Environmental Compliance

CHAPTER 3

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Regulatory Integration & Environmental Services

It is the policy of the U.S. Department of Energy (DOE) that all activities at the Savannah River Site (SRS) will 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 provides information on Notices of Violation (NOVs) issued by the U.S. Environmental Protection Agency (EPA) or the South Carolina Department of Health and Environmental Control (SCDHEC). NOVs are the procedures that allege potential violations of an organization's permits or environmental laws or regulations. SRS received three allegations of violation in 2008 (two involving sanitary wastewater releases and one involving air emissions). The sanitary wastewater release allegations did not result in an administrative hearing to determine if a violation occurred. The parties continued to negotiate a settlement of the air emissions release dispute in 2008, and were expected to resolve it by consent in 2009. See the "Clean Water Act" and "Clean Air Act" sections of this chapter for additional details.

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 covers such wastes as spent solvents, batteries, and many other discarded substances potentially harmful to human health and the environment. Amendments to RCRA regulate nonhazardous solid waste, underground storage tanks (USTs) and solid waste management units (units that historically contained or managed solid waste).

Hazardous waste generators, including SRS, must follow specific requirements for handling these wastes.

Underground Storage Tanks

The 19 USTs at SRS that contain petroleum products, 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 2008 inspection and audit found all 19 tanks to be in compliance, marking six straight years without a violation.

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.

Federal Facility Compliance Act

The Federal Facility Compliance Act (FFCAct) was signed into law in October 1992 as an amendment to

Table 3–1
Laws/Regulations Applicable to SRS

Legislation	What It Requires	In Compliance
RCRA Resource Conservation and Recovery Act (1976)	The management of hazardous and nonhazardous solid wastes and of underground storage tanks containing hazardous substances and petroleum products	✓
FFCAct Federal Facility Compliance Act (1992)	The development by DOE of schedules for mixed waste treatment to meet LDR requirements	✓
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	✓
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	✓
NEPA National Environmental Policy Act (1969)	The evaluation of the potential environmental impacts of proposed federal activities and alternatives	✓
SDWA Safe Drinking Water Act (1974)	The protection of public drinking water	✓
CWA[a] Clean Water Act (1977)	The regulation of liquid discharges at outfalls (e.g., drains or pipes) that carry effluents to streams (NPDES, Section 402); regulation of dredge and fill of U.S. waters (Section 404) and associated water quality for those activities (WQC, Section 401).	✓
RHA Rivers and Harbors Act of 1899, Section 10	The regulation of construction over and obstruction of navigable waters of the U.S.	✓
FIFRA Federal Insecticide, Fungicide, and Rodenticide Act (1947)	The regulation of restricted-use pesticides through a state-administered certification program	✓
CAA (NESHAP)[a] 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	✓
TSCA Toxic Substances Control Act (1976)	The regulation of PCBs, radon, asbestos, and lead used in sensitive populations, as well as evaluation and notification to EPA of new chemicals and significant new uses of existing chemicals	✓
ESA Endangered Species Act (1973)	The protection of critically imperiled species from extinction	✓
NHPA National Historic Preservation Act (1966)	The preservation of historical and archaeological sites	✓

[a] A total of three NOVs received by SRS under the CWA and the CAA in 2008 reflected momentary exceedances of standards; however, the programs under these laws generally remained in compliance.

the Solid Waste Disposal Act to add provisions concerning the application of certain requirements and sanctions to federal facilities. A Site Treatment Plan (STP) (WSRC–TR–94–0608) consent order (95–22–HW, as amended) was obtained and implemented in 1995, as required by the FFCAct. A Statement of Mutual Understanding (SMU) for Cleanup Credits was executed by SCDHEC in October 2003, allowing SRS to earn credits for certain accelerated cleanup actions. Credits then can be applied to the STP commitment schedules. SRS submitted to SCDHEC an annual update to the approved STP in November 2008 (SRNS–TR–2008–00101, Rev 0) that identified changes in mixed waste treatment and inventory. Changes in the 2008 STP update include

- updating the commitment summary for the new fiscal year
- updating the status of several waste streams
- updating the treatment technology for SR–W045 PUREX Organic Waste
- revising the salt processing facility information
- revising the current cumulative inventory

Also documented in the 2008 update is SRS's completion of 928 transuranic (TRU) waste shipments (as of September 1) to the Waste Isolation Pilot Plant (WIPP) facility in New Mexico.

STP updates will continue to be produced annually unless provisions of the consent order are modified.

Liquid Radioactive Waste Tank Closure

The primary regulatory goal of SRS's waste tank closure program 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." Under this program, the first two high-level waste tanks (i.e., 17F and 20F) were closed in 1997.

During 2008, Tanks 18F and 19F remained isolated, requiring only administrative safety basis controls, and a new enhanced mechanical cleaning technology was deployed to continue waste removal efforts.

Waste Minimization/Pollution Prevention (WMin/P2) Program

2008 Program Results and Highlights The SRS WMin/P2 Program continued to achieve significant results in 2008. All required site waste generators demonstrated active participation in the program through documented pollution avoidance and/or direct mission support activities for site recycling. Site employee P2 awareness was increased through online articles and general employee and job-specific training.

The WMin/P2 Program met all DOE and regulatory agency reporting requirements. Program accomplishments during 2008 included the following:

- SRS documented 27 P2 projects, resulting in an annualized avoidance of 1,108 m^3 of hazardous and radioactive waste, which exceeded the site's 2008 P2 Program waste avoidance performance goal of 671 m^3 by more than 65 percent. Annual cost avoidance resulting from the 27 documented P2 projects is $8.6 million.
- DOE–HQ announced that SRS won two National DOE P2 Awards. Winning nominations were: *SRS Greening Electronics* and *H-Canyon Pollution Prevention Initiatives*. These awards were forwarded to next-tier competitions, with *SRS Greening Electronics* winning a P2 STAR Honorable Mention Award. SRS prepared input for an "EMCast" highlighting the *SRS Greening Electronics* program for DOE–HQ EM to share with other sites.
- SRS was selected to receive the Department of Energy Transformational Energy Action Management (TEAM) Effectiveness Award—presented by the Federal Energy Management Program (FEMP), Office of Energy Efficiency and Renewable Energy—to honor outstanding achievements to implement the Secretary of Energy's TEAM initiatives.

SRS participates in EPA voluntary P2 programs by maintaining its EPA Waste Wise and EPA National Partnership for Environmental Priorities memberships. SRS continued its participation in the Federal Electronic Reuse and Recycle Campaign, and reported 358,852 pounds of electronics recycled and reused for the contest period.

SRS recycled 37 percent (863 metric tons) of the routine sanitary waste stream using the North Augusta Material Recovery Facility and Three Rivers Regional Landfill services. This exceeded the 35-percent SRS sanitary waste recycling goal established for 2008.

Pollution prevention support was provided to DOE–HQ program offices in 2008. Working through DOE–EM, support was provided to the DOE–EH and DOE–NNSA P2 programs. The EM P2 Program sponsored one employee to attend the Federal Environmental Executive P2 Workshop, which also included a separate DOE–HQ P2 Planning Workshop.

The SRS pollution prevention team also supported P2 awareness in 2008 on site and in the local community, as follows:

- Onsite awareness was increased through online articles and general employee and job-specific training.
- Handout items were provided during the SRS Safety Conference Family Night event to promote pollution prevention.
- The P2 Program provided financial support and voluntary hours for the North Augusta Kids Earth Day, which hosted 30-plus separate exhibits to educate and share with the more than 2,000 attendees.
- The P2 Program provided financial support and voluntary hours for the Environmental Science Educator's Cooperative (ESEC), including sponsorship of a graded session at the 2008 ECOMEET—a hands-on environmental competition for middle school students. This year's event was held at the Watson Brown Foundation Center, Thomson, Georgia, with 22 teams from Georgia and South Carolina participating. In addition, the P2 Program supported two ESEC Electronics Recycle Days, and the Environmental Teacher of the Year Award, both in Augusta, Georgia.

Comprehensive Environmental Response, Compensation, and Liability Act

SRS was placed on the National Priority List in December 1989, under the legislative authority of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). In accordance with Section 120 of CERCLA, DOE, EPA Region 4, and SCDHEC entered into the SRS Federal Facility Agreement (FFA), which became effective August 16, 1993, and which directs the comprehensive environmental remediation of the site.

SRS has 515 waste units in the Soil and Groundwater Closure Projects program, including RCRA/CERCLA units, Site Evaluation Areas, and facilities covered under the SRS RCRA permit. At the beginning of FY08, 371 units were complete or in the remediation phase (338 complete and 33 in the remediation phase). At the end of FY08, 373 units were complete or in the remediation phase (360 complete and 13 in remediation). A summary of the FFA Milestones follows.

RCRA Facility Investigation/Remedial Investigation (RFI/RI) Field Starts were initiated for the following units in FY08:

- Gunsite 012 Rubble Pile, Rubble Pile across from Gunsite 012, and Early Construction and Operational Disposal Site (ECODS) G–3, (no building number, NBN)
- Gunsite 218 Rubble Pile (631–23G)
- Upper Three Runs Integrator Operable Unit (Including Tims Branch and Steed Pond) Second Phase II

Remedial Action was initiated at the following units in FY08:

- L-Area Southern Groundwater
- A-Area Burning/Rubble Pits (731–A, –1A), A-Area Rubble Pit (731–2A)
- Miscellaneous Chemical Basin/Metals Burning Pit (731–4A, –5A), A-Area Ash Pile (788–2A)

Remedial Actions were completed and Post-Construction Reports (PCRs) or Post-Construction Reports /Corrective Measures Implementation Report/Remedial Action Completion Reports (PCR/CMIR/RACRs) were submitted for the following units in FY08:

- Chemicals, Metals, and Pesticides (CMP) Pits (080–17G, –17.1G, –18G, –18.1G, –18.2G, –18.3G, –19G)

- M-Area Settling Basin Inactive Process Sewers to Manhole 1, 081-M (including Southern Portions of 313–M Inactive Clay Process Sewer Lines to Tims Branch, NBN and Southern Portions of 320–M Inactive Clay Process Sewer Lines from the Building Slab to the Former Security Fence, NBN)

- General Separations Area Consolidation Unit

- R-Area Reactor Seepage Basins (904–57G, –58G, –59G, –60G, –103G, –104G) and 108–4R Overflow Basin

No Interim Action Post-Construction Reports (IAPCRs) were submitted in FY08.

Removal Action Reports were issued for the following units in FY08:

- Contaminated Surficial Soil in the 741–A Salvage Yard at the M-Area Operable Unit

- Production Area of the M-Area Operable Unit

Records of Decision (RODs) were submitted for the following units in FY08:

- C-Area Burning/Rubble Pit, 131–C and Old C-Area Burning/Rubble Pit, NBN

- P-Area Operable Unit Early Action

- M-Area Operable Unit

A ROD was approved and issued for the following unit in FY08:

- C-Area Burning/Rubble Pit, 131–C, and Old C-Area Burning/Rubble Pit, NBN

The Performance Assesment for F Tank Farm was submitted August 31, 2008, as required by Appendix L of the FFA.

No Explanations of Significant Difference (ESDs) were submitted, and no ESDs were issued in FY08.

Section X ("Site Evaluations") of the FFA requires SRS to submit Removal Site Evaluation (SE) reports to EPA and SCDHEC for those areas with potential or known releases of hazardous substances not identified before the effective date of the agreement.

SRS submitted three Removal SE Reports in FY08, as follows:

- Contaminated Surficial Soil in the 741–A Salvage Yard at the M-Area Operable Unit

- Miscellaneous Rubble Pile #2

- Production Area of the M-Area Operable Unit

Section X of the FFA also requires SRS to submit Remedial SE Reports to the EPA and SCDHEC for those areas listed in Appendix G.I of the Agreement.

SRS did not submit any Remedial SE recommendations or revised SE reports.

A listing of all 515 waste units at SRS can be found in appendices C ("RCRA/CERCLA Units List") and G ("Site Evaluation List") of the FFA.

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 EPCRA-mandated Toxic Chemical Release Inventory report to include source reduction and recycling activities.

Executive Order 12856

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

Chemical Inventory Report (Tier II)

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

Toxic Release Inventory (TRI) Report (Form R)

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

Form R for 2007 was submitted to EPA July 1, 2008. SRS reported the following chemicals that exceeded their thresholds: barium, chlorine, chromium, copper, fluorine, formic acid, hydrochloric acid, lead, manganese, mercury, nickel, nitrate, nitric acid, sodium nitrite, sulfuric acid, and zinc. (NOTE: The term "exceeded" in an EPCRA context does not indicate a violation. Per EPA regulations, SARA chemical limits are established, and reporting requirements are based on these threshold values.) Specific details, including release amounts and detailed information about toxic release inventory reporting, can be viewed on the EPA website at www.epa.gov/tri/tridata.

Table 3–2
SRS Reporting Requirements under "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements" (Executive Order 12856)

EPCRA Citation	Activity Regulated	Reported in 2008
302–303	Planning Notification	NA[a]
304	Extremely Hazardous Substances Release Notification	NA[a]
311–312	Material Safety Data Sheet / Chemical Inventory	Yes
313	Toxic Release Inventory Reporting	Yes

[a] Did not exceed reporting threshold

During preparation of the 2007 SRS TRI Report Form R, it was discovered that SRS's nitrate release number was substantially higher than those documented in prior years' reports. Additional data review disclosed that the 2007 reported nitrate releases from an onsite wastewater treatment plant outfall were approximately three times greater than the amount reported in 2006. Further investigation determined that the last time analytical data were used to calculate the release of nitrate to the outfall was in 2000; the source of the data was the National Pollutant Discharge Elimination System (NPDES) 2C application. Subsequently, it was determined that a data transcription error from that wastewater treatment plant calculation sheet occurred during preparation of the 2000 TRI Report Form. The nitrate/nitrite value as nitrogen (a substantially smaller number) was transcribed, rather than the nitrate value.

In subsequent years, the new release numbers for nitrate for the sanitary wastewater facilities were calculated by using a ratio method involving flow; higher flows resulted in more nitrate being released, and lower flows resulted in less nitrate being released. Because the 2000 nitrate number was incorrect, use of the "flow ratio" method propagated the reporting error for nitrate through reporting year 2006. Corrective actions were developed in 2008, including a voluntary self-disclosure to EPA, an extent-of-condition analysis to ensure that similar issues had not occurred in the reporting of other release data, and revisions to TRI submissions for reporting years 2000–2006. EPA is reviewing all documentation submitted.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) is the federal government's basic charter for assuring the protection and wise use of the "human environment" by federal agencies. NEPA's procedures require that federal agencies identify and consider the potential environmental consequences of their proposed actions early in the planning process so they can make informed, environmentally sound decisions regarding project design and implementation. The NEPA process at SRS is initiated by completing

an Environmental Evaluation Checklist (EEC). The EEC is used to characterize the proposed action, identify any potential environmental concerns, and determine which level of NEPA review (if any) will be required {i.e., categorical exclusion determination (CX), environmental assessment (EA), or environmental impact statement (EIS)}. A total of 414 SRS-related NEPA reviews were conducted in 2008 (see table 3–3). The following is a listing of major NEPA reviews conducted during 2008, some of which will complete in 2009:

- *Surplus Plutonium Disposition Supplemental EIS (DOE/EIS–0283–S2)* – In this Supplemental EIS (SEIS), DOE will evaluate the potential impacts of implementing selected surplus plutonium disposition alternatives at SRS. Disposition alternatives being considered include (a) processing in H-Canyon, (b) using the Mixed Oxide (MOX) Fuel Fabrication Facility, and (c) using a can-in-canister immobilization (glass or ceramic) process. Work on the draft EIS was suspended late in 2008 to accommodate feasibility studies of additional alternatives. The schedule for this SEIS is uncertain.

- *Programmatic EIS for Disposition of Scrap Metals (DOE/EIS–0327)* – In this Programmatic EIS (PEIS), DOE will evaluate alternatives for the disposition of scrap metals that may have been in radiological areas. The disposition alternatives include (a) continuation of the suspension on unrestricted release of metals for recycling, (b) unrestricted release of scrap metals for recycling, and (c) disposal. The draft document has not been issued and the schedule for completing this PEIS is uncertain.

- *EIS for the Disposal of Greater-Than-Class-C Low-Level Radioactive Waste (GTCC LLW) (DOE/EIS–0375)* – In this EIS, DOE will evaluate the impacts of disposing GTCC LLW in a geologic repository, in intermediate-depth boreholes, or in enhanced near-surface disposal facilities. Candidate DOE sites being considered for these disposal facilities include SRS, Idaho National Laboratory, Los Alamos National Laboratory, WIPP, Nevada Test Site, Oak Ridge, Hanford, and Yucca Mountain. DOE also will consider generic commercial disposal of GTCC LLW at arid and humid locations. Disposal alternatives being considered for SRS include an intermediate depth borehole facility and an enhanced near-surface facility. Publication of the draft and final EISs is expected in May 2009 and June 2010, respectively.

- *Complex Transformation Supplemental Programmatic EIS (DOE/EIS–0236–S4)* – In this supplemental PEIS, DOE evaluated the environmental impacts associated with the National Nuclear Security Administration's proposed modernization of the nuclear weapons complex. The preferred alternative is to consolidate all tritium R&D activities at SRS. The final PEIS and two RODs were issued October 24 and December 19, respectively. DOE decided to consolidate tritium R&D activities at SRS.

- *Programmatic EIS for the Global Nuclear Energy Partnership (GNEP) Technology Demonstration Program (DOE/EIS–0396)* – The GNEP program would encourage expansion of domestic and international nuclear energy produc-

Table 3–3
Summary of SRS-Related NEPA Reviews in 2008

Type of NEPA Review	Number
Categorical Exclusion Determinations	153
"All No" EEC Determinations[a]	235
Actions Tiered to Previous NEPA Reviews	16
Environmental Impact Statements[b]	5
Supplement Analysis[c]	1
Interim Action	1
Revised FONSI	1
Environmental Assessments[d]	2
Total SRS-Related NEPA Reviews	**414**

[a] Proposed actions that require no further NEPA review

[b] DOE/EIS–0283–S2 (in progress); DOE/EIS–0375 (in progress); DOE/EIS–0236–S4 (complete); DOE/EIS–0396 (in progress); DOE/EIS–0327 (in progress)

[c] Discontinued SA for SRS Salt Processing Alternatives FSEIS not included in the count

[d] DOE/EA–1605 (complete); DOE/EA–1606 (in progress)

tion while reducing nuclear proliferation risks. The Draft PEIS was published October 17. The public comment period, which was extended for 90 days, will close March 16, 2009. DOE anticipates that this PEIS will be cancelled in 2009.

- *Supplement Analysis (SA): SRS Spent Nuclear Fuel Management FEIS (DOE/EIS–0279)* – In this SA, DOE is reviewing the continued use of H-Canyon to process spent nuclear fuel receipts and other highly enriched uranium material through 2019. As of late 2008, there were no projected approval dates for the SA or amended ROD.

- *Interim Action (IA) Determination: Surplus Plutonium Disposition Supplemental EIS (DOE/EIS–0283–S2)* – In this IA, DOE reviewed the proposed processing of a limited amount of plutonium surveillance material in H-Canyon for vitrification at the Defense Waste Processing Facility prior to completion of the SPD SEIS. DOE's review found that the proposed action was an allowable interim action because DOE had evaluated the impacts in the Interim Management Nuclear Materials EIS. The IA was completed in December.

- *Supplement Analysis: SRS Salt Processing Alternatives Final SEIS (DOE/EIS–0082–S2)* – In this SA, DOE was to review the construction of a Saltstone Feed Facility to provide lag storage for low-level liquid waste so that Tank 50 could be placed back into HLW service. This SA was discontinued due to lack of project funding.

- *Environmental Assessment for the Biomass Cogeneration and Heating Facilities at SRS (DOE/EA–1605)* – In this EA, DOE evaluated the potential impacts of constructing and operating a biomass-fueled cogeneration facility at SRS. This plant would replace the existing coal-fired D-Area powerhouse. The proposed action also included replacing the K-Area steam plant with two smaller biomass-fueled boilers in K-Area and L-Area. Clean biomass and bioderived fuels will be the fuel source for all the new boilers. The final EA and Finding of No Significant Impact (FONSI) were published in August.

- *Environmental Assessment for the Proposed Use of SRS Lands for Military Training (DOE/EA–1606)* – In this EA, DOE will evaluate the potential impacts associated with the proposed use of SRS lands for military training by the Department of Defense (e.g., U.S. Army). Publication of the draft EA is expected in 2010.

- *Revised FONSI: EA for the Natural Fluctuation of Water Level in Par Pond and Reduced Water flow in Steel Creek below L-Lake at the SRS (DOE/EA–1070)* – This revised FONSI reduces the required flow from L-Lake into Steel Creek and from PAR Pond into Lower Three Runs to 4.5 cubic feet per second (cfs) and 5 cfs, respectively. DOE had not approved the document by the end of 2008.

Safe Drinking Water Act

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

Samples are collected and analyzed periodically by SRS and SCDHEC to ensure that all site domestic water systems meet SCDHEC and EPA bacteriological and chemical drinking water quality standards. All samples collected in 2008 met these standards.

Although the B-Area Bottled Water Facility is not listed by SCDHEC as a public water system, SCDHEC's Division of Food Protection continued to conduct periodic inspections of this facility until it was closed formally in September. Results from routine bacteriological analyses performed in 2008 met SCDHEC and Food and Drug Administration (FDA) water quality standards.

Clean Water Act

National Pollutant Discharge Elimination System

The Clean Water Act (CWA) of 1972 created the 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 four NPDES permits in 2008:

- Two permits for industrial wastewater discharges (SC0047431, which covered the D-Area Powerhouse, and SC0000175, which covered the remainder of the site)

- Two general permits for stormwater discharges (SCR000000 for industrial and SCR100000 for construction)

The site also had one no-discharge permit for land applications (ND0072125).

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.

In 2008, SRS received from SCDHEC a final rating of "satisfactory"—the highest rating given—for the annual 2-week NPDES 3560 Compliance Sampling Inspection of the site's NPDES-permitted outfalls.

The outfalls covered by the industrial stormwater permit (SCR000000) were reevaluated again in 2007. This resulted in the development of a new sampling plan implemented in 2008. No new issues were identified in 2008. 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 2008.

SRS has an agreement with SCDHEC to report petroleum product discharges of 25 gallons or more to the environment. No such incidents occurred in 2008.

Notices of Violation (CWA)

The site reported five NPDES permit condition exceptions in 2008. Such required reporting does not mean a violation of a law, regulation, or permit. Of the five reported events, two resulted in allegations of violations.

On June 4, regarding the K–12 Outfall, SCDHEC notified SRS of an allegation of violation concerning total suspended solids (TSS) at this outfall. SRS notified SCDHEC that extensive maintenance records indicated the plant was properly maintained, and that investigations had failed to determine a reason for any problems involving TSS. Based on the information provided to SCDHEC, the agency decided not to refer for enforcement.

On September 25, SRS received an allegation of violation from SCDHEC based upon a July 16, 2008, exception at the G–10 Outfall, without referring the allegation for an administrative hearing to determine if a violation occurred. SRS sent SCDHEC a response indicating that the wastewater treatment unit was maintained and operated properly, that the samples were taken properly, and that 10 years of data indicated this exception was well beyond any other experienced at the plant. Even with this exception, the compliance ratio at this plant was still 99.60 percent. Based on this review, the high fecal coliform sample result appeared to be an anomaly, and SRS requested that SCDHEC not make a final agency determination that the regulated effluent discharge violated SC Code Section 48-1-110(d). On October 17, SCDHEC informed SRS that it will "absolutely not" take any enforcement action based on this exception.

Dredge and Fill; Rivers and Harbors

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

In 2008, SRS had four open permits under the Nationwide Permits (NWPs) program (general permits under Section 404), as follows:

- Dam construction on an unnamed tributary to Fourmile Branch for the Mixed Waste Management Facility Groundwater Interim Measures project was completed in 2000 under NWP 38,

"Hazardous Waste Cleanup." However, mitigation for the impact to wetlands was still pending in 2008 and must be addressed before the permit can be considered closed. The M&O contractor has requested approval from DOE to use wetland mitigation bank credits to satisfy the mitigation issue and close the permit.

- Minor dredging of a sandbar at the mouth of the 681–3G Pumphouse canal was conducted and covered under NWP 19, "Minor Dredging." The work was completed in February.

- Installation of characterization wells in the wetlands near Joyce Branch and Mill Creek was covered under NWP 5, "Scientific Measurement Devices." The wells will be used to investigate the groundwater in wetlands adjacent to Joyce Branch and Mill Creek near R-Area. The project is scheduled for completion in 2009.

- A minor discharge of material for research purposes was authorized in May 2008 under NWP 18, "Minor Discharges. The material was placed in Steel Creek below the S.C. Highway 125 bridge and used by Savannah River National Laboratory (SRNL) as part of a remediation research project evaluating active caps in streams to remediate contaminants. An active cap is one that actively binds or sequesters contaminants—as opposed to a passive cap, which simply covers contaminants. The cap in this research project consisted of combinations of apatite, sand, organoclay, and a sugar-based polymer.

Water Quality Certification

Section 401, "Water Quality Certification," of the CWA is administered by SCDHEC to ensure the maintenance of water quality during dredge-and-fill projects. No water quality certifications (WQCs) were active at SRS during 2008.

Construction in Navigable Waters

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

No navigable-waters permits were active at SRS during 2008.

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 (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 have been incorporated in recent years 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. Additional changes in the procedure—some involving expansion of the site's restricted-use pesticide list to include three pesticides formerly on the unrestricted list, but most editorial in nature—also have been completed.

The Environmental Protection Section completed a self-assessment in 2008 that emphasized the need for increased awareness of site spill prevention and control protocol—particularly with respect to pesticide applications. Site pesticide application personnel subsequently were notified of the importance of following the guidance established in applicable Environmental Compliance Manual procedures when they are preparing and applying pesticides at SRS.

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), with an effective date of April 1, 2003, and an expiration date of March 31, 2008. SRS submitted a permit application renewal September 18, 2007, as required by SC R61–62.70. The site expected to receive the new Part 70 Air Permit in 2008; however, due to prioritization issues with SCDHEC, renewal of the permit has been delayed until early 2010—and the initial permit was extended. Until SCDHEC issues the permit renewal, SRS will continue to operate in accordance with requirements of the extended permit.

The Part 70 Air Quality Permit regulates both radioactive and nonradioactive toxic and criteria pollutant emissions from approximately 22 nonexempt emission units, with each emission unit having specific emission limits, operating conditions, and monitoring and reporting requirements. The permit also contains a listing, known as the Insignificant-Activities List, identifying approximately 500 SRS sources that are exempt based on insignificant emission levels, or on equipment size or type. Two air construction permit applications were submitted to SCDHEC in 2006 in conjunction with SRS plans to simultaneously (1) install and operate a biomass boiler and an oil-fired boiler to provide steam to A-Area and (2) discontinue operation of the two aging A-Area coal-fired boilers. SRS received the permits in April 2007, and construction began on the biomass and oil-fired boilers in October 2007. Construction on the boilers was completed in 2008, and they began operating August 5 (oil-fired) and 6 (biomass). The two A-Area coal-fired boilers were shut down March 19 and September 13, 2008.

The renewed Title V permit for the D-Area Powerhouse (TV–0300–0036) was issued to SRS May 15, 2007, with an effective date of July 1, 2007, and an expiration date of June 30, 2012. In 2007, DOE–SR proposed replacement of the existing D-Area Powerhouse boilers with two new biomass cogeneration boilers more closely aligned with current and future steam demands. This proposed action would allow for decommissioning of the existing D-Area Powerhouse prior to its current Title V permit expiring June 30, 2012.

SCDHEC issued no revisions to the SRS Part 70 Air Quality Permit (TV–0080–0041) in 2008. One revision was issued by SCDHEC in 2008 to the 484–D Powerhouse Part 70 Air Quality Permit (TV–0300–0036) to incorporate an administrative change.

The Mixed Oxide Fuel Fabrication Facility (MFFF)—a part of the SRS Nuclear Nonproliferation Program—was issued an air construction permit (0080–0139CA) August 22, 2006. Construction of the MFFF began August 1, 2007, and continued throughout 2008.

Compliance with the SRS Part 70 Air Quality Permit conditions was last evaluated by SCDHEC in August 2008, as part of an Air Compliance Inspection. For results of the evaluation, refer to the "Assessments/Inspections" section of this chapter, beginning on page 3-17.

Notices of Violation (CAA)

SCDHEC issued a Notice of Alleged Violation (NOAV) to SRS June 12 concerning a particulate matter (PM) exceedance related to the biennial stack test of the site's A-Area Boiler #2 conducted February 20, 2008. During a presentation to SCDHEC, SRS provided credible evidence that (1) the boiler was operating within limits required by the permit, (2) the issuance of the NOAV by SCDHEC was not legally supportable, and (3) the only exceedance occurred during testing. SCDHEC agreed there was credible evidence that the boiler test was conducted at an operating level much higher than normal operating conditions, and agreed to include in any order language that SRS did not admit a violation. The parties continued to negotiate settlement of the dispute in 2008, and were expected to resolve it by consent in 2009.

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

NESHAP Radionuclide Program Subpart H of 40 CFR 61 was issued December 15, 1989, after which an evaluation of all air emission sources was performed to determine compliance status. DOE–SR and EPA Region 4 signed a Federal Facility Compliance Agreement (FFCA) 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 2008, the maximally exposed individual effective dose equivalent, calculated using the NESHAP-required CAP88 computer code, was estimated to be 0.04 mrem (0.004 mSv), which is 0.4 percent of the 10 mrem per year (0.10 mSv per year) EPA standard (chapter 6, "Potential Radiation Doses").

Compliance with 40 CFR 61, Subpart H, was last evaluated by SCDHEC in June 2008 as part of a radiological NESHAP inspection. For results of the evaluation, refer to the "Assessments/Inspections" section of this chapter, beginning on page 3-17.

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 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.

On September 13, 2004, EPA finalized a MACT rule that applied to the coal-fired steam boilers at the 784–A and 484–D powerhouse facilities. The rule, "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters" (Boiler MACT), had a compliance date of September 13, 2007, and required facilities to meet more stringent emissions limits dealing with PM, mercury, and hydrogen chloride emissions. During 2006, 484–D Powerhouse Facility personnel prepared to conduct the necessary testing during the 2007–2008 timeframe to demonstrate compliance with the new emission limits without the significant expenditure of capital funds. In June 2006, a MACT extension request was submitted to SCDHEC's Bureau of Air Quality requesting a one-year extension from the September 2007 compliance date so SRS could replace the aging A-Area boilers with a smaller wood-fired boiler and an oil-fired boiler capable of meeting the lower MACT emission limits. That compliance extension request was approved by SCDHEC September 5, 2006. Then, on July 30, 2007, the U.S. Court of Appeals for the District of Columbia vacated the Boiler MACT, thereby leaving it up to each state to enforce the rule. The State of South Carolina—one of the few states that elected to proceed with implementation of the rule—decided to give all facilities in the state a one-year extension until September 12, 2008, to comply. In May 2008, SCDHEC provided an additional 24 months—until September 13, 2010—for the facilities to comply.

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

SCDHEC finalized extensive revisions to 61–86.1 during 2008. The change that most affected SRS was a measure requiring a follow-up analysis using transmission electron microscopy (TEM) of at least one of three bulk samples should all three samples test negative for the presence of asbestos when using customary polarized light microscopy. RI&ES personnel secured a laboratory to perform the TEM analyses, thus enabling the site to comply with the new requirement. Site Procedure 4.14 ("Asbestos Management Program") of the 3Q Manual will be

revised in 2009 to reflect the TEM requirement.

During 2008, SRS personnel removed and disposed of an estimated 121 square feet and 1,231 linear feet of friable (regulated) asbestos-containing material. SRS personnel also removed an estimated 5,399 square feet, 8,530 linear feet, and 486 cubic feet of nonfriable (unregulated) asbestos-containing material.

Radiologically contaminated asbestos waste was disposed of at the SRS E-Area low-level vaults, engineered trenches, and slit trenches, which are authorized by SCDHEC as asbestos waste disposal sites. Nonradiological asbestos waste was disposed of at the Three Rivers Solid Waste Authority Landfill and the construction and demolition debris (C&D) Landfill (632–G), both of 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 threshold values 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 2008.

SRS maintains hazardous and extremely hazardous chemical inventories below the threshold value. This cost-effective approach minimizes the regulatory burden of 112(r) but does not eliminate any liability associated with the general duty clause, as stated in 112(r)(1). No reportable 112(r)-related hazardous or extremely hazardous chemical releases occurred at SRS in 2008.

EPA issued a revision to its RMP final rule in 2004, changing reporting requirements in 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. As indicated earlier, SRS maintains hazardous and nonhazardous chemical inventories below threshold values such that there are no associated EPA RMP reporting requirements.

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 used in the September 1994 Plan.

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 increased slightly

from 71,130 pounds in 2007 to 71,167 pounds in 2008. The site had an inventory of 51,760 pounds of stored Halon 1301 at the end of 2008. In addition, 19,407 pounds were contained in the 85 operating systems at the end of 2008—the same as at the end of 2007 (down from 111 systems in 2002).

Air Emissions Inventory

SCDHEC Regulation 61–62.1, Section III ("Emissions Inventory"), requires compilation of an air emissions inventory to locate all sources of air pollution and to define and characterize the various types and amounts of pollutants. To demonstrate compliance, SRS personnel in 1993 conducted the initial comprehensive air emissions inventory, which identified approximately 5,300 radiological and nonradiological air emission sources. Source operating data and calculated emissions from 1990 were used initially to establish the SRS baseline emissions and to provide data for air dispersion modeling. In 2006, a rerun of the air dispersion modeling accompanied the site's Title V permit renewal application. This modeling was required to demonstrate sitewide compliance with Regulation 61–62.5, Standards No. 2 ("Ambient Air Quality Standards") and No. 8 ("Toxic Air Pollutants").

Regulation 61–62.1, Section III, which was revised in August 2005, requires that air emissions inventory data be updated and recorded annually but reported to SCDHEC on a specific reporting frequency—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 threshold values depend on the actual tons per year of specific criteria pollutants.

SRS, under Title V Permit TV–0080–0041, is classified as a Type B source, required to report only every third year, thus reducing the cost burden associated with annual emissions inventories for sources with moderate emission rates. However, the acquired D-Area Powerhouse (co-located at SRS), under Title V Permit TV–0080–0044, is a Type A source that must report actual emissions annually. Both facilities (i.e., "SRS" and "D-Area Powerhouse") are required to compile and report CY 2008 emissions to SCDHEC by March 31, 2009. CY 2007 emissions were submitted to SCDHEC March 31, 2008, only for the D-Area Powerhouse, as required.

During 2008, the site collected CY07 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 for the preceding year and requires up to 6 months to complete, the 2008 site environmental report contains emissions data for CY 2007. These data were used to generate the site's Title V Permit renewal application. Compilation of 2008 data will be completed in 2009 and documented in the *SRS Environmental Report for 2009*.

Toxic Substances Control Act

The Toxic Substances Control Act (TSCA) gives EPA comprehensive authority to identify and control chemical substances manufactured, imported, processed, used, or distributed in commerce in the United States. Reporting and record keeping are mandated for new chemicals and for any chemical that may present a substantial risk of injury to human health or the environment.

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

The site's 2007 PCB document log was completed in full compliance with 40 CFR 761, and the 2007 annual report of onsite PCB disposal activities was submitted to EPA Region 4 in July 2008. 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 shortnose sturgeon, the pondberry, and the smooth purple coneflower. Although the bald eagle is no longer on the endangered species list,

it is still protected under the Bald and Golden Eagle Protection Act. Programs are in place to enhance the habitat and survival of such species.

In 2008, as part of the Natural Resource Management Plan, the USDA Forest Service–Savannah River (USFS–SR) developed a threatened and endangered species biological evaluation (TES BE) for the red-cockaded woodpecker and the smooth purple coneflower. The TES BE is being reviewed by DOE as part of the management plan. Also, two biological evaluations were conducted during the year for forestry-related activities. The timber-related BEs are being evaluated by the U.S. Fish and Wildlife Service to determine if there are any adverse or beneficial impacts as a result of timber prescriptions (i.e., intervention actions taken in the present to achieve a desired future condition for the forest).

National Historic Preservation Act

The National Historic Preservation Act (NHPA) of 1966, Section 106, governs archaeological and historical resources. SRS ensures that it is in compliance with the NHPA through several processes. The Cold War Programmatic Agreement and the SRS Cold War Built Environment Cultural Resource Management Plan are in place and being implemented. The site's artifact selection team—which includes DOE, Savannah River Nuclear Solutions, LLC, (SRNS), and the University of South Carolina's 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. SRS also helps ensure that it remains in compliance with NHPA through its Site Use Program. All locations being considered for activities such as construction are evaluated by SRARP personnel to ensure that archaeological or historic sites are not impacted. Reviews of timber compartment prescriptions include surveying for archaeological resources and documenting areas of importance with regard to historic and prehistoric significance.

SRARP personnel reviewed 26 site-use permit application packages during FY 2008, of which 16 proposed land modifications resulted in the need to survey 245 acres (15.2 percent) of the total survey coverage for FY08. The remaining site-use packages were found to have no activities of significant impact in terms of the NHPA. SRARP personnel also surveyed 1,372 acres (84.8 percent) of the total survey area coverage in 2008 in support of onsite forestry activities.

Thirty-two surveys were conducted totaling 1,617 acres and consisting of 16 Site Use Application Surveys and 16 Timber Compartment Prescription Surveys. During these surveys a total of 2,875 shovel test pits were dug of which 165 had positive results. These investigations identified 25 new archaeological sites—and resulted in revisits to seven previously recorded sites for cultural resources management within the 1617 acres.

In compliance with NHPA, artifacts recovered through daily compliance activities and the analysis of artifacts recovered during Phase III investigations of site 38AK155 (located within the MOX facility footprint) must be curated. A total of 2,901 artifacts were curated during FY 2008 by SRARP.

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 floodplain/wetland assessment was performed for the Biomass Cogeneration and Heating Facility in 2008. The generating facility would have an NPDES discharge into Upper Three Runs Creek. The creek and the adjacent wetlands and floodplain would be affected by the project and would require a U.S. Army Corps of Engineers permit and SCDHEC 401 WQC and Navigable Waters Permit.

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 ap-

plications are reviewed for potential impacts by the M&O contractor, DOE–SR, the USFS–SR, 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 RI&ES—review site-use applications to ensure that proposed projects do not impact wetlands.

Environmental Release Response and Reporting

Response to Unplanned Releases

RI&ES personnel respond to unplanned environmental releases, both radiological and nonradiological, upon request by area operations personnel. No unplanned environmental releases occurred at SRS in 2008 that required the sampling and analytical services of RI&ES.

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. Reportable quantities—not to be confused with threshold values, as defined by EPCRA Section 313—are those quantities of a hazardous substance greater than or equal to values specified in table 302.4 ("Designation of Hazardous Substances") of 40CFR, Part 302 ("Designation, Reportable Quantities, and Notification").

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 has had no CERCLA-reportable releases since 1999.

No notifications required by CERCLA or SCDHEC Memoranda of Understanding had to be made by SRS during 2008. The site recorded and cleaned up the following spills that did not require reporting under CERCLA or to SCDHEC: 14 chemical, two radioactive wastewater, five sewage, and 88 petroleum products.

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 at SRS in 2008.

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 149 SIRIM-reportable events in 2008, three were categorized as environmental, involving allegations of violations at the G–10 Outfall, the K–12 Outfall, and the A-Area power plant. See the Clean Water Act section of this chapter on page 3-8 for a discussion of the G–10 and K–12 Outfalls, and the Clean Air Act section on page 3-10 regarding the A–2 Boiler at the A-Area power plant. SCDHEC did

not seek an administrative hearing on any of these matters to determine if a violation occurred.

Assessments/Inspections

The SRS environmental program is overseen by a number of organizations, both outside and within the DOE complex. In 2008, the site's 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 assessment program are to ensure compliance with regulatory requirements and to foster continuous improvement. The program—an integral part of the site's ISMS—supports the SRS Environmental Management System (EMS), which continues to meet the standards of International Organization for Standardization Standard 14001. (ISO 14000 is a family of voluntary environmental management standards and guidelines.) The Site Tracking, Analysis, and Reporting (STAR) is a database used for scheduling self-assessments as well as documenting results and any issues or concerns identified, tracking corrective actions to closure, and trending accumulated data for process improvement.

The M&O contractor conducted several environmental program-level assessments in 2008. The titles of the self-assessment titles, the media (in parentheses), and brief summaries of the results are as follows:

- *ESS Assessment of NEPA Process Integration into the SRS Environmental Management System (EMS) (National Environmental Policy Act)* – This Environmental Services Section (ESS) self-assessment was conducted –January 31 through April 23. Its purpose was to determine the extent of NEPA process integration into the SRS EMS. The assessment identified four opportunities for improvement (OFIs) and one finding. The OFIs included the following: (1) consistently track and monitor NEPA of commitments; (2) develop centralized, continuously updated comprehensive environmental database; (3) identify resources required to implement NEPA's "adaptive management" approach; and (4) consistently implement use of the formal site selection process for major new missions. The finding related to the lack of EMS support for using NEPA's "adaptive management" approach (i.e., predict, mitigate, implement, monitor, and adapt). Corrective actions for the observations and finding were identified, initiated, and completed.

- *IWT/NPDES Permit Condition Cross-Walk (Surface Water Quality)* – This self-assessment was conducted March 15 through May 14. Its purpose was to conduct an industrial wastewater treatment (IWT)/NPDES Permit Condition Cross-Walk. It identified the following items and/or areas requiring improvement: Documentation involving the facility's industrial wastewater permitting file appears incomplete. A corrective action for the item was identified and documented in STAR and tracked to completion.

- *Polychlorinated Biphenyls Management and Control (Toxic and Chemical Materials)* – This self-assessment was conducted May 19–29. Its scope included a review of PCB activities within selected site organizations. The specific organizations selected for personnel interviews and/or other reviews were: (1) Waste Management Area Project (WMAP); (2) the ESS group supporting F-Area Operations; (3) the Site Deactivation and Decommissioning (SDD) organization; and (4) SRNL. The assessor gathered information for this assessment via document review, personnel interviews, PCB waste storage facilities inspections, and PCB container inspections. Four OFIs to the site-level program were noted, including PCB Management Manual and "Waste Identification Form" revisions. Identified issues were documented in STAR and tracked to completion.

- *ESS Annual Environmental Audit Review 2008 "Pre-CEI" (Waste Management)* – This self-assessment was conducted February 5 through April 2. Its scope included the ESS performance of its annual environmental audit review of the site's solid and hazardous waste management, commonly known as the "Pre-CME" or "Pre-CEI". ESS attempted to review the site as SCDHEC and EPA inspectors would look at it.

This review gives site personnel a feel for how the Compliance Evaluation Inspection (CEI), which evaluates compliance with solid and hazardous waste management regulations, will be conducted by the regulators. The following concerns requiring improvement were identified: issues with documentation in inspection records, contingency plans, and training. Additional areas of concern within hazardous waste management include open containers, unlabeled containers, and secondary containment. Actions taken associated with the pre-CEI were identified, tracked, and completed in STAR.

- *Nonhazardous Solid Waste (Waste Management)* – This self-assessment was conducted July 16–22. Its scope was to determine if prohibited materials, as defined by 3Q ECM 6.2, Rev. 13, are being placed into waste containers transported to the North Augusta Material Recovery Facility. The focus was on five of the 16 listed prohibited materials, which were labeled as radioactive, hazardous waste, fluorescent lamps, lead-acid batteries, and classified material (equipment or documents that contain or reveal classified information, as defined by Executive Order 12958, "Classified National Security Information"). Three SRS areas were assessed—SRNL, SREL, and B-Area Laboratory. Also reviewed was the North Augusta Material Recovery Facility. The assessors gathered information for this self-assessment by reviewing documents, interviewing cognizant personnel, and inspecting both solid waste collection containers (dumpsters) and the North Augusta Material Recovery Facility. All personnel interviewed were knowledgeable of the requirements and procedures regarding prohibited materials and solid waste management. No findings were identified.

- *Environmental Management Functions Self-Assessment (Environmental Management Functions)* – This self-assessment was conducted September 8–18. Its purpose was to ensure that SRNS and subcontractor organizations apply EMS principles and requirements in conducting activities associated with environmental protection. This self-assessment looked at formalized controls based on DOE directives, environmental permits, and applicable federal, state, and local regulations. No findings were identified; however, three observations were recorded as OFIs, which included resource needs and responsibility assignments. Corrective actions for the observations were identified and documented in STAR and tracked to completion.

- *Groundwater Monitoring-Well Network (Groundwater)* – This self-assessment was conducted during the period of October 10–30. Its scope included evaluation of the sitewide groundwater monitoring well network that is in place so that the effects of operations on groundwater quality can be determined and documented. The self-assessment involved a review of procedures and permits, and of well installation, maintenance, and abandonment records. The data engineer responsible for loading well data into the site's database was interviewed, as was the well maintenance coordinator. No OFIs or findings resulted from this assessment.

- *Environmental Surveillance – Groundwater Monitoring Program (Groundwater)* – This self-assessment was conducted October 20–30. Its scope included evaluation of the program that monitors SRS groundwater. The self-assessment also included a review of procedures, DOE orders, the SRS Groundwater Protection Program, and the Environmental Restoration Data Management System (ERDMS) Data Management Plan. A groundwater monitoring program is being implemented. It is made up of multiple site-specific monitoring programs specifically tailored to the requirements of individual regulated units. These individual programs operate under a common set of procedures and feed data into a common database (the ERDMS). The SRS Groundwater Protection Program describes the integration of the individual programs into a sitewide system. No findings resulted from this self-assessment, but two OFIs were identified. Corrective actions for the OFIs were identified as revisions of the SRS Groundwater Protection Plan. This corrective action has been initiated.

- *Air Emissions Inventory* – Completed in July, this effort focused on the adequacy and effectiveness of policies, procedures, and programs, including the Air Information Reporting System (AIRS) database for completing the Air Emissions Inventory. Inquiries covered compliance with the governing procedure, timeliness and accuracy of AIRS updates, verification of select emission factors, and control measures for access/updates to the AIRS database. No findings were noted; however, activities were initiated to identify and evaluate commercially available off-the-shelf

software products to improve data maintenance and upkeep, ensure more accurate emission estimates, reduce omissions and complacency, and increase the level of data ownership/ responsibility.

SCDHEC and EPA personnel conducted external inspections and audits of the SRS environmental program for regulatory compliance. Agency representatives performed several comprehensive compliance inspections and audits in 2008, as follows:

- *RCRA Compliance Evaluation Inspection* – The RCRA compliance evaluation inspection was conducted by SCDHEC June 2–6. A July 22 SCDHEC letter noted, "The facility appeared to be in compliance with all applicable requirements. You are to be commended for your excellent hazardous waste management program."

- *Annual Underground Storage Tank Inspection* – SCDHEC inspected the site's USTs August 20. All were found to be in compliance with applicable regulations for the sixth straight year.

- *632–G C&D Landfill, 288–F Ash Landfill, and 488–4D Ash Landfill Inspections* – SCDHEC conducted quarterly inspections of the 632–G C&D, the 288–F Ash, and the 488–4D Ash landfills; the facilities were found to be satisfactory, with no observed deficiencies.

- *Z-Area Saltstone Solid Waste Landfill Inspections* – The Saltstone Disposal Facility inspections continued to be completed on a weekly basis. Moisture areas were observed on the walls of the facility's Vault 4, and were reported to SCDHEC in accordance with the facility's contingency plan. (NOTE: "Moisture areas" are areas on the external walls of the facility's cells that appear damp due to a combination of saltstone shrinkage from curing, bleed, and process water accumulation at the inner cell walls, and hydrostatic pressure that causes the water to weep through preexisting construction cracks. Such moisture areas are not areas of free-flowing liquid.)

- *Interim Sanitary Landfill* – SCDHEC personnel conducted an annual post-closure inspection September 9, and the landfill was found to be satisfactory, with no observed deficiencies.

- *Groundwater Comprehensive Monitoring Evaluation* – SCDHEC conducted an unannounced RCRA inspection of SRS's groundwater program March 19–24. No deficiencies or permit violations were cited.

- *Site Radionuclide NESHAP Compliance Audit* – SCDHEC's Bureau of Air Quality conducted an air compliance audit June 17. The audit's purpose was to verify that the site's NESHAP Radionuclide Program is in compliance with 40 CFR 61 Subpart H requirements, and with the monitoring, reporting, and recordkeeping requirements contained in the Part 70 Air Quality Permit. One issue, based on a self-reported condition, was identified that related to the late submittal of the relative accuracy testing of the continuous-flow measurement system at F-Canyon. The testing was completed on time, but the report was not submitted to SCDHEC within the 30 days required by the permit. SRS has received a letter from SCDHEC indicating that further evaluation of the late submission is ongoing. No enforcement action was taken in 2008.

- *Quarterly Inspections of SRS Bottled Water Facility* – SCDHEC's Division of Food Protection conducted quarterly inspections of the SRS Bottled Water Facility until the plant was closed formally in September. Prior to the closure, results from routine bacteriological analyses and annual complete chemical analyses met SCDHEC and FDA water quality standards.

- *Site and D-Area Air Compliance Audit* – SCDHEC's Bureau of Air Quality conducted an air compliance audit August 18–20. The audit's purpose was to verify that SRS and the D-Area Powerhouse were in compliance with applicable regulations, including monitoring, reporting, and recordkeeping requirements contained in both Part 70 Air Quality Permits.

- *Annual NPDES Wastewater Program Inspection* – SCDHEC inspected the site's wastewater facilities (e.g., outfalls) in March. All were found to be in compliance with applicable regulations.

Environmental Training

The SRS environmental training program identifies training needs and appropriate training settings to teach job-specific skills that protect the employee and the environment, in addition to satisfying regula-

Table 3–4
SRS Construction and Operating Permits, 2004–2008

Type of Permit	Number of Permits				
	2004	**2005**	**2006**	**2007**	**2008**
Air	3	1	3[a]	5[a]	5
U.S. Army Corps of Engineers Nationwide Permit	3	4	5	5	4
Domestic Water	203	207	207	207	170
Industrial Wastewater	56	63	70	70	70
NPDES Discharge	1	1	2	2	2
NPDES No Discharge	1	1	1	1	1
NPDES Stormwater	2	2	2	2	2
NPDES Construction Stormwater Grading Permit	N/A	13	9	10	11
RCRA Hazardous Waste	1	1	1	1	1
RCRA Solid Waste[b]	4	4	3	4	4
RCRA Underground Storage Tank	7	7	7	7	7
Sanitary Wastewater	104	106	106	106	98
SCDHEC 401	0	0	0	1	0
SCDHEC Navigable Waters	0	0	0	1	0
Underground Injection Control	18	21	14	14	15
Totals	**403**	**431**	**430**	**436**	**390**

[a] These numbers were revised to include the Mixed Oxide Fuel Fabrication Facility construction permit received in 2006.

[b] The Saltstone Disposal Facility's landfill permit covers all the Saltstone disposal vaults and cells.

tory training requirements. This process ensures that personnel whose actions could have environmental consequences are properly trained and made aware of their responsibilities to protect the environment, workers, and the public. General environmental awareness training is provided to all employees of SRS via initial General Employee Training (GET) which subsequently is reinforced annually through Consolidated Annual Training (CAT). Specialized training opportunities are developed by and offered through a centralized training organization that relies heavily upon the functional-area subject matter expertise within the environmental organization for the development of environmental and waste management curriculum. Regularly scheduled classes in this program cover such topics as Environmental Laws and Regulations, the Hazardous Waste Worker, Hazardous and Radiological Waste Characterization, and the Environmental Compliance Authority course. A self-taught Environmental Laws and Regulations course—available for technical personnel–is updated annually by environmental subject matter experts. 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 in and around SRS.

Environmental Permits

SRS had 390 construction and operating permits in 2008 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 the M&O contractor for itself and for other SRS contractors that requested assistance in obtaining permits. The numbers include some permits that were voided or closed during the calendar year (2008).

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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