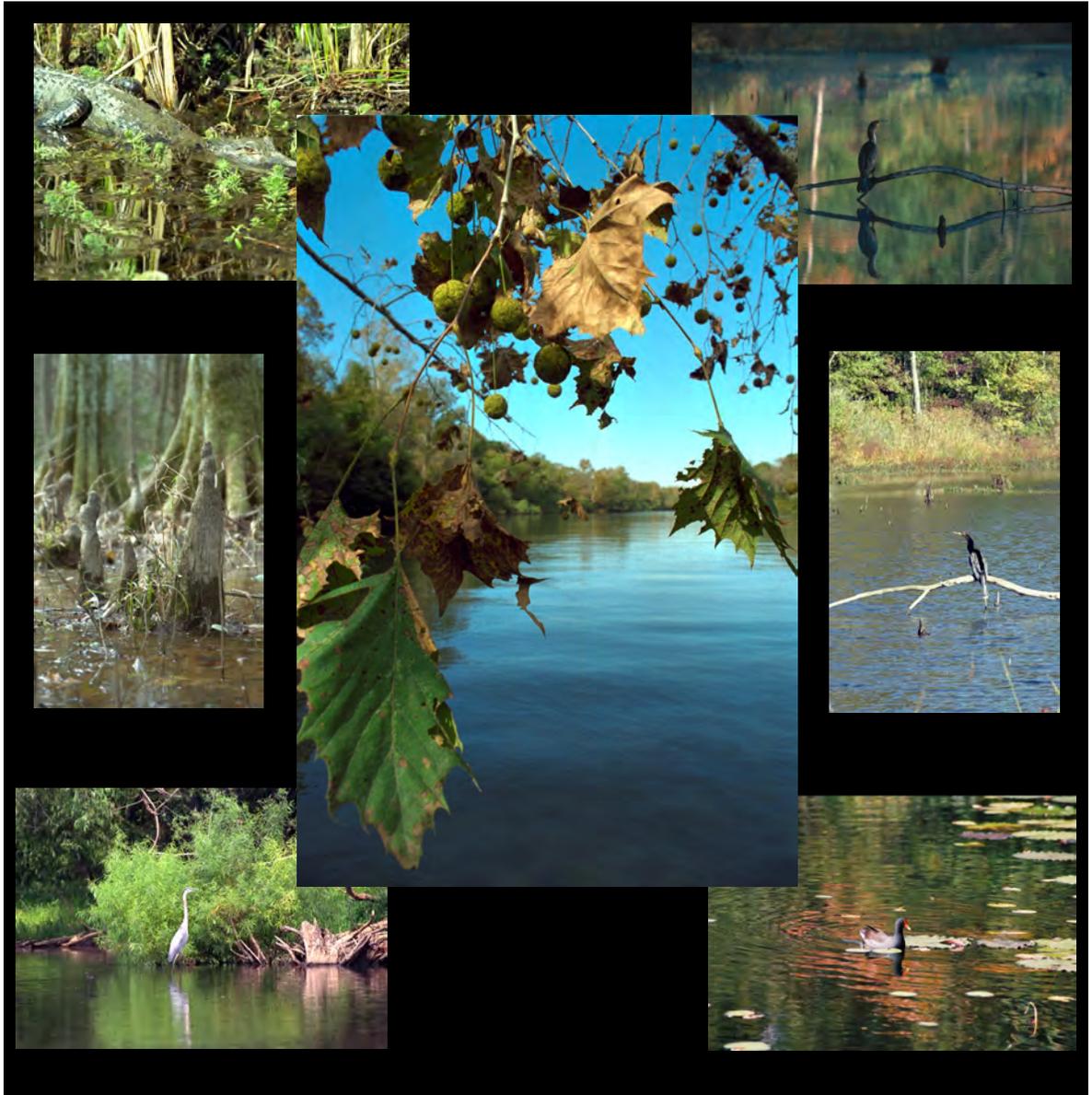


ENVIRONMENTAL MANAGEMENT SYSTEM DESCRIPTION MANUAL



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Savannah River Nuclear Solutions, LLC
Environmental, Safety, Health, and Quality
Regulatory Integration and Environmental Services

Environmental Management System (EMS)

Description Manual

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Reviewed by: 
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Table of Contents

MANUAL INTRODUCTION	3
<i>Terms and Definitions</i>	3
<i>Description of the Savannah River Site</i>	3
<i>SRS Environmental Management System – History and Overview</i>	4
<i>Integration of the SRS EMS with its ISMS</i>	6
Integration of Environmental Management System into Integrated Safety Management	7
ELEMENTS	8
ENVIRONMENTAL POLICY	9
<i>Savannah River Site Environmental Management System Policy</i>	9
ENVIRONMENTAL ASPECT	12
<i>Savannah River Site Environmental Aspect List Affected Activity/Process/Product/Service</i>	17 30
LEGAL AND OTHER REQUIREMENTS	31
OBJECTIVES AND TARGETS AND PROGRAMS	33
<i>Environmental Programs</i>	34
RESOURCES, ROLES, RESPONSIBILITY, AND AUTHORITY	35
<i>SRS Stewardship Responsibility M&O and LWO Implementation</i>	35 35
COMPETENCY, TRAINING, AWARENESS	41
COMMUNICATION	42
<i>Forums</i>	42
DOCUMENTATION	44
CONTROL OF DOCUMENTS	45
OPERATIONAL CONTROL	46
EMERGENCY PREPAREDNESS AND RESPONSE	47
MONITORING AND MEASUREMENT	48
EVALUATION OF COMPLIANCE	49

<i>NONCONFORMITY, CORRECTIVE ACTION AND PREVENTIVE ACTION</i>	50
<i>CONTROL OF RECORDS</i>	51
<i>INTERNAL AUDIT</i>	52
<i>MANAGEMENT REVIEW</i>	53
<i>Attachment A</i>	
Pollution Prevention Projects	55
Solid Waste Management Committee	56
Site Reuse and Recycle Programs	57
<i>Attachment B</i>	
Energy, Renewable Energy, and Transportation Management	60
Strategy and Priorities	60
T.E.A.M.	61
Program Goals	62
Program Strategies	64
<i>Attachment C</i>	
DOE Order 450.1A Contractor Requirements Document (CRD) “Crosswalk”	71

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 Operation (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 DOE Order 450.1A, “Environmental Protection Program”. 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 listed above. 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, Regulatory Integration and Environmental Services (RI&ES) of the Environmental, 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 “Terms and Definitions” 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 6000 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 Environmental Management System – 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(s) and the government agencies (principally including the DOE Savannah River Operations Office) was certified as being in conformance with ISO 14001, the first Department of Energy (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 Environmental Management System, successfully completing surveillance audits in 1998 and 2000 and a recertification assessment in 2000.

During this time period, 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 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 environmental management system in place which was integrated with their respective safety management systems by 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 (E.O.) 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," the DOE issued two Orders implementing the requirements from the E.O. 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 O 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 O 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.

Integration of the SRS EMS with its ISMS

Figure 2 (below) depicts the processes by which environmentally impacting activities performed by both the Management and Operations (M&O) and the Liquid Waste Operations (LWO) contractors at SRS are integrated into the Site Integrated Safety Management System (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.

Integration of Environmental Management System into Integrated Safety Management



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 below 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

Competence, Training, and 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. 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 September 2011

OBJECTIVE

To implement sound stewardship practices which are protective of the air, water, land, 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 Integrated Safety Management System (ISMS). The EMS provides for the systematic planning, integrated execution, and evaluation of SRS activities for: (1) 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 of the EMS.

DIRECTIVE

Recognizing that many aspects of construction, operations, maintenance and decommissioning activities carried out at SRS may adversely impact the environment, the SRS policy ensures that all employees, contractors, subcontractors, and other entities performing work at SRS shall abide by the directives in this document. This policy defines 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, vision, missions, and goals of SRS.

The EMS pursues and measures continual improvement in performance by establishing and maintaining documented environmental objectives and targets that correspond to the SRS vision, missions, and core values. The environmental objectives and targets shall be established for all relevant functions including Department of Energy–Savannah River Operations Office (DOE–SROO), National

Nuclear Security Administration–Savannah River Site Office (NNSA–SRSO), National Nuclear Security Administration–Office of Site Engineering and Project Integration Division (NNSA–SEPID), and all contractors, subcontractors, and other entities performing work at SRS for all activities having actual or potentially significant adverse environmental impacts.

Accordingly, DOE–SROO, NNSA–SRSO, NNSA–SEPID, and all contractors, subcontractors, and entities performing work at SRS shall:

1. Manage the SRS environment, its natural, archaeological and cultural resources, products, waste forms, and contaminated materials so as to eliminate or mitigate any threat to human health or the environment at the earliest opportunity.
2. Develop policies, programs, procedures, and training to identify activities with significant environmental impacts; to manage, control, and mitigate the impacts of these activities; to establish environmental improvement goals and targets; and to assess performance and implement corrective actions as needed, to continuously improve processes and practices protective of the environment.
3. Implement a pollution prevention program to reduce the generation of hazardous and non-hazardous waste, releases of effluents, and life-cycle waste management and pollution control costs.
4. Implement available and cost-effective technologies, techniques and practices to enhance energy efficiency and energy management.
5. Conduct construction, operations, maintenance and decommissioning activities in compliance with all applicable federal, state, and local laws, statutes, regulations, executive orders, directives, guides and standards providing for the protection of workers, public health and welfare, and the environment.
6. Work cooperatively and openly with appropriate local, state, and federal agencies, public stakeholders, and SRS employees to prevent pollution, minimize waste, achieve environmental compliance, conduct cleanup and restoration activities, enhance environmental quality, and ensure the protection of workers and the public.
7. Design, develop, construct, start-up, operate, maintain, deactivate, and decommission facilities in a manner that shall be resource-efficient; that will protect and improve the quality of the environment for future generations; and will continue to maintain SRS as a unique national environmental asset.

8. Recognize that the responsibility for quality communications rests with each individual employee and empower each employee with the responsibility to identify and communicate ideas for improving environmental protection activities and programs at SRS.
9. Ensure the early identification of, and appropriate response to, potentially adverse environmental impacts associated with operations, including as appropriate, preoperational characterization and assessment; and effluent and environmental surveillance monitoring.
10. Promote the long-term stewardship of SRS's natural, archaeological 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–SROO, NNSA–SRSO, NNSA–SEPID, Savannah River Nuclear Solutions, Savannah River Remediation, Savannah River Ecology Laboratory, Shaw AREVA MOX Services, Parsons, Wackenhut Services Incorporated–Savannah River Site, the United States Forest Service–Savannah River, the Savannah River Archaeological Research Program, Ameresco, as well as all subcontractors, and other entities performing work at SRS.

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ENVIRONMENTAL ASPECT

Determining aspects (elements of activities, products, processes, and services that could have a significant impact on the environment) is critical to the environmental management system process. It equates to analyzing hazards in Integrated Safety Management System discussions. (Refer to Table 1 below)

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.

Cause	Effect
Environmental Aspect(s)	Environmental Impact(s)
<ul style="list-style-type: none"> • Emissions of volatile organic compounds (VOCs) 	<ul style="list-style-type: none"> • Air pollution; smog
<ul style="list-style-type: none"> • Discharges to stream 	<ul style="list-style-type: none"> • Degradation of aquatic habitat and drinking water supply
<ul style="list-style-type: none"> • Spills and leaks 	<ul style="list-style-type: none"> • Soil/groundwater contamination
<ul style="list-style-type: none"> • Electricity use 	<ul style="list-style-type: none"> • Air pollution; global warming
<ul style="list-style-type: none"> • Use of recycled paper 	<ul style="list-style-type: none"> • Conservation of natural resources

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

The senior management of organizations and agencies that were parties to the SRS Environmental Management System 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.

Likelihood (L)	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
		Negligible	Marginal	Significant	Exceptional	Crisis

Consequence (C)

Table 2 – Environmental Aspect / Impact Scoring Worksheet

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.

SRNS 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.

Scenario Summary and Conclusion

Area or Activity	Aspect	Impacts	Impact Scoring	Significance
Outfalls	Discharges from Operating Facilities	Water Quality And Soil Contamination	<p><i>“Likely”</i> to occur</p> <p><i>“Consequence”</i> is <i>Significant</i></p> <p>Impact “score” is <i>Medium</i></p>	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. On the next page, Figure 3, “EMS Aspects Identification/Evaluation Process,” depicts the process by which those evaluation activities are conducted.

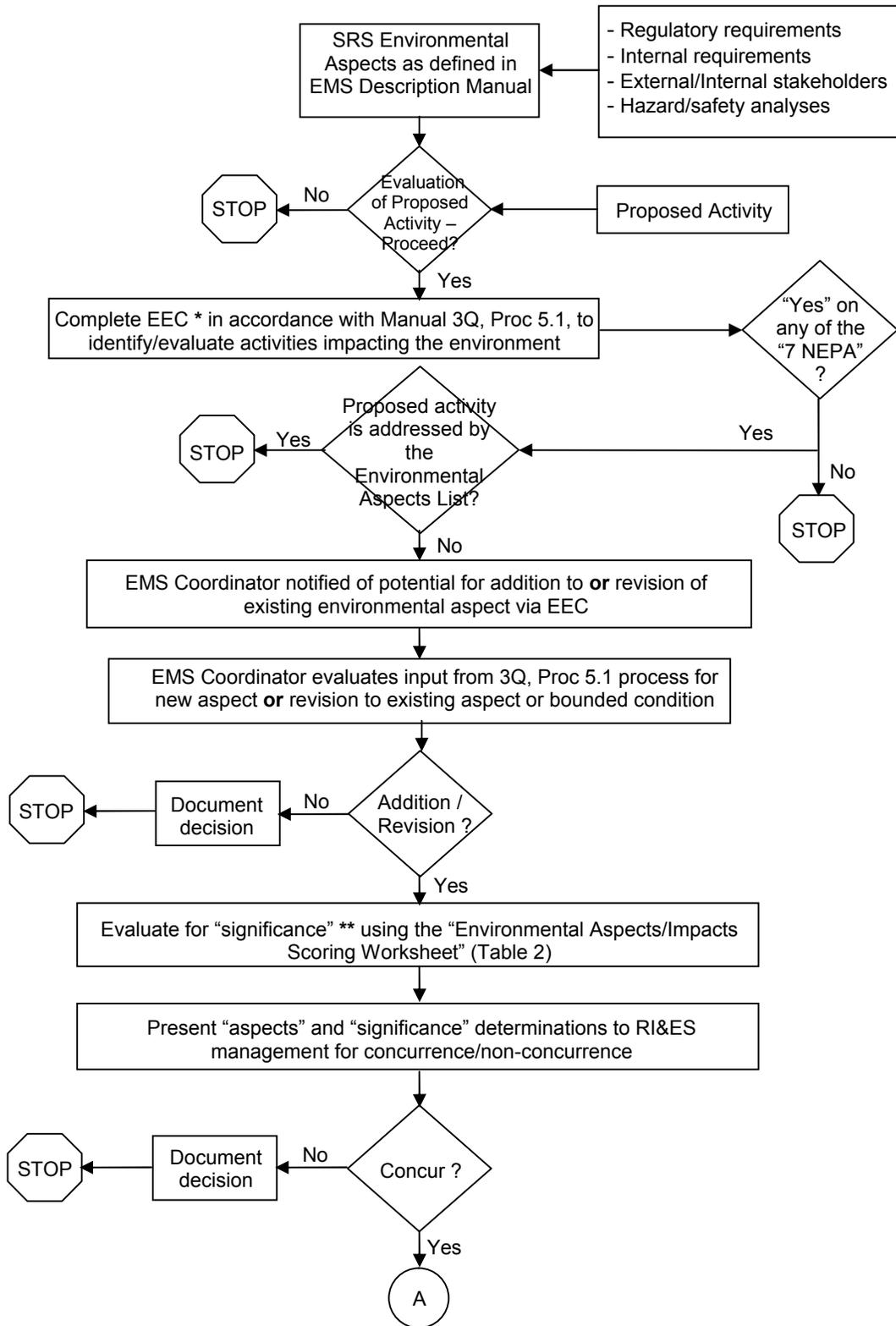
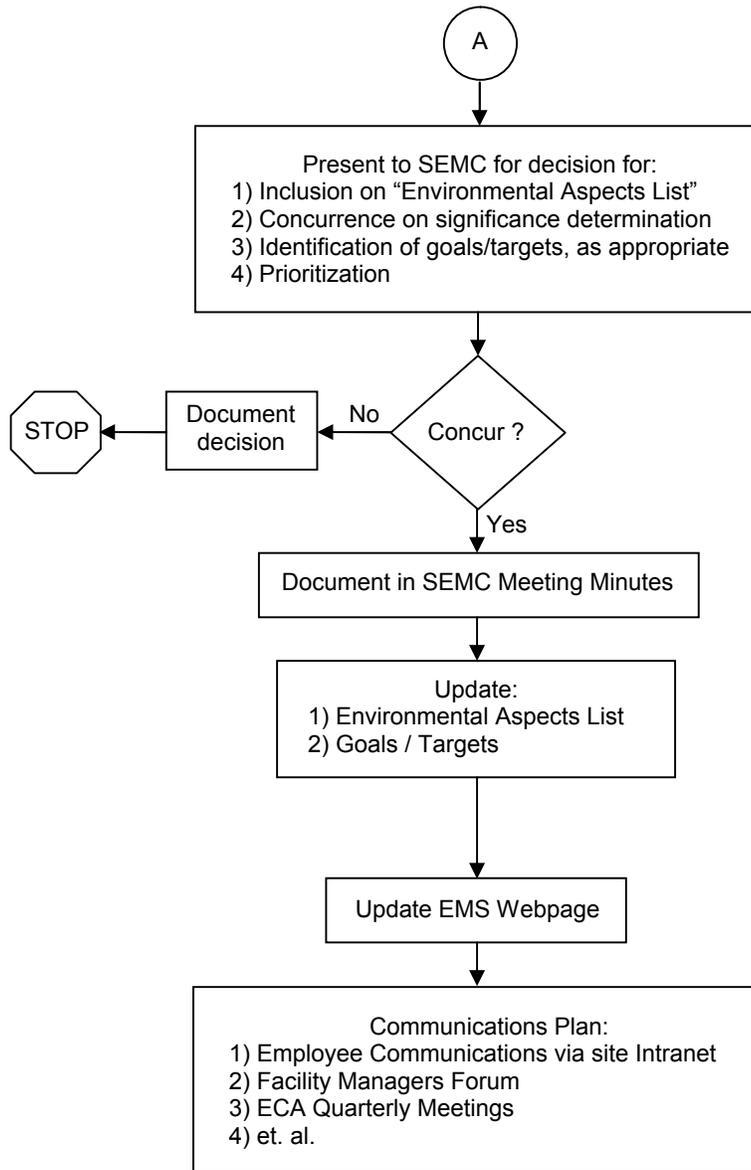


Figure 3 Environmental Aspect Identification/Evaluation Process



* 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 Environmental Evaluation Checklist")

** 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 (cont.)

Savannah River Site Environmental Aspects List

The table below specifies the SRS's designated environmental aspects (revised as of March 2009). 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	Significant ^a
1	Air Pollutants (AP)		YES
	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 exceedence 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 [HEPA] filters) or to make timely repair/change outs/testing of control equipment.	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
2	Alternative Fuel Use / Petroleum Conservation		YES
	Applies to the use of alternative fuels including biodiesel, bioalcohol (e.g., ethanol), 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 450.1A, Environmental Protection Program. 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.	
3	Asbestos Emissions		YES
	Applies to activities that may break up, dislodge, disturb or block access to regulated asbestos-containing material (RACM), handle as ACM, manage asbestos waste, or conduct demolition of load bearing structural members, (including trailers).	Failure to comply with asbestos reporting and notification requirements, including notifications for demolition of load bearing walls; Failure to identify asbestos before maintenance, decontamination, dismantlement, and deactivation work; Improper handling of asbestos wastes; Removal or disturbance of asbestos by uncertified personnel; Failure to comply with landfill requirements related to asbestos disposal (includes record keeping)	
4	Biological Hazards		NO
	Applies to activities using or generating biological materials such as microorganisms. This aspect does not include those hazards associated with safety and health concerns or issues such as blood borne pathogens.	Introduction of non-native microorganisms to the environment	
5	Building Performance and Sustainable Design		YES
	Applies to efforts to reduce life cycle costs of facilities' environmental and energy attributes, improvement in energy efficiency and water conservation, and utilization of renewable energy; and promotion of sustainable environmental stewardship	Failure to reduce life-cycle costs of facilities' environmental and energy attributes; Failure to conserve energy and water in design, specifications, and procurement associated with new and existing site structures.	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
6	Chemical Use and Storage		YES
	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	
7	Contaminated Site Disturbance		YES
	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	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
8	Cultural/Historical Resource Disturbance		NO
	Cultural resource disturbance applies to work having the potential to impact <u>cultural resources</u> , such as disturbing soils by grading, excavating, off-road vehicle use, or removing vegetation. This aspect also applies to personnel working in areas where cultural resources are located. Historical resource disturbance applies to construction, modification or demolition of <u>historical structures</u> , or activities that could result in loss or damage of historical resources. Examples of historical resources include buildings over 50 years old, buildings specifically identified as historical due to special significance, archaeological resources, and historic home sites and trails.	Failure to identify artifacts before disturbing soil; Failure to cease excavation or disturbance activities when artifacts are encountered; Failure to consult with stakeholders when cultural materials are discovered during soil disturbing activities; Failure to protect known cultural resources from damage, contamination, or loss; Failure to protect plants when known cultural significance; Failure to consider and document alternatives to demolition of historic resources; Failure to consult with the State and other stakeholders before conducting construction, maintenance, decontamination or dismantlement activities on potentially historical resources; Failure to observe administrative controls (e.g., memorandums of agreement) to protect historical resources and archaeological sites; Failure to notify the Cultural Resource Management Office following an emergency action that impacts a historical resource (e.g., fire or flood event); Failure to maintain historic buildings and protect against contamination, damage or loss; Failure to consider visual impacts when constructing or modifying building, structures or equipment	
9	Deactivation and Decommissioning		YES
	Applies to the transformation of facilities from its condition at the end of operations to a passive and stable state that can be maintained and monitored over a long time at minimal cost. The scope of deactivation activities includes reducing the remaining hazards in the facility, such as removal of process material, stabilization, decontamination, and isolation of the facility and its systems. During, decommissioning, final stage in disposition, the remaining residual hazards in the facility are dealt with permanently, in a way that allows whatever remains of the facility to be released for another use.	Failure to reduce the legacy of concern posed by radioactive and hazardous residues remaining in SRS's structures, properties, and other assets; Failure to define the risks posed to workers, the public and the environment, and development of effective D&D methods and alternatives; Failure to reduce SRS site footprint and comply with DOE and CERCLA cleanup objectives.	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
10	Discharge to Wastewater Systems or Groundwater		YES
	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; 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 operators	
11	Drinking Water Contamination		YES
	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	
12	Ecological Research		NO
	Ecological research at SRS is addressed through Characterization, Ecological Risks and Effects, and Remediation and Restoration. These research themes place special emphasis on understanding the effects of human activities on the natural environment.	Contaminant concentrations in biota or other media; Failure to understand processes that control distributions of contaminants, their chemical speciation, and bioavailability; Failure to clarify environmental and ecological patterns and processes that influence biological diversity and function, health, reproduction, mortality, and other factors.	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
13	Electronics Management		YES
	Applies to procurement and acquisition programs to purchase or lease Energy Star® products, biobased products, and other environmentally preferable goods and services.	Addresses the three life-cycle phases for electronics assets: acquisition, operations and maintenance, and end-of life. Failure of policies and programs to extend the useful lifetime of electronic equipment.	
14	Energy Efficiency and Greenhouse Gases		YES
	Applies to measures, practices, or programs that reduce the energy used by specific devices and systems, typically without adversely affecting the services provided. The DOE-HQ Greenhouse gas program correlates to carbon-based energy emissions.	Promotes the acceleration of large projects with energy conservation measures having long and short-term payback periods that can be incorporated into life cycle cost effective contracts (e.g., Energy Savings Performance Contracts [ESPCs] and/or Utility Energy Service Contracts [UESCs]); Focus on reducing the concentration of greenhouse gases (e.g., site coal-fired boilers replaced with biomass boilers).	
15	Environmental, Remediation, Development, Demonstration, and Deployment		NO
	Refers to new and innovative remediation technology	Addresses technology identification, development, demonstration, validation and deployment projects which strategically focused on solving near-term clean-up problems at SRS and within the DOE complex; Examples include technology and monitoring systems used to demonstrate Dense Non Aqueous Phase Liquid (DNAPL) used to demonstrate DNAPL characterization and remediation; development of programs for emerging cleanup issues including HLW tank disposition.	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
16	Hazardous or Mixed Waste Generation and Management		YES
	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 (STP) 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	
17	Hazardous or Radiological Material Waste Packaging and Transportation		YES
	Applies to activities that handle, package, or transport hazardous or radioactive materials or waste	Failure to maintain an adequate inventory of appropriate emergency response equipment; Leaks or spills from handling hazardous materials; Failure to meet regulatory requirements for record keeping and notifications for transportation of hazardous materials; Failure to use Department of Transportation compliant packaging and labeling when shipping off-site; Failure to maintain training	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
18	Industrial Waste Generation and Management		NO
	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	
19	Interaction with Wildlife/Habitat		NO
	Applies to activities that have the potential to disturb or affect wildlife or their habitat (e.g., soil disturbance) or activities involving revegetation or weed control.	Failure to identify and consider cumulative impacts such as those required by NEPA, Endangered Species Act, Migratory Bird Act, etc., Loss of fragmentation of habitat through construction, environmental restoration, or decontamination and dismantlement; Failure to consider timing with respect to biological process (e.g., raptor nesting, seed germination, bat hibernation); Improper or no revegetation of disturbed sites; Inadequate control of noxious weeds, Attraction of wildlife to open ponds; Wildlife contact with hazardous or toxic substances, Disruption of wildlife by excessive noise; Failure to identify a threatened or endangered plant or animal species before disturbance; Failure to maintain the National Environmental Research Park (e.g., protection of wildlife, plants, habitats, etc.)	

Aspect	Environmental Aspects	Environmental Impact	Significant ^a
20	Managing Surplus Property and Materials		YES
	Applies to organizations and activities that manage surplus property or inactive facilities associated with the sale, reuse, storage, or disposal of site excess property, or conduct activities related to facility deactivation. Also includes real estate transactions such as leasing, renting, or purchasing real property.	Failure to characterize and manage surplus material in storage areas (such as samples, chemicals, scrap metals); Failure to identify hazardous constituents/residues in equipment released to the public; Failure to identify regulated excess material/equipment; Failure to protect the site against liability associated with real estate transactions; Failure to evaluate pollution prevention opportunities during facility deactivation; Failure to identify potential regulated waste during facility deactivation; Failure to conduct NEPA reviews and obtain necessary permits before facility deactivation; Failure to maintain and periodically inspect deactivated buildings	
21	PCB Contamination		YES
	Applies to activities that use PCB contaminated equipment or store and dispose of PCB contaminated waste.	Failure to identify PCB contamination before maintenance and deactivation, decontamination, and decommissioning work; Failure to meet regulatory requirements related to use, marking, storage or disposal of PCB equipment or waste; Leaks or spills of PCBs; Failure to maintain records related to PCB releases; Failure to identify PCBs in excess equipment; Inadequate characterization of PCB contaminated waste	
22	Pollution Prevention		YES
	Applies to waste minimization and pollution prevention program activities at SRS including planning, implementation of source reduction and recycling activities. The scope also includes affirmative procurement, chemical commodities management, recycling of used oil, solvents, spent batteries and other wastes.	Includes developing and deploying site pollution prevention (P2) and waste minimization programs and technologies instituting best-fit commercial nuclear practices; Establishing pollution prevention (P2) and waste minimization goals, performance indicators, including set-aside fee projects and funding; Facilitating P2 technology transfer across the site and DOE complex	

Aspect	Environmental Aspects	Environmental Impact	Significant ^a
23	Procurement of Environmentally Preferable Goods		YES
	Applies to products or services a reduced effect on human health and the environment when compared to competing products or services that serve the same purpose. This comparison considers raw materials, acquisition, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposability of the product or service.	Improved ability to meet environmental goals; Improved worker safety and health; Reduced liabilities; Reduced health and disposal costs; Increased availability of environmentally preferable products in the marketplace; Failure to comply with Executive Order 13423 requirements for affirmative procurement;	
24	Radioactive Material Use and Storage		YES
	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	
25	Radioactive Waste Generation and Management		YES
	Applies to activities associated with the management of radioactive waste (i.e., High Level, transuranic [TRU], 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	
26	Radionuclides		YES
	Applies to all emission pathways by which people or the environment can be exposed to radiation.	Failure to protect against potential significant adverse impact on the environment, on site personnel, and offsite receptors; Improper disposal or inadvertent spread of radioactivity and/or hazardous constituents;	
27	Renewable Energy		YES
	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	Environmental Impact	Significant ^a
28	Solid Waste (Hazardous, Nonhazardous, Sanitary, NonRad)		YES
	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).	
29	Storage of Hazardous/Mixed or Radioactive Materials or Wastes in Tanks		YES
	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 (SPCC) 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	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
30	Surface Water or Storm Water Contamination		YES
	Applies to activities that have the potential to contaminate Waters of the U.S., wetlands, or storm water that could reach Waters of the U. S.	Failure to protect material storage from exposure to storm water; Inadequate maintenance of storm water controls; Inadequate erosion control; Failure to prevent contamination of storm water from leaks and spills, contact with contaminated soils, wastewater, or other sources of contamination; Failure to complete corrective actions within storm water permit timeframes; Failure to follow requirements in Industrial or Construction Storm Water Pollution Prevention Plans; Failure to obtain permits	
31	Transportation (Fleet) Management		YES
	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	
32	Use, Reuse, and Recycling of Resources		NO
	Applies to activities that use resources such as water, energy, fuels, minerals, wood or paper products, and other materials derived from natural resources.	Failure to evaluate opportunities to reuse or recycle materials; Failure to evaluate pollution prevention opportunities in procurement, design and project planning; Failure to comply with Executive Order requirements for affirmative procurement; Failure to meet RCRA permit requirements associated with P2; Failure to meet existing water rights; Failure to evaluate water and energy conservation in design, specifications and procurement; Failure to consider or implement energy conservation measures (e.g., coal, electric, fuel oil, natural gas, propane, and gasoline)	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
33	Underground Storage Tank (UST) and Aboveground Storage Tank (ABT) Management		YES
	Applies to RCRA Subtitle I requirements for storage of petroleum products and other Subtitle I regulated substances in USTs. The scope also includes the 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 meet regulatory requirements related to management of underground tanks; Failure to meet spill prevention control and countermeasures (SPCC) 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	
34	Water Use (Conservation)		YES
	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	
35	Nanomaterials		YES
	Applies to nanoscale science and the protection of public health and environment, including but not limited to the assessment of the hazard of engineered nanomaterials and implementation of appropriate Environmental, Safety, and Health (ESH) controls.	Conduct of nanoscale work in an environmentally compliant manner protecting workers, the public, and the environment; The potential existence of unknown or incompletely understood hazards.	

Aspect No.	Environmental Aspects	Environmental Impact	Significant ^a
36	Munitions		YES
	Applies to munitions used by but not limited to the security forces as a deterrent to hostile, aggressor, terrorist, or criminal entities.	Failure to properly control the explosive, pyrophoric, and other components of munitions in accordance with federal, state, and local regulations so as to preclude the intentional or unintentional contamination of the environment from the uncontrolled release of these materials; failure to properly document the use of these products; failure to properly dispose of used or no longer serviceable end items or components.	

NOTE - With respect to “Significant ^a” determinations as reflected in the Table:

“**NO**” – Activities with little discernable impact on the local environment; including air, water, soil, groundwater quality, and biological resources; or activities with little or no remedial action required to address releases to the environment or other environmental damage (e.g., a release to secondary containment in a building is not significant). Consistent with the “Environmental Aspect/Impact Scoring Worksheet”, these are activities with “low significance” determinations.

“**YES**” – Activities with a short-term or minor impacts to local environment that are fully recoverable; or activities with the potential for major, long-term or permanent impact to the local environment requiring remedial action to address releases to the environment or other environmental damage; or activities with the potential to require long-term or major remedial action to address releases or other environmental damage and that have the potential to be major contributors to regional problems; or are inherently significant based on federal or regulatory direction. Consistent with the “Environmental Aspect/Impact Scoring Worksheet” (Table 2), these are activities with “medium significance” or “high significance” determinations.

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 considers 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 Savannah River National Laboratory (SRNL) 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 the RI&ES Department. Routine review of Federal and State Registers is performed by SMEs from both the M&O and LWO organizations 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 Standards/Requirements Identification Document (S/RID) Functional Area 20. The purpose of the S/RID is to address the Environmental, Safety, and Health (ESH) 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.

References:

1. SRNS-RP-2008-00086-020-M&O, Standards/Requirements Identification Document
2. SRR-RP-2009-00558-020, Standards/Requirements Identification Document

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

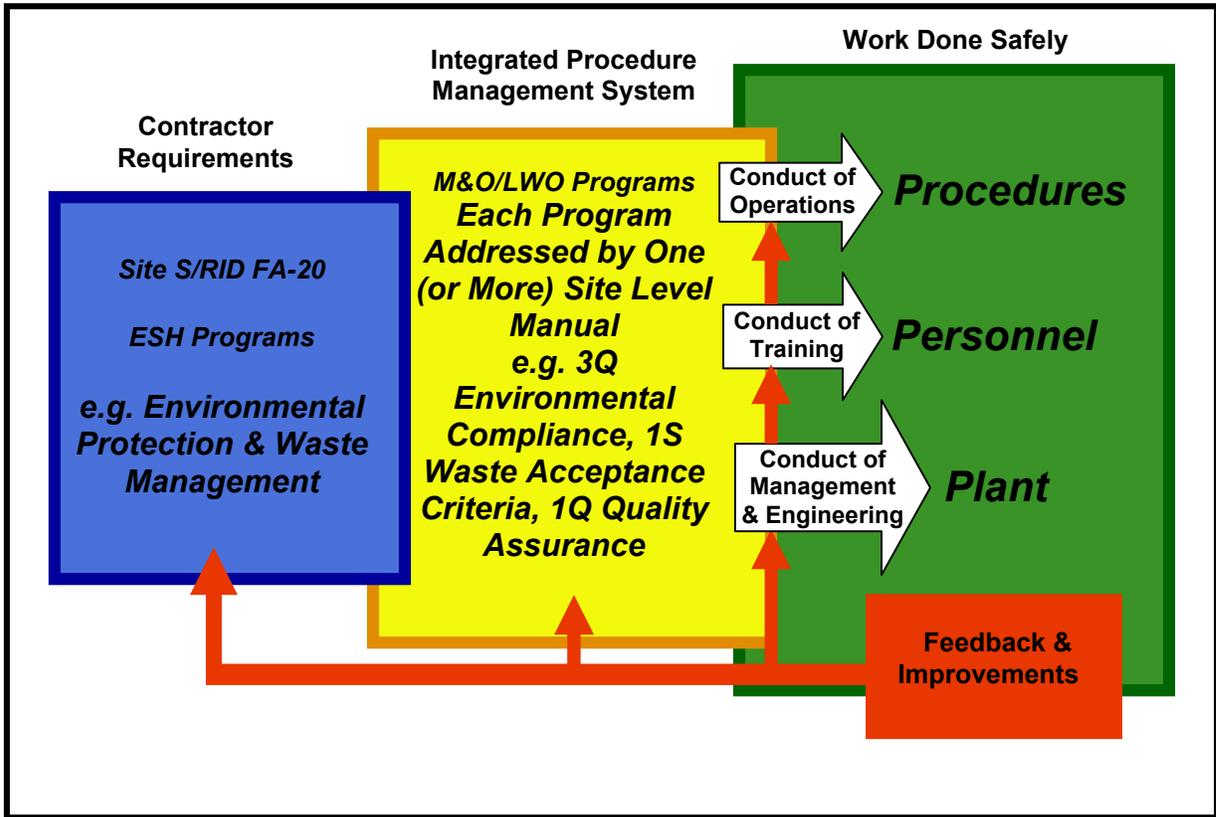


Figure 4 Requirements Flow Down Process

OBJECTIVES AND TARGETS AND PROGRAMS

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

1. Increase energy efficiency and reduce greenhouse gases (GHG)
2. Increase use of renewable energy
3. Increase water conservation
4. Increase sustainable acquisition
5. Increase pollution prevention initiatives
6. Incorporate sustainable building standards
7. Increase petroleum conservation
8. Affirmative life-cycle management of electronics
9. Increase alternative fuel use
10. Effective use of environmentally friendly options in the exercise of Transportation (fleet) management

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 lead-Points-of-Contact (POCs) 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 SR (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

SRS Stewardship Responsibility

The 2010 SRS Strategic Plan describes the DOE strategic goals and purposes, as follows:

1. **Maintain U.S. global leadership in science and engineering** - investing in science, discovery and innovation to provide solutions to pressing energy challenges.
2. **Build a competitive and sustainable clean energy economy to secure America's energy future** - providing clean, secure energy and promoting economic prosperity through energy efficiency and domestic forms of energy.
3. **Reduce nuclear dangers and environmental risks** - safeguarding nuclear and radiological materials, advancing responsible legacy cleanup and maintaining nuclear deterrence.

Paraphrasing the Strategic Plan, sound environmental stewardship through a consistent Site-wide EMS is a fundamental operating premise at SRS. The EMS implements a systematic planning, integrated execution, and continuous evaluation and improvement process to manage compliant programs and projects regarding pollution prevention, control and abatement, environmental monitoring and environmental permitting, restoration, as well as timely reporting and notifications. All regulatory commitments in environmental permits, cleanup agreements and decision documents are tracked to assure completion in accordance with regulatory requirements and deadlines. The EMS manages policy development and program planning for integration of compliance strategies, environmental monitoring and management of SRS natural and cultural resources.

M&O and LWO Implementation

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, MP 4.1, "Environmental Assurance" as well as facility specific implementing and operations procedures. Provided below are significant resource provision, roles, responsibilities, and authorities from those procedures:

1. Senior Management:
 - a. Ensure that the SRNS EMS is implemented per the requirements of DOE Order 450.1A and it is incorporated in the site's Integrated Safety Management (ISM) system

- 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 SRNS 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 Regulatory Integration and Environmental Services (RI&ES) Director as the management representative with defined roles, responsibilities, and authority to establish, implement, and maintain the EMS and provide performance reporting.
2. Regulatory Integration and Environmental Services (RI&ES) Director
- a. Ensure the SRNS EMS is implemented per the requirements of DOE Order 450.1A
 - 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 Order 450.1A
 - d. Report on the performance of the EMS, including recommendations for improvement, to senior management
 - e. Work with Facility/Project Management to:
 - 1) ensure 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 subject matter expert(s) (SME) for each environmental media category
 - h. Assist and supporting the implementation of site environmental projects
 - i. As the Management and Operations (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. RI&ES 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. Environmental Management System (EMS) Coordinator
 - a. Identify and maintain the environmental aspects of activities, products and services within the defined scope of the environmental management system. 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 designated DOE-SR Environmental Quality Management Division EMS program manager.
 - 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 RI&ES 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 SRNS 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. Environmental Compliance Authority (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 RI&ES SMEs.
6. Environmental Regulatory Subject Matter Expert (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, EPA, 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 National Environmental Policy Act (NEPA) documentation, and participate in the site-wide NEPA program that includes submittal of the Environmental Evaluation Checklist (see Manual 3Q, ECM 5.1) for proposed activities,
- p. Prepare or assist in preparing Environmental Impact Statements (EISs), Environmental Assessments (EA), Categorical Exclusions, NEPA Environmental Evaluations, Environmental Evaluation Impact Analyses (EEIA), 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 personnel and the other RI&ES staff.
- e. Consider and emphasize environmental protection in all management decisions, directives, facility policies and practices, as applicable. 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 RI&ES 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 RI&ES 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 so as 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 (GCO)

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 (CAT).
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 1-01, Management Policies, MP 1.18, "Employee Training"
3. Manual 4B, Training and Qualification Program Manual
4. Manual 2S, Conduct of Operations, Section 3.0, "Training"
5. Manual PROGESPPDES0001, Environmental Training Program Description Manual
6. Environmental training courses found in InSite / Quick / Training.
7. 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 OnLine (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 (BBS) 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 Order 450.1A. 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 in hard copy both on-site and off-site as well as is posted to the SRS externally accessible website at

<http://irmsrv02.srs.gov/general/srs-home.html>

The aforementioned media and the forums and resources described below 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. **Senior Environmental Managers Committee (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 periodic 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. **SRS Regulatory Integration Team (SRIT)** – The DOE Savannah River office (DOESR), EPA Region IV and SCDHEC have formed the SRIT to effectively implement the regulatory integration process at SRS. The SRIT identifies issues that are cross-cutting and require high-level agency agreement so that actions can be taken consistently across multiple programs. The SRIT commissions Integrated Project Teams (IPT), designates a team lead, defines the overall scope, objective, and deliverables, and provides guidance to facilitate resolution of an issue or build upon an opportunity.
5. **Challenges, Opportunities, and Resolution (COR) Team** – The COR team consists of regulatory compliance representatives from each SRNS organization and major contractors that work on-site. The COR team discusses emerging compliance or implementation challenges and opportunities, and develops and coordinates resolution of challenges via IPTs. DOE EQMD is briefed on COR activities bi-weekly.
6. **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 quarterly to discuss environmental issues and topics that have the potential to impact SRS facility operations.
7. **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.
8. **Weekly and Monthly Reports** – A variety of reports (weekly, monthly, annually) are provided to customers, SRNS 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, Policy 1.10, Employee Communications
2. Manual 1-01, Policy 1.11, Open Communications of Employee Concerns
3. Manual 2S, Conduct of Operations

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 environmental management system
4. description of the main elements of the environmental management system 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 Manual 1Q, Quality Assurance Manual, QAP 5-1, Instructions, Procedures, and Drawings
5. Manual 1Q, Quality Assurance Manual, QAP 6-1, Document Control
6. Manual 1Q, Quality Assurance Manual, QAP 17-1, Quality Assurance Records Management
7. 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 so as 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 (AHA) Process)
5. Subcontract Management Manual

References:

1. Manual 1-01, Section 4.0, Environmental, Safety, Health and Quality 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, Waste Characterization Manual

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 below.) 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 below.

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 Memoranda of agreement (MOAs) and service level agreements (SLAs) 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
5. Facility-specific emergency response manuals/programs/plans
6. Resource Conservation and Recovery Act (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. Compliance Monitoring - DOE-SR Technical Assessment Program
- d. SCD-4, Self Assessments
- e. Manual 3Q, Environmental Compliance
- f. Comprehensive Monitoring Evaluation (CME) Program - annual inspection by the Regulator

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,

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
- d. Manual 1-01, MP 5.35, Corrective Action Program

4. RI&ES Performance Metrics

- a. RI&ES Performance Indicators located at:

<http://shrine01.srs.gov/eshqa/EPD/index.html>

- 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 South Carolina Department of Health and Environmental Control (SCDHEC) and the Environmental Protection Agency (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. Manual SCD-4, Source and Compliance Document, Functional Area (FA) 07 (Environmental Protection)
3. Manual 12Q, Procedure SA-1, Self Assessments
4. Manual 12Q, FEB-1, Facility Evaluation Board

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 in accordance with the RI&ES Quality Assurance Plan. Also, compliance "non-conformance" surfaced from assessments and evaluations are recorded and dispositioned according to established procedures.

References:

1. Manual 1-01 Management Policies, Policy 5.35 Corrective Action Program
2. Manual 12Q, FEB-1 Facility Evaluation Board
3. Manual 1Q, Quality Assurance Manual
4. RI&ES Quality Assurance Plan, SRNS-RP-2009-01210
5. DOE Technical Assessment Program Corrective Actions
6. Comprehensive Monitoring Evaluation (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 RI&ES 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. Environmental Evaluation Checklists (3Q Manual, Procedure 5.1) completed by facilities for a proposed activity are forwarded to and maintained by the RI&ES Department.

References:

1. DOE Order 1324.5A, Record 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
7. DOE Savannah River Implementing Plan (SRIP) 200, Chapter 243.1, Records Management Programs

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, Source and Compliance Document 4 (SCD-4) 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 Savannah River Implementing Plan (SRIP) 400, Chapter 436.1, Departmental Sustainability Program
2. Manual 3Q, Environmental Compliance Manual, Procedure 13.5, Environmental Management System Implementation
3. Manual SCD-4, Source and Compliance Document, Functional Area (FA) 07 (Environmental Protection)
4. Manual 12Q, Procedure SA-1, Self Assessments
5. Manual 12Q, FEB-1, Facility Evaluation Board

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 or not the EMS conforms to the requirements of DOE Order 450.1A 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 defining 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 Order 450.1A, 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 Environmental Quality Management Division (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 (ECM), 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.

Attachment A

Pollution Prevention Projects

Pollution Prevention (P2) is the SRS preferred approach to reducing waste, mitigating health risks, and protecting the environment. The Waste Minimization/Pollution Prevention Program provides SRS a safe, effective, and environmentally responsible strategy to implement specific waste reduction techniques based on current and projected information on waste generation, waste characterization, and ultimate waste disposal costs. In addition, waste minimization (WMin) is driven by the DOE's establishment of source reduction, recycling, energy efficiency, and affirmative procurement goals, and is a key component of the SRS Environmental Management System.

The WMin/P2 Program scope includes both in-field waste generator programs and a site-wide coordination program. The generators' programs are funded through each generator's operating budget to coordinate facility-specific program initiatives and to implement process modifications and new technologies. The SRS P2 Program is identified in Environmental Compliance Manual 3Q, Procedure 6.11, "Pollution Prevention Program." Site-wide program coordination which is managed by the Solid Waste Management organization is separately funded and provides the following:

- management support of WMin/P2 Program
- technical assistance for facility walk-downs, lifecycle waste cost analyses, and pollution prevention opportunity assessments
- forums for WMin/P2 information and technology exchanges
- employee P2 awareness and training programs
- mechanisms to increase waste generator accountability
- completion of required annual plans and reports
- implementation of site-wide initiatives such as sanitary waste recycle, Green-Is-Clean (GIC) programs and other cost-cutting initiatives
- establishing a P2 component in the Site's Communication Plan to increase public awareness and support

Two significant WMin/P2 program areas are:

- Solid Waste Management Committee (SWMC)
- Site Reuse and Recycle Programs

Solid Waste Management Committee (SWMC)

The Solid Waste Management Committee (SWMC) provides a forum for communication, identification of improvement opportunities, and resolution of site-wide issues regarding elements of SRS's solid waste programs. The SWMC's area of cognizance includes routine and industrial sanitary, and low level, mixed, hazardous, and transuranic solid wastes as defined in DOE Order 435.1, *Radioactive Waste Management*.

Within its area of cognizance, the SWMC:

- addresses programmatic issues involving solid waste management from generation to final disposal to include pollution prevention and waste minimization
- identifies, defines and establishes strategies and best practices for implementing SRS waste management requirements in a disciplined, safe and cost-effective manner
- performs special projects and tasks related to solid waste management
- maintains awareness of solid waste management issues and initiatives in the DOE complex
- develops, provides concurrence, and supports implementation of Pollution Prevention Program waste reduction objectives and best practices
- recommends the plans, strategies, and implementation of new treatment, storage, and disposal methods in compliance with regulations and DOE directives
- identifies, reviews, analyzes and initiates improvement actions on site wide solid waste management issues and initiatives and tracks these issues to closure
- authorizes working groups to address issues relating to solid waste management
- recommends content and revisions to Manual 1S, "Savannah River Site Waste Acceptance Criteria"
- serves as members of the Training Review Committee (TRC) for the Generator Certification Official (GCO) Training and Qualification Program and supports review and approval for waste minimization training
- recommends course content and provides teaching support for solid waste training for Environmental Compliance Authority and Cognizant Technical Function positions
- sponsors Management Evaluations (ME's) for solid waste related evolutions
- each member represents their organization for concurrence with actions and recommendations within the purview of the SWMC
- issues minutes to members and SRS senior management for each meeting reflecting topics discussed, actions taken, agreements reached, and result of formal votes

Site Reuse and Recycle Programs

The SRS has comprehensive industrial and office waste recycling programs inclusive of most waste materials with recycle value. The recycling program is a highly visible program that impacts all employees and has served as a useful tool to promote pollution prevention concepts and encourage active employee participation. The Site's program provides varied recycle paths dependent on the waste stream. Following is a summary of some key recycle programs:

Material Recovery Facility - A joint venture with the City of North Augusta and the SRS provides recycle services for routine sanitary waste at a Material Recovery Facility (MRF) in the City of North Augusta. This joint venture creates revenue for the City from the tip-floor fees and revenue from the sale of recovered recyclables. Additionally, this venture creates jobs and has allowed the City of North Augusta to more efficiently operate their facility, including providing for program expansion for the acceptance of waste from other cities. The MRF removes all materials that have reuse and recycle value, including:

- Paper (newspaper, cardboard, magazines, office paper (white paper))
- Glass (clear, brown and green)
- Plastics (number 1 PET soda bottles, number 2 HDPE clean – milk jugs, number 3 HDPE Pigmented)
- Aluminum (beverage cans and scrap all grades)
- Steel (tin) cans

Three Rivers Regional Landfill - The development of the Three Rivers Regional Landfill at the SRS provides jobs and income into the local economy. This landfill services a local nine county region. Working with this landfill, the SRS has been able to develop new technologies for reuse of many items. Some of the creative reuse deployments include the shredding of waste tires to be used as a leachate liner at the landfill, the creation of mulch from old construction debris and pallets, and reuse initiatives for railroad ties, telephone poles, aggregate, and many other items.

Three Rivers Regional Technology Center – As part of the agreement between DOE and the Three Rivers Landfill Authority, about one dollar of each tip fee is credited to fund piloting and deployment of new sanitary waste management technologies. A DOE-SR employee is on the boards of Technology Center and Three Rivers Authority. The Technology Center has sponsored a bio-reactor for leachate water treatment, a separations facility for materials recovery from the waste stream, and is pursuing an EcoPark to encourage co-location and business use of recovered waste products from the landfill.

Chemical Management Center (CMC) – The CMC provides centralized control of chemical materials procurement and management of excess chemical materials. The CMC has goals to reduce the volume and toxicity of chemical procurements and reduce chemical inventories and waste. Hazardous and non-hazardous chemicals are reutilized on site, returned to vendors when possible, sold through sealed bid sales to approved vendors, and donated to local-area government institutions to promote good community service in order to reduce waste generation.

The Chemical Management Center also significantly improved tracking and communication of chemicals currently in on-site inventory. Using this inventory control and improved procurement techniques, including “just in time” ordering processes, and through de-inventorying and chemical tracking activities, SRS has significantly reduced its on-site chemical inventory. This effort includes reduction in the number and volume of hazardous chemicals used in the industrial processes of the site.

Salvage Operations - The Salvage Yard is centrally located and provides the bulk of industrial solid waste recycle services to SRS’s industrial centers. Materials are segregated at the work site, placed in appropriate containers, transported to Salvage where they are staged for sale to a vendor. Materials recycled through Salvage Operations includes all non-radioactive scrap metals, scrap furniture, tires not recyclable through the GSA Vehicle Center, printer/copier toner cartridges, used drums, and lead-acid batteries.

The Salvage Yard also runs an Excess Clerical Supply Store. The Store collects excess and used clerical supplies that are not of appropriate quality to return to re-stock but still usable. The Excess Store is opened to Site employees to shop, at no cost, for clerical supplies for their offices.

Additional detail available at <http://shrine.srs.gov/html/pmmd/excess/> .

Excess Operations – Asset Management operates an Excess Property Operation in conjunction with Salvage Operations. This program manages non-chemical, excess items that have value above the salvage material value. Items are reutilized on site and/or off site by other federal agencies, sold to vendors, or donated to local and state agencies. Excess Operations also provides a site-internal, WEB-based data application, called “We Share” that provides SRS employees the ability to advertise for government property that is needed and/or that is in excess and available for use by other employees.

Additional detail available at <http://shrine.srs.gov/html/pmmd/excess/> .

Green Electronics – The SRS has an environmentally green electronics

disposition program. From procurement through end-of life, electronics are managed to reduce pollution and waste. Essentially all non-radiological associated, security-sanitized, electronic equipment is either transferred for reuse or recycled for recovery of materials. This program includes procurement of environmentally preferred electronics, vendor take back services, and disposition of spent and excess electronic materials through Salvage and Excess Operations.

Construction Recycling Service – On-site construction and maintenance organizations provide recycle services for materials such as antifreeze, fluorescent bulbs, paint and paint solvents, non-radiological lead, NiCad batteries, used oil, and silver photographic fixatives. These services are offered at cost to Site organizations. (Additional details are available in Manual CMDM 1E6, Procedure CMP 05-02.01.)

Commodity Management Centers – Centralized control of specific commodity items provides for control of procurement, maximizes reuse options and excess management, and ensures eventual disposition is optimized. SRS uses commodity management specialists to control telephones and associated equipment, hoisting and rigging equipment, furniture, fire extinguishers, computer software, portable mobile equipment, vehicles, radios and pagers. Site organizations are required to use the commodity centers, maximizing their effectiveness. (Additional details are available in Manual 3B, Procedure 5-1.)

Assets for Services (AFS) – The AFS Program is a means to recover the value of surplus assets and use that value to reduce the costs associated with disposition activities. The AFS Program packages or groups non-contaminated physical assets that vary in location, condition, and value in a Scope of Work to dismantle and remove (D&R) facilities or physical assets. A subcontract is awarded through competitive bids against the scope of work. The competitive bids include a salvage value credit that is applied against the D&R costs. The benefits of this program include maximizing taxpayer value in property that is already purchased but no longer needed; allowing SRS to carry out disposition activities that are authorized but not funded; and accelerating progress in excess asset disposition, risk reduction, waste disposal reduction, and reducing custodial cost burdens.

Attachment B

Energy, Renewable Energy, and Transportation Management

Strategy and Priorities

A comprehensive strategy has been developed for achieving the energy-related requirements of E.O. 13423, applicable DOE Orders, and DOE-HQ Transformational Energy Action Management (TEAM) Initiatives. The following is a summary of several of the current priorities associated with these multiple federal and DOE directives.

Energy Efficiency

The Energy Policy Act of 2005 (EPACT '05), E.O. 13423, and DOE Order 430.2B all establish new annual energy reduction goals for the years 2006 through 2015. These annual goals measure performance against a 2003 base year versus the previous base year of 1985. E.O. 13423 derives the new goal of realizing a 30% reduction in energy intensity (Btu/gross square foot) by the end of FY 2015 relative to the FY 2003 baseline year, and this goal is also specified in the DOE Order 430.2B which states: Data will be tracked annually from FY 2003 to FY 2015, with the agency-wide goal of a 30% reduction in FY 2015.

High Performance Sustainable Buildings

In February 2008, the Secretary of Energy issued a memorandum stating to utilize the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) criteria for new and existing buildings as the means to demonstrate conformance with HPSB Guiding Principles. All new DOE buildings and major renovations now have to achieve USGBC LEED "Gold" rating when cost-effective. The directive also stated that sites are to continue in development and implementation of plans to ensure that 15% of enduring existing buildings are in compliance with the GPs and E.O. 13423.

Renewable Energy

The federal mandates for renewable energy have been growing over the past several years. In 1994, E.O. 12902 recommended that federal agencies develop plans to use renewable energy. This was followed in 1999 with E.O. 13123, which required that the Secretary of Energy set a goal for federal renewable energy use. Now, the Energy Policy Act of 2005

puts the force of law into the federal renewable energy goal, and the Executive & DOE Orders and associated TEAM (Transformational Energy Action Management) initiatives do as well. DOE Order 430.2B goals and TEAM goals are the same, requiring that the installation of on-site renewable energy projects where technically and economically feasible to acquire at least 7.5% of each site's annual electricity and thermal consumption from on-site renewable sources by FY 2010.

Water Conservation

Water conservation goals have been established and continued as part of recent federal directives, and have been included in the DOE Order with a goal for water conservation of reducing potable water consumption at least 16% by FY 2015, relative to the baseline of the agency's potable water consumption in FY 2007.

Fleet Management

E.O. 13423 (and associated TEAM initiatives) and DOE Order 430.2B establish new requirements and goals for the years 2006 through 2015. These goals measure performance against a 2005 base year with an objective for the procurement of alternative-fuel vehicles to replace the existing conventional-fuel fleet to the extent practicable, with the goal of replacing the existing fleet with alternative fuel and/or hybrid technology vehicles by the end of FY 2010.

T.E.A.M.

To address these priorities the M&O contractor established a "TEAM Implementation Committee" in FY 2008. This committee is composed of Subject Matter Experts (SME) from across the site with experience in the specific focus areas noted in the TEAM Initiatives. Representatives include SMEs associated with:

1. Energy efficiency / renewable energy / ESPCs
2. Water conservation
3. Fleet management
4. Pollution prevention
5. Waste management / toxic chemical reduction
6. Design services / engineering
7. Facility Information Management System (FIMS)
8. Site planning
9. Environmental management
10. Procurement
11. Standards and contract assurance processes
12. Information technology

This group meets on an as-needed basis establishing direction, developing strategies for programmatic implementation, providing status as needed/required, and facilitating successful program execution across the site.

Program Goals

The following comprises an abbreviated list from the comprehensive long-term Energy Management Program goals undertaken at the SRS. The M&O contractor will assist the DOE through direct participation and other support in achieving the Department's goals and objectives, with a focus on the goals below, and, specifically, a focus on the priority goals outlined by the Department in guidance received annually. A fundamental factor determining program success is a sufficient budget to ensure that all goals are adequately addressed. Limited funding will necessitate the prioritization of goals.

Energy Efficiency

1. Reduce building energy intensity (BTU per gross square foot) by 30% by the end of FY 2015.
2. Reduce building energy intensity (BTU per gross square foot) by 3% annually through the end of FY 2015. (Either this goal or the first goal must be met through FY 2015).
3. Ensure the Energy Management Program is sufficiently staffed with trained energy managers. Ensure a trained energy manager is in place to direct energy and water management programs and who dedicates all or a substantial portion of time to the implementation of associated plans
4. Maintain and update, as appropriate, the Ten Year Site Plan and Executable Plan. Ensure that the Energy Management Program is integrated with ten year site planning.

High Performance Sustainable Buildings

1. Achieve the LEED Gold certification for all new construction and major building renovations in excess of \$5 million if cost effective. All new buildings will incorporate the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings to the extent practical and cost effective.
2. Ensure all new buildings falling below a \$5 million threshold comply with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings
3. Ensure that new buildings meet the requirements of 10 CFR 433, specifically to be designed to achieve energy savings of at least 30% below American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) Standard 90.1-2004 if cost effective.

Additionally, the building must meet or exceed Energy Star Building criteria, if possible. Score the energy performance of the building using the Energy Star Portfolio manager rating tool.

4. Develop and implement a plan, as part of the Executable Plan, to ensure that 15% of square footage of enduring buildings is compliant with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. Implementation of the plan will be documented within the Ten Year Site Plan and tracked within the Facilities Information Management System (FIMS) database.

Renewable Energy

1. Maximize installation of on-site renewable energy projects at the site when technically and economically feasible.
2. Install at least one renewable energy project at SRS.
3. Purchase at least 7.5% of the site annual electrical consumption from on-site renewable sources by FY 2010, 50% of which is from new renewable sources placed into service after January 1, 1999.
4. When cost effective, implement distributed generation systems in new construction or major retrofit projects, including renewable systems such as solar electric, solar lighting, geo (or ground coupled) thermal, small wind turbines, and other generation systems such as fuel cells, cogeneration, or highly efficient alternatives.

Water Conservation

1. Reduce potable water consumption by 16% by the end of FY 2015 (or reduce water consumption by 2% annually), as compared to baseline utilization in FY 2007.
2. Evaluate Best Management Practices from DOE guidance documents and develop implementation plans as applicable. Conduct cost benefit analyses to determine which BMPs should be pursued. Document results in a new Comprehensive Water Management Plan.
3. Replace toilets, urinals, faucets, and showerheads with low-flow units as part of routine maintenance when replacement of a failed device is necessitated.
4. When available, purchase WaterSense labeled products and other water efficient products.

Fleet Management

1. Operate the fleet's alternative fuel vehicles exclusively on alternative fuels to the maximum extent practicable.
2. Increase overall fleet fuel economy through acquisition of higher fuel economy vehicles (e.g., smaller sized vehicles, hybrid-electric vehicles, and other advanced technology vehicles).

3. "Right size" the fleet, employing the most fuel-efficient vehicle for the required task and having the appropriate number of vehicles relative to the need.
4. Arrange for the procurement of alternative fuel vehicles to replace the existing conventional fuel fleet to the extent practicable, with the goal of replacing the existing fleet with alternative fuel and/or hybrid technology vehicles by the end of FY 2010.

Program Strategies

The M&O contractor utilizes multiple strategies to achieve the stated goals and objectives. These various strategies are discussed in the following sections, divided into similar subgroups as arranged in the current TEAM initiatives.

Energy Efficiency Strategies

ESPC

Successful execution of Energy Savings Performance Contracts has been a priority at the site for many years and is a key programmatic strategy for achieving additional reductions. This term refers to a contract under which the subcontractor, an energy services company (ESCO), incurs the cost of implementing energy savings measures, including, but not limited to, performing energy audits and studies, design, acquiring and installing equipment, and training personnel. In exchange for providing these services, the subcontractor gains guaranteed cost savings resulting directly from implementation of such measures during the term of the contract. ESPC efforts at SRS have been extensive and have been a primary focus of the Energy Management Program.

Construction of Efficient Facilities

Design procedures underwent modification to ensure that design and construction of new facilities are accomplished in a life-cycle cost-effective manner and in alignment with current DOE Orders and legislation. Employing cost-effective strategies into new facilities will garner monumental benefits over the life-cycle of the facility. Specific activities regarding new construction design requirements are discussed in the High Performance Sustainable Buildings section below, but this item is mentioned here because of the potential beneficial reduction in the energy intensity metric that would be realized upon successful execution.

Computer and Monitor Purchases/Leases

Procuring and leasing of energy efficient computer products has enabled progress well-ahead of the curve on this strategy. Most site computers are provided to site employees via a lease agreement. The lease contract specifically states that all computers must be Energy Star and EPEAT (Electronic Product Environmental Assessment Tool) compliant, as well as meeting low standby power requirements. This strategy will continue to be invoked in the future to ensure that energy efficient computing systems are utilized. Multiple blanket contracts have been modified to incorporate low-standby power levels.

Energy Awareness

Exposing SRS employees to opportunities to proactively participate in the energy reduction process is a positive strategy for increasing energy efficiency. Multiple avenues are employed to accomplish this strategy, from routine employee exposure via site news articles to tips included in the daily “on-line” email communication. Through the IDEAs program, employees are also afforded the opportunity to offer practical suggestions to increase efficiency and reduce costs. The impacts that energy use and cost have on employees as citizens and in their private lives are such that great priority is becoming more and more inherent. Awareness of energy priorities is on the rise, and the majority of employees wants to do the “right thing” and will do so when reminded of opportunities.

Energy Surveys

Many years ago SRS received designated funding from federal energy management budgets for conducting energy audits/surveys and special studies. The purpose of these funds was ultimately to lead to the development of energy-savings projects. Project funding requests were subsequently made to DOE and prioritized decisions were made on availability of funding, with a key criteria being best value (specifically, simple payback and savings-to-investment ratio).

High Performance Sustainable Buildings Strategies

New Buildings and Major Renovations

The Energy Policy Act of 2005 increased requirements for new building designs, specifically to ensure that new designs reduce energy consumption to 30% below the current version of ASHRAE standard 90.1, if cost-effective. In FY 2008, SRS modified site design procedures to ensure that these requirements are met.

With the advent of directives in DOE Order 430.2B, site procedures have been modified to ensure further compliance.

Existing Buildings

Plans are being developing and implemented to ensure that 15% of enduring existing buildings are in compliance with the High Performance Sustainable Building (HPSB) Guiding Principles (GPs) by the end of fiscal year 2015.

Leased Space

Procurement specifications and selection criteria for acquiring new leased space are at various stages of revision/modification to include a preference for buildings certified as LEED Gold. If an existing lease is renegotiated or extended, lease provisions supporting the Guiding Principles for High Performance Sustainable Buildings will be included. The 7B Procurement manual was revised in FY 2009 to include these new requirements.

Renewable Energy Strategies

Use of renewable energy at the SRS is being prioritized at the highest levels.

Biomass Steam Facilities

In November 2006, DOE-HQ approval was granted for the design and construction of a new steam plant for A-Area and the Savannah River National Laboratory which utilizes biomass as the primary fuel source. Design of the new plant was completed in FY 2007, construction was completed in August 2008 and became operational in September 2008. The renewable and environmental aspects of the project are plentiful: including utilization of coal reduced by over 12,000 tons annually; significant reductions in particulate, SO₂, NO_x, and CO emissions; ash generation and disposal was reduced from 2,260 tons/year to 300-600 tons/year; and compliance with Clean Air and Water Act standards were achieved.

Renewable Energy Certificates (RECs)

SRS consumed over 313,000 megawatt-hours (MWh) of electricity in FY 2007. The new Biomass Cogeneration Facility generates an estimated 77,500 MWh of electricity in the first year of operation. This production rate is well above the 7.5% statutory goal required for FY 2013 and thereafter.

Water Conservation Strategies

Detailed execution guidance from DOE-HQ is clear that the reduction goal applies only to potable water, not all site water sources. SRS is somewhat

unique in that water is provided directly from site resources versus from contract with a local utility. This significantly reduces the cost of water utilities at the site, and the extremely low cost of water, in turn, results in difficulty in justifying water conservation projects due to unfavorable paybacks.

When compared to the FY2000 baseline year used in savings determinations, SRS reduced potable water consumption through FY 2007 by 23%. For the eleven month period from October 2009 through August 2010, SRS water intensity was reduced by over 11%, far in excess of the 2% DOE goal. It is noteworthy that the 11% reduction occurred despite the large increases in site staffing associated with American Recovery and Reinvestment Act (ARRA) project work. A primary reason for this decrease was the D&D (dismantling and demolition) of many facilities across the site as part of accelerated cleanup activities. In addition, in recent years several hundred faucets have been replaced with reducers or low-flow units, over 500 flush valves have been replaced with low-flow units, and multiple showerheads have been replaced with low-flow units.

Comprehensive Water Management Plan & Best Management Practices

An SRS Comprehensive Water Management Plan was developed and approved in FY 2001. The plan documented how SRS potable water resources would be managed to reduce consumption as much as possible. A Water Conservation Implementation Plan was issued in FY 2009 to incorporate applicable new Best Management Practices included in guidance from DOE as well as document contributions and successes toward achieving Agency goals.

Utilization of Low-Flow Devices

As previously stated, potential difficulty exists in meeting a sixteen percent reduction due to it being very dependent upon the number of facilities and employees. The primary focus in recent years became implementation of the BMPs and, subsequent to completion of cost analyses, the decision was made to replace toilets, urinals, faucets, and showerheads with low-flow units as they failed or were replaced.

Water Conservation in New Design/Construction Projects

Similar to new design requirements previously mentioned, design procedures are being/have been modified to state that new facility designs should minimize water consumption and utilize WaterSense labeled products. The Guiding Principles for High Performance Sustainable Buildings, which are required to be met for any new design, include a specific directive to minimize water use as part of facility design. The

project team must document compliance with the Guiding Principles.

ESPC

Energy Savings Performance Contracts can be utilized not only for energy reduction projects but for water conservation projects as well. Both SRS ESCOs (Honeywell and Ameresco) have previously evaluated energy conservation measures (ECMs) associated with water conservation and each has determined that they were not economically viable. This was a result of the low cost of a gallon of water at the site. Nonetheless, ESPC remains a viable strategy for potential water improvement projects at the site since it is allowable for longer term paybacks to be bundled with shorter paybacks.

Fleet Management Strategies

The primary DOE transportation and fleet management goals are to decrease fleet petroleum consumption by 2 percent annually from a FY 2005 baseline and increase alternative fuel consumption by 10 percent annually over the previous year from a FY 2005 baseline. Additionally, DOE is to annually meet the EPACT 1992 AFV acquisition requirement, whereby 75 percent of light duty vehicles acquired must be AFVs. Sites should strive to meet these goals, but ultimately DOE Under Secretaries will be responsible for developing and meeting DOE's goals.

SRS has been successfully implementing multiple fleet management fuel reduction and inventory strategies for many years. These efforts were initiated as far back as the 1990's. SRS has far surpassed reduction goals from previous baselines, making it very difficult to meet the current objectives. Various approaches have been undertaken to reduce petroleum consumption, increase alternative fuel use, and increase the number of alternative fuel vehicles. These approaches will continue in FY 2012.

Vehicle Acquisitions

Over the past fifteen years, SRS has significantly reduced the site vehicle fleet. Fleet sizing is determined by the number of vehicles required to accomplish site missions and corresponds directly to the demand. The fleet size rose slightly in FY 2010 due to increased vehicle demand resulting from ARRA/stimulus efforts at the site.

The SRS fleet is provided by the General Services Administration (GSA). The site and GSA work in concert to maximize acquisition of alternative fuel vehicles (AFVs) and minimize vehicles operating solely on petroleum. GSA is under the same federal legislation regarding fleet efficiency that SRS is

required to meet. Acquisitions in the fleet are often impacted by the vehicle limitations that GSA has based on availability and manufacturing by the automakers.

SRS received the first AFV on-site in FY 1997 and expanded to 510 E85 (ethanol) AFVs and 63 hybrids in the light duty fleet in FY 2010 (Note: FY 2010 data was determined using pre-FAST inputs). Currently, approximately 81% of the existing light duty fleet at SRS consists of AFV or hybrid vehicles. This is derived from a total inventory of 707 light duty vehicles, of which 573 are AFVs or hybrids.

The medium duty fleet contains very few AFVs. SRS has already worked to ensure that heavy-duty gasoline-fueled vehicles are not included in the fleet. The SRS heavy duty fleet consists only of diesel fueled vehicles. A full 100% of the heavy-duty fleet operates on diesel fuel versus gasoline.

Plug-in hybrid electric vehicles have not been utilized at SRS at this point. The site has developed and continually enhanced E85 and gasoline hybrid vehicles as the site strategy. Following availability of plug-ins from GSA, SRS would need to conduct a cost-benefit analysis to determine life-cycle cost impacts of utilizing this fuel choice with new vehicles. Additionally, SRS does not have infrastructure in place to accommodate these vehicles. Cost impacts for obtaining the infrastructure would be determined and funding would have to be made available to proceed.

Petroleum Reduction

SRS has obtained significant reductions in petroleum use in the fleet in recent years and has been well-ahead of the curve in this area.

Since FY 1999, SRS has reduced fleet petroleum by 46% (Note: FY 2010 fuel data was determined using pre-FAST inputs). Since the new base year for reporting (FY 2005), SRS has reduced fleet petroleum use by 9.76%. This is a decrease of about 1.5% compared to reporting through FY 2009. The main reason for this is the large increase in site population associated with ARRA/stimulus funding and associated work at the site. Despite this increase in fuel consumption, the site is still tracking to meet the overall goal requirement of 2% annually through FY 2015. The site also experienced an increase in petroleum use versus FY 2009 due to obtaining 63 hybrid vehicles which do not use E85 as would have been pursued in the past. Of the 45 short-term leased vehicles the site obtained as a result of increased work scope associated with ARRA, about half used unleaded gasoline versus E85. The site is planning to receive 79 hybrid vehicles in FY 2011, and this will certainly increase the use of gasoline/petroleum as well. Although the hybrid vehicles do not help the site achieve the petroleum reduction goal, the vehicles were obtained following specific direction from HQ.

Alternative Fuel Availability and Use

The use of alternative fuels at SRS has increased dramatically in recent years. As previously stated, 81% of vehicles in the light duty fleet currently utilize E85 or are hybrids.

In the initial year of alternative fuel use (FY 2000), SRS consumed about 80,000 gallons of E85. In FY 2010, this consumption total rose to over 368,000 gallons. The result is an increase of 350% since initiation of this fuel choice. Increasing fleet alternative fuel use by 10% annually is no longer possible due to these great strides and due to the limited availability of medium duty fleet vehicles currently available from GSA and the auto manufacturers.

Attachment C

DOE Order 450.1A Contractor Requirements Document (CRD) “Crosswalk”

Requirement	DOE O 450.1A Reference	Organization(s) Responsible	Program Implementing Documents	Status of Implementation	Comments
1. Develop and implement an environmental management system (EMS). This system must be integrated into the site's Integrated Safety Management (ISM) system. (See the CRD in DOE M 450.4-1, Integrated Safety Management System Manual, dated 11-01-06).	Attachment 1, Item 1	RIES	SRS EMS Policy, 1-01, Proc. 4.1, 3Q, Proc. 13.5	Implemented	SRS integration of EMS and ISM declaration in 2005. The SRS EMS is evaluated during the annual effectiveness review of ISMS.
a. Each environmental management system must: – (1) Reflect the EMS elements and framework found in the ISO 14001:2004 or equivalent, including policies, procedures and training to identify operations and activities with significant environmental impacts; to manage, control, and mitigate the impacts of these operations and activities; and to assess performance, implement corrective actions where needed, and ensure continual improvement.	Attachment 1 1.a(1)	RIES	3Q, Proc. 13.5	Implemented	M&O policies, procedures, and training are reviewed for consistency and effectiveness in addressing environmental aspects of the work scope. DOE-SR (EQMD) performs annual oversight of self-assessment activities.

Requirement	DOE O 450.1A Reference	Organization(s) Responsible	Program Implementing Documents	Status of Implementation	Comments
<p>– (2) Include environmental, energy, and transportation objectives and measurable targets that are reviewed annually, updated as appropriate, and contribute to achieving the DOE Sustainable Environmental Stewardship goals found in Attachment 2 of DOE O 450.1A, <i>Environmental Protection Program</i>, dated 6-4-08, and the energy and transportation goals in the CRD in DOE O 430.2B, <i>Departmental Energy, Renewable Energy and Transportation Management</i>, dated 2-27-08.</p>	Attachment 1 1.a(2)	All	<p>1Y Manual, “Conduct of Maintenance”; 2S Manual, “Conduct of Operations”; 3B Manual, “Asset Management”; 3E Manual, “Procurement Specification”; 3Q Manual, “Environmental Compliance”; 3Q1 Manual, “Environmental Facility Level Procedures”; E7 Manual, “Conduct of Engineering”; 8Q Manual, “Employee Safety Manual” (in particular Procedure 122, “Hazard Analysis”); 11B Manual, “Subcontractor Management Manual”; 13B Manual, “Chemical Management”; and “EMS Description Manual” (G-TM-G-00001)</p>	Implemented	<p>Environmental objectives / targets are reviewed annually and updated, as appropriate. The annual goals are tracked and addressed during senior management meetings.</p>

**Environmental Management System
Description Manual**

**G-TM-G-00001
Rev. 7**

Requirement	DOE O 450.1A Reference	Organization(s) Responsible	Program Implementing Documents	Status of Implementation	Comments
– (3) Address tenant or concessionaire activities wherever such activities affect DOE's environmental, energy, and transportation management.	Attachment 1 1.a(3)	All	3Q Manual (in particular Procedure 13.5), 3B Manual, 3E Manual, 11B Manual, 13B Manual	Implemented	SRS EMS maintains a single site EMS which is overseen by DOE-SR EQMD. (NOTE: The site EMS applies as noted in respective contracts. M&O and LWO participate in the site EMS IAW Manual 3Q, Procedure 13.5 and EMS Description Manual.
– (4) Contain the elements of an Environmental Compliance Management Plan pursuant to the Council on Environmental Quality's Instructions for Implementing Executive Order 13423, page 9, section B, including – (a) A clear statement by senior leadership committing to achieve and maintain compliance with applicable environmental protection requirements.	Attachment 1 1.a(4)(a)	RIES	3Q, Proc. 13.5, Site EMS Policy Letter	Implemented	A separate Environmental Compliance Management Plan is not required. This requirement is satisfied by the SRS EMS Description Manual and 3Q, Procedure 13.5.
(b) Clearly articulated roles and responsibilities related to environmental performance at all appropriate levels to ensure accountability for less than desired environmental performance. (E.O. 13423, page 9, section B)	Attachment 1 1.a(4)(b)	RIES	3Q, Proc. 13.5, 1-01, Proc. 4.1, EMS Description Manual	In Progress	EMS Procedure ECM 13.5 and EMS Description Manual revised; MP 4.1 identified for revision.
(c) An environmental compliance audit and review program that identifies compliance deficiencies and root causes of non-compliance. (E.O. 13423, page 9, section B)	Attachment 1 1.a(4)(c)	RIES	3Q, 13.5, RIES PMP	Implemented	EMS Description Manual and 3Q, Procedure 13.5 revised to reflect this requirement.; reviewed annually
(d) Integration of compliance audit management information and resource allocation procedures to ensure that audit findings and root causes on non-compliance are tracked and addressed, including allocation of funding. (E.O. 13423, page 9, section B)	Attachment 1 1.a(4)(d)	RIES	3Q, 13.5, EMS Description Manual, RIES PMP	Implemented	Incorporated into revision to the EMS Description Manual; contained in RIES PMP

Requirement	DOE O 450.1A Reference	Organization(s) Responsible	Program Implementing Documents	Status of Implementation	Comments
<p>b. The EMS must encompass the environmental aspects of site operations and activities, including environmental aspects of energy and transportation functions, and it must promote the long-term stewardship of a site's natural and cultural resources throughout its design and construction, operation, closure, and post-closure life cycle. The EMS must address the following</p> <ul style="list-style-type: none"> – (1) Sustainable practices for enhancing environmental energy, and transportation management performance, as stipulated in Section 3(a) of E.O. 13423 and its Implementing Instructions. 	Attachment 1 1.b(1)	All	3B Manual, "Asset Management"; 3E Manual, "Procurement Specification"; 3Q Manual, "Environmental Compliance"; 3Q1 Manual, "Environmental Facility Level Procedures"; E7 Manual, "Conduct of Engineering"; 11B Manual, "Subcontractor Management Manual"; 13B Manual, "Chemical Management"; and "EMS Description Manual" (G-TM-G-00001)	Implemented	None
<ul style="list-style-type: none"> – (2) Protection of public health and environment, including but not limited to: – (a) Conformity with State Implementation Plans to attain and maintain national ambient air quality standards. 	Attachment 1 1.b(2)(a)	RIES; I&S	3Q1-2, Vol. 1	Implemented	SRS currently not located within a nonattainment area. Should designation change, procedures would need to be developed to meet SIPs. (RIES Air SME working with SCDHEC PM 2.5 Committee).
<ul style="list-style-type: none"> – (b) Implementation of a watershed approach for surface water protections. 	Attachment 1 1.b(2)(b)	RIES; I&S; Operations	3Q1-2, Vol. 1	Implemented	SRS complies with industrial wastewater and stormwater permits and is considered a single facility by SCDHEC. Annual external compliance inspections are performed by SCDHEC.

Requirement	DOE O 450.1A Reference	Organization(s) Responsible	Program Implementing Documents	Status of Implementation	Comments
– (c) Implementation of a site-wide approach groundwater protection.	Attachment 1 1.b(2)(c)	RIES; I&S; AC&SWM	3Q1-2, Vol. 1; SRNS-TR-2009-00076	Implemented	Integration of well locations and data sharing is incorporated into the SRS Groundwater Protection Program.
– (d) Protection of other natural resources, including biota.	Attachment 1 1.b(2)(d)	USFS-SR; RIES	Natural Resources Mgmt Plan (10 Year Plan)	Implemented	Site Use Program includes management against the site and facility permits, and implementation of the Life-Cycle Management Program (Historical Preservation Act also included).
– (e) Assessment of the hazard of engineered nanomaterials and implementation of appropriate ESH controls (See DOE P 456.1, Secretarial Policy Statement on Nanoscale Safety, dated 9-15-05).	Attachment 1 1.b(2)(e)	SRNL; RIES	SRNL Manual L1, Procedure 3.26	Implemented	SRNL has developed a procedure to address the ESH controls associated with nanomaterials using DOE guidelines.
– (3) Protection of site resources from wildland fires consistent with site wildland and operation fire management plans that consider the Federal Wildlife Management Policy recommendations	Attachment 1 1.b(3)	USFS-SR	1-01, Proc 4.16; Manual 2Q, All	Implemented	USFS-SR responsible for protection against wildfires at SRS. No actions are directly the responsibility of the operating contractor above the role of support (i.e., Fire Services).
– (4) Identification and protection of cultural resources.	Attachment 1 1.b(4)	DOE-SR; RIES	Cultural Resources Plan; 3Q, 5.1	Implemented	DOE-SR is lead agency for management of cultural resources. Cultural considerations addressed via the NEPA process (3Q, 5.1).
– (5) The conduct of environmental and effluent monitoring, as appropriate, to characterize pre-operational conditions, and to detect, characterize, and respond to releases from site operations and activities; assess impacts; estimate dispersal patterns in the environment; characterize the pathways of exposure to members of the public; characterize the exposures and doses to individuals and the population; and evaluate the potential impacts to the biota in the vicinity of the release. Where appropriate, conduct an integrated monitoring and sampling approach to avoid duplicative data collection.	Attachment 1 1.b(5)	RIES; I&S; USFS	3Q1-2, Vol. 1; 9B Manual; 4Q Manual	Implemented	Critical Pathway Analysis, performance of NEPA evaluation, permitting process (industrial wastewater and stormwater)

**Environmental Management System
Description Manual**

**G-TM-G-00001
Rev. 7**

Requirement	DOE O 450.1A Reference	Organization(s) Responsible	Program Implementing Documents	Status of Implementation	Comments
- (6) Assurance that analytical work for environmental and effluent monitoring supports data quality objectives, using a documented approach for collecting, assessing, and reporting environmental data.	Attachment 1 1.b(6)	AC&SWM; RIES; I&S	3Q1-2, Vol. 1	Implemented	None
c. The EMS must be validated according to the following criteria: (1) The EMS shall be considered fully implemented when: - (a) The EMS has been the subject of a formal audit by a qualified party outside the control or scope of the EMS.	Attachment 1 1.c(1)(a)	AC&SWM; RIES; I&S	EMS Description Manual and 3Q, Procedure 13.5	Implemented	External audit completed 28 April – 1 May 2009.
- (7) The conduct of appropriate operations assessments, such as Pollution Prevention Opportunity Assessments (PPOA), of site operations and activities to identify opportunities to implement sustainable practices as part of achieving DOE's Sustainable Environmental Stewardship goals found in Attachment 2 of DOE Order 450.1A	Attachment 1, 1.b(7)	SW; RIES; Operations	SRS Waste Minimization and P2 Plan; Self-Assessment Program	Implemented	Contained within annual self-assessment plan.
- (b) The appropriate contractor senior management and DOE field office management have recognized and addressed the findings of the audit.	Attachment 1 1.c(1)(b)	RIES; DOE-SR	EMS Description Manual and 3Q, Procedure 13.5; RIES PMP	Implemented	None
- (c) The appropriate senior manager accountable for implementation of the EMS and the cognizant Field Officer Manager, have declared conformance of the EMS to the requirements of this Contractor Requirements Document (CRD).	Attachment 1 1.c(1)(c)	DOE-SR; M&O; LWO	EMS Description Manual; 3Q Procedure 13.5	Implemented	None
(2) EMSs, including those already declared under the previous requirements of the CRD in DOE) 450.1 must meet the new requirements for being "fully implemented" by June 30, 2009.	Attachment 1 1.c(2)	DOE-SR; M&O; LWO	EMS Description Manual; 3Q Procedure 13.5	Implemented	None
(3) To remain fully implemented, at least every three years (a) the EMS must be audited by a qualified party outside the control or scope of the organization implementing the EMS, and (b) the conformance declaration 1c(1)(c) is renewed, as appropriate.	Attachment 1 1.c(3)	RIES	EMS Description Manual and 3Q, Procedure 13.5; RIES PMP; M&O and LWO Assessment Programs	Implemented	None

**Environmental Management System
Description Manual**

**G-TM-G-00001
Rev. 7**

Requirement	DOE O 450.1A Reference	Organization(s) Responsible	Program Implementing Documents	Status of Implementation	Comments
2. Monitor progress toward meeting the requirements of paragraph 1a, 1b, and 1c of this CRD, and make such information available annually through the DOE operations/field/site office to the Senior Agency Officer (SAO) and the Office of Health, Safety and Security.	Attachment 1 Item 2	RIES; I&S	EMS Description Manual and 3Q, Procedure 13.5; RIES PMP	Implemented	None
3. Include in site EMSs practices to maximize the use of safe alternatives to ozone-depleting substances (ODS), whereby: – a. The use of ODS in new equipment and facilities is eliminated.	Attachment 1 3.2	RIES; I&S; Procurement; Operations	Refrigeration Management Plan and 3Q, 4.18	Implemented	None
– b. The use of ODS in existing equipment is phased out as the existing equipment reaches its expected service life, and the maintenance of equipment is conducted to prevent or fix leaks.	Attachment 1 3.b	RIES; SW; I&S	3Q, Procedures 4.13 and 4.18	Implemented	None
– c. The replacement of leaking equipment is carried out when leak repair is no longer cost-effective or where it is life-cycle cost-effective to replace the equipment.	Attachment 1 3.c	RIES; SW; I&S	3Q, Procedure 4.13	Implemented	None
– d. Coordination is conducted within DOE and with the Dept. of Defense Supply Center Richmond, a component of the Defense Logistics Agency (DLA), as appropriate, before disposal of ODS removed or reclaimed from equipment (including disposal as part of a contract, trade, or donation). For situations in which the recovered ODS is a critical requirement for DoD missions, the DOE facility transfers the ODS to DoD (see DLA's ODS website at: www.dscr.dla.mil/ExternalWeb/UserWeb/AviationEngineering/Ozone/contact.htm).	Attachment 1 3.d	All	3Q, Procedure 4.18	Implemented	None
4. Assist the Department in meeting the chemical emergency planning, release, and reporting requirements of the EPCRA and the P2 Act of 1990, without regard to Standard Industrial Classification/North American Industrial Classification designations. All other statutory and regulatory exemptions apply.	Attachment 1 4.	RIES; I&S	3Q, Procedure 10.3	Implemented	None
5. Assist the Department in meeting obligations imposed on it by E.O. 13327, <i>Federal Real Property Asset Management</i> , Section 3b(vi), by ensuring incorporation of planning and management requirements for historic property.	Attachment 1 5.	USFS-SR; DOE-SR	1-01, Proc 4.26	Implemented	None