RCRA Facility Investigation/Remedial Investigations (RFI/RI) were initiated.
- Six remedial actions were initiated.
- Two remedial actions were completed, with post-construction reports/final remediation reports submitted.
- No removal actions were initiated.
- Three records of decision (RODs) were submitted.
- Three RODs were approved.
- Five RODs with certification signatures were issued.
- Two Explanations of Significant Difference (ESDs) were submitted.
- Two ESDs were issued.

- One interim-action post-construction report was submitted.

A listing of all waste units at SRS can be found in appendix C (“RCRA/CERCLA Units List”) and appendix G (“Site Evaluation List”) of the FFA.

Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA) of 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 Toxic Chemical Release Inventory report to include source reduction and recycling activities.

Tier II Inventory Report

Under Section 312 of EPCRA, SRS completes an annual Tier II 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 by March 1 for the previous calendar year.

Toxic Chemical Release Inventory Report

Under Section 313 of EPCRA, SRS must file an annual Toxic Chemical Release Inventory report by July 1 for the previous year. SRS calculates chemical releases to the environment for each regulated chemical that exceeds its established threshold, and reports the release values to EPA on Form R of the report.

For 2005, SRS reported the following chemicals that exceeded their thresholds: chlorine, chromium, formic acid, lead, manganese, mercury, nickel, nitrate, nitric acid, sodium nitrite, and zinc. Lead, nitrate, and zinc were the largest contributors to the total releases. Specific details, including release amounts and detailed information about TRI reporting, can be viewed at the EPA website.

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 applicable reporting requirements for EPCRA, as indicated in table 3–2, and the site incorporates the toxic chemicals on the Toxic Release Inventory report into its pollution prevention efforts.

Table 3–2
SRS Reporting Compliance with Executive Order 12856

EPCRA Citation	Activity Regulated	Reported per Applicable Requirement
302–303	Planning Notification	Not Required ^a
304	Extremely Hazardous Substances Release Notification	Not Required ^a
311–312	Material Safety Data Sheet/ Chemical Inventory	Yes
313	Toxic Release Inventory Reporting	Yes

^aNot required to report under provisions of “Executive Order 12856” and SARA Title III Reporting Requirements

National Environmental Policy Act

The National Environmental Policy Act (NEPA) establishes policies and goals for the protection, maintenance, and enhancement of the human environment in the United States. NEPA provides a means to evaluate the potential environmental impact of major federal activities that could significantly affect the quality of the environment and to examine alternatives to those actions.

In 2005, 316 reviews of newly proposed actions were conducted at SRS and formally documented. A summary of NEPA activities conducted on site in 2005 is presented in table 3–3. Among the specific activities were the following:

- *Environmental Assessment for the National Pollutant Discharge Elimination System Wastewater Compliance Alternatives at the SRS* – DOE evaluated the potential impacts of proposed and alternative actions at 10 industrial outfalls to achieve NPDES permit compliance (DOE/EA–1513).
- *Environmental Assessment for the Storage of Tritium-Producing Burnable Absorber Rods in K-Area Transfer Bay at the SRS* – DOE evaluated the potential impacts of proposed and alternative actions to provide safe and secure storage of irradiated tritium-producing burnable absorber rods until the Tritium Extraction Facility is ready to receive and process the material (DOE/EA–1528).
- *Environmental Assessment for the Safeguards and Security Upgrades for Storage of Plutonium Materials at the SRS* – DOE evaluated the potential impacts of proposed and alternative actions to meet DOE–STD–3013 surveillance and stabilization requirements and to enhance physical safety and

security for plutonium-bearing materials stored at SRS (DOE/EA–1538).

- *Environmental Assessment for Natural Resources Management Activities at the SRS* – DOE evaluated the potential impacts of continued management of SRS natural resources. A revised finding of no significant impact was issued to signify that the recently published *Natural Resources Management Plan* would result in no impacts not evaluated within the scope of the original NEPA review.
- *Programmatic Environmental Impact Statement (PEIS) for Disposition of Scrap Metals (DOE/EIS–0327)* – DOE will evaluate alternatives for disposition of DOE scrap metals that may have been in radiological areas. The disposition options to be analyzed include continuation of the suspension on unrestricted release of metals for recycling, unrestricted release of scrap metals for recycling, and disposal. The NEPA schedule is uncertain.

Table 3–3
Summary of NEPA Activities at SRS During 2005

Type of NEPA Documentation	Number
Categorical Exclusion	292
Tiered to Previous NEPA Documentation	19
Environmental Assessments	4
Engineering Evaluation/Cost Analysis	4
Environmental Impact Statement	1
Supplemental Environmental Impact Statement	1
Programmatic Environmental Impact Statement	1
Total	322

- *Supplemental Programmatic Environmental Impact Statement (PEIS) on Stockpile Stewardship and Management for a Modern Pit Facility (DOE/EIS-0236-S2)* – DOE will evaluate alternative sites (Los Alamos National Laboratory, Nevada Test Site, Pantex Plant, and SRS) for a Modern Pit Facility to provide the capability to manufacture plutonium pits for the United States nuclear weapons stockpile. This supplemental PEIS will be followed by a tiered, project-specific EIS to address the impacts of construction and operations of this facility at the selected site. The draft PEIS was issued in June 2003. The final supplemental PEIS has been delayed due to Congressional concerns about the timing and scope of the project.

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 17 separate systems, all of which utilize groundwater sources. The A-Area, D-Area, and K-Area systems are actively regulated by SCDHEC, while six of the remaining site 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 2005 met these standards.

Although the B-Area Bottled Water Facility no longer is listed by SCDHEC as a public water system, SCDHEC's Division of Food Protection will continue to conduct periodic inspections of this facility. Results from routine bacteriological analyses and annual complete chemical analyses performed in 2005 met SCDHEC and FDA water quality standards.

SCDHEC conducted its biannual sanitary survey of the A-Area, D-Area, and K-Area domestic water systems in March 2005. Only a few minor "findings and recommendations" were noted during the survey, and all systems received "satisfactory" ratings.

SRS received no NOVs in 2005 under the SDWA.

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 nonradiological effluents into streams, reservoirs, and wetlands.

SRS had three NPDES permits in 2005:

- One permit for industrial wastewater discharge (SC0000175)
- Two general permits for stormwater discharge (SCR000000 for industrial and SCR100000 for construction)

A new NPDES general permit for industrial stormwater (SCR000000) was issued July 22, 2004. The permit was appealed, and the subsequent resolution of the appeal resulted in an implementation date of July 1, 2005.

More information about the NPDES permits can be found in chapter 4, "Effluent Monitoring."

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.

During 2005, SRS received from SCDHEC a final rating of "satisfactory"—the highest rating given—for the annual (2004) 2-week audit of the site's NPDES permitted outfalls. The 2005 audit was conducted in October, and no deficiencies or issues were identified. The site subsequently received a final rating of "satisfactory" for this audit as well.

The outfalls covered by the industrial stormwater permit (SCR000000) were reevaluated in 2004. This resulted in the development of a new sampling plan, which was implemented in 2005. Additional sampling was performed to determine the level of stormwater discharge compliance with new permit requirements. Results of stormwater outfall sampling appear in an effluent monitoring data table on the CD accompanying this report.

Under the Code of Federal Regulations (CFR) Oil Pollution Prevention regulation (40 CFR 112), SRS must report petroleum product discharges of 1,000 gallons or more into or upon the navigable waters of the United States, or petroleum product discharges in harmful quantities that result in oil sheens. No such incidents occurred at the site during 2005.

SRS has an agreement with SCDHEC to report petroleum product discharges of 25 gallons or more to the environment. No such incident occurred at the site during 2005.

Notices of Violation (NPDES)

SRS's 2005 compliance rate for the NPDES program under the CWA was 99.97 percent.

Only one exceedance occurred at SRS NPDES outfalls in 2005. A section of the channel bank at the A-11 outfall collapsed during a March 8 storm event, resulting in a high total suspended solids concentration. A table showing outfall location, probable cause, and corrective actions can be found in chapter 4 (table 4-4).

The site did not receive any NOV's under the NPDES program in 2005.

Dredge and Fill; Rivers and Harbors

The CWA, Section 404, "Dredge and Fill Permitting," as amended, and the Rivers and Harbors Act, Section 9 and 10, "Construction Over and Obstruction of Navigable Waters of the United States," protect U.S. waters from dredging and 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 33 CFR and 40 CFR.

In 2005, SRS conducted activities under four Nationwide Permits (NWP's) as part of the NWP program (general permits under Section 404), but none under an individual Section 404 permit. The activities were 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 still must be addressed before the permit can be considered closed.
- Construction of the Mixed Waste Management Facility dam intake structure modification continued under NWP-38, "Hazardous Waste Cleanup." The modification will improve the efficiency of the treatment system for tritium. The approved permit was received in 2004.
- The installation of a well by Soil and Groundwater Closure Projects in a wetland adjacent to Tims Branch was covered under NWP-5, "Scientific Measurement Devices."
- The installation of a sampling platform downstream of the Highway 125 bridge crossing Steel Creek was covered under NWP-5, "Scientific Measurement Devices."

Construction in Navigable Waters

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

No Construction in Navigable Waters permit activities occurred in 2005.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act controls the application of restricted-use pesticides at SRS through a state-administered certification program. The site complies with these requirements through Procedure 8.1, "Federal Insecticide, Fungicide, and Rodenticide Act Compliance for Use of Pesticides," of the Environmental Compliance Manual (WSRC 3Q).

The SRS pesticide procedure provides guidelines for pesticide use and requires that applicators of restricted-use pesticides be state certified. Extensive revisions of the procedure, begun in 2004, were completed in 2005 to improve the efficiency of the site pesticide-application approval process. The most significant changes involved (1) dropping the requirement for a formal pesticide program plan for the application of *unrestricted* pesticides and (2) renewing emphasis on the importance of completing a Pesticide Activity Report (PAR) within 14 days (formerly 15) of any site pesticide application.

Clean Air Act

Regulation and Delegation

The Clean Air Act (CAA) 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 CAAA 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 CAAA Part 70 Operating Permit Program. On

February 19, 2003, SCDHEC's Bureau of Air Quality issued SRS its Part 70 Air Quality Permit, TV-0080-0041, which had an effective date of April 1, 2003, and an expiration date of March 31, 2008. As issued, the Part 70 Air Quality Permit regulates both radioactive and nonradioactive toxic and criteria pollutant emissions from approximately 47 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 1,200 SRS sources that are exempt based on insignificant emission levels, or on equipment size or type. No air construction permits were submitted to SCDHEC in 2005.

During 2005, SCDHEC issued two revisions to the SRS Part 70 Air Quality Permit, including one significant modification and several minor and administrative changes.

Compliance with the SRS Part 70 Air Quality Permit conditions was evaluated by SCDHEC during 2005 as part of the Annual Air Compliance Inspection conducted the week of June 20. It was determined that SRS air emission sources were operating in compliance with their respective permit conditions and limitations.

Notices of Violation (CAA)

No Notices of Violation were issued to SRS under the CAA in 2005.

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 air emissions containing hazardous air pollutants, such as radionuclides, benzene, and asbestos.

NESHAP Radionuclide Program The current list of 189 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's Savannah River Operations Office (DOE-SR) and EPA Region 4 signed a Federal Facility Compliance Agreement (FFCA) 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 May 10, 1995. Subpart H was revised by EPA 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.

During 2005, the maximally exposed individual effective dose equivalent, calculated using the NESHAP-required CAP88 computer code, was estimated to be 0.05 mrem (0.0005 mSv), which is 0.5 percent of the 10 mrem per year (0.10 mSv per year) EPA standard (chapter 6, "Potential Radiation Doses").

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. Under Title III of the federal Clean Air Act Amendments (CAAA) of 1990, EPA in December 1993 issued a final list of hazardous air pollutant-emitting source categories potentially subject to maximum achievable control technology (MACT) standards.

During 2005, EPA revised one MACT rule that applies to the SRS Consolidated Incineration Facility. The rule, "Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustor (Phase I Final Replacement Standards and Phase II)," became effective September 14.

In an attempt to regulate hazardous or toxic air pollutants in South Carolina, SCDHEC amended Air Pollution Control Regulation 61-62.5, Standard No. 7, "Prevention of Significant Deterioration," and added a new standard, 7.1, "Nonattainment New Source Review," in June 2005. To date, SRS has continued to demonstrate compliance with this standard for all existing and new sources of toxic air pollutants.

NESHAP Asbestos Abatement Program SRS began its asbestos abatement program in 1988 and continues to manage asbestos-containing material by "best management practices." Site compliance in asbestos abatement, as well as demolitions, falls under South Carolina and federal regulations, including SCDHEC Regulation R.61-86.1 ("Standards of Performance for Asbestos Projects") and 40 CFR 61, Subpart M ("National Emission Standards for Hazardous Air Pollutants - Asbestos").

During 2005, SRS personnel removed and disposed of an estimated 19,077 square feet, 8,380 linear feet, and 500 cubic feet of regulated asbestos-containing material. SRS personnel also removed 181,267 square feet and 10,309 linear feet of nonregulated asbestos-containing material.

Radiological asbestos waste was disposed of at the SRS E-Area low-level vaults, engineered trench, and slit trench, which are permitted by SCDHEC as asbestos waste disposal sites. Nonradiological asbestos waste was disposed of at the Three Rivers Solid Waste Authority Landfill and the C&D Landfill (Building 632-G), which also are SCDHEC-approved asbestos waste landfills.

Accidental Release Prevention Program

Under Title III of the CAAA, 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 thresholds must develop a risk management program (RMP). The RMP establishes methods that will be used for the containment and mitigation of large chemical spills. No such accidental releases occurred at SRS during 2005.

SRS's RMP maintains hazardous and extremely hazardous chemical inventories below the threshold quantity. 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). To date, no hazardous or extremely hazardous chemical releases have been reported by SRS.

EPA issued a revision to its RMP final rule in 2004, changing reporting requirements of its chemical accident prevention regulations. Chemical facilities subject to these regulations now are required to submit significant-chemical-accident information and emergency contact information. These changes seek to improve and assist federal, state, and local risk management programs in implementing the new homeland security measures.

Ozone-Depleting Substances

Title VI of the CAAA of 1990 addresses stratospheric ozone protection. This law requires that EPA establish regulations to phase out the production and consumption of ozone-depleting substances (ODSs).

Several sections of Title VI of the CAAA of 1990, along with recently established EPA regulations found

in 40 CFR 82, apply to the site. The ODSs are regulated in three general categories, as follows:

- *Class I substances* – chlorofluorocarbons (CFCs), Halons, carbon tetrachloride, methyl chloroform, methyl bromide, and hydrobromofluorocarbons (HBFCs)
- *Class II substances* – hydrochlorofluorocarbons (HCFCs)
- *Substitute substances*

The "Savannah River Site Refrigerant Management Plan," completed and issued in September 1994, provides guidance to assist SRS and DOE in the phaseout of CFC refrigerants and equipment.

SRS has reduced CFC refrigerant usage in large ODS emission sources more than 99 percent compared to 1993 baseline data.

The SRS CAAA of 1990 Title V operating air permit application includes ODS emission sources. All large (greater than or equal to 50-pound charge) heating, ventilation, and air conditioning/chiller systems for which there are recordkeeping requirements are included as fugitive emission sources.

SRS is phasing out its use of Halon as part of a goal to eliminate the use of Class I ODSs by 2010 "to the extent economically practicable." A Halon 1301 management plan (F-ESR-G-00120, November 16, 2005) and schedule have been developed by Fire Protection Services to help meet DOE's goal. The plan includes an SRS Halon 1301 fire suppression system inventory that identifies systems in operation, systems abandoned in place, and systems that have been dismantled and taken to the DOE complex's Halon repository, located at SRS.

Halon 1301 total inventory on site decreased from 75,664 pounds in 2004 to 73,800 pounds in 2005. The site had an inventory of 53,000 pounds of stored Halon 1301 at the end of 2005. In addition, 21,000 pounds are contained in the 90 operating systems (down from 111 in 2002).

Air Emissions Inventory

SCDHEC Regulation 61-62.1, Section III ("Emissions Inventory"), requires compilation of an air emissions inventory for the purpose of locating all sources of air pollution and defining and characterizing the various types and amounts of pollutants. To demonstrate compliance, SRS personnel conducted the initial comprehensive air emissions inventory in 1993. The inventory identified approximately 5,300 radiological and nonradiological air emission sources. Source

operating data and calculated emissions from 1990 were used to establish the SRS baseline emissions and to provide data for air dispersion modeling. This modeling was required to demonstrate sitewide compliance with Regulation 61–62.5, Standard No. 2 (“Ambient Air Quality Standards”), and Standard No. 8 (“Toxic Air Pollutants”).

Regulation 61–62.1, Section III, which was revised August 26, 2005, requires that inventory data be updated and recorded annually but reported to SCDHEC on reporting frequency (formerly every even year)—either an annual cycle for “Type A” sources or a 3-year cycle for “Type B” and “Nonattainment Area” sources—based on “minimum reporting thresholds.” The thresholds depend on the actual tons per year of specific criteria pollutants. The site will be required to compile and report CY 2005 emissions data to SCDHEC by March 31, 2006. In 2005, the site collected CY 2004 operating data for permitted and other significant sources in accordance with SRS procedures and guidelines. Because data collection for all SRS sources begins in January and requires up to 6 months to complete, this (2005) site environmental report provides emissions data for CY 2004. Compilation of 2005 data will be completed in 2006, submitted to SCDHEC, and reported in the *SRS Environmental Report for 2006*.

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 WSRC policies.

The site’s 2004 PCB document log was completed in full compliance with 40 CFR 761, and the 2004 annual report of onsite PCB disposal activities was submitted to EPA Region 4 in July 2005. The disposal of nonradioactive PCBs routinely generated at SRS is conducted at EPA-approved facilities within the regulatory period. For some forms of radioactive PCB wastes, disposal capacity is not yet available, and

the wastes must remain in long-term storage. Such wastes are held in TSCA-compliant storage facilities in accordance with 40 CFR 761.

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 threatened and endangered species exist at SRS, including the wood stork, the red-cockaded woodpecker, the bald eagle, the shortnose sturgeon, the pondberry, and the smooth purple coneflower. Programs designed to enhance the habitat and survival of such species are in place.

A biological evaluation was prepared for SRS in 2005 to support activities addressed in the “Environmental Assessment for the Safeguard and Security Upgrades for storage of Plutonium Materials at Savannah River Site,” DOE/AE–1538. Also, to ensure protection of threatened and endangered species, three biological assessments and biological evaluations were conducted to evaluate potential impacts of forestry-related activities. None of these activities were found to have had any significant potential impact on threatened and endangered species.

National Historic Preservation Act

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

In addition, the site helps ensure that it remains in compliance with NHPA through its Site Use Program. All sites 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.

SRARP personnel reviewed 45 site-use packages during 2005, of which four proposed land modifications resulted in the need to survey 163 acres. The remainder of the site-use packages were found to have no activities of significant impact in terms of the NHPA. SRARP personnel also surveyed 895 acres in 2005 in support of onsite forestry activities.

The surveys of the 1,158 total acres resulted in 44 site investigations—34 of which involved new archaeological sites—and in revisits to 10 previously recorded sites for cultural resources management.

To comply with NHPA, Site 38AK155 was excavated as mitigation in anticipation of construction at the Surplus Plutonium Disposition Facilities site. The excavation was completed in 2004, and 64,185 artifacts were curated by SRARP in 2005.

Floodplains and Wetlands

Under 10 CFR, Part 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 entitled “Floodplain/Wetland Assessment for Selected National Pollutant Discharge Elimination System Wastewater Permit Compliance Alternatives at the Savannah River Site” was begun in 2004 and completed in 2005.

Executive Order 11988

Executive Order 11988 (“Floodplain Management”) was established to avoid long- and short-term impacts associated with the occupancy and modification of floodplains. The evaluation of impacts to SRS floodplains is ensured through the NEPA Evaluation Checklist and the site-use system. Site-use applications are reviewed for potential impacts by WSRC, DOE–SR, the USDA Forest Service–Savannah River and the Savannah River Ecology Laboratory (SREL), as well as by professionals from other organizations.

Executive Order 11990

Executive Order 11990 (“Protection of Wetlands”) was established to mitigate adverse impacts to wetlands caused by the destruction and modification of wetlands, and to avoid new construction in wetlands wherever possible. Avoidance of impact to SRS wetlands is ensured through the site-use process, various departmental procedures and checklists, and project reviews by the SRS Wetlands Task Group. Many groups and individuals—including scientists from SRNL, SREL, and the Environmental Services Section—review site-use applications to ensure that proposed projects do not impact wetlands.

Environmental Release Response and Reporting

Response to Unplanned Releases

Environmental Permitting and Monitoring (EPM) personnel respond to unplanned environmental releases, both radiological and nonradiological, upon request by area operations personnel. No unplanned environmental releases occurred at SRS in 2005 that required the sampling and analysis services of EPM.

Occurrences Reported to Regulatory Agencies

Federally permitted releases comply with legally enforceable licenses, permits, regulations, or orders. If a nonpermitted release to the environment of a reportable quantity or more of a hazardous substance (including radionuclides) occurs, CERCLA requires notification of the National Response Center. Also, the CWA requires that the National Response Center be notified if an oil spill causes a “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.

SRS had no CERCLA-reportable releases in 2005. This performance trend dates back to 2000. The site had one release in 1999 and one in 1998.

No notifications required by CERCLA or SCDHEC memoranda of understanding had to be made by SRS during 2005. The site recorded and cleaned up the following nonreportable spills; 11 chemical, four sewage, six motor oil, 19 hydraulic oil, eight diesel fuel, and two gasoline.

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. No EPCRA-reportable releases occurred in 2005.

Site Item Reportability and Issues Management Program

The Site Item Reportability and Issues Management (SIRIM) program, mandated by DOE Order 232.1A (“Occurrence Reporting and Processing of Operations Information”) is designed to “. . . establish a system for reporting of operations information related to DOE-owned or operated facilities and processing of that information to provide for appropriate corrective action . . .” It is the intent of the order that DOE be “. . . kept fully and currently informed of all events which could (1) affect the health and safety of the public; (2) seriously impact the intended purpose of DOE facilities; (3) have a noticeable adverse effect on the environment; or (4) endanger the health and safety of workers.”

Of the 194 SIRIM-reportable events in 2005, the following was categorized as environmental:

- *Exceedance of site air operating permit.* - During startup on a RCRA groundwater cleanup project, the actual emissions were greater than anticipated. A permit modification was submitted to allow for higher instantaneous releases associated with current groundwater cleanup efforts.

Assessments/Inspections

The SRS environmental program is overseen by a number of organizations, both outside and within the DOE complex. In 2005, the WSRC environmental appraisal program 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 WSRC assessment program are to ensure compliance with regulatory requirements and to foster continuous improvement. The program is an integral part of the site’s Safety Management System and supports the SRS Environmental Management System, which continues to meet the standards of International Organization for Standardization (ISO) 14001. (ISO 14000 is a family of voluntary environmental management standards and guidelines.)

WSRC conducted several environmental program-level assessments in 2005. The topics included

- Waste Classification
- Monitoring Interaction with Laboratories
- Waste Sampling and Analysis
- Site Use/Site Clearance Permit Issuance
- Waste Management (Mixed Waste Management)
- NPDES Wastewater Outfalls
- Waste Characterization Plan
- Biological Monitoring Programs
- Stormwater Management
- Verification of Completion of EMS

During 2005, personnel from DOE–SR’s Environmental Quality and Management Division continued to perform direct oversight and evaluation of WSRC’s self-assessment program. Completed DOE assessments have met with positive results; routine assessments have promoted improvement and helped ensure the adequacy of environmental programs and operations at SRS.

SCDHEC and EPA personnel also performed external inspections of the SRS environmental program for regulatory compliance. Agency representatives performed several comprehensive compliance inspections in 2005, as follows:

- *RCRA Compliance Evaluation Inspection* – The 2005 annual compliance evaluation inspection was conducted by SCDHEC. A September 28 letter noted one deficiency, which was corrected during the inspection; no NOV was included. The 2004 CEI, conducted by EPA and SCDHEC, was closed without fine or penalty by an October 25, 2005, letter from SCDHEC.
- *Annual Air Compliance Inspection* – SCDHEC conducted the annual air compliance inspection of operating SRS permitted sources. The site was found to be in compliance with each source’s respective permit condition and requirement.
- *Annual Underground Storage Tank Inspection* – SCDHEC inspected the site’s underground storage tanks. All were found to be in compliance with applicable regulations.

- *Annual NPDES 3560 Compliance Audit* – SCDHEC conducted the annual 3560 environmental audit of the site’s NPDES-permitted outfalls. As of December 31, SRS had not received the final audit report, so the final rating for the site was not known.
- *Quarterly Inspections of SRS Bottled Water Facility* – SCDHEC conducted quarterly inspections of the SRS Bottled Water Facility. The facility was found to be in compliance.
- *Burma Road C&D Landfill* was officially closed after a September 26, 2005, inspection by SCDHEC. A letter dated October 5 from SCDHEC documented the closure.
- *632-G C&D Landfill, 288-F Industrial Waste Landfill, and Saltstone Inspection* – SCDHEC conducted quarterly inspections, and all the sites were found to be satisfactory, with no observed deficiencies, but SCDHEC did express concern about the slope of the working face at 632-G.
- *Interim Sanitary Landfill* – SCDHEC personnel conducted an annual postclosure inspection, and the site was found to be satisfactory, with no observed deficiencies.
- *Groundwater Comprehensive Monitoring Evaluation* – SCDHEC conducted an unannounced RCRA inspection of SRS’s groundwater program. No deficiencies or permit violations were cited.

Environmental Training

The site’s environmental training program identifies training activities to teach job-specific skills that protect the employee and the environment, in addition to satisfying regulatory training requirements. Regularly scheduled classes in this program at SRS include such topics as Environmental Laws and Regulations, Hazardous Waste Worker, Hazardous and Radiological Waste Characterization, and the Environmental Compliance Authority course. A self-taught Environmental Laws and Regulations course is available on SHRINE for technical staff and is updated by the Environmental Services Section annually. More than 60 environmental program-related training courses are listed in the site training database, and individual organizations schedule and perform other facility-specific, environment-related training to ensure that operations and maintenance personnel, as well as environmental professionals, have the knowledge and skills to perform work safely and in a manner that protects the environment.

Environmental Permits

SRS had 417 construction and operating permits in 2005 that specified operating levels for each permitted source. Table 3-4 summarizes the permits held by the site during the past 5 years. These numbers reflect only permits obtained by WSRC for itself and for other SRS contractors that requested assistance in obtaining permits. It also should be noted that these numbers include some permits that were voided or closed some time during the calendar year (2005).

Table 3–4
SRS Construction and Operating Permits, 2001–2005

Type of Permit	Number of Permits				
	2001	2002	2003	2004	2005
Air	172	150	2 ^a	3	1
Army Corps of Engineers Nationwide Permit	5	5	5	3	4
Domestic Water	203	203	202	203	207
Industrial Wastewater	70	66	60	56	63
NPDES Discharge	1	1	1	1	1
NPDES No Discharge	1	1	1	1	0
NPDES Stormwater	2	2	2	2	2
RCRA	1	1	1	1	1
Sanitary Wastewater	133	133	109	104	106
SCDHEC 401	1	0	0	0	0
SCDHEC Navigable Waters	1	1	0	0	0
Solid Waste	4	2	3	4	4
Underground Injection Control	20	18	19	18	21
Underground Storage Tanks	7	7	7	7	7
Totals	621	590	412	403	417

^aThis number was revised to reflect the Title V Operating Permit, which includes all SRS air emission sources and one construction permit.

Editor's note: The "Environmental Compliance" 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 contributions, 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.

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