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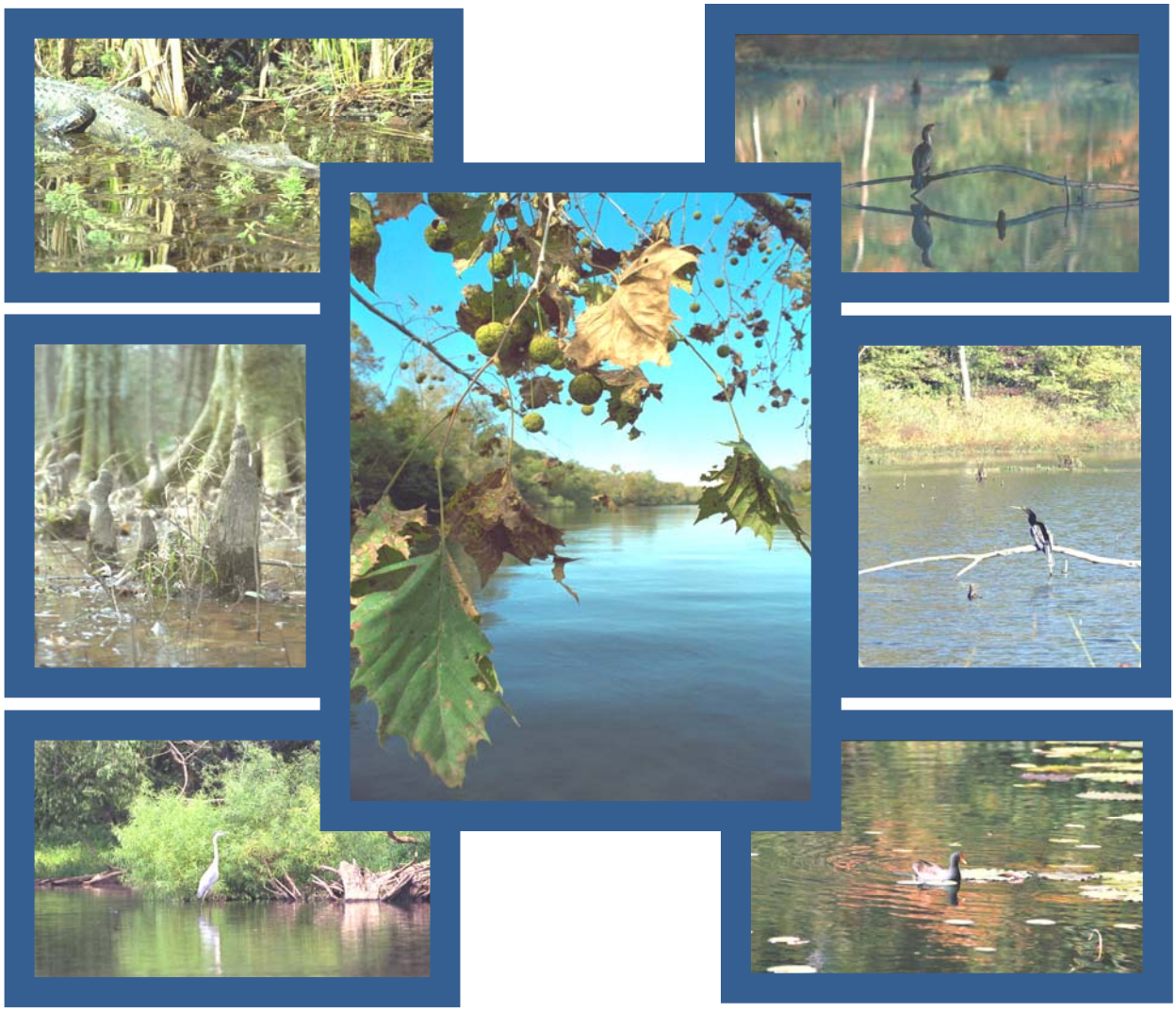
Environmental Management System Description Manual



Environmental Stewardship and Safety & Health
Environmental Compliance and Area Completion Projects

G-TM-G-00001
Revision 8

SAVANNAH RIVER SITE • AIKEN, SOUTH CAROLINA

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LIST OF ABBREVIATIONS AND ACRONYMS

CAB	Citizens Advisory Board
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CME	Comprehensive Monitoring Evaluation
DOE	Department of Energy
EC&ACP	Environmental Compliance and Area Completions Projects
ECA	Environmental Compliance Authority
EEC	Environmental Evaluation Checklist
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EQMD	Environmental Quality Management Division
ES&H	Environmental, Safety, and Health
GET	General Employee Training
ISMS	Integrated Safety Management System
ISO	International Standards Organization
LWO	Liquid Waste Operations
M&O	Management and Operations
NEPA	National Environmental Policy Act
QA	Quality Assurance
RCRA	Resource Conservation and Recovery Act
SEMC	Senior Environmental Managers Committee
SME	subject matter expert
SCDHEC	South Carolina Department of Health and Environmental Control
S/RID	Standards/Requirements Identification Document
SRIP	Savannah River Implementing Plan
SRS	Savannah River Site
TSD	treatment, storage and disposal

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MANUAL INTRODUCTION

The purpose of this manual is to describe the Environmental Management System (EMS) at Savannah River Site (SRS) as implemented by the performing entities for Management and Operations (M&O) and Liquid Waste Operations (LWO). This is intended to be a "road map" to demonstrate how the EMS framework from International Standards Organization (ISO) 14001 provides the structure upon which this EMS program is built in compliance with Department of Energy (DOE) Order 450.1A, *Environmental Protection Program* and Order 436.1, *Departmental Sustainability*. The overarching EMS framework addresses the requirement for:

- Policy
- Planning
- Implementation and Operation
- Checking
- Management Review

This manual is not a compendium of all documented parts of the EMS. It is, however, a reference for use in managing the business with environmental stewardship as a core value. The description manual is ordered according to the five principles. Basic references are provided for each element to indicate the policies, plans, programs, and procedures that apply to each EMS requirement.

Specific information pertinent to the EMS will be maintained herein. The Director of Environmental Compliance and Area Completion Projects (EC&ACP) of the Environmental Stewardship and Safety & Health Division has ownership of and responsibility for maintaining this document as a viable management tool.

Terms and Definitions

For a comprehensive listing of applicable terms and definitions, refer to the Glossary contained in Manual 3Q, "Environmental Compliance Manual," as supplemented by the "Definitions and Abbreviations" section in Procedure 13.5 of the same manual.

Description of the Savannah River Site

SRS was established in 1951 and includes portions of Aiken, Barnwell and Allendale counties. It includes 310 square miles and forced the relocation of Ellenton, Dunbarton and other towns

that were home to 6,000 people. Most of the area that was to become the SRS started out as small farms and "typical" post World War II rural communities. Railroad lines and some roads existed serving the towns in the area. There were no "heavy industries" within the site area. Some subsistence fishing was performed in areas of the Savannah River adjacent to the site.

Construction began February 1951. Figure 1 depicts an impact of construction as private residences were relocated to off-site locations in preparation for SRS's new missions. Five production reactors; two separations areas; a heavy water plant; a fuel fabrication plant; and administrative and site infrastructure facilities were constructed and operated in support of the United States defense program missions. These industrial functions utilized less than 15% of the land area of the site. While performing its defense-related functions, the SRS became the first National Environmental Research Park in 1972 and has continued to be an important environmental research resource.

Figure 1 – Relocation of House During SRS Construction

With the end of the Cold War and the arms race, the mission of the SRS began changing to remediation and cleanup of the legacy from this historical period. While the site continues to seek and obtain new missions in support of national defense and emerging priorities, the current emphasis for site missions is the reduction of environmental risk from materials left as a legacy of the arms race, reduction of the site footprint by deactivating and decommissioning unneeded

parts of the site infrastructure, and the consolidation of ongoing missions and activities to the Site's central, industrial core area.

SRS EMS – History and Overview

In response to a draft version of DOE Order 450.1, *Environmental Protection Program*, SRS held a DOE-wide EMS Workshop in Augusta, GA, in August 1995. During the workshop, SRS staff made the determination that existing procedures and practices were close to conforming to ISO 14001, "*Environmental Management System*". SRS staff sought and obtained the support and involvement for implementing an EMS from the senior management of the site. An SRS EMS Task Committee was formed of representatives from all the major organizations performing work on the Site. The SRS EMS Task Committee divided into subcommittees to address the necessary elements of ISO 14001 (e.g., developing the Site's EMS policy statement, conducting a formal gap analysis of existing procedures and practices, et.al.). Senior management made the decision that the SRS EMS should be third party certified, and early 1997 the first SRS EMS Policy Statement was adopted, identified gaps were closed, and a request for proposal was issued seeking bids for a certified registrar to evaluate the SRS EMS's conformance to ISO 14001. On September 18, 1997, the program endorsed by the signatories of the SRS EMS Policy Statement including contractors, educational institution, and the government agencies (principally including the DOE Savannah River Operations Office) was certified as being in conformance with ISO 14001, the first DOE nuclear facility to achieve independent certification to the ISO 14001 standard.

ISO 14001 provided a structured approach to evaluating the incorporation of environmental considerations into work planning and execution and was recognized by the regulators as an effective means of demonstrating an organization's commitment to the protection of the environment. Over the next four years, the SRS continued to seek independent review and certification of the Site's EMS, successfully completing surveillance audits in 1998 and 2000 and a recertification assessment in 2000.

During this time, the DOE initiated requirements for contractors to meet the requirements of DOE P 450.4, *Integrated Safety Management Systems*. The SRS EMS, having already been certified in conformance with ISO 14001, met or exceeded the environmental requirements for Integrated Safety Management System (ISMS); hence, it was immediately a candidate for integration into the SRS ISMS by reference.

Pursuit of EMS certification and concurrent incorporation of EMS into the ISMS construct demonstrated SRS senior management's commitment to exceptional environmental stewardship and excellence in environmental management. These actions proved to bolster SRS's relationships with the surrounding communities, and interested external parties, such as

regulators, citizen groups, and state and local planning groups. This further demonstrated SRS's preparation for and capacity to safely and responsibly manage newly emerging DOE missions.

In February 2002, DOE management at SRS decided that the Site would no longer seek third-party certification of its EMS, and SRS ceased independent certification of their EMS allowing its existing certification to lapse on September 18, 2003. While independent certification was no longer sought, SRS continued to conform to the framework for an EMS as defined by ISO 14001, relying on the internal self-assessment and independent assessment programs to validate that the EMS remained in conformance with the Standard's criteria. The senior management signatories of the Site EMS Policy Statement review the status of the EMS and annually re-affirm their commitment to the policy of environmental protection, pollution prevention, and continuous improvement.

On January 15, 2003, the DOE issued DOE O 450.1, subsequently promulgating two revisions to the Order as well as a series of guides to assist DOE organizations in satisfying the requirement to have an EMS in place which was integrated with their respective safety management systems no later than December 31, 2005. As previously stated, much earlier than this deadline, SRS realized an EMS certified program that was integrated within the Site's ISMS model.

In response to Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*" issued in January 2007, the DOE issued two orders implementing the requirements from the EO In February 2008, DOE Order 430.2B, *Departmental Energy, Renewable Energy, and Transportation Management* was released followed by DOE 450.1A, *Environmental Protection Program* in June 2008. DOE Order 430.2B addressed the need for specific sustainable energy and transportation goals and requirements for energy efficiency and renewable energy, fleet management, water conservation, and sustainable design/high performance building construction/renovation. DOE Order 450.1A directed the implementation of enhanced EMS requirements while establishing the need for goals addressing sustainable practices for environmentally preferred product purchases, pollution prevention and waste reduction, post-consumer material recycling, toxic or hazardous chemicals use and release reduction, and life-cycle management of electronic assets. In all, it mandated a more robust program demonstrating increased managerial engagement, responsibility, and accountability. In accordance with DOE Order 450.1A, after undergoing a formal audit by a qualified party outside the control or scope of the EMS, SRS issued its formal "declaration of conformance" with the provisions and requirements defined in the Order on June 23, 2009.

DOE published Order 436.1, *Departmental Sustainability*, in May 2011 replacing Orders 430.2B and 450.1A in most facilities at SRS. DOE Order 436.1 continued the need to maintain a viable EMS and strengthened many of the sustainability goals. Although Order 450.1A has been cancelled, it remains in effect at one facility that has completed construction but has not begun operation in the LWO facilities. New and modified contracts for those facilities are expected to bring all of the operations under the same DOE Order for EMS.

A Revision 1 to Order 436.1 is currently in draft form, which will impose the newest version (14001:2015) of the ISO standard. Implementation to DOE Order 436.1, Rev. 1, requirement is awaiting the publication of the new order and subsequent transmission of the requirements through the SRS Standards/Requirements Identification Document (S/RID) system.

Integration of the SRS EMS with ISMS

The SRS ISMS is an actionable process that integrates safety into management and work practices at all levels so that the Site accomplishes missions while protecting the public, the worker, and the environment. The ISMS execution comprises five functions:

1) Define Scope of Work,

2) Analyze Hazards,

3) Develop and Implement Controls,

4) Perform Work, and

5) Feedback and Improvement.

SRS implements ISO 14001 and accomplishes the EMS goals using the ISMS approach in programs and procedures.

Figure 2 depicts the processes by which environmentally impacting activities performed by both the M&O and the LWO contractors at SRS are integrated into the Site ISMS program. This concept of rolling the environmental regulatory requirements into implementing programs and procedures is done to varying degrees within all of the SRS organizations reflective of the specific work scope, resources, and potential for impact to the environment.

Integrated Safety Management System
Continual Improvement Framework

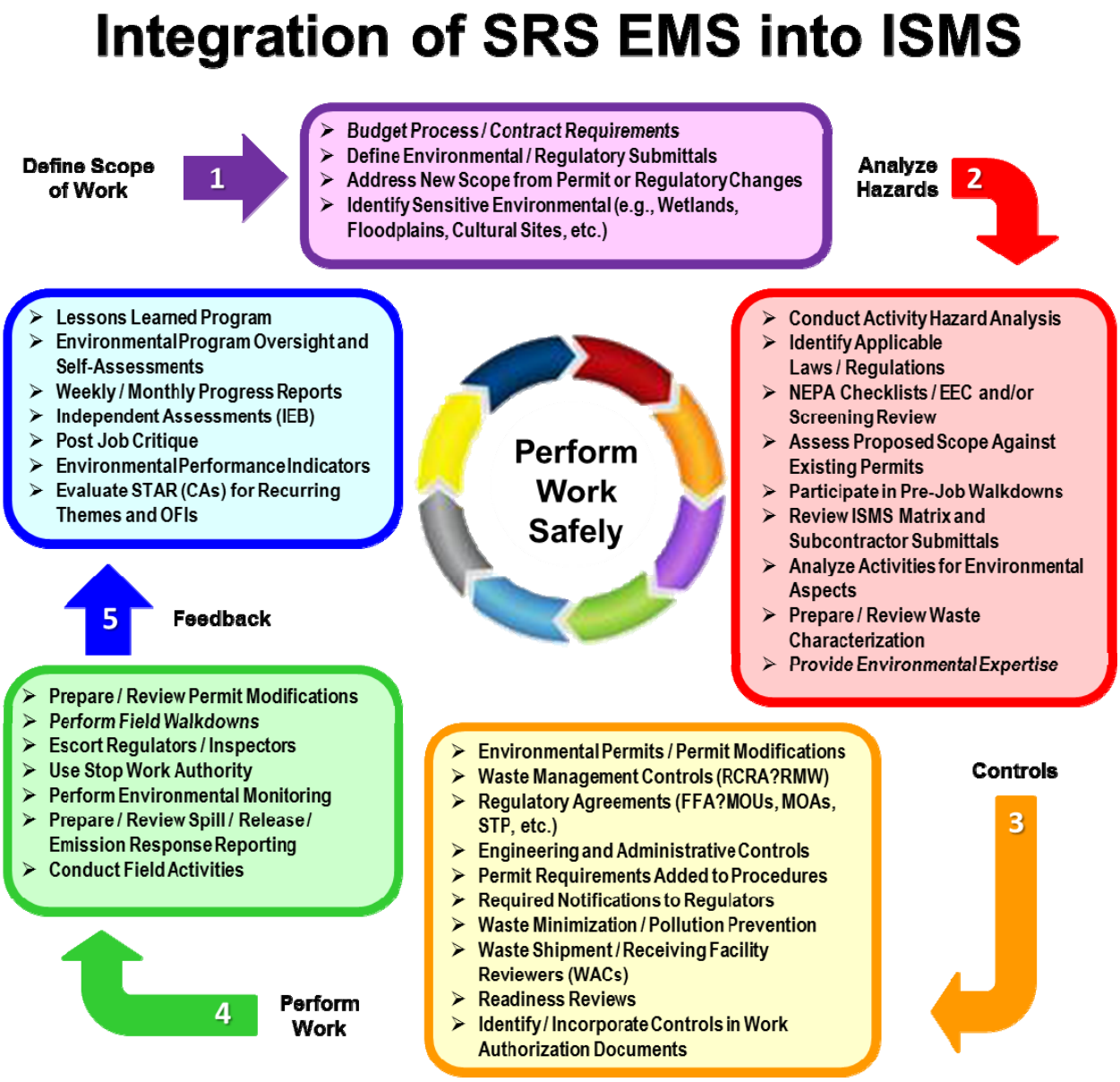


Figure 2 – EMS Incorporated in SRS ISMS Structure

This figure depicts many of the environmental procedures and processes and how they are integrated into the performance of work for the M&O and LWO contractors at SRS.

ELEMENTS

The purpose of this section is to provide basic information describing the elements of the M&O and LWO EMS at SRS. The outline is reflective of the sequential order of the elements as contained in the EMS International Standard (i.e., ISO 14001). Listing the elements in this manner facilitates implementation demonstration by direct alignment of the EMS with the Standard.

- General Requirements
- Environmental Policy
- Planning
  - Environmental Aspects
  - Legal and Other Requirements
  - Objectives and Targets and Programs
- Implementation and Operation
  - Resources, Roles, Responsibility, and Authority
  - Competency, Training, Awareness
  - Communication
  - Documentation
  - Control of Documents
  - Operational Control
  - Emergency Preparedness and Response
- Checking
  - Monitoring and Measurement
  - Evaluation of Compliance
  - Nonconformity, Corrective Action and Preventive Action
  - Control of Records
  - Internal Audit
- Management Review

Environmental Policy

The SRS has established and maintains a single environmental policy statement. The statement addresses work by all of the principle management teams responsible for the protection of the environment and workers at the Site. It is reviewed and updated annually. The policy statement is made available electronically via the Site's web page and as a part of the DOE Site Policy Manual. A copy of the current policy is included in this manual for information only (the most current version should be obtained from the web). The policy statement addresses the fundamental concepts to which the management team subscribes, including regulatory compliance, pollution prevention, and continuous improvement at SRS.

SRS Environmental Policy

To implement sound environmental stewardship practices consistent with the protection of the air, water, land, biota, and other natural, archaeological, and cultural resources potentially impacted by Savannah River Site (SRS) construction, operations, maintenance, and decommissioning activities.

This shall be accomplished through a consistent Site-wide approach to environmental protection through the implementation of an Environmental Management System (EMS) as part of the overall Site safety management. The EMS provides for the systematic planning, integrated execution, and evaluation of SRS activities for: 1) worker and public health and environmental protection, 2) pollution prevention and waste minimization, 3) compliance with applicable environmental and cultural resources protection requirements, and 4) continuous improvement.

Recognizing that many aspects of construction, operations, maintenance, and decommissioning activities carried out at SRS have the potential for adversely impacting the environment, this policy ensures all individuals and entities performing work at SRS shall abide by its tenets.

The EMS pursues and measures continual improvement in performance by establishing and maintaining documented environmental goals, objectives and targets that correspond to SRS vision, missions, and core values. The environmental objectives and targets shall be established for relevant functions at SRS for all activities having actual or potentially significant adverse environmental impacts.

Through employee involvement and management commitment to environmental excellence, all SRS individuals shall:

- Manage the SRS environment, it's natural, archaeological, and cultural resources, products, waste forms, and contaminated materials so as to eliminate or mitigate threat to human health or the environment at the earliest opportunity.
- Through policies, programs, procedures, and training, identify activities with significant environmental impacts; manage, control, and mitigate the impacts of these activities; establish environmental improvement goals and targets; and assess performance and implement corrective actions as needed, and continuously improve processes and practices protective of the environment.
- Implement pollution prevention and waste minimization programs to reduce the generation of hazardous and non-hazardous waste, releases of effluents, and life-cycle waste management and pollution control costs.
- Implement available and cost-effective technologies, techniques, and best management practices to enhance energy efficiency.
- Conduct construction, operations and maintenance, and decommissioning activities in compliance with all applicable federal; state; and local laws; statutes, regulations, federal executive orders, directives and guides, and national consensus standards.
- Work cooperatively and openly with local, state, and federal agencies, public stakeholders, and SRS employees to prevent pollution, minimize waste generation, achieve environmental compliance, conduct cleanup and restoration activities, enhance overall environmental quality, and ensure the protection of workers and the public.
- Design, develop, construct, start-up, operate, maintain, deactivate, and decommission facilities in a manner that shall be resource efficient; protect and improve the quality of the environment for future generations; and continue to maintain SRS as a unique national environmental asset.
- Recognize that the responsibility for quality communications rests with each individual employee and empower each employee with the responsibility to identify and communicate concepts and ideas for improving environmental management activities at SRS.
- Ensure the early identification of, and prompt response to, potentially adverse environmental impacts associated with construction and operations including, as appropriate, preoperational characterization and assessment, effluent monitoring and environmental surveillance of all environmental media and biota.
- Promote the long-term stewardship of natural, archaeological, and cultural resources at SRS throughout its operational, closure, and post-closure life-cycle.

This policy defines the overarching environmental goals and objectives of SRS and will be centrally maintained and updated as necessary to reflect the changing needs, visions, missions, and goals of SRS. To demonstrate our commitment, this policy shall be made available to the public.

Revised: August 2014

ENVIRONMENTAL ASPECTS

Determining 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. (Refer to Table 1)

Definitions and Relationships

- An ***environmental aspect*** is defined as an element of a facility's activities, products, or services that can or does interact with the environment. These interactions and their effects may be continuous in nature, periodic, or associated only with events, such as emergencies.
- An ***environmental impact*** is defined as any change to the environment, whether adverse or beneficial, resulting from a facility's activities, products, or services.
- A ***significant environmental aspect*** is one that may result in a consequential impact to the environment (either positive or negative) in terms of risk to human health or the ecosystem, internal/regional/global implications, probability of occurrence, whether a regulated or non-regulated contributor, resource utilization or community interest.

Table 1 – Environmental Aspects (Cause) and Environmental Impacts (Effects)

Cause	Effect
Environmental *Aspect(s)*	**Environmental *Impact(s)***
• Emissions of volatile organic compounds (VOCs)	• Air pollution; smog

Likelihood (L)	Negligible	Marginal	Significant	Exceptional	Crisis
Very Likely	Low	Medium	High	High	High
Likely	Low	Medium	Medium	High	High
Unlikely	Low	Low	Medium	Medium	High
Very Unlikely	Low	Low	Low	Medium	High

Consequence (C)	
• Discharges to stream	• Degradation of aquatic habitat and drinking water supply
• Spills and leaks	• Soil/groundwater contamination
• Electricity use	• Air pollution; global warming
• Use of recycled paper	• Conservation of natural resources

The senior management of organizations and agencies that were parties to the SRS EMS in July 1998 conducted an annual review of the program. A product of that review was the generation and adoption of an initial set of environmental aspects for the Site. In late 2008, this initial set of aspects was evaluated against existing aspects lists from similar DOE facilities across the complex and several additional and pertinent aspects were identified and added to the SRS list.

At SRS, "significance" of an activity, product, and/or service is determined based on a consideration of the *likelihood* that it will occur in relation to the *consequence* of the actual or potential environmental impact. (NOTE: Some environmental aspects are inherently "significant" based on Federal or regulator direction.) The "Environmental Aspect/Impact Scoring Worksheet" (Table 2) is used to facilitate the "significance" evaluation process.

Scenario Summary and Conclusion

To illustrate the application of the evaluation process associated with Table 2, the scenario below is provided.

Scenario: H-Area releases non-process cooling water, cooling tower and air compressor blow-down, stormwater, neutralized flush water, and retention basin cooling water to H-12 outfall.

SRS determined that it was "likely" that the allowable copper limit would be exceeded and the consequence of that happening was "significant" in terms of environmental compliance, reaction by the regulator, and adverse impact on public perception.

Using Table 2, an environmental impact which is "likely" to occur with a "significant" consequence would receive an overall rating of "medium". With respect to environmental impacts at SRS, any overall rating of "medium" or "high" is considered to be "significant" (refer to summary table on the following page). "Medium" and "high" ratings become important in prioritizing resources to mitigate the associated risks.

Table 2 – Environmental Aspect / Impact Scoring Worksheet

Area or Activity	Aspect	Impacts	Impact Scoring	Significance
Outfalls	Discharges from Operating Facilities	Water Quality and Soil Contamination	"*Likely*" to occur "Consequence" is *Significant* **Impact "score" is *Medium***	**Significant**

Environmental Aspect Identification/Evaluation Process

As a process improvement initiative, senior management determined in 2009 that a more formal process needed to be defined to ensure that work activities and projects (both existing and emerging) were routinely evaluated for environmental impacts and the associated significance of the impacts. Figure 3, "Environmental Aspects Identification/Evaluation Process," depicts the process by which those evaluation activities are conducted.

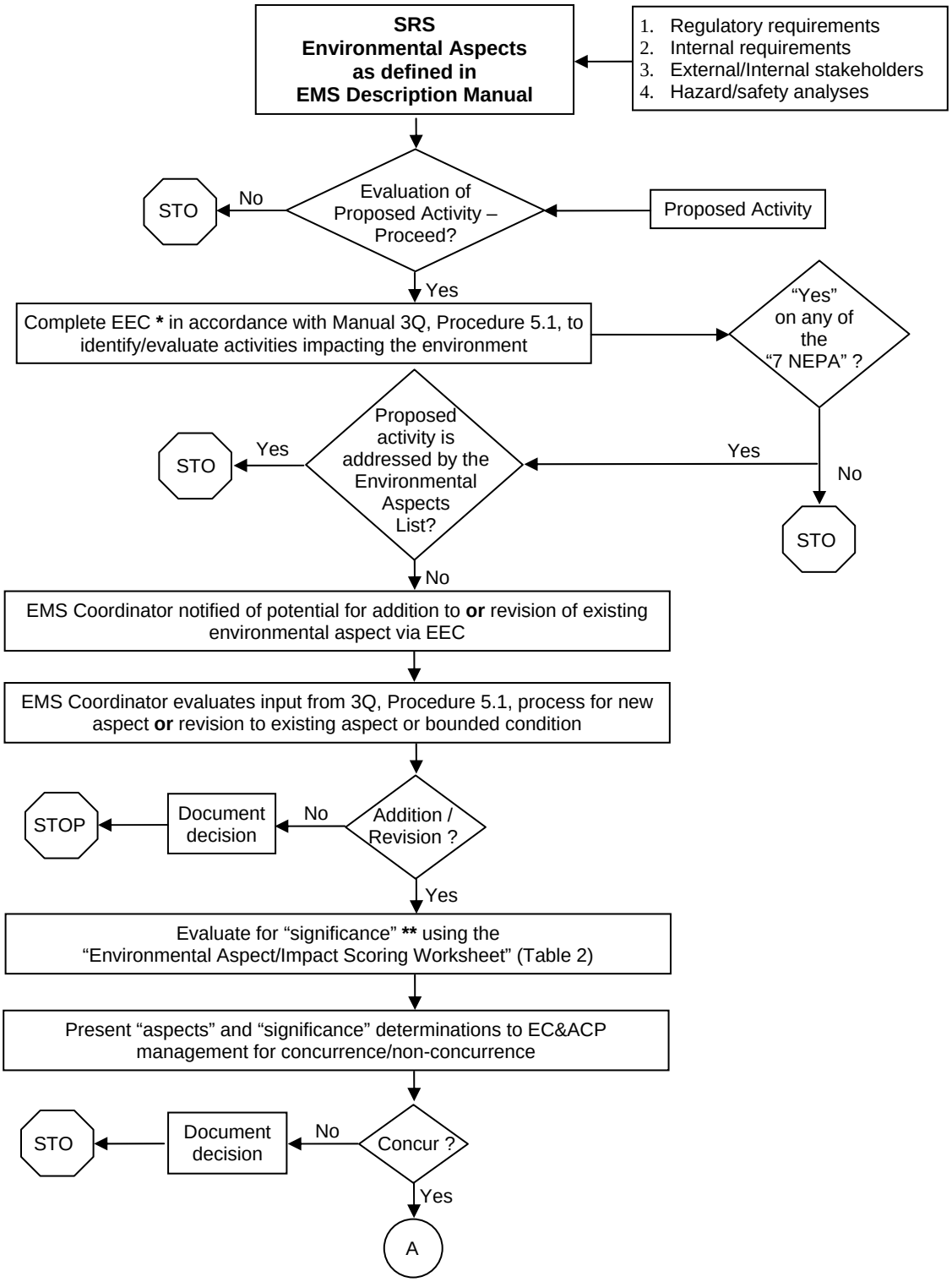
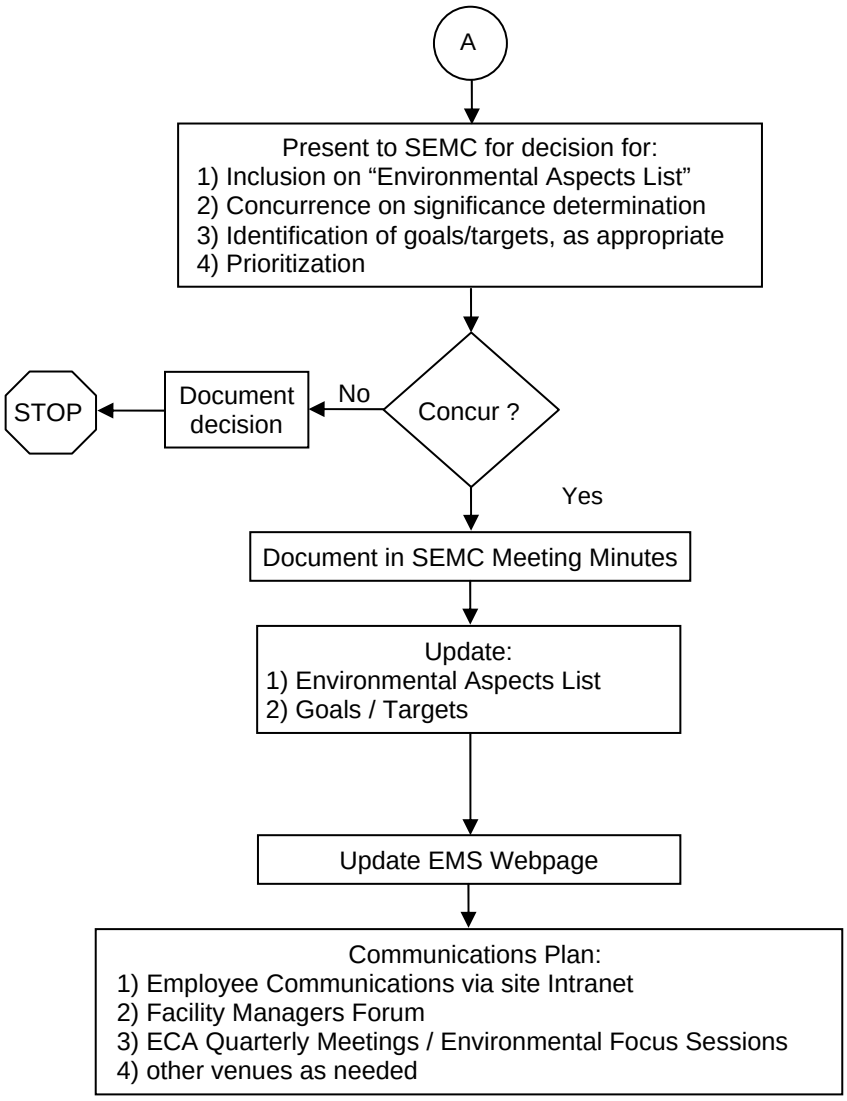


Figure 3 – Environmental Aspect Identification/Evaluation Process



***** Environmental Evaluation Checklist (EEC) is a formal, proceduralized process applicable to new or revised projects, processes, products, or any activity having a potential to impact the environment (Refer to 3Q Manual, Procedure 5.1, "National Environmental Policy Act (NEPA) Implementation and the EEC").

****** Significance determinations are based on the likelihood of an occurrence or impact **and** the magnitude or severity of the impact using the "Environmental Aspect/Impact Scoring Worksheet" (Refer to Table 2).

Figure 3 – Environmental Aspect Identification/Evaluation Process *(Continued/End)*

Savannah River Site Environmental Aspects List

The table specifies the SRS's designated significant environmental aspects (revised July 2017). They resulted from the application of an evaluation process similar to that documented on the previous pages and a comparison with similar lists generated by other facilities within the DOE complex.

Aspect No.	Environmental Aspects and Applicability	Environmental Impact
1	**Air Pollutants**	
	Applies to operations or activities that have the potential to generate air pollutants including but not limited to radionuclides, chemicals and combustion emissions, fugitive dust, ozone-depleting substances.	• Failure to control or mitigate emissions of regulated air pollutants; • Failure to evaluate activities for air permit/Title V Operating Permit requirements; • Failure to meet air operating, emission monitoring, record keeping, or reporting requirements; • Failure to control open burning (for example, weed control, refuse burning, training fires, controlled burns); • Failure to control visible emissions, odors or fugitive dust; • Failure to report exceedance of emission limits or standards; Emissions from the site vehicle fleet; • Failure to meet ozone depleting substances certification requirements for technicians and equipment; • Failure to use required recovery/recycling equipment for ozone depleting substances; • Failure to keep service records for appliances containing >50 lbs. normal charge of refrigerant; • Failure to keep records on leak rate calculations of ozone depleting substances; • Failure to maintain air emission control equipment (e.g., high-efficiency particulate air filters) or to make timely repair/change outs/testing of control equipment.
2	**Alternative Fuel Use / Petroleum Conservation**	
	Applies to the use of alternative fuels including biodiesel, E85 (85% ethanol with gasoline), chemically stored electricity (batteries and fuel cells), hydrogen, non-fossil methane, non-fossil natural gas, vegetable oil and other biomass sources.	• Failure to comply with DOE Order 436.1, Departmental Sustainability. Implementation reduces greenhouse gas concentrations in the atmosphere; • Failure to increase use of non-petroleum based vehicles sustains dependence on foreign produced petroleum to meet domestic demands.

Aspect No.	Environmental Aspects and Applicability	Environmental Impact
3	**Chemical Use and Storage**	
	Applies to activities that purchase, store, or use process or industrial chemicals, pesticides or fertilizers. Chemicals also include janitorial supplies, gasoline, fuel oils, coolants, lubricants and other similar products.	• Failure to maintain an adequate inventory of appropriate emergency response equipment; • Unplanned chemical spill or release; • Storage of incompatible chemicals; • Improper disposal of chemicals; • Failure to report chemical inventories and releases; • Storage of chemicals that are no longer needed or have expired; • Failure to label containers containing chemicals; • Failure to maintain records related to chemical import/export; • Failure to maintain records related to allegations of medical impacts associated with chemical use; • Failure to enter chemicals into site Chemical Management System; • Inappropriate procurement of chemicals (e.g., through use of purchase card); • Improper storage or misapplication of fertilizer or pesticide; Use of unapproved pesticide; • Application of pesticide by unlicensed subcontractors; • Inappropriate disposal of chemicals in sinks and drains; • Failure to evaluate alternatives to using toxic chemicals and pesticides.
4	**Contaminated Site Disturbance**	
	Applies to activities in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) areas of contamination or Resource Conservation and Recovery Act (RCRA) corrective action sites.	• Unauthorized activity in CERCLA or RCRA corrective action sites; • Disturbance of contaminated sites by elements such as wind, rain, and run-off; • Unintended disturbance of contaminated sites by work activities; • Failure to properly identify contaminated sites.
5	**Discharge to Wastewater Systems or Groundwater**	
	Applies to activities or organizations that discharge wastewater or operate and maintain wastewater facilities. Applies to activities that have the potential to contaminate or damage wells and organizations that are responsible for operating, maintaining, constructing, or abandoning wells.	• Discharge of contaminants to ground (including ponds, pits, ditches, French drains); • Discharge of unauthorized contaminants to permitted facilities (such as wastewater treatment facilities, evaporation ponds, or the South Carolina sewer system); • Wastewater system or piping failure; • Failure to conduct activities required by regulations or permits related to wastewater discharge; • Failure to meet regulatory requirements related to septic tanks; • Failure to meet regulatory requirements related to well construction, maintenance and abandonment; • Discharge of contaminants in areas that drain to wells;

Aspect No.	Environmental Aspects and Applicability	Environmental Impact
5 *(cont'd)*	**Discharge to Wastewater Systems or Groundwater** *(cont'd)*	
		• Disturbance of well heads or soils in the vicinity of wells; • Failure to meet Underground Injection Program Control permit requirements; • Discharge of contaminants to groundwater (injection wells); • Failure to maintain training of operator.
6	**Drinking Water Contamination**	
	Applies to activities related to constructing, operating, and maintaining drinking water supply systems and equipment, or activities with the potential to contaminate drinking water supplies.	• Bacteriological contamination of drinking water; • Radiological or chemical contamination of drinking water; • Failure to maintain drinking water systems (e.g., monitoring and disinfection); • Failure to install and maintain backflow preventers; • Failure to satisfy regulatory requirements related to drinking water.
7	**Hazardous or Mixed Waste Generation and Management**	
	Applies to activities that generate, handle, store, or treat hazardous or mixed waste.	• Improper treatment, storage, or disposal of hazardous or mixed waste; • Release of hazardous or mixed waste; • Untimely or inadequate characterization of hazardous or mixed waste; • Failure to conduct activities required by regulations or permits (such as inspections, training, record keeping); • Failure to evaluate pollution prevention opportunities before generating hazardous waste or mixed waste; • Failure to observe regulatory or permit limits for management of hazardous or mixed waste; • Failure to meet waste acceptance criteria; • Failure to have a specific treatment plan and treatment facility identified before generating hazardous or mixed waste; • Failure to segregate waste types (e.g., macroencapsulation) from hazardous and non-hazardous; • Failure to ensure that off-site facilities used for treatment, storage, and disposal of hazardous or mixed waste are licensed; • Failure to meet Site Treatment Plan or consent order requirements for mixed or hazardous waste; • Explosion potential; • Unplanned worker radiological exposure from mixed waste; • Release of radioactive contaminated hazardous waste to non-radioactive treatment, storage, and disposal facilities.

Aspect No.	Environmental Aspects and Applicability	Environmental Impact
8	**Industrial Waste Generation and Management**	
	Applies to activities that generate, handle, or dispose of industrial waste.	• Failure to contain waste in landfill; • Failure to evaluate pollution prevention opportunities before generating industrial waste; • Failure to meet waste acceptance criteria; • Failure to contain waste during accumulation and storage; • Failure to prevent contaminants from mixing with rain storm water; • Failure to properly characterize and segregate waste.
9	**Radioactive Material Use and Storage**	
	Applies to operations and activities that handle or store radioactive materials.	• Failure to conduct activities required by DOE regulations and directives; • Unplanned release of radioactive materials; • Unplanned worker exposure to radioactive materials; • Criticality event.
10	**Radioactive Waste Generation and Management**	
	Applies to activities associated with the management of radioactive waste (i.e., high level, transuranic, and low level waste, hazardous and mixed waste). The scope includes waste identification, generation, characterization and transport to onsite and offsite storage, treatment, storage and disposal (TSD) facilities. Includes planning, siting, design, performance, operation, and closure of TSD facilities.	• Improper treatment, storage or disposal of radioactive waste; • Failure to conduct activities required by DOE regulations and directives; • Failure to properly characterize and segregate waste; • Failure to evaluate pollution prevention opportunities before generating radioactive waste; • Unplanned release of radioactive waste; • Failure to meet waste acceptance criteria related to radioactive waste; • Unplanned worker radiological exposure.
11	**Renewable Energy**	
	Applies to energy produced by the sun, the wind, biomass, landfill gas, the ocean, the earth's heat, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or the addition of new capacity at an existing hydroelectric project.	• Result in lower dangerous pollutant emissions.

Aspect No.	Environmental Aspects and Applicability	Environmental Impact
12	**Solid Waste (Hazardous, Nonhazardous, Sanitary, NonRad)**	
	Applies to program management associated with siting and permitting of waste handling disposal facilities; transport, storage, treatment, and disposal; closure and post-closure care of nonhazardous solid waste facilities. Scope also includes municipal and industrial solid waste, construction, demolition, land-clearing debris and special wastes.	• Municipal landfills reaching capacity; • Site programs encourage source reduction and increasing incentives for recycling; thus, reducing the burden on existing landfills; • RCRA Subtitle D standards reduce the possibility that landfills will become sources of pollution (e.g., describing measures that must be taken to guard against groundwater contamination and identifying areas where landfills may and may not be built).
13	**Storage of Hazardous/Mixed or Radioactive Materials or Wastes in Tanks**	
	Storage of regulated hazardous or radioactive materials and wastes in tanks applies to maintenance, operation, modification, installation or removal of above ground or underground tanks (including non-regulated underground tanks) used to store products or waste (This does not include septic tanks).	• Failure to properly manage residues when a product or process tank goes from active to inactive status; • Inadequate characterization of wastes or residues in tanks; • Failure to meet regulatory requirements related to management of underground tanks; • Failure to meet spill prevention control and countermeasures requirements related to management of above ground oil storage tanks; • Failure to maintain records for tanks and related systems (e.g., inspections, upgrades, change in status); • Leaks or spills to the environment from tank systems (including tanks and ancillary equipment such as piping); • Failure to detect tank system leaks; • Failure to properly clean, remove, and/or dismantle out of service tanks.
14	**Transportation (Fleet) Management**	
	Applies to federally mandated goals to reduce petroleum consumption in fleet vehicles. The scope includes the purchase of alternative fuel, hybrid, and plug-in hybrid vehicles. The emphasis is on minimizing emissions to the atmosphere from motor vehicles.	• Reduction in petroleum consumption; • Increase in the use alternative fuel; purchase of plug-in hybrid vehicles when commercially available at a reasonable cost

Aspect No.	Environmental Aspects and Applicability	Environmental Impact
15	**Water Use (Conservation)**	
	Applies to goals established to reduce water consumption intensity. Water consumption intensity measures consumption in gallons per gross square foot of building space, including industrial and laboratory facilities, and surrounding land.	• Conservation of natural resources encircles the general idea of conserving the Earth itself by protecting its capacity for self-renewal (i.e., environmental benefits include ecosystem and habitat protection); • Includes activities designed to reduce the demand for water, improve the efficiency of its use, and reduce losses and waste; • Involves protection of water resources to achieve, at lower costs, the benefits from its use (e.g., use of water-saving devices, water-efficient processes, water demand management, and water rationing); • Less demand on treatment facility capacity.

Affected Activity / Process / Product / Service

It is important to remember that identifying the aspects is not the end of the process. Work activities (whether routine or non-routine) are controlled by defined work control processes which consider these aspects in the development of respective work procedures and packages which include the development and implementation of mitigative controls proportional to the adverse impact a potential action may have on the environment. An example of this might be the construction of the biomass steam generating facility for A Area and the Savannah River National Laboratory which was completed in September 2008. When faced with the need to replace an inefficient and outmoded steam generating facility powered by petroleum-based fuel, SRS evaluated possible alternatives for opportunities to improve energy efficiency, reduce air pollution, utilize alternative fuel sources, and minimize solid waste generation. As a result of that process, the decision was made to construct the biomass cogeneration steam facility.

LEGAL AND OTHER REQUIREMENTS

Proposed laws and regulations are monitored by SRS. Routine review of Federal and State Registers is performed by SMEs for analysis and impact determinations such that the Site is able to stay abreast of new or changing laws.

Regulatory and DOE requirements for environmental programs are included in the applicable M&O and LWO S/RID Functional Area 20. The purpose of the S/RID is to address the Environmental, Safety, and Health (ES&H) requirements related to environmental protection activities undertaken on behalf of the DOE at the SRS to ensure compliance with applicable standards, laws, regulations as well as DOE Orders and directives. The environmental functional area within the S/RID addresses activities required to protect the environment and the health of the public and workers. The scope of the S/RID addresses ten major elements:

1. Environmental protection
2. Environmental policy management
3. Permits
4. Environmental monitoring, surveillance and inspections
5. Environmental control standards
6. Pollution prevention
7. Record keeping, reports, and notifications
8. Key Interfaces
9. Some major sources of environmental requirements and standards, and
10. Documents and references.

Figure 4 depicts the flow down of requirements from contractually required documents to implementing procedures.

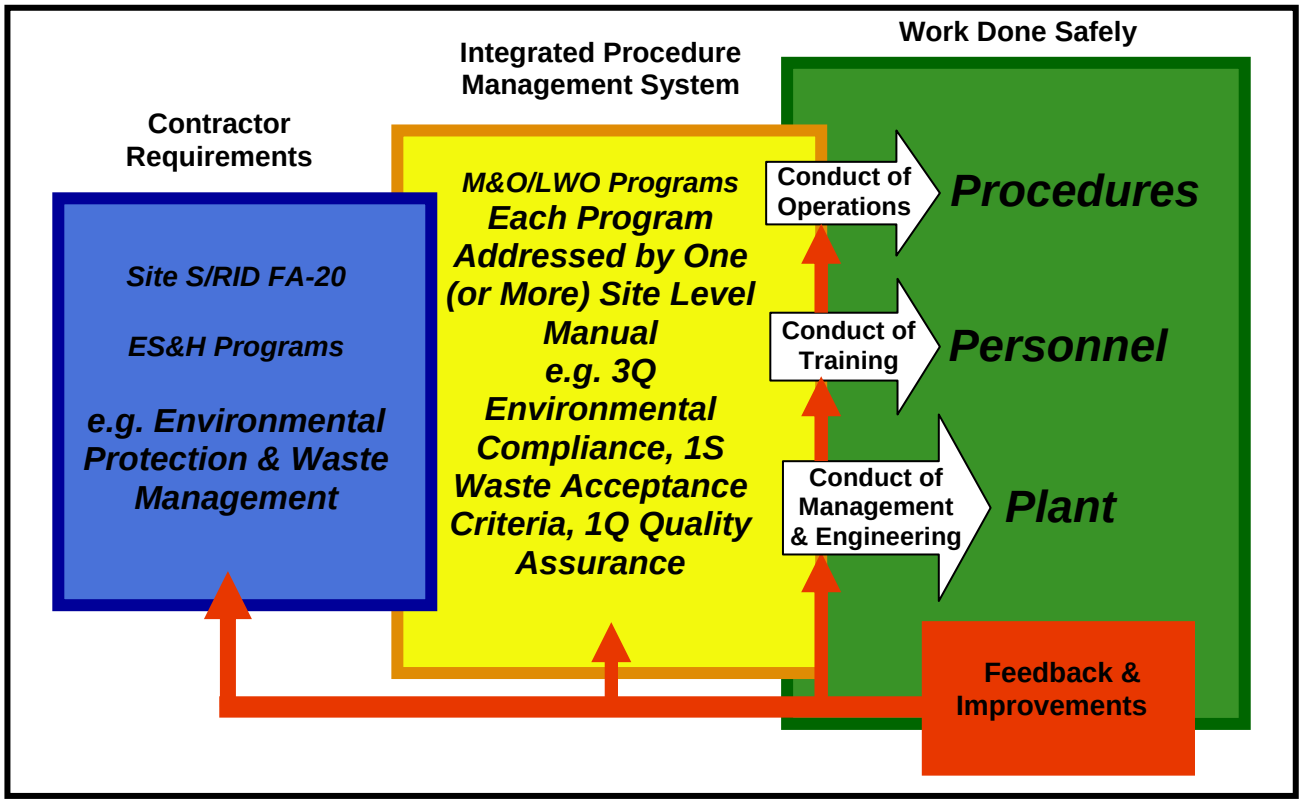


Figure 4 – Requirements Flow-Down Process

OBJECTIVES AND TARGETS AND PROGRAMS

In accordance with the requirements of DOE Order 450.1A and 436.1, documented and measurable environmental objectives and targets are established, implemented, and maintained consistent with and in support of the following DOE environmental objectives:

1. Greenhouse Gas Reduction
2. Sustainable Buildings
3. Clean and Renewable Energy
4. Water Use and Efficiency
5. Fleet Management
6. Sustainable Acquisition
7. Pollution Prevention and Waste Reduction
8. Energy Performance Contracts
9. Electronics Stewardship and Data Centers
10. Climate Change Resilience

The enhancement goals and targets for each of these objectives are developed and endorsed annually by senior management responsible for each of the functional areas associated with the objectives. Once approved, responsibility for the achievement of the goals and targets resides with that organization. Respective Points-of-Contact are designated and execution timelines are established and tracked. Annual targets and corresponding metrics reflective of progress are posted to the EMS website.

Environmental Programs

Specific, documented environmental program plans including Atmospheric Protection, Surface Water and Groundwater Protection, Waste Management, Energy Conservation and Pollution Prevention are also addressed as distinct programs focused on these specific activities. These plans guide the site toward its goals and objectives for improved environmental performance

References:

1. Manual 1S, *SRS Waste Acceptance Criteria Manual*
2. Manual 3Q, *Environmental Compliance Manual*
3. Manual 3Q1, *Environmental Requirements and Program Documents*
4. Land Use Control Assurance Plan for the Savannah River Site (WSRC-RP-98-4125)
5. Savannah River Site Federal Facility Agreement – document that directs the comprehensive remediation of the SRS (WSRC-OS-94-42)
6. Savannah River Site Federal Facility Agreement Implementation Plan, WSRC-RP-94-1200
7. Savannah River Site - Site Treatment Plan, SRNS-TR-2008-00101 – Federal Facility Compliance Act of 1992 required the SRS to develop a plan for treating mixed waste

RESOURCES, ROLES, RESPONSIBILITY, AND AUTHORITY

Additional detailed information relative to resources, roles, responsibilities, and authority is contained within Manual 3Q, Procedure 13.5, *Environmental Management System Implementation*, and Policy Manual 1-01, Procedure 4.1, *Environmental Assurance*, as well as facility specific implementing and operations procedures. The significant resource provision, roles, responsibilities, and authorities from those procedures are:

1. Senior Management
    a. Ensure that the SRS EMS is implemented per the requirements of DOE Order 450.1A and 436.1 and it is incorporated in the Site's ISMS
    b. Ensure sustainable practices are integrated into Operations as cost-effective business initiatives.
    c. Support the site EMS program to include but not limited to:
        1) endorse EMS objectives and targets that support DOE goals
        2) providing resources and funding
    d. Review the EMS at planned intervals to ensure its continuing suitability, adequacy, and effectiveness.
    e. Ensure that the SRS EMS is the subject of a formal audit by a qualified party outside the control or scope of the site EMS at least once every three years. Identified findings or issues from the audit shall be recognized and addressed by senior management prior to making the conformance declaration.
    f. Designate the EC&ACP Director or designee as the management representative with defined roles, responsibilities, and authority to establish, implement, and maintain the EMS and provide performance reporting.

2. EC&ACP Director or Designee
    a. Ensure the SRS EMS is implemented per the requirements of DOE Orders 450.1A and 436.1
    b. Ensure scheduled internal audits or evaluations of the EMS are conducted at planned intervals
    c. Develop objectives and targets for the EMS as specified by DOE Orders 450.1A and 436.1
    d. Report on the performance of the EMS, including recommendations for improvement, to senior management

e. Work with Facility/Project Management to:
   1) ensure Environmental Compliance Authorities (ECAs) have a working knowledge of Federal, State, and local environmental regulations
   2) coordinate efforts to anticipate, identify and solve environmental problems

f. Assist in the definition and acquisition of resources necessary to ensure the Site's compliance with environmental regulations

g. Identify regulatory SMEs for each environmental media category

h. Assist and supporting the implementation of Site environmental projects

i. As the M&O Contractor, serving as the liaison for environmental matters at SRS with the regulators on behalf of the DOE

j. Work with the Public Affairs organization and DOE to ensure appropriate release to the public of environmental-impacting information to the public

k. Evaluate, recording, and reporting to management (along with General Counsel) any environmental non-conformances, notices of violation, spills, etc., as required

l. Monitor environmental protection performance and providing management with appropriate recommendations to maintain an effective environmental protection program (including environmental program audits, appraisals, and assessments)

m. Ensure that an environmental monitoring program is implemented at SRS such that appropriate environmental sampling, analysis, data management, and publication is performed to quantify the impacts of SRS activities on the environment.

3. EC&ACP Department

   Coordinate environmental protection programs (in conjunction with the Office of General Counsel) and assist site-wide organizations with environmental compliance positions, as needed.

4. EMS Coordinator

   a. Identify and maintain the environmental aspects of activities, products and services within the defined scope of the EMS. This "environmental aspects list" identifies activities, products, and services, within the scope of the EMS, which can impact the environment. Identify those aspects that have been evaluated as being "significant environmental impacts."

   b. Facilitate the annual review and approval of the site EMS policy with the Senior Environmental Managers Council.

   c. Interface with other site organizations and designated points of contact to facilitate integration of EMS activities.

d. Measure and report progress toward meeting the EMS objectives and targets as agreed upon by Senior Management.

e. Support the EC&ACP Director to ensure the triennial formal audit is scheduled, appropriately scoped, conducted, results documented, corrective action plans developed, corrective actions/opportunities for improvement are captured within the site commitment tracking system and pursued to closure.

f. Conduct evaluations/assessments of the SRS EMS and maintain respective records in accordance with site record and document management procedures. Enter results of evaluation/assessment into site commitment tracking system to ensure closure of identified action items.

5. ECA

a. Have a working knowledge of their facility operations and processes providing direct day-to-day environmental support to the facilities/project line organizations.

b. Have a working knowledge of the environmental regulations applicable to their facility(s)/project(s).

c. Assist their organization in ensuring compliance with all applicable Federal, State and local environmental regulations, DOE Orders and environmental procedures.

d. Identify, interpret, and implement environmental compliance requirements as applicable to their facility(s)/project(s).

e. Ensure timely submittal of environmental regulatory documentation and permit applications.

f. Communicate with other facilities/projects on environmental-related issues, as applicable.

g. Identify environmental protection improvement opportunities.

h. Develop the necessary environmental compliance position(s) and strategies for their facility(s) in conjunction with Environmental Regulatory SMEs.

6. Environmental Regulatory SME

a. Provide the interpretation of environmental regulations as part of program management.

b. Have an in-depth knowledge of Federal, State and local environmental regulations, DOE Orders and associated guidance and background information in their assigned media category.

c. Develop positions and negotiate with regulators to secure interpretations necessary and/or desirable for site programs with concurrence from DOE and affected programs.

d. Develop and implement compliance programs to facilitate site consistency.

e. Develop and implement reporting systems for data information required by regulatory agencies.

f. Have a working knowledge of site facilities affected by their assigned media category.

g. Develop policies and strategies to assist operating organizations in protecting employees and the environment.

h. Serve as media primary point of contact with regulatory agencies.

i. Identify environmental protection improvement opportunities and supporting/performing environmental program assessments/audits/ appraisals, including coordinating, when appropriate, environmental program assessments conducted by DOE, Environmental Protection Agency (EPA), South Carolina Department of Health and Environmental Control (SCDHEC), and other such responsible organizations.

j. Recommend work or processes be stopped immediately upon observance of actual or imminent hazard to the environment. Such action must be taken by contacting the facility management having immediate jurisdiction over the work/process.

k. Work with the ECAs and operating departments to develop the necessary environmental compliance strategy(ies) for their facility(s)/project(s), evaluate environmental concerns and devise methods of correction/ mitigation, and evaluate the environmental impact potential of new materials, processes, or facilities.

l. Receive and evaluate environmental monitoring data from operating organizations.

m. Maintain appropriate records/files on environmental regulations, standards and DOE Orders including management decisions, action plans, and correspondence.

n. Review and transmit needed permits and environmental reports to appropriate regulatory agencies or DOE.

o. Review SRS activities and projects, recommend appropriate NEPA documentation, and participate in the Site-wide NEPA program that includes submittal of the EEC (see Manual 3Q, ECM 5.1) for proposed activities,

p. Prepare or assist in preparing Environmental Impact Statements, Environmental Assessments, Categorical Exclusions, NEPA Environmental Evaluations, Environmental Evaluation Impact Analyses, or other documents, as required, for SRS activities.

q. Communicate, as needed and in cooperation with the Site's public affairs organization, environmental information that effectively addresses public concerns.

r. Inform management and the DOE, when appropriate, of progress or potential problems associated with environmental programs.

s. Provide guidance to ensure environmental monitoring is conducted in accordance with Site requirements, DOE Orders, Federal, State, and local regulations.

7. Facility/Project Management (or designee)

   a. Ensure processes and activities comply with environmental regulatory requirements and Site guidance.

   b. Be aware of environmental aspects that may be impacted by facility operations.

   c. Ensure ECAs have an in-depth knowledge of the facility processes and activities.

   d. Implement environmental protection programs and policies with the guidance of facility ECA and the Environmental Regulatory SME personnel.

   e. Consider and emphasize environmental protection in all management decisions, directives, facility policies, and practices, as applicable.

   f. Ensure sufficient resources (personnel, equipment and financial) are available to implement environmental protection programs.

   g. Ensure that only authorized personnel (by virtue of their training, education, and/or experience) are reviewing, concurring with, approving, and/or signing documents containing environmental information or data required by environmental regulations (NOTE: the assigned ECA and/or SME staff can assist in making "authorization" determinations).

   h. Promptly correct situations that impact or have the potential to adversely impact the environment.

   i. Promptly notify ECAs or other appropriate SME staff regarding:
      1) environmental inquiries or contacts made by Federal, State or local agencies,
      2) unusual environmental occurrences following applicable written procedures,
      3) proposed projects or changes to projects to minimize and/or mitigate environmental problems caused by construction, maintenance, or operation,
      4) conduct of environmental program assessments of facilities, operations, and management programs under their control to ensure conformance with environmental requirements, and
      5) proposed responses to environmental program assessment findings and recommended corrective actions.

   j. Ensure that environmental protection and monitoring equipment within facilities is operated and correctly maintained.

   k. Ensure appropriate environmental protection policies, procedures and guidelines are included in respective Statements of Work for subcontracted activities.

   l. Ensure that environmental documents are properly marked and controlled during their preparation, review, approval, distribution, use, revision, protection, filing, storage, and cancellation.

8. General Counsel Office

   Responsible for consulting on all matters pertaining to environmental compliance having legal implications to include, but not limited to:

   a. review and provide interpretations of environmental laws and regulations
   b. review all applications for licenses, permits, and variances preparing appeals from citations or other actions taken by regulatory agencies,
   c. preparing appeals from citations or other actions taken by regulatory agencies, and
   d. represent the Site in administrative and court proceedings.

9. Employees

   a. actively support environmental protection policies following the procedures of this manual, procedures and applicable field organization manuals, procedures and work packages, and regulations.
   b. ensure work activities are conducted in accordance with approved training as practices supporting environmental protections are incorporated.
   c. contact their immediate supervisor, or ECA, in matters involving environmental compliance.
   d. properly use and maintain environmental protection and monitoring equipment.

COMPETENCY, TRAINING, AWARENESS

The purpose of the environmental training program is to ensure that personnel whose actions could have environmental consequences are properly trained and aware of their responsibilities to protect the environment, workers, and the public. Additionally, employee responsibilities for reporting instances of environmental non-compliance to environmental representatives (i.e., ECAs) and their supervisors are addressed. The training curriculum includes:

1. General environmental awareness training is provided to all employees of SRS via initial General Employee Training (GET). GET completion is also required of subcontractors and vendors to ensure they are trained on and aware of environmental practices and responsibilities.
2. Consolidated Annual Training.
3. Job and task-specific training to develop operational level competencies and/or develop subject matter expertise.

All employees are responsible for supporting and complying with EMS programs and processes. This includes compliance to legal requirements, an understanding of pollution prevention/waste

minimization techniques, and the need to continuously improve operating practices to enhance and protect the site's workers, environment, and the public. This is a line management responsibility and is accomplished primarily by the activities of environmental professional assigned to or in direct support of each organization.

Training program development and presentation records are maintained in accordance with Manual 4B, *Training and Qualification Program Manual.*

References:

1. DOE 426.2, *Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities*
   - Directs that specified functions be trained on relevant national consensus codes and standards
2. Manual 4B, *Training and Qualification Program Manual*
3. Manual 2S, *Conduct of Operations*, Section 3.0, *Training*
4. Environmental training courses found in InSite
5. Facility-specific training and qualification program description manuals/programs/plans

COMMUNICATION

There are many policies and procedures to guide and enable environmental communications at SRS. These range from the general site policy declaration and dissemination to SRS On Line (a daily web-based newsletter) to various group forums (pre-job briefings, workplace meetings, monthly safety meetings, et.al.) and formal and informal intervention and instructional techniques (i.e., Behavior Based Safety observations, on-the-job training, “management by walking around”, safety tips, watching out for co-workers in work situations, et.al.) addressed in both site and facility-specific procedures. Additionally, there is an intranet website dedicated to facilitating the dissemination of EMS-related information located at the following link:

http://shrine01.srs.gov/eshqa/EPD/NewEguide/environmental-mgt-sys.htm

Posted to the site’s externally accessible website is this *Environmental Management System Description Manual* documenting how the EMS is implemented across the Site and implements DOE Orders 450.1A and 436.1. Among the information included in this manual are the environmental aspects list and the process used to make “significance” determinations.

Annually, the M&O contractor develops and publishes (on behalf of DOE-SR) a Site Environmental Report which documents the status of the SRS environmental program over the

course of the previous year, both successes as well as challenges. This report is distributed both on-Site and off-Site as well as is posted to the SRS externally accessible website at

http://www.srs.gov/general/pubs/ERsum/index.html

The aforementioned media and the forums and resources described all serve the purpose of ensuring that environmental activities are well communicated to interested parties, both internal and external. The ultimate goal of environmental communication is to improve the site's overall environmental performance.

Forums

1. **SRS Citizens Advisory Board (CAB)** – The SRS CAB provides advice and recommendations to the DOE on environmental remediation, waste management and related issues. The CAB is composed of 25 individuals from South Carolina and Georgia. The board members are chosen to reflect the cultural diversity of the population affected by SRS.

2. **SEMC** – The SEMC is comprised of senior-level environmental managers from all of the SRS contractors. Information is shared via the SEMC with regard to environmental concerns, regulatory matters, SRS operational issues, and upcoming changes to improve the SRS environmental compliance program.

3. **Environmental Quality Management Division (EQMD)** – The DOE-SR conducts a monthly meeting of the SRS contractors along with the DOE environmental staff to discuss issues relevant to EQMD. These discussions provide a forum for DOE to provide regulatory direction and expectations to the site contractors as well as receive updates on the status of environmental/regulatory issues.

4. **Environmental Compliance Authorities** – ECAs are trained environmental professionals that are dedicated to specific projects and facilities at SRS. The ECAs assist projects in identifying potential environmental issues and solutions as well as provide regulatory updates and guidance to program staff. ECAs meet to discuss environmental issues and topics that have the potential to impact SRS facility operations.

5. **SRS Operating Experience Program** –The SRS Operating Experience Program implements a systematic review of the operating experiences (e.g., lessons learned) at SRS facilities, similar DOE complex facilities, and commercial nuclear industry facilities for the purpose of preventing events and eliminating recurring events.

6. **Weekly and Monthly Reports** – A variety of reports (weekly, monthly, annually) are provided to customers, SRS management, and SRS environmental professionals. These

reports indicate compliance status, activities completed, upcoming regulatory visits, regulatory changes and published documents.

References:

1. Manual 1-01, Procedure 1.10, *Employee Communications*
2. Manual 1-01, Procedure 1.11, *Open Communication*
3. Manual 2S, *Conduct of Operation*
4. Manual 1-01, Procedure 4.1, *Environmental Assurance*
5. Manual 1-01, Procedure 7.6, *Senior Environmental Managers Council*
6. Manual 3Q, *Environmental Compliance Manual (ECM)*
7. Manual 3Q-1, *Environmental Requirements and Program Documents*
8. Manual 1S, *SRS Radioactive Waste Requirements*

DOCUMENTATION

EMS documentation includes, but is not limited to:

1. the environmental policy,
2. goals, targets, and objectives,
3. description of the scope of the EMS,
4. description of the main elements of the EMS and their interaction, and reference to related documents,
5. documents, including records, determined by the organization to be necessary to ensure the effective planning, operation and control of processes that relate to its significant environmental aspects.

Implementing procedures and/or work packages define what documents are to be retained for historical purposes to meet programmatic and statutory requirements.

CONTROL OF DOCUMENTS

Environmental documents, including this manual, fall within the document control protocol defined by the Site document control system. Any document, which relates to an environmental activity, is controlled in a defined and approved system.

References:

1. Manual 1B, *Management Requirements and Procedures*, MRP 3.11, *Savannah River Site (SRS) Document and Correspondence Numbering System*
2. Manual 1B, *Management Requirements and Procedures*, MRP 3.31, *Records Management*
3. Manual 1B , *Management Requirements and Procedures*, MRP 3.32, *Document Control*
4. WSRC-EM-96-00023, *Retention Schedule Matrix*
5. Manual 1Q, *Quality Assurance Manual*, QAP 5-1, *Instructions, Procedures, and Drawings*
6. Manual 1Q, *Quality Assurance Manual*, QAP 6-1, *Document Control*
7. Manual 1Q, *Quality Assurance Manual*, QAP 17-1, *Quality Assurance Records Management*
8. DOE Savannah River Implementing Plan (SRIP) 200, Chapter 243.1, *Records Management Program*

OPERATIONAL CONTROL

This element of the EMS ensures that procedural controls are in place to carry out the environmental policy-related activities of regulatory compliance, pollution prevention, and continuous improvement by SRS management.

Consistent with its policy, objectives and targets, operations and activities are identified, planned, and executed in such a way to ensure they are carried out within appropriate controls thereby eliminating or mitigating adverse impacts and enhancing beneficial impacts.

Rigorous work control practices:

1. establish, implement and maintain control of situations where their absence could lead to deviation from the environmental policy, objectives and targets,
2. stipulate the acceptable operating criteria, and
3. ensure significant environmental aspects are considered when making decisions related to goods and services and are communicated to suppliers and subcontractors.

Implementing procedures are contained within:

1. Environmental Compliance Manual
2. Conduct of Maintenance Manual
3. Conduct of Operations Manual
4. Employee Safety Manual (including the Automated Hazard Analysis Process)
5. Subcontract Management Manual

References:

1. Manual 1-01, Section 4.1, *Environmental, Assurance* and Section 5.0, *Technical and Operations Management*
2. Manual 3Q, *Environmental Compliance Manual* (ECM)
3. Manual 2S, *Conduct of Operations*
4. Manual 1Y, *Conduct of Maintenance*
5. Manual E7, *Conduct of Engineering*
6. Manual 1S, *SRS Radioactive Waste Requirements*
7. Manual 1-01, Procedure 7.6, *Senior Environmental Managers Council*

EMERGENCY PREPAREDNESS AND RESPONSE

Emergency plans are established, implemented, and maintained as documented in Manual SCD-7, SRS Emergency Plan (and other references as specified). The SCD-7 manual contains procedures to facilitate the identification of emergency situations and accidents with the potential to impact the environment and provides definitions of appropriate responses and reporting criteria. It further defines (or provides guidance as to) how the organization can prevent and/or mitigate potential scenarios.

These procedures are periodically reviewed and revised, as necessary, to address lessons learned and operating experience gained. They also provide the basis for periodic testing of the procedures to maintain requisite skills.

SRS Emergency Plans and Programs include occurrences categorized as environmental emergencies. Procedures which guide the Emergency Preparedness Process are also provided.

References:

1. SCD-7, Savannah River Site Emergency Plan (includes drills and exercises)
2. Manual 1-01, MP 4.12, *Emergency Preparedness*.
3. Manual 9B, *Site Item Reportability and Issue Management (SIRIM).*
4. Manual 6Q, Vol II, *SRS Emergency Plan/Emergency Management Program Procedures*
5. Memoranda of Agreement and Service Level Agreements between the M&O contractor and the LWO contractor as well as other contractors and tenant activities provide for appropriate and contractual emergency preparedness and response coordination

6. Facility-specific emergency response manuals/programs/plans
7. RCRA Part B Permit, Volume I, General Information, Section G, *Contingency Plan*.

MONITORING AND MEASUREMENT

Monitoring and measuring means that the key characteristics of operations are monitored on a regular basis. This includes: effluent monitoring (both radiological and non-radiological), compliance monitoring, performance monitoring, and equipment/facility monitoring (e.g., calibration of instruments).

References:

1. Effluent monitoring
   a. Manual 3Q1, *Environmental Requirements and Program Documents*
   b. Manual 1-01, *Management Policies*, Procedure 5.35, *Corrective Action Program*
   c. Assessment Performance Objectives and Criteria (FA07)
   d. Manual 3Q, *Environmental Compliance*
   e. Comprehensive Monitoring Evaluation (CME) Program - annual inspection by the Regulator
   f. SCD-6, SRS ALARA Manual
2. Equipment/facility monitoring
   Manual 1Q, *Quality Assurance Manual* includes QAP 12-1 and 12-2, which addresses quality assurance for measuring and test equipment and installed process instrumentation, respectively
3. Performance monitoring and measurement
   a. SRS Annual Environmental Report
   b. Manual 1Q, *Quality Assurance Manual*, QAP 15-1, *Control of Nonconforming Items*
   c. Manual 1Q, *Quality Assurance Manual*, QAP 21-1, *Quality Assurance Requirements for the Collection and Evaluation of Environmental Data*
4. EC&ACP Performance Metrics
   a. EC&ACP Performance Indicators located at:
   http://scorecard.srs.gov/Scorecard.aspx?FacilityCode=ESHRIES
   b. EMS Goals and Targets located at:
   http://shrine01.srs.gov/eshqa/EPD/NewEguide/environmental-mgt-sys.htm

EVALUATION OF COMPLIANCE

The M&O and LWO contractors evaluate compliance through the implementation and conduct of an assessment program encompassing both internal and external evaluation processes (including DOE-SR independent assessments and compliance assessments/audits conducted by SCDHEC and the EPA). An assessment plan is developed and published annually which addresses legal and regulatory requirements as well as lessons learned and operating experience. It has the flexibility to make during-year adjustments as operational concerns surface. Respective records documenting the results of the periodic evaluations are retained in accordance with regulatory direction and the respective Records Management Program.

References:

1. Manual 3Q, *Environmental Compliance Manual*, Procedure 13.5, *Environmental Management System Implementation*
2. Assessment Performance Objectives and Criteria FA-07
3. Manual 12Q, Procedure SA-1, *Self-Assessments*
4. Manual 12Q, FEB-1, *Performance of Company Directed Independent Evaluations*

NONCONFORMITY, CORRECTIVE ACTION, AND PREVENTIVE ACTION

Non-conformance, Corrective and Preventive Actions include EMS non-conformance as a part of the Quality Assurance (QA) Program. Application of QA procedures, therefore, supports the total EMS. For example, failure of environmentally related equipment, instruments, facilities, and procedures would be dispositioned. Also, compliance "non-conformance" surfaced from assessments and evaluations are recorded and dispositioned according to established procedures.

References:

1. Manual 12Q, FEB-1 *Performance of Company Directed Independent Evaluations*
2. Manual 1Q, *Quality Assurance Manual*
3. Manual C1, ER-AP-125, EC&ACP *Quality Assurance Program (U)*
4. Manual 3Q1, Procedure 0102, *Environmental Monitoring Program Quality Assurance Project Plan*
5. DOE Technical Assessment Program Corrective Actions
6. CME (annual inspection by the Regulator)

CONTROL OF RECORDS

Identification, maintenance, and disposition of environmental records are required by the EMS. The Records Management program incorporates environmental records for these purposes. Specific documentation for programmatic environmental activities is addressed in department level procedures. For example, the EC&ACP Department maintains records of correspondence with regulatory agencies. Environmental training records are maintained by the line organization requiring and conducting the training and by the Site Training Department, as applicable. EECs (3Q Manual, Procedure 5.1) completed by facilities for a proposed activity are forwarded to and maintained by the EC&ACP Department.

References:

1. DOE Order 243.1B, *Records Management Program*
2. Manual 1Q, *Quality Assurance Manual*, QAP 17-1, *Quality Assurance Records Management*
3. Manual 1B, MRP 3.11 *Document and Correspondence Numbering System*
4. Manual 1B, MRP 3.31 *Records Management*
5. Manual 1B, MRP 3.32 *Document Control*
6. WSRC-EM-96-00023, *Retention Schedule Matrix*
7. DOE Savannah River Implementing Plan (SRIP) 200, Chapter 243.1, *Records Management Programs*
8. Manual 3Q1, Procedure 101, *Environmental Monitoring Program Management Plan*
9. Manual 3Q1, Procedure 102, *Environmental Monitoring Program Quality Assurance Plan*

INTERNAL AUDIT

SRS EMS audits are incorporated into the DOE assessment and the M&O and LWO self-assessment programs. Environmental assessments include performance objectives and criteria for management system review. For example, the Assessment Performance Objectives and Criteria Functional Area 07, contains the performance objective and criteria for the self-assessment of environmental management requirements as well as technical/compliance requirements.

References:

1. DOE SRIP 400, Chapter 436.1, *Departmental Sustainability Program*; 450.1, *Environmental Protection Program*
2. Manual 3Q, *Environmental Compliance Manual*, Procedure 13.5, *Environmental Management System Implementation*

3. Assessment Performance Objectives and Criteria, (FA07)
4. Manual 12Q, Procedure SA-1, *Self-Assessment*
5. Manual 12Q, FEB-1, *Performance of Company Directed Independent Evaluations*

MANAGEMENT REVIEW

Formal internal assessments are conducted in accordance with the M&O and LWO contractors' assessment programs. Every third year a formal external audit is conducted which, at management discretion, may take the place of an internal assessment otherwise scheduled for that year. The scope of the assessment/audit is to determine whether the EMS conforms to the requirements of DOE Orders 450.1A and 436.1 and has been properly implemented and maintained. Information derived from the audit is reported to senior management. A focus of the assessments is to ensure correction of previously identified shortcomings and deficiencies.

Planning and execution for the conduct of EMS program specific assessments and audits is the responsibility of the EMS Coordinator in cooperation with DOE-SR EQMD. Coordination of assessment objectives includes definition of the scope, development of evaluation criteria, and discussion of the methods to be used for completing the assessment/evaluation.

Internal assessments rely upon subject matter expertise and facility-specific points of contact with overview by DOE-SR EQMD. To maintain a "declaration of conformance" in compliance with DOE Orders 450.1A and 436.1, auditors selected for performance of the triennial external audit must be individuals/organizations from outside the scope of the EMS.

Senior management reviews the EMS to ensure its continuing suitability, adequacy, and effectiveness. Reviews include assessing opportunities for improvement and the need for changes to the EMS, including the environmental policy and environmental objectives and targets. Records of the management reviews are retained in accordance with procedures as previously addressed.

Guidelines for input to management reviews include:

1. results of internal audits and evaluations of compliance with legal requirements and with other requirements to which the organization subscribes;
2. communication(s) from external interested parties, including complaints;
3. the environmental performance of the organization;
4. the extent to which objectives and targets have been met;
5. status of corrective and preventive actions;
6. follow-up actions from previous management reviews;

7. changing circumstances, including developments in legal and other requirements related to its environmental aspects; and
8. recommendations for improvement.

The outputs from management reviews include any decisions and actions related to possible changes to environmental policy, objectives, targets, and other elements of the EMS, consistent with the commitment to continual improvement. Minutes from management reviews are available on the EMS website located at:

http://shrine01.srs.gov/eshqa/EPD/NewEguide/environmental-mgt-sys.htm

The SRS Environmental Policy establishes the requirement for performing periodic evaluation of the effectiveness of the EMS. Per DOE SRIP 400, Chapter 436.1, the DOE Director for the EQMD is responsible for the performance of technical reviews to ensure environmental protection issues are adequately addressed and that impacts to the site are evaluated. The M&O contractor and other applicable site contractors and tenant organizations are responsible for supporting and contributing to the evaluation process. This support role is further reinforced by requirements specified in Manual 3Q, Environmental Compliance Manual, Procedure 13.5, *Environmental Management System Implementation*, and this EMS Description Manual. Maintaining the EMS and following-up on the results of the EMS review resides with DOE, the M&O contractor, and other applicable Site contractors and tenant organizations.

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