

Environmental Compliance

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Environmental Project Support

Contributing authors' names appear on page 17.

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 regulatory compliance with applicable federal, state, and local environmental laws and regulations; 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 compliance status of these various statutes and programmatic documents at SRS. Some key regulations with which SRS must comply—and the compliance status of each—are listed in the chart on the next page.

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 the U.S. Environmental Protection Agency (EPA) regulate the management of solid and hazardous wastes, such as spent solvents, batteries, and many other discarded substances deemed 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 notices of violation (NOVs) during 2002.

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 wastes.

Treatability variances are an option available to waste generation facilities if alternate treatment methods are appropriate for specific waste streams. SRS has identified certain mixed waste streams that are potential candidates for a treatability variance. The SRS Site Treatment Plan (STP), which addresses

storage and treatment of mixed waste, references three treatability variances for mixed wastes with special problems that prevent treatment according to LDR standards. These variances have been completed and sent to EPA headquarters, 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. An STP consent order was obtained and implemented in 1995, as required by the FFCA. As required by the STP consent order, SRS issued an annual update to the STP. The update, issued April 29, 2002, identified changes in the mixed waste treatment status, including the addition of new mixed waste streams. STP updates will continue to be produced annually unless the consent order is modified.

Underground Storage Tanks

The 19 underground storage tanks at SRS that house petroleum products and hazardous substances, as defined by the Comprehensive Environmental 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 2002 inspection/audit found all 19 tanks to be in compliance.

High-Level Radioactive Waste Tank Closure

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

Tanks 17F and 20F were closed in 1997. The Federal Facility Agreement (FFA) requires the closure of tank 19F by March 30, 2004, and tank 18F by June 30,

Some of the Key Regulations SRS Must Follow	
Legislation	What it Requires/SRS Compliance Status
RCRA Resource Conservation and Recovery Act (1976)	<ul style="list-style-type: none"> ◆ The management of hazardous and nonhazardous wastes and of underground storage tanks containing hazardous substances and petroleum products – <i>In compliance</i>
FFCAct Federal Facility Compliance Act (1992)	<ul style="list-style-type: none"> ◆ The development by DOE of schedules for mixed waste treatment to avoid waiver of sovereign immunity and to meet LDR requirements – <i>In compliance</i>
CERCLA; SARA Comprehensive Environmental Response, Compensation, and Liability Act (1980); Superfund Amendments and Reauthorization Act (1986)	<ul style="list-style-type: none"> ◆ The establishment of liability, compensation, cleanup, and emergency response for hazardous substances released to the environment – <i>In compliance</i>
CERCLA/TITLE III (EPCRA) Emergency Planning and Community Right-to-Know Act (1986)	<ul style="list-style-type: none"> ◆ The reporting of hazardous substances used on site (and their releases) to EPA, state, and local planning units – <i>In compliance</i>
NEPA National Environmental Policy Act (1969)	<ul style="list-style-type: none"> ◆ The evaluation of the potential environmental impact of federal activities and alternatives – <i>In compliance</i>
SDWA Safe Drinking Water Act (1974)	<ul style="list-style-type: none"> ◆ The protection of public drinking water systems – <i>In compliance</i>
CWA; NPDES Clean Water Act (1977); National Pollutant Discharge Elimination System	<ul style="list-style-type: none"> ◆ The regulation of liquid discharges at outfalls (e.g., drains or pipes) that carry effluents to streams – <i>In compliance</i>
CAA; NESHAP Clean Air Act (1970); National Emission Standards for Hazardous Air Pollutants	<ul style="list-style-type: none"> ◆ The establishment of air quality standards for hazardous air emissions, such as radionuclides and benzene – <i>In compliance</i>
TSCA Toxic Substances Control Act (1976)	<ul style="list-style-type: none"> ◆ The regulation of use and disposal of PCBs – <i>In compliance</i>

2004. Waste removal and characterization have been completed on tank 19F. The waste removal and residual waste characterization for tank 18F are scheduled to be completed in 2003. A tank 19F closure module has been completed and is expected to be submitted to SCDHEC in 2003. The closure module for tank 18F is being prepared and is scheduled to be submitted to SCDHEC in late 2003.

DOE determined in October 1998 that SRS should perform a tank closure environmental impact

statement (EIS) before conducting any further closure activities. A record of decision (ROD) on this action was issued August 19, 2002. More information about this ROD can be found beginning on page 8.

Waste Minimization Program

The SRS Waste Minimization Program is part of a broad, ongoing effort to prevent pollution and minimize waste on site. The program is designed to meet the requirements of RCRA, of DOE orders, and of applicable executive orders. The SRS program

earned two of the 13 DOE National Pollution Prevention Awards in 2002.

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 IV, and SCDHEC entered into the FFA, which became effective August 16, 1993.

SRS has 515 units in its environmental restoration program. At the end of 2002, remediation was in process, or had been completed, in 316 units and areas. Environmental restoration activities during 2002 included the following:

- Remedial investigations were initiated on the Lower Three Runs Integrator Operable Unit (IOU) and the Steel Creek IOU.
- RCRA facility investigation/remedial investigations (RFI/RI) were initiated on (1) C-Area Reactor groundwater, (2) HP-52 ponds, (3) the R-Area burning/rubble pits and rubble pile, (4) the SRL Oil Test Site, and (5) Warner's Pond.
- Remedial actions were completed and post-construction reports/final remediation reports were submitted for the C-Area reactor seepage basins, the K-Area burning/rubble pit and rubble pile, and the K-Area reactor seepage basin.
- Interim action post-construction reports were submitted for the chemicals, metals, and pesticides pits and the miscellaneous chemical basin/metals burning pit.
- RODs were submitted for the A-Area miscellaneous rubble pile, the Central Shops burning/rubble pits, the R-Area Bingham pump outage pits and three unnamed R-Area waste sites.
- RODs were approved for the General Separations Area consolidation unit; the L-Area rubble pile, burning/rubble pit, and gas cylinder disposal facility; the P-Area burning/rubble pit; and the R-Area acid/caustic basin.
- RODs with certification signatures were issued for the Central Shops sludge lagoon and the Ford Building seepage basin.

- ROD amendments were approved for the C-Area and L-Area reactor seepage basins.
- Explanations of significant differences were approved for TNX-Area Operable Unit groundwater and the A-Area burning/rubble pit and rubble pit.

A listing of all operable 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.

Form R for 2001 identified 12 chemicals, with releases totaling 239,786 pounds, exceeded the "manufactured," "processed," or "otherwise used" threshold. As in 2000, nitrate, chromium, and zinc compounds were the largest contributors to the total reportable releases in 2001.

Executive Order 12856

Executive Order 12856 requires that all federal facilities comply with right-to-know laws and pollution prevention requirements. The order requires that federal facilities meet EPCRA reporting requirements and develop voluntary goals to reduce releases of toxic chemicals 50 percent on a DOE complexwide basis by the end of 1999—a goal accomplished by the complex. SRS complies with the

Table 2–1 2002 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

a Not required to report under provisions of “Executive Order 12856 and SARA Title III Reporting Requirements”

applicable reporting requirements for EPCRA, as indicated in table 2–1, and the site incorporates the toxic chemicals on the Toxic Chemical Release Inventory report into its pollution prevention efforts.

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 2002, 287 reviews of newly proposed actions were conducted at SRS and formally documented. The types and numbers of NEPA activities conducted at the site in 2002 are presented in table 2–2. Among the specific activities were the following:

- A ROD was issued for the EIS on the HLW tank closure at SRS. The proposed action was to close the SRS HLW tanks in accordance with applicable laws, regulations, DOE orders, and SCDHEC permit requirements.
- The engineering evaluation/cost analysis (EE/CA) was completed on the closure of the R-Reactor disassembly basin.
- A finding of no significant impact was signed for the programmatic environmental assessment (PEA) on the management program for the storage, transportation, and disposition of potentially reusable uranium materials.

Safe Drinking Water Act

The federal Safe Drinking Water Act (SDWA) was enacted in 1974 to protect public drinking water supplies. SRS drinking water is supplied by 18 separate systems, all of which utilize groundwater sources. The A-Area, D-Area, and K-Area systems are actively regulated by SCDHEC while the remaining 15 site water systems receive a lesser degree of regulatory oversight.

Table 2–2 Types/Quantity of NEPA Activities at SRS During 2002

Type of NEPA Documentation	Number
Categorical Exclusion	274
Tiered to Previous NEPA Documentation	13
Environmental Assessment	2
Programmatic Environmental Assessment	2
Engineering Evaluation/Cost Analysis	1
Environmental Impact Statement	2
Supplemental Environmental Impact Statement	1
Programmatic Environmental Impact Statement	1
Total	296^a

a Nine of the 296 NEPA activities were carryovers from 2001, leaving 287 newly proposed actions in 2002.

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 2002 met these standards.

The B-Area Bottled Water Facility is listed as a public water system by SCDHEC. Results from quarterly bacteriological analyses and annual complete chemical analyses performed in 2002 met SCDHEC and FDA water quality standards. The bottled water facility is not subject to the lead and copper requirements.

SCDHEC conducted its biannual survey of the A-Area, D-Area, and K-Area domestic water systems in April 2002. Survey results indicated a “satisfactory” rating.

SRS received no NOV's in 2002 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 2002, as follows:

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

More information about the NPDES permits can be found in chapter 3, “Effluent Monitoring.”

All results of monitoring for compliance with the industrial wastewater discharge permit and the general permit for utility water discharge were reported to SCDHEC in the monthly Discharge Monitoring Reports, as required by the permits.

During January and February, SCDHEC conducted its annual 2-week audit of the SRS NPDES permitted outfalls. Overall, SRS received a satisfactory rating for this audit. The site received two written reports from SCDHEC itemizing minor concerns identified during the audit. In addition, SCDHEC performed an unscheduled NPDES compliance sampling inspection

at SRS in September. During the inspection, a pH exceedance—caused by leakage from groundwater well 905-18—was discovered at Outfall H-07. The well was shut down upon discovery of the problem.

The outfalls covered by the modified industrial stormwater permit (SCR000000) were reevaluated in 2001. This resulted in the development of a new sampling plan, which was implemented in 2002.

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 2002.

SRS has an agreement with SCDHEC to report petroleum product discharges of 25 gallons or more to the environment. Two such incidents in this category occurred at the site during 2002 and were reported appropriately.

Notices of Violation (NPDES)

SRS's 2002 compliance rate for NPDES under the CWA was 99.8 percent. Four NOV's were issued to the site during 2002 in association with the NPDES program.

In late 2001, petroleum hydrocarbons were discharged into the environment without a permit at or near NPDES Outfall D-006. The site self-reported the potential for there having been a release of petroleum hydrocarbons in the vicinity of the outfall. SCDHEC subsequently issued an NOV to the site January 7, citing a violation of the South Carolina Pollution Control Act Code of Law Annotated 48-1-90 (a) (1987).

SCDHEC issued an NOV to SRS January 11 for activities involving the H-16 outfall. The NOV was issued for a missed sample, which resulted from a missed hold time in the subcontract laboratory, and for the resulting incorrect monitoring frequency listed on the discharge monitoring report (DMR). The DMR was revised to accurately reflect the monitoring frequency, and the subcontract laboratory revised its internal procedures to prevent future occurrences. No further action was required by SCDHEC.

EPA issued an NOV to the site April 2, citing 81 items of noncompliance from eight NPDES outfalls and covering the period from October 1999 to February 2002. The alleged violations represented the aggregate of all NPDES permit limit exceedances within the entire time period. Except for toxicity, the site was in compliance with all permit limits on the

date of receipt of the NOV. To ensure site compliance with toxicity limits, SRS and EPA entered into a consent agreement, which was received September 30. The site has been in compliance with all NPDES toxicity limits since the implementation in June of analytical procedures utilizing a new test species.

SCDHEC issued SRS an NOV November 12 for a pH violation at the H-07 outfall and for a total suspended solids (TSS) violation at the H-02 outfall. The pH violation was the result of a leaking well flush valve, which resulted in the discharge of uncontaminated groundwater to the outfall. The well was immediately shut down and repaired. The TSS exceedance was the result of a ruptured domestic water line, which was isolated and repaired the date of the incident. Both outfalls were returned to compliance immediately after the incidents, and no further actions were required by SCDHEC.

Ten exceedances at NPDES outfalls occurred at SRS in 2002. A list of these—including outfall locations, probable causes, and corrective actions—can be found in chapter 3 (table 3-4). Four of the exceedances were for pH and total suspended solids. The remaining six were associated with the chronic toxicity test that the site has been asking EPA and SCDHEC to remove from its NPDES permit. Five of these six chronic toxicity exceedances were at two outfalls (A-01 and A-11). These outfalls have consistently failed the chronic toxicity test, but investigations into the cause of the failures have not determined a toxicant in the effluent. Based on a 2002 agreement with EPA and SCDHEC, an alternate species (i.e., *Daphnia ambigua*) is being used at these outfalls to test for chronic toxicity; both A-01 and A-11 have consistently passed the test using this new species. The earlier use of *Daphnia ambigua* would have reduced the exceedances to date by 60 percent.

Dredge and Fill; Rivers and Harbors

The CWA, Section 404, “Dredge and Fill Permitting,” as amended, and the Rivers and Harbors Act, Sections 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.

In 2002, SRS conducted activities under five nationwide permits (NWP) as part of the NWP program (general permits under Section 404), but under no individual Section 404 permits. The activities were as follows:

- Dam construction on an unnamed tributary to Four Mile Creek (also known as Fourmile Branch) for the Mixed Waste Management Facility Groundwater Interim Measures project was completed under NWP 38, “Hazardous Waste Cleanup.”
- The boat dock on the Savannah River was partially removed and stabilized under NWP 13, “Bank Stabilization.” The project was completed and a permit closure notification was sent to the U.S. Army Corps of Engineers in October.
- SRS completed the plugging of ditches and the removal of undesirable vegetation in 16 Carolina bays, under NWP 27, “Wetland Restoration,” as part of the SRS Carolina Bay Restoration Project.
- Three wells were installed in wetlands downstream of the Mixed Waste Management Collection Pond Dam under NWP 5, “Scientific Measuring Devices.”
- A soil amendment study was conducted at the TNX Outfall Delta Operable Unit by the Savannah River Technology Center (SRTC) under NWP 5, “Scientific Measuring Devices.”

Construction in Navigable Waters

SCDHEC Regulation 19-450, “Permit for Construction in Navigable Waters,” protects the state’s navigable waters through the permitting of any dredging, filling, construction, or alteration activity in, on, or over state navigable waters, in or on the beds of state navigable waters, or in or on land or waters subject to a public navigational servitude. 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).

In 2002, SRS received an after-the-fact “Construction In Navigable Waters” permit for two existing sampling platforms located in Upper Three Runs at SRS Road C and at South Carolina Highway 125. No additional requirements were requested, so the matter was closed.

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act restricts the application of restricted pesticides through a state-administered certification program. SRS complies with these requirements through procedural guidelines, and the site’s pesticide procedure provides guidelines for pesticide use and requires that applicators of restricted-use pesticides be state certified.

Clean Air Act

Regulation, Delegation, and Permits

The Clean Air Act (CAA) provides the basis for protecting and maintaining air quality. Some types of SRS air emissions are regulated by EPA, but most are regulated by SCDHEC, which must ensure that its air pollution regulations are at least as stringent as the CAA's. This is accomplished through SCDHEC Regulation 61–62, “Air Pollution Control Regulations and Standards.”

Under the CAA, and as defined in federal regulations, SRS is classified as a “major source” and, as such, is assigned one permit number (0080–0041) by SCDHEC. SRS holds operating and construction permits or exemptions from SCDHEC's Bureau of Air Quality, which regulates nonradioactive toxic and criteria pollutant emissions from approximately 150 point sources, several of which have specific emission limits.

As of May 1994, SCDHEC had completed renewal of all SRS operating permits, which are valid for 5 years. Because of ongoing work on the Title V permit, SCDHEC granted extensions of the operating permits in 1998 and 1999 and of the construction permits in 2000. The extensions will be valid until the new Title V permit is issued. Of the 150 point sources, 128 operated in some capacity during 2002. The remaining 22 either were under construction or were being maintained in a “cold standby” status.

During 2002, SCDHEC conducted compliance inspections of 111 permitted sources at SRS, reviewing 151 permitted parameters.

Notices of Violation (CAA)

As a result of the annual compliance inspections, the site achieved a compliance rate of 98 percent—and received one NOV—under the CAA in 2002. The NOV, issued in November, followed a September SCDHEC inspection citing SRS for failure to follow a requirement to maintain a log of the magnitude, times, and duration of startup and shutdown of the B-Area Regulatory Monitoring and Bioassay Laboratory fuel oil-fired water heaters. Immediate actions were taken to prevent recurrence of this issue.

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. 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 IV continues to partially regulate radionuclides.

NESHAP Radionuclide Program Subpart H of NESHAP 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 IV 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 IV May 10, 1995.

During 2002, the maximally exposed individual effective dose equivalent, calculated using the NESHAP-required CAP88 computer code, was estimated to be 0.04 mrem (0.0004 mSv), which is 0.4 percent of the 10-mrem-per-year (0.10-mSv-per-year) EPA standard (chapter 5, “Potential Radiation Doses”).

NESHAP Nonradionuclide Program SRS uses many chemicals identified as toxic or hazardous air pollutants, but most of these chemicals 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 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 standards.

As a result of EPA failing to meet the original rule development schedule, another CAA requirement, known as the 112 (j) MACT Hammer Permit Application, became effective 2 years after the missed scheduled date. This required the submittal of a two-part permit application by facilities considered “major” for hazardous air pollutants. Part I of the application, submitted to SCDHEC May 14, 2002, identified the maximum achievable control technology (MACT) source categories that might be applicable to those facilities. Also identified were five source categories that may impact site facilities.

Part II of the application, originally due November 15, 2002, would have required each facility to identify the methods or control strategies it would use to reduce applicable pollutant emission levels. However, because of a December 2002 settlement agreement it reached with an environmental watch group, EPA has proposed a new schedule for

promulgating the final rules for the remaining MACT source categories. This extends the development date into August 2005, with additional MACT Hammer provisions to take place 60 days after that date. The rules with potential impact to SRS facilities are to be promulgated by April 2004, with a compliance deadline 3 years later.

In an attempt to regulate hazardous or toxic air pollutants in South Carolina, SCDHEC established Air Pollution Control Regulation 61–62.5, Standard No. 8, “Toxic Air Pollutants,” in June 1991. To demonstrate compliance with this standard, SRS completed and submitted an air emissions inventory and air dispersion modeling data for all site sources in 1993. The submitted data demonstrated compliance by computer modeling the accumulated ambient concentration of individual toxic air pollutants at the boundary line and comparing them to the Standard No. 8 maximum allowable concentrations. To ensure continued compliance with Standard No. 8, new sources of toxic air pollutants must be permitted. This requires submittal of appropriate air permit applications and air dispersion modeling. Sources with emissions below a threshold of 1,000 pounds per month of any single toxic air pollutant may be exempted from permitting requirements. During 2002, 10 sources of toxic air pollutants either were issued a construction permit or exempted from permitting requirements.

NESHAP Asbestos Abatement Program SRS began an 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 Asbestos”).

During 2002, SRS personnel removed and disposed of an estimated 94 square feet and 1,563 linear feet of regulated asbestos-containing material. In addition, contractors removed and disposed of an estimated 1,536 square feet and 38 linear feet of regulated asbestos-containing material.

Radiological asbestos waste was disposed of at the SRS low-level burial ground, which is approved by SCDHEC as a disposal site. Nonradiological asbestos waste was disposed of at the Three Rivers Landfill, located on site, or at SCDHEC-approved offsite landfills.

Other CAA Requirements

Only a few of the major sections of the CAA and its 1990 amendments and regulations have had—or are expected to have—a significant impact on SRS sources and facilities. These include Title V, “Permits,” and Title VI, “Stratospheric Ozone Protection.” The other regulations impacting SRS facilities are implemented primarily in SCDHEC Regulation 61–62 and in existing operating or construction permits.

Title V Operating Permit Program As previously indicated, the CAAA of 1990 also include, under Title V, a major new permitting section expected to have a significant impact on the site through increased reporting and recordkeeping requirements.

SRS and SCDHEC have been developing the Title V (Regulation 62.70, “Title V Operating Permit Program”) operating air permit since 1996. The draft air permit initially was sent out for public comment in late 2001. Two additional public comment periods were held in 2002. SCDHEC is resolving the comments it has received to date. The Title V permit for SRS will be issued in February 2003.

Ozone-Depleting Substances Title VI of the CAAA of 1990 addresses stratospheric ozone protection. This law requires that EPA establish a number of 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 more than 99 percent, based on 1993 data. The site used 450 pounds of CFC refrigerants in 2001 and reduced that amount to 180 pounds in 2002.

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 a result of the DOE 1999 Pollution Prevention and Energy Efficient Leadership Goal to eliminate use of Class I ODSs by 2010 “to the extent economically practicable.” A Halon 1301 alternative study was completed by the site’s fire protection and systems engineering groups in 2000 to (1) recommend alternative fire suppression agents to replace Halon 1301 and (2) provide a method for assigning modification priorities to site fire protection systems that use Halon 1301.

Additionally, a Halon 1301 phaseout plan and schedule is being developed by Fire Protection Engineering 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 has increased—from 75,089 pounds in 1995 to 102,285 pounds in 2002. At the end of 2002, the site had an inventory of 72,112 pounds of stored Halon 1301, including 16,669 pounds received from other DOE sites during 2002. In addition, 22,773 pounds are contained in the 110 operating systems, and 7,400 pounds of Halon 1301 are contained in the 84 systems that have been abandoned in place.

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 1993 comprehensive air emissions inventory.

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.

Regulation 61–62.1, Section III, requires that inventory data be updated and recorded annually but

only reported every even calendar year. The emissions inventory is updated each year in accordance with SRS procedures and guidelines. Calendar year 2000 operating data for permitted and other significant sources were reported to SCDHEC in 2001. Because data collection for all SRS sources begins in January and requires up to 6 months to complete, this report provides emissions data for calendar year 2001. Compilation of 2002 data will be completed in 2003 and reported in the *SRS Environmental Report for 2003*.

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 recordkeeping 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 2001 PCB document log was completed in full compliance with 40 CFR 761. Also, SRS’s report on 2001 PCB disposal activities (ESH–FSS–2002–00268) was prepared and submitted to EPA Region 4. The disposal of nonradioactive PCBs routinely generated at SRS is conducted at EPA-approved facilities within the regulatory time frame. For many 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. Site plans call for the disposal of incinerable radioactive PCB wastes at the TSCA incinerator in Oak Ridge, Tennessee.

In 1993, PCBs were confirmed to be present as a component of dense nonaqueous phase liquids in samples from two groundwater monitoring wells around the M-Area hazardous waste management facility. Regulators were notified, and a modification to the RCRA Part B Permit Application to address the discovery of PCBs was submitted to SCDHEC. Soil and Groundwater Closure Projects (formerly Environmental Restoration Division) and SRTC personnel continue to study ways to remediate the dense nonaqueous phase liquids.

In 1996 and subsequent years, site personnel discovered PCBs in certain painted surfaces and in other solid forms within several facilities constructed prior to TSCA. As such discoveries were made, SRS worked with EPA—as necessary—on related TSCA compliance issues. Current TSCA regulations prohibit the use and distribution in commerce of these forms of PCBs above specified concentrations. In December 1999, however, EPA issued a proposed rule to authorize the continued use of these forms of PCBs. EPA still has not issued a final rule.

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 ecosystems on which such species depend.

Several threatened and endangered species exist at SRS. The site conducts research on the wood stork, the red-cockaded woodpecker, the bald eagle, the shortnose sturgeon, and the smooth purple coneflower. Programs designed to enhance the habitat of such species are in place.

No biological assessments and/or biological evaluations were prepared for NEPA documents for new projects at SRS in 2002. However, to ensure the protection of threatened and endangered species, biological assessments and biological evaluations—which are required under NEPA—were conducted by the U.S. Department of Agriculture Forest Service–Savannah River (USFS–SR) to evaluate potential impacts of forestry related activities.

None of these activities was found to have had any significant potential impact on threatened and endangered species.

The biological assessment for the river water system shutdown EIS concluded in 1996 that the proposed action could affect the bald eagle, the alligator, and the wood stork. Consultations involving SRS and the U.S. Fish and Wildlife Service (USFWS) required the site to perform studies on the bald eagle. The studies were completed in 1999, and a report of the findings was issued in January 2002. Of the contaminants examined in the report, only mercury was found to pose a potentially significant effect to fish-eating birds, such as bald eagles, that feed in SRS reservoirs. USFWS and the South Carolina Department of Natural Resources personnel continue to review the report.

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 this act through the site-use process. All sites being considered for activities such as construction are evaluated by the University of South Carolina’s Savannah River Archaeological Research Program (SRARP) group to ensure that archaeological or historic sites are not impacted.

SRARP personnel reviewed 66 site-use packages and surveyed 764 acres in support of SRS project activities during 2002. Most of the site-use packages were found to have no activities of significant impact in terms of the NHPA, but eight of them resulted in surveys being conducted because of the potential for land alteration in 2002. SRARP personnel also surveyed 1,473 acres during 2002 in support of onsite forestry activities.

The surveys of all 2,237 of these acres resulted in the investigations of 67 new archaeological sites and in revisits to 30 previously recorded sites for cultural resources management.

Floodplains and Wetlands

Under DOE General Provisions, 10 CFR, Part 1022 (“Compliance with Floodplains/Wetlands Environmental Review Requirements”), establishes policies and procedures for implementing the department’s responsibilities in terms of compliance with Executive Orders 11988 (“Floodplain Management”) and 11990 (“Protection of Wetlands”). No floodplain or wetland assessments were conducted at SRS during 2002.

Executive Orders 11988, “Floodplain Management,” and 11990, “Protection of Wetlands”

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.

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.

Environmental Release Response and Reporting

Response to Unplanned Releases

Environmental Monitoring and Analysis (EMA, formerly the Environmental Monitoring Section) personnel respond to unplanned environmental releases—both radiological and nonradiological—upon request by area operations personnel. No unplanned environmental releases that occurred at SRS in 2002 required the sampling and analysis services of EMA.

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 (RQ) 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 was reinforced with liability provisions in CERCLA’s National Contingency Plan.

SRS had no CERCLA-reportable releases in 2002. This performance compares with no such releases reported during 2000 and 2001, one release in 1999, and one during 1998.

Two notifications—not required by CERCLA—were made by the site to regulatory agencies during 2002. Both were the result of an agreement to notify SCDHEC about sewage and petroleum product releases.

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 2002.

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 253 SIRIM-reportable events in 2002, none was categorized as environmental.

Assessments/Inspections

The SRS environmental program is overseen by a number of organizations, both outside and within the DOE complex. In 2002, the WSRC environmental appraisal program consisted of self and independent assessments. It 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 Integrated Safety Management System and supports the SRS Environmental Management System, which continues to be certified to the standards of International Organization for Standardization (ISO) 14001. (ISO 14000 is a family of voluntary environmental management standards and guidelines.)

WSRC conducted nine environmental program-level assessments in 2002. These topics included

- management of fluorescent lamps as universal waste
- ozone depleting substances
- radionuclide NESHAP program
- NPDES industrial stormwater program
- hazardous waste management
- EPCRA 313 toxic release inventory
- subcontract laboratory quality assurance/quality control programs
- radiological performance objectives 2.3 and 2.10
- semiannual assessments of domestic water systems

During 2002, personnel from DOE–SR’s Environmental Quality and Management Division again performed 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 also provide external inspections of the SRS environmental program for regulatory compliance. Agency representatives performed nine comprehensive compliance inspections in 2002, as follows:

- *RCRA Compliance Evaluation Inspection* – The annual compliance evaluation inspection is an unannounced audit by SCDHEC and/or EPA. SCDHEC conducted the 2002 inspection for compliance with solid and hazardous waste management regulations. No deficiencies were noted during the entire audit.
- *Annual Air Compliance Inspection* – SCDHEC conducted the annual air compliance inspection of SRS. In general, the site was found to be in compliance.
- *Annual Underground Storage Tank Inspection* – SCDHEC inspected the site's 19 underground storage tanks. All were found to be in compliance with the appropriate regulations.
- *Annual NPDES 3560 Compliance Audit* – SCDHEC conducted the annual 3560 environmental audit of the site's NPDES-permitted outfalls. Overall, SRS received a satisfactory rating for this audit.
- *Quarterly Inspections of SRS Bottled Water Facility* – SCDHEC conducted quarterly inspections of the SRS Bottled Water Facility. Overall, the results of these inspections were favorable.
- *SRS Domestic Water Laboratory Certification Audit* – SCDHEC conducted an evaluation of SRS's Domestic Water Laboratory for the purpose of renewing the 3-year certificate the laboratory holds to perform coliform analyses that are routinely reported to SCDHEC for compliance purposes. The certificate was reissued.
- *Burma Road Landfill Inspection* – SCDHEC conducted the annual inspection of the Burma Road construction and demolition landfill. The site was found to be satisfactory.
- *Groundwater Comprehensive Monitoring Evaluation* – SCDHEC conducted an

unannounced RCRA inspection of SRS's groundwater program. No deficiencies or permit violations were cited.

- *NPDES Unscheduled Compliance Sampling Inspection* – SCDHEC performed an unscheduled NPDES compliance sampling inspection at SRS in September. During the inspection, a pH exceedance caused by leakage from groundwater well 905-18 was discovered. The well was shut down immediately upon discovery of the problem.

Environmental Permits

SRS had 590 construction and operating permits in 2002 that specified operating levels for each permitted source. Table 2-3 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 (2002).

Environmental Training

The site's environmental training program identifies training activities to teach job-specific skills that protect the employee and the environment while satisfying regulatory training requirements. Regularly scheduled classes in this program at SRS include the Environmental Laws and Regulation Overview and the Environmental Compliance Authority Modules courses.

Facility Decommissioning

With the rapidly declining need for a large nuclear weapons stockpile, many SRS facilities no longer produce or process nuclear materials. They have become surplus and must be dispositioned safely and economically. Many of them are large and complex and contain materials that, if improperly handled or stored, could be hazardous. SRS faces a major task in the cleanup, reuse, safe storage, and demolition of these facilities. The Facilities Decommissioning Division (now the Facilities Disposition Projects) was established in 1996 to meet this challenge. In 2002, SRS began extensive decommissioning activities in D-Area, M-Area, and TNX.

Table 2–3
SRS Construction and Operating Permits, 1998–2002

Type of Permit	Number of Permits				
	1998	1999	2000	2001	2002
Air	202	200	199	172	150
U.S. Army Corps of Engineers 404	1	0	0	0	0
Army Corps of Engineers Nationwide Permit	6	4	1	5	5
Domestic Water	194	203	203	203	203
Industrial Wastewater	83	86	77	70	66
NPDES–Discharge	1	1	1	1	1
NPDES–General Utility	1	1	1	0	0
NPDES–No Discharge	1	1	1	1	1
NPDES–Stormwater	2	2	2	2	2
RCRA	1	1	1	1	1
Sanitary Wastewater	139	141	133	133	133
SCDHEC 401	2	1	1	1	0
SCDHEC Navigable Waters	4	0	0	1	1
Solid Waste	5	5	5	4	2
Underground Injection Control	31	18	23	20	18
Underground Storage Tanks	24	20	7 ^a	7	7
<i>Totals</i>	697	684	655	621	590

a This number was revised to reflect the actual number of permits that included requirements for 20 underground storage tanks.

Editors' 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 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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