

Environmental Management System

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An Environmental Management System (EMS) ensures that environmental issues are systematically identified, controlled, and monitored. The Savannah River Site (SRS) conforms to U.S. Department of Energy–Headquarters (DOE–HQ)-directed performance metrics that demonstrate the successful implementation of an EMS at SRS.

This chapter focuses on Washington Savannah River Company’s (WSRC’s) integration of numerous environmental requirements mandated by existing statutes, regulations, and policies implemented through the EMS. All 14 contractor requirements mandated by DOE Order 450.1, “Environmental Protection Program,” are appropriately considered in the WSRC Integrated Safety Management System (ISMS) structure. DOE–HQ, through the Office of Health, Safety, and Security Performance Assurance, concluded during its 2005 inspection of Environment, Safety, and Health Programs at SRS that “EMS has been implemented pursuant to DOE Order 450.1 and incorporated into line operations by WSRC for both environmental management and National Nuclear Security Administration functions at SRS, and the pollution prevention program is effective.” The independent evaluation further concluded that “SR provides effective oversight for EMS-significant aspects by participating in contractor assessments and frequently interacting with WSRC environmental management and staff.”

The latest annual *WSRC Integrated Safety Management System Review*, published in October 2006, concluded that the various environmental protection media areas (air, water, and waste programs, etc.) continue to meet or exceed performance expectations. The following is the text of the current EMS Policy for the site:

Savannah River Site Environmental Management System Policy August 2006

OBJECTIVE

To implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources impacted by Savannah River Site (SRS) operations. All activities on SRS shall be conducted in compliance with applicable laws and regulations providing for the protection of public health and the environment, to reduce the use of procedures and processes that produce hazardous wastes, and to seek ways to continuously improve the performance of activities protective of the environment. The objective of this policy is to establish a consistent sitewide approach to environmental protection through

the implementation of an Environmental Management System (EMS) as part of the overall ISMS. The EMS provides for the systematic planning, integrated execution, and evaluation of Site activities for (1) public health and environmental protection, (2) pollution prevention (P2), (3) compliance with applicable environmental protection requirements and (4) continuous improvement of the EMS.

DIRECTIVE

Recognizing that many aspects of operations carried out at SRS may impact the environment, the SRS policy is that all employees, contractors, subcontractors, and other entities performing work at SRS shall abide by the directives in this document. This document serves as the primary documentation for the environmental goals and objectives of SRS and shall be available to the public. It shall be centrally maintained and updated as necessary to reflect the changing needs, mission, vision, and goals of SRS. The Department of Energy–Savannah River Operations Office (DOE–SR), Washington Savannah River Company (WSRC), Wackenhut Services Incorporated–Savannah River Site (WSI–SRS), Savannah River Ecology Laboratory (SREL), National Nuclear Security Administration–Savannah River Site Office (NNSA–SRSO), National Nuclear Security Administration–Fissile Materials Disposition Office (NNSA–FMDO), the United States Forest Service–Savannah River (USFS–SR), Parsons, and Duke Cogema Stone & Webster endorse the principles stated in this policy.

The Environmental Management System pursues and measures continuous improvement in performance by establishing and maintaining documented environmental objectives and targets that correspond to SRS’s mission, vision, and core values. The environmental objectives and targets shall be established for each relevant function within DOE–SR, NNSA–SRSO, NNSA–FMDO, and all contractors, subcontractors, and other entities performing work at SRS for all activities having actual or potentially significant environmental impacts.

DOE–SR, NNSA–SRSO, and NNSA–FMDO, and all contractors, subcontractors, and other entities performing work at SRS shall:

1. Manage the SRS environment, natural resources, products, waste, and contaminated materials so as to eliminate or mitigate any threat to human health or the environment at the earliest opportunity and implement process improvements, as appropriate, to ensure continuous improvement of performance in environmental management.
2. Develop policies, procedures, and training as needed to identify activities with significant environmental impacts; to manage, control, and mitigate the impacts of these activities; and to assess performance and implement corrective actions where needed.
3. Implement a pollution prevention program to reduce waste generation, releases of pollutants, future waste management and pollution control costs, and to promote energy efficiency.
4. Conduct operations in compliance with all applicable federal, state, and local laws, regulations, statutes, executive orders, directives, and standards.
5. Work cooperatively and openly with appropriate local, state, federal agencies, public stakeholders, and site employees to prevent pollution, achieve environmental compliance, conduct cleanup and restoration activities, enhance environmental quality, and ensure the protection of workers and the public.

6. Design, develop, operate, maintain, decommission, and deactivate facilities and perform operations in a manner that shall be resource efficient and will protect and improve the quality of the environment for future generations and continue to maintain SRS as a unique national environmental asset.
7. Recognize that the responsibility for quality communications rests with each individual employee and that it shall be the responsibility of all employees to identify and communicate ideas for improving environmental protection activities and programs at the site.
8. Ensure the early identification of, and appropriate response to, potential adverse environmental impacts associated with DOE operations, including as appropriate, preoperational characterization and assessment; and effluent and surveillance monitoring.
9. Promote the long-term stewardship of SRS's natural and cultural resources throughout its operational, closure, and post-closure life cycle.

Adherence to and programmatic implementation of this policy shall be the responsibility of the DOE–SR, NNSA–SRSO, and NNSA–FMDO managers in coordination with the contractors, subcontractors, and other entities performing work at SRS.

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SRS EMS Implementation

The International Organization for Standardization (ISO) 14001 Standard, *Environmental Management System*, defines the structure for implementing EMS and improving environmental performance. The process-based structure of the ISO 14001 Standard is based on the “Plan-Do-Check-Act” improvement cycle. The standard requires an organization to develop an environmental policy, create plans to implement the policy, implement the plans, check progress and take corrective actions, and review the system annually to ensure its adequacy and effectiveness. Although the SRS EMS program follows the guidelines of ISO 14001, the program no longer is certified. The SRS EMS was designed to meet the rigorous requirements of the globally recognized (ISO) 14001 Environmental Management Standard, with additional emphasis on public health and regulatory compliance, pollution prevention, and continuous improvement. The following paragraphs describe the 17 elements that demonstrate SRS implementation of the ISO 14001 Standard:



Environmental Policy

The SRS EMS Policy is a statement of the site’s intention to implement sound stewardship practices that are protective of the air, water, land, and other natural cultural resources impacted by SRS operations. All SRS activities shall be conducted to comply with applicable laws and regulations providing for the protection of public health and the environment, to reduce the use of procedures and processes that produce hazardous wastes, and to seek ways to continuously improve the performance of activities protective of the environment. The objective of this policy is to establish a consistent sitewide approach to environmental protection through the implementation of an EMS as part of the overall ISMS. The EMS provides for the systematic planning, integrated execution, and evaluation of site activities for (1) public health and environmental protection, (2) pollution prevention (P2), (3) compliance with applicable environmental protection requirements, and (4) continuous improvement of the EMS.

Environmental Aspects and Impacts

Determining environmental aspects (elements of activities, products, processes, and services that could have a significant impact on the environment) is critical to the EMS process. It equates to analyzing hazards in ISMS discussions. Identifying the SRS environmental aspects is not the end of the process. Work activities, whether routine or unusual, must consider whether these aspects are a potential part of the work activity. This leads to the development and implementation of controls necessary to mitigate the potential that the action will adversely affect the environment. SRS has determined that the following aspects of its operations have the potential to affect the environment:

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|-----------------------------|------------------------|
| • radionuclides | • nuclear material |
| • high-level waste | • low-level waste |
| • transuranic (TRU) waste | • mixed waste |
| • pollution prevention | • chemical commodities |
| • energy and water use | • natural resources |
| • environmental restoration | • ecological research |

- development, demonstration, and deployment
- solid waste (hazardous, non-hazardous, sanitary, nonradioactive)
- environmental remediation
- deactivation and demolition
- cultural/historical resources

Legal and Other Requirements

Regulatory and DOE requirements for environmental programs are included in the WSRC Standards/Requirements Identification Document(S/RID), Functional Area 20. The purpose of the S/RID is to address environmental, safety, and health requirements related to environmental protection activities undertaken by WSRC on behalf of DOE at SRS. The source includes DOE Order 5400.5, DOE Order 450.1, and other directives. The environmental protection S/RID functional area includes activities required to protect the environment and the health of the public and workers. This S/RID covers the technical and programmatic requirements from applicable standards, laws, and regulations.

Objectives, Targets, and Programs

The EMS pursues and measures continual improvement in performance by establishing and maintaining documented environmental objectives and targets that counterbalance SRS activities having actual or potentially significant environmental impacts. Objectives and targets are established to 1) achieve full compliance with applicable environmental requirements, 2) devote resources to specific pollution prevention initiatives, and 3) ensure responsible stewardship of natural and historical resources at SRS. The SRS goals and objectives are described in the following document references:

Environmental Restoration Management Action Plan (MAP) – The SRS MAP “integrates environmental restoration activities at SRS with operational activities and allows meaningful comparison against restoration programs complexwide. The MAP’s purpose is to describe the status of the program to identify environmental restoration goals, strategies, and initiatives. The SRS MAP serves as the management framework for environmental restoration activities, stakeholder requirements and recommendations, and mission-oriented activities.”

Waste Minimization and Pollution Prevention Plan (WMin/P2) – This plan is a high-level “umbrella” document for the overall WSRC pollution prevention program. Many pollution prevention initiatives are guided by program-specific plans, goals, and objectives. Facility/Project pollution prevention implementation plans support this company level plan.

Natural Resources Management Plan (NRMP) – The USFS–SR uses the NRMP to provide strategic guidance for SRS natural resource programs, and furthers the mission of SRS by helping to ensure responsible stewardship of the environmental resources at SRS.

Savannah River Archeological Research Program (SRARP) – The SRARP describes how technical expertise is employed to help DOE–SR meet federal and state regulatory requirements for the identification, evaluation, and protection of archeological and historic sites and artifacts at SRS.

Natural Resource Management Operations Plans (NRMOP) – The USFS–SR develops NRMOPs to fulfill the requirements of the NRMP and to provide more detailed guidance for developing and managing natural resource programs and research projects.

USFS–SR Management Implementation Plan (MIP) – This document contains implementing actions derived from the Savannah River Strategic Plan, the NRMP and the USFS–SR NRMOPs. It includes performance measures for activities delineated by the documents listed above from the USFS–SR *Annual Work Plan*.

WSI–SRS Annual Operational Plan (AOP) – The AOP identifies each task to be performed by WSI–SRS with respect to major operations or programs defined by DOE–SR.

Resources, Roles, Responsibilities, and Authorities

All WSRC employees have specific roles and responsibilities in key areas, including environmental protection. Environmental and waste management technical support personnel assist site line organizations with developing and meeting their environmental responsibilities.

Competence, Training, and Awareness

The purpose of SRS environmental training programs is to ensure 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. EMS requirements have been provided to employees whose responsibilities include environmental protection and regulatory compliance. EMS awareness training is included within the General Employee Training Program for visitors and subcontractors. Additionally, all site employees are required to complete Consolidated Annual Training each year.

Communication

SRS continues to improve internal and external communications on environmental issues. Many policies and procedures guide communications at SRS, ranging from the general site policy to forms and techniques addressed in facility-specific procedures. Additionally, WSRC solicits input from interested parties such as community members, activists, elected officials, and regulators—primarily through the SRS Citizens Advisory Board. At the core of the communication and community involvement programs are the SRS EMS Policy and the SRS Federal Facility Agreement Community Involvement Plan.

Documentation

The following sources document ways that various SRS organizations describe or manage their environmental management systems:

- SRS EMS Manual, G–TM–G–0001
- SRM 300.1.1B, Human Resources Management Manual
- SREL Environmental Management Program Description
- WSI–SR Environmental Management System Implementation Plan, WSI 1–05
- USFS–SR *Natural Resource Management Operations Plans*

Control of Documents

Environmental documents are part of the site document control system. Any document that relates to an environmental activity is controlled by the appropriate system.

Operational Control

The operational control element of the EMS is intended to ensure that operational controls are in place to carry out the environmental policy-related activities of regulatory compliance, pollution prevention, and continuous improvement by SRS management. The Assisted Hazards Analysis process and Environmental Evaluation Checklists (EECs) are vital components of this program.

Emergency Preparedness and Response

SRS emergency plans and programs include occurrences categorized as environmental emergencies. Procedures that guide the Emergency Preparedness Process are referenced below.

- WSRC 1-01 ("Management Policies"), 4.12, Emergency Preparedness
- WSRC SCD-7, Savannah River Site Emergency Plan (includes drills and exercises)
- WSRC 9B, Site Item Reportability and Issue Management (SIRIM)
- Central Services Works Engineering Spill Response Team procedures
- USFS-SR Emergency Response Plan and Emergency Spill Procedure
- WSI-SRS Procedure 1-6816, Emergency Management Plan
- Interface Protocol Document with Memorandums of Understanding and Security and Support Services Agreements at the Savannah River Site, Westinghouse Savannah River Company (WSRC) and Wackenhut Services, Incorporated (WSI-SRS), April 2001 – provides for emergency preparedness and response coordination between WSRC and WSI-SRS
- SREL Safety Manual, Chapter 2, Medical and Emergency Procedures and SREL Occurrence Reporting Procedures (EHS-94-0001)

Monitoring and Measurement

Monitoring and measurement means that the key characteristics of SRS operations are monitored regularly. This includes effluent monitoring (radiological and nonradiological), compliance monitoring, performance monitoring, and equipment/facility monitoring (e.g., calibration of instruments). References include the following:

Effluent Monitoring

- SRS Environmental Monitoring Plan
- WSRC-3Q1-2 (Plans and Procedures), Vol. 1, Section 1100, SRS Environmental Monitoring Program
- WSRC-ESH-EMS-94-0129 (SRS EM Corrective Action Plan)
- Environmental Geochemistry Group Operating Handbook, July 1996
- Compliance Monitoring – DOE-SR Technical Assessment Program
- USFS-SR Self-Assessments
- USFS-SR Monitoring Plans
- USFS-SR Post-Burn Evaluations

- USFS–SR Biological Evaluations
- WSRC SCD–4, Assessment Performance Objectives and Criteria
- WSRC 3Q, Environmental Compliance
- WSRC Comprehensive Monitoring Evaluation (regulatory annual inspection) Program

Equipment/Facility Monitoring

- WSRC 1Q (Quality Assurance), 12.1, Control of Measuring and Test Equipment
- WSRC 1Q, 12.2, Control of Installed Process Instrumentation

Performance Monitoring and Measurement

- Annual SRS Environmental Report
- USFS–SR Accomplishment Reports
- Individual Agency and Divisional Performance Indicators
- WSRC 1Q, 15.1, Nonconformance Reports
- WSRC 1–01, 5.35, Corrective Action Program
- WSI–SRS Consolidated Assessment Schedule

Evaluation of Compliance

Specific environmental legislation and regulations are evaluated and assessed on a program- or facility-specific basis. SRS has established a documented procedure for periodically evaluating its compliance with relevant environmental regulations. This procedure often is integrated into an organization's environmental, safety, and health inspection process, which is performed in a prioritized fashion by a team of experts, including one on environmental regulatory issues. Periodically, environmental support organizations conduct regulatory assessments in particular topical areas to verify the compliance status of multiple organizations throughout SRS. Finally, external regulatory agencies and/or technical experts may conduct independent audits of compliance.

Nonconformance; Corrective and Preventive Actions

Nonconformance and corrective and preventive actions include EMS nonconformance as a part of the site's QA program. The application of QA procedures, therefore, supports the total EMS. For example, use of the nonconformance report form applies to environment-related equipment, instruments, facilities, and procedures. Also, "nonconformance" with assessments and evaluations is recorded and dispositioned according to established procedures, utilizing the following resources:

- WSRC Quality Assurance Management Plan
- DOE Technical Assessment Program Corrective Actions
- Comprehensive Monitoring Evaluation (Regulations)
- WSRC 1–01, 5.35, Corrective Action Program
- WSRC 12Q (Assessment Manual), FEB–1, Facility Evaluation Board
- WSRC 1Q
- WSI–SRS Procedure 1–3700, Improvement/Corrective Action Management Program
- USFS–SR Handbook, 6903.11, Contract Administration
- Evaluation and Cleanup of SREL Research Sites (A–98–0002)

- Savannah River Ecology Laboratory Environmental Evaluation Procedure (A-93-0011)
- US GSA SRS EMS Description Document

Control of Records

The identification, maintenance, and disposition of environmental records are required by the SRS EMS. The site's records management program incorporates environmental records for these purposes. Specific documentation for programmatic environmental activities is addressed in department-level procedures. For example, the Environmental Services Section (ESS) maintains records of correspondence with regulatory agencies.

Environmental training records are maintained by the line organization requiring and conducting the training. EECs completed by facilities for specific activities are forwarded to and maintained by ESS, according to the following documents:

- DOE Order 1324.5A, Records Management Program
- WSRC 1Q, 17, Records
- WSRC 1B (Management Requirements and Procedures), 3.11, WSRC Document and Correspondence Numbering System
- WSRC 1B, 3.31, Records Management
- WSRC 1B, 3.32, Document Control
- WSRC IM-93-0060, Sitewide Records Inventory and Disposition Schedule (RIDS), Section IV: Environmental
- SRIP 200, Chapter 241.1, Records Management Programs
- WSI-SRS Procedure 1-1507, Records Management Requirements
- USFS-SR Handbook, 6209.11, Records Management
- ESH 94-0033, SREL Environmental Management Plan

Internal Audits

SRS audits are incorporated into the DOE assessment and WSRC self-assessment programs to verify that the site's EMS is functioning as intended. WSRC utilizes a Facility Evaluation Board to conduct independent performance-based assessments of site programs to satisfy contractual and regulatory obligations. The EMS component is evaluated alongside other site programs through a random selection process.

Management Review

The SRS EMS Policy requires periodic evaluations of the effectiveness of the EMS. The DOE-SR Office of Environment, Safety, and Health is responsible for ensuring that the evaluation is performed. Guidelines are intended to keep the management review focused on continuous improvement. Oversight of SRS's annual EMS review is the responsibility of DOE-SR's Environmental Quality Management Division.