Chapter 2 Environmental Management System

The Savannah River Site (SRS) Environmental Management System (EMS) supports the U.S. Department of Energy (DOE) commitment to implement sound stewardship policy and practices to protect the air, water, land, and other natural, archaeological, and cultural resources that SRS construction, operations, maintenance, and decommissioning potentially affect.

The EMS plans and evaluates SRS activities to protect public health and the environment, prevent pollution, and comply with applicable environmental and cultural resource protection requirements. SRS activities demonstrate the Site's commitment to minimize waste, manage water, foster renewable energy, reduce greenhouse gases, acquire sustainable services, remediate with a focus on sustainability, and observe best management practices, all vital components of environmental management. The SRS Site Sustainability Plan contains more information on DOE and SRS goals and the progress toward achieving those goals.

2017 Highlights

DOE sets goals for carrying out its mission in an environmentally sustainable manner that supports a policy of national energy security and addresses global environmental challenges. SRS continues to make substantial progress in meeting the goals for the Site. Below are the highlights of the program:

- **Pollution Prevention and Waste Minimization**—SRS recycled 53.7% (645 metric tons) of nonhazardous solid waste.
- **Water Management**—SRS continued to reduce potable water use, contributing to a 29% reduction since 2000.
- **Renewable Energy Intensity**—SRS derived 100% of steam and 41% of electricity from renewable energy sources.
- **Greenhouse Gas Reduction**—SRS continued to reduce greenhouse gas emissions. The Site has reduced emissions by 69% since 2008.
- **Transportation and Fleet Management**—More than 83% of the current fleet of light-duty vehicles are hybrid, electric, or vehicles that use E85 (ethanol) fuel.
- **Sustainability Award**—SRS won the 2017 DOE Sustainability Award for implementing a sustainable cover system in its basins. The cover system controls the chemistry of the basin water by inhibiting algae growth.

Chapter 2—Key Terms

Environmental impacts *are any positive or negative change to the environment caused by an organization's activities, products, or services.*

Environmental objectives *define the organization's environmental goals.*

Environmental sustainability *is interacting responsibly with the environment to conserve natural resources and promote long-term environmental quality. It includes reducing the amount of waste produced, using less energy, and developing processes that maintain the long-term quality of the environment.*

2.1 SRS EMS IMPLEMENTATION

2.1.1 Introduction

DOE has chosen the International Organization for Standardization (ISO) Standard 14001 as the framework to employ its Environmental Management Systems (EMS). The ISO 14001 standard defines an EMS as part of a system that manages an organization's environmental aspects (including activities, products, or services), fulfills compliance obligations, and addresses risks and opportunities. An organization can use an EMS to frame the "Plan-Do-Check-Act" approach to achieve continuous improvement, as depicted in Figure 2-1. The SRS EMS also complies with Executive Order No. 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade*; and DOE Order 436.1, *Departmental Sustainability*, which require federal facilities to use environmental management systems.

The EMS has two areas of focus: environmental compliance and environmental sustainability. The environmental compliance area consists of regulatory compliance and monitoring programs that implement federal, state, and local requirements, agreements, and permits. The environmental sustainability area promotes and integrates initiatives such as energy and natural resource conservation, waste minimization, green remediation, and the use of sustainable products and services.

Figure 2-1 Integrated Safety Management System Continual Improvement Framework within the ISO 14001 Environmental Management System

SRS trains all employees annually on the EMS policies and requirements. Additionally, the Site generates regular and routine employee communications as a reminder of the SRS commitment to sustainability and the environment.

The SRS Integrated Safety Management System (ISMS) is a process that integrates safety into management and work practices at all levels so that the Site accomplishes its missions, while protecting the public, the worker, and the environment. The ISMS execution comprises five functions: 1) defining

scope of work, 2) analyzing hazards, 3) developing and implementing controls, 4) performing work, and 5) providing feedback and improvement. SRS implements ISO 14001 and accomplishes the EMS goals using the ISMS approach in programs and procedures. As evidenced by Figure 2-1, the ISO 14001 EMS approach, Plan-Do-Check-Act, is similar to ISMS, which allows SRS to integrate EMS into ISMS.

The EMS integrates environmental protection initiatives—such as identifying safety and health hazards, and the quality processes in place to manage them—into SRS daily operations. This linked approach to planning, executing, evaluating, and modifying ensures that SRS operates with minimal adverse impact on the environment.

SRS also uses the EMS as a platform to implement the Site Sustainability Plan (SSP), as well as carry out programs with environmental goals and objectives that contribute to SRS meeting its sustainability goals. SRS EMS and SSP goals and objectives, along with the status of the Site's progress toward meeting these goals, are available on the SRS website. These documents, combined with Site policies and procedures, ensure SRS remains a leader in protecting the environment and is a steward of conserving energy and water.

Each EMS must have a formal audit performed by a qualified party outside the control or scope of the EMS every three years. Savannah River Nuclear Solutions (SRNS) and Savannah River Remediation (SRR) conform to the ISO 14001, and Centerra and Chicago Bridge & Iron (CB&I) AREVA MOX Services are ISO 14001 certified.

SRS contractors had the following audits for ISO 14001 compliance:

- SRNS and SRR had an external conformance audit in March 2015
- Centerra conducted ISO 14001 reregistration in January 2015 and had a review audit in January 2016
- Chicago Bridge & Iron AREVA MOX Services had an external conformance audit in April 2016

All the above-mentioned SRS contractors have performed their ISO 14001 conformance audits within their specified schedules and did not need to have one in 2017.

2.1.2 Goals and Objectives

The Site uses the SRS Site Sustainability Plan to implement the environmental goals outlined in DOE's Strategic Sustainability Performance Plan (SSPP). The objectives, which DOE sets annually, include the following:

- Reducing total energy use
- Increasing renewable energy use
- Reducing water use
- Purchasing environment-friendly, or "green," products and services
- Reducing solid waste generation
- Increasing the number of sustainable buildings
- Reducing fleet and petroleum use
- Using energy-compliant electronic devices

SRS Environmental Management System Goals

Appendix A presents the goals for 2017, identifies the strategies for implementation, and provides the status of SRS's progress toward achieving them. This chapter contains additional information on how SRS is moving forward in supporting DOE environmental objectives.

2.2 SUSTAINABILITY ACCOMPLISHMENTS

The following topics summarize the major accomplishments the SSP discusses. Updated annually, the SSP outlines the strategies in place and the progress made toward accomplishing national goals related to improving energy, water and fuel efficiency, and using sustainable products and services as required by DOE Order 436.1, E.O. 13423, and the DOE SSPP. Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade*, outlines each of the topics below. Additionally, Appendix A of this document outlines the 2017 EMS goals and objectives related to sustainability.

2.2.1 Greenhouse Gas Reduction

By reducing greenhouse gas (GHG) by 69%, SRS has surpassed the 50% goal to reduce Scope 1 and 2 from a fiscal year (FY) 2008 baseline. Scope 1 GHG emissions consist of direct emissions from sources that DOE owns or controls, such as onsite combustion of fossil-fuels and fleet fuel consumption. Scope 2 GHG emissions consist of indirect emissions from sources that DOE owns or controls, such as emissions from generating electricity, heat, or steam DOE purchased from a utility provider. Scope 3 GHG emissions are from sources DOE does not own or directly control but are related to DOE activities such as employee travel and commuting.

The following inventoried sources at SRS currently generate Scope 1 and 2 emissions:

- Purchased electricity
- Wood (biomass)
- Fuel oil
- Propane
- Gasoline
- Diesel
- E85 (ethanol)
- Jet fuel
- Fugitive emissions

Biomass Cogeneration Facility

SRS continued to substantially reduce Scope 1 and 2 GHGs during FY 2017 due to the Biomass Cogeneration Facility and operating three additional biomass facilities, one each in A Area, L Area, and K Area. DOE tracks GHG data from various impact sources (such as Site energy use, alternative workplace arrangements and space optimization, and vehicle and equipment use). By 2025, DOE must reduce Scope 3 GHG emissions by 25% compared to the FY 2008 baseline. SRS currently meets that goal with a 26% reduction in FY 2017. The Site has accomplished this by such efforts as utilizing webinars and conference calls to reduce business travel and by promoting employee carpooling.

2.2.2 Sustainable Buildings

Using FY 2015 as a baseline, DOE must reduce by 25% the amount of energy per square foot (energy intensity) used in an identified class of buildings. The annual goal is to reduce intensity by 2.5%. DOE expects sites to aggressively strive toward the overall DOE 25% reduction goal, particularly when cost-effective and prudent to do so. As of FY 2017, SRS has reduced its energy intensity by 20% from the FY 2015 baseline. Thus, SRS is well ahead of the energy-reduction goal.

In February, the National Nuclear Security Administration (NNSA) designated the Tritium Engineering Building “green” and awarded it a High Performance Sustainable Building status, meaning it met performance requirements related to energy, waste, water reduction, and occupant health and comfort.

Improving energy efficiency has been ongoing at the Site for many years, and additional benefits have come from a wide variety of strategies used to reduce energy and manage utilities, including the following:

- Upgrading utility systems
- Minimizing boiler use for winter heating
- Operating the Biomass Cogeneration Facility
- Operating biomass steam plants in A Area, K Area, and L Area
- Deactivating and decommissioning many facilities, including entire areas, which often comprise multiple buildings, land, and associated waste disposal and decontamination challenges
- Consolidating employee-occupied building space into fewer buildings

- Using more setback equipment in facilities (such as lighting timers, lighting sensors, and thermostats)
- Upgrading various small-scale light fixtures

SRS conducted many activities in FY 2017 that reduced energy intensity. Operating the Biomass Cogeneration Facility had the most impact. The following are some additional notable accomplishments supporting this program:

- Conducted a required energy and water audit for 40 facilities, identifying ongoing opportunities for improvement
- Removed 20 unoccupied and aging trailers, reducing energy consumption and reducing 28,000 square feet of footprint
- Installed energy-efficient lighting, such as light-emitting diodes (LEDs), as existing fluorescent lighting failed in facilities
- Replaced 16 heating and cooling units with new, higher Seasonal Energy Efficiency Ratio (SEER) units, which are more efficient and save energy
- Replaced roofs on eight buildings with cool roof technology, which uses light-colored tiles or shingles to reflect sunlight and heat, decreasing the need for air conditioning

SRNS also manages energy efficiency at a facility level with the Peak Alert process, which reduces purchased power. Actions that will reduce the demand for energy include raising the thermostat (summer), lowering the thermostat (winter), and turning off lights when it is safe to do so. SRS used Peak Alerts to manage 17 peak events during FY 2017: 11 during cool months and 6 during warm months.

2.2.3 Renewable Energy

Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade*, Clean Energy goal for FY 2017 requires at least 10% of an agency's total electric and thermal energy come from renewable and alternative energy sources. This goal increases to 25% by FY 2025. Additionally, DOE's Renewable Electric Energy goal requires that renewable electric energy account for at least 10% of a total agency electric consumption in FY 2017, working toward 30% of total agency electric consumption by FY 2025. SRS has exceeded the clean energy generation goal with renewable energy sources producing 100% of steam and 41% of electricity. SRS no longer uses coal to generate energy. Using clean and renewable energy at the Site is a high-level priority. The Biomass Cogeneration Facility is in its fifth year of fully operating and has played a significant role in supporting these renewable and alternative energy goals.

2.2.4 Water Use Efficiency and Management

Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade*, stipulates that by FY 2025, DOE as an agency will reduce the gallons of potable water used per square foot of building area (also known as potable water consumption intensity) by 36%, relative to a FY 2007 baseline. DOE had an FY 2017 target goal to reduce this ratio by 20%.

The Site has been significantly decreasing its potable water use over many years. In 1996, for example, the Site installed a new SRS primary domestic water system. The new system, along with replacing old and leaky piping, saved the Site several hundred million gallons of water annually. SRS also installed water

meters on the main supply lines and periodically conducts a water balance to monitor use and help detect leaks.

Compared to the current baseline (FY 2007), SRS has reduced potable water consumption intensity through FY 2017 by 17%. Over a longer timeframe, since FY 2000, the Site has reduced potable water use by 29%. It will be more difficult for SRS to make future decreases to potable water usage since it has already achieved large decreases in the programs that have the biggest impact. Potable water use fluctuates from year-to-year based on various factors, such as the number of employees and the amount of potable water used for nonpotable purposes.

During FY 2017, SRS continued to benefit from the use of WaterSense® products and other water-conserving products, including low-flow toilet flush valves, low-flow urinal flush valves, and low-flow faucets. In recent years, the Site has replaced several hundred faucets and flush valves with reducers or low-flow units.

2.2.5 Fleet Management

The primary goal for DOE fleet management is to use less petroleum and more alternative fuel, as Figure 2-2 demonstrates. SRS has met and exceeded these goals since FY 2000. Figure 2-3 shows SRS FY 2017 performance in meeting key fleet management goals.

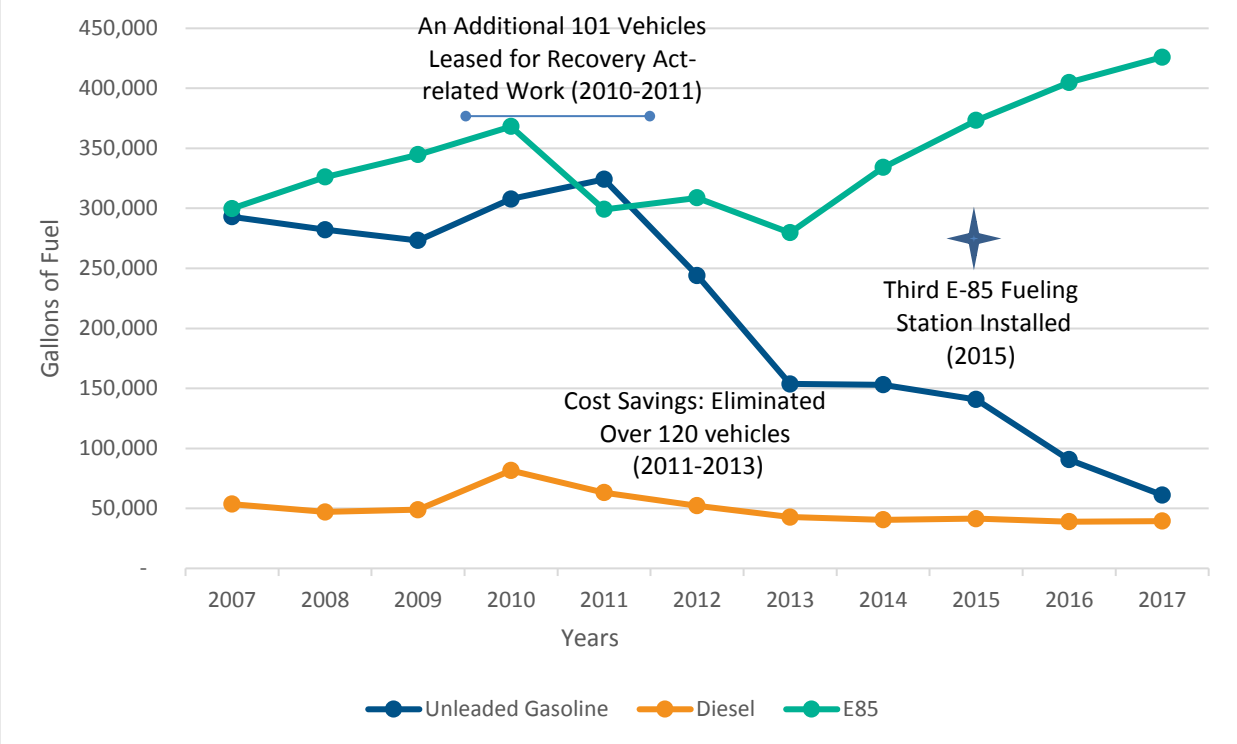

Figure 2-2 GSA Fuel Consumption by Type, FY 2007 to FY 2017

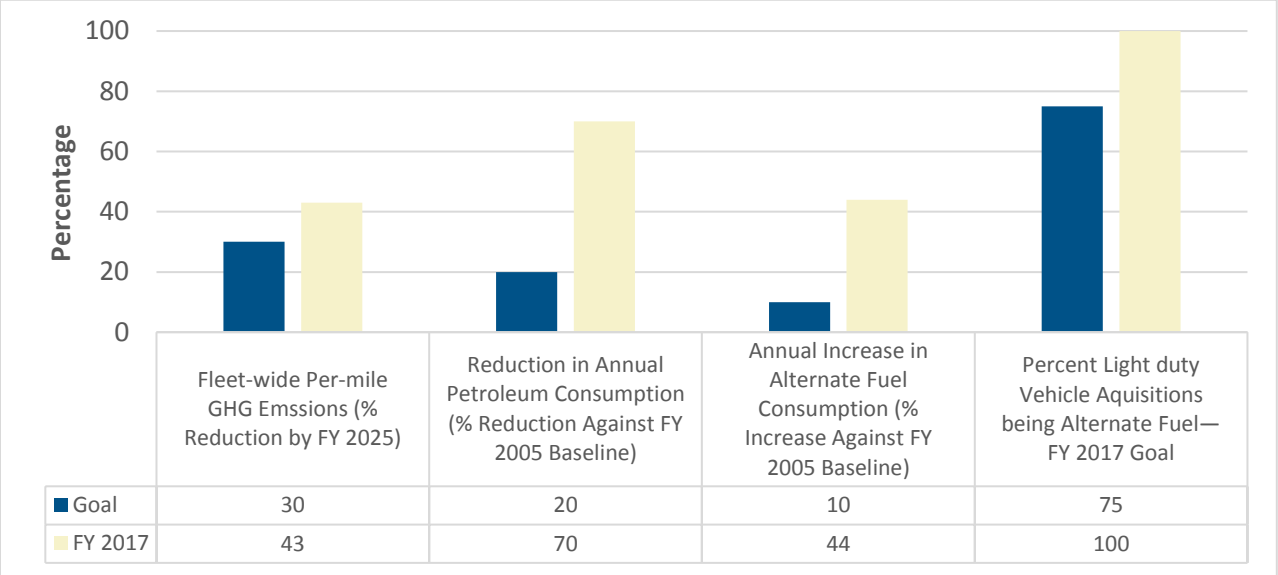

Figure 2-3 SRS Performance in Meeting Fleet Management and Transportation Goals

SRS installed two E85 fueling stations in October 1999 and added a third in FY 2015. In FY 1999, the year prior to installing the fueling stations, the Site consumed more than 700,000 gallons of unleaded gasoline and no E85 alternative fuel. In FY 2017, the Site consumed approximately 63,000 gallons of unleaded gasoline, 44,000 gallons of diesel fuel, and 298,000 gallons of E85 alternative fuel. SRS has reduced its fleet-wide per mile greenhouse gas emissions goal by 43%, exceeding the Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade*, goal of a 30% reduction by FY 2025. In FY 2017, SRS exceeded the goal of annually maintaining a 20% reduction of petroleum use and a 10% increase in alternative fuel compared to the FY 2005 baseline with a 70% reduction in petroleum and a 44% increase in alternative fuel, respectively.

SRS continues to implement the Site Vehicle Allocation Methodology Plan completed in 2016. The Vehicle Allocation Methodology helps organizations eliminate fleet vehicles that are unnecessary, oversized, or not fuel-efficient. SRS updates its plan at least every five years. In FY 2017, SRS leased 22 new light-duty vehicles, all of which used E-85 alternative fuel, and increased the number of alternate fuel vehicles in the light duty to fleet to 441 (83%), out of an approximately 530-vehicle fleet. This acquisition of 100% alternative fuel vehicles in FY 2017 exceeded the goal of 75% of the vehicles using alternative fuel. Of the passenger vehicles that are unleaded vehicles, 90% are hybrid fuel and electric vehicles, which exceeds the FY 2025 Executive Order No. 13693, *Planning for Federal Sustainability in the Next Decade*, goal of having 50% of the passenger vehicle acquisitions being zero emission or plug-in hybrid electric vehicles.

2.2.6 Sustainable Acquisition

SRS Procurement has established sustainable practices related to purchasing environmentally preferable products (EPP) to meet the DOE goal of 95% of new contract actions for products and services are to meet sustainability acquisition requirements. For FY 2017, SRS reviewed 16,908 contracts with 100% of them meeting all requirements. The EPP procurements have led to several practices, as outlined below:

- The SRS Chemical Management Center reviews and approves chemical acquisitions. This review monitors using hazardous chemicals and, where appropriate, recommends EPPs.
- Electronic stewardship has led to procuring and leasing desktops, laptops, and monitors that meet Electronic Product Environmental Assessment Tool (EPEAT) standards and copiers that are ENERGY STAR®-compliant.
- EPP substitutions have been procured under various new and existing contracts, including bulk janitorial supplies (for example, cleaners, paper products) and safety items (for example, earplugs, filters).

SRS implemented a system to monitor and track EPP procurements. This new business system will enable SRS to develop an EPP baseline and track spending on EPP items and materials.

2.2.7 Pollution Prevention and Waste Reduction

In accordance with the Pollution Prevention Act of 1990, SRS's primary objective is to prevent or reduce pollution at the source whenever practical. Environmentally safe and cost-effective reuse or recycling will divert pollutants and wastes that source reduction cannot prevent from entering the waste stream. Pollution prevention is the SRS preferred approach to reducing waste, mitigating health risks, and protecting the environment. The 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 characteristics, and costs associated with managing waste. Pollution prevention is a key component of the SRS EMS.

The goal for FY 2017 was to divert at least 50% of nonhazardous solid waste, excluding construction and demolition debris, for recycling or reuse. SRS uses the North Augusta Material Recovery Facility (NA-MRF) for typical office and municipal-type waste recycling and another vendor to shred and recycle sensitive office paper. In FY 2017, SRS recycled about 53.7% of this stream, 645 metric tons of the 1,202 metric tons of waste that it shipped. Table 2-1 provides a breakdown of recycled amounts from key items in the onsite program.

SRS continues to work with NA-MRF to improve the process to attain and improve upon a 50% recovery rate. In addition, SRS uses NA-MRF to recycle most of the waste from its area cafeterias and building kitchenettes. The Site segregates the main cafeteria's waste due to there being very little material suitable for recycling or composting. SRS continues to monitor this waste stream for opportunities to recycle materials. In FY 2017, SRS successfully implemented concrete and asphalt recovery, recycling more than 21,000 metric tons of rubble from scraping and paving a major road on site. The Site otherwise would have treated the rubble as waste and sent it to the on-site construction and demolition landfill. SRS is storing this recovered material for beneficial reuse, such as improving secondary roads onsite.

Table 2-1 SRNS Recycling and Sustainability in FY 2017 by Amount

Items Recycled Onsite in FY 2017	Amount Recycled
Silver Fixative	55 gallons
Batteries (nickel-cadmium, lithium-ion, mercury)	5,956 pounds
Lead Salvage	12,064 pounds
Light Bulbs/Mercury-containing Equipment	13,633 pounds
Brass Casings	25,643 pounds
Batteries (lead acid)	52,522 pounds
Furniture	222,680 pounds
Scrap Metal	710,961 pounds
Used Tires	11 tons

MOX restores 95% of used methyl ethyl ketone (MEK) to virgin quality solvent. MEK is a solvent used to clean painting equipment that MOX uses during construction. In 2017, MOX used an onsite distillation system to recycle approximately 1,100 gallons of MEK, making it available for reuse. This approach of recycling instead of discarding generated 20% less hazardous waste.

SRS piloted "Clean Sweep" collections for unwanted nonaccountable scrap electronics for two administrative buildings. Eligible Items included computer peripherals (for example, monitors, keyboards); audio-visual equipment; printing and duplicating equipment such as plotters, printers, and scanners; and other electronic items, such as desktop telephones and computer cables. Not only did the two events reduce office clutter, they also collected more than 2,700 pounds of scrap electronics for recycling.

2.2.8 Energy Saving Performance Contracting

SRS has used Energy Saving Performance Contracting (ESPC) to engage Ameresco Federal Solutions for several projects that conserve energy and water. ESPC funds energy- and water-saving building improvements with future energy savings. Ameresco Federal Solutions, tasked with the DOE's largest-ever ESPC project, operates the Biomass Cogeneration Facility located on SRS. This facility produces steam and electricity on a 24-hour, full-time basis.

The ESPC scope included the following in 2017:

- Ameresco continued operating the Biomass Cogeneration Facility, which includes three biomass boilers for steam and electricity
- Ameresco also operated steam-only biomass plants for heating buildings in two other areas at SRS

2.2.9 Electronics Stewardship

SRS is implementing many electronics stewardship strategies to reduce energy use and waste, and their associated costs. In FY 2017, SRS continued exemplary performance and met sustainable electronics purchasing and disposal goals. SRS purchased Electronic Products Environmental Assessment Tool (EPEAT) and registered ENERGY STAR®-qualified products for all eligible laptops, desktops, and monitors. Ninety-seven percent of the eligible electronics SRS acquires meet EPEAT standards. All eligible computers and imaging equipment have automatic duplexing enabled. Likewise, 100% of eligible desktops, laptops, and monitors have power management enabled. Used electronics are either recycled or reused in an environmentally sound manner by donating to schools and nonprofit organizations or by recycling through authorized recycling companies. In FY 2017, SRS recycled 78,730 pounds of scrap electronics. SRS is also extending the "workstation refresh cycle"—the time a computer is used before being replaced—reducing the number of computers being retired and the amount of scrap electronics being generated.

2.2.10 Climate Change Resilience

SRS ensures that federal operations and facilities can continue to protect and serve citizens in a changing climate. SRS uses global climate model projections and data as the starting point to assess the impact of climate change to Site buildings and outdoor workers. SRS continues to assess the effects of climate change on preserving forests, maintaining water levels in Site ponds and lakes, and the ability of a Site energy plant to "dump" heat to the environment.

2.3 EMS BEST PRACTICES

2.3.1 2017 Department of Energy Sustainability Award

SRS received the 2017 Department of Energy Sustainability Award for "Saving Our Water: SRS Saves Well Water Usage, Ensures Regulatory Water Discharges and Avoids Expensive Treatment System." The project, initiated in 2015, added a floating cover to a water basin at SRS. The result has been an annual decrease of 55 million gallons of well water use and discharges that meet permit conditions for the receiving stream. The cover consists of more than 700,000 rhombus-shaped balls. These small, dark shade plastic balls nestle together no matter which way they turn, acting like a sun-blocking tarp as they float in the basin. Additional information on the award-winning project is available on the 2017 ASER webpage.

2.3.2 South Carolina Environmental Excellence Program (SCEEP)

In 2017, MOX Services renewed it membership in SCEEP. Membership is active for three years. MOX Services was recognized by the South Carolina Department of Health and Environmental Control (SCDHEC) for its membership in the South Carolina Environmental Excellence Program (SCEEP) since 2011. SCEEP is a voluntary SCDHEC program that recognizes South Carolina facilities that demonstrate excellence in environmental performance through pollution prevention, energy and resource conservation, and continued efforts in environmental improvement.

2.3.3 Sustainability Campaign

SRS continued to implement its "One Simple Act of Green" environmental awareness campaign. The program empowers SRS employees with the information, tools, and programs needed to reduce our footprint on the environment. Employees practice simple acts, such as turning off lights when leaving a room or workspace, which promote positive actions toward environmental stewardship.

A sustainability booth was presented at the 2017 SRS Safety Expo in October, which approximately 3,000 Site employees and community members attended. This booth highlighted sustainable practices and efforts onsite, including reusing asphalt road millings, waste reduction, LED lighting, E-85 alternative fuel use, and rhombus-shaped balls used with the floating basin cover.

MOX Services TEEM (Targeting Environmental Excellence at MOX) is an elite group of MOX employees selected by their peers who volunteer their time to identify ways to reduce MOX's environmental footprint. TEEM championed two sustainability campaigns in 2017:

- Last Out Lights Out—MOX reduced its electricity consumption by 7% as compared to the same quarter of the previous year. This campaign aimed to curb wasteful electricity use by deploying "lights out" messages in MOX facilities.
- Call for Awareness—MOX obtained the top five slogans, posters, and quotes on reducing MOX's environmental footprint. This campaign encouraged employees to participate in spreading awareness through compelling visuals that better grab people's attention on environmental stewardship, one of MOX's core values.

2.3.4 Earth Day

SRS hosted an Earth Day celebration onsite for its employees on April 20. The 2017 Energy Department Sustainability Award was presented to SRR for "Saving Our Water," the project that implemented the innovative basin cover and biological digester described in section 2.3.1. Additionally, the Site planted two southern magnolias to observe Earth Day.

SRS Personnel Observe Earth Day by Planting a Southern Magnolia

2.3.5 Excess Equipment and Materials

SRS is partnering with the Savannah River Site Community Reuse Organization (SRSCRO) to turn excess equipment and material into money to benefit the counties of Aiken, Allendale, and Barnwell in South Carolina and Richmond and Columbia counties in Georgia. Surplus material includes the following:

- Small items such as office equipment, valves, and glassware for laboratory experiments

- Large items of potentially much greater value such as electrical turbines, diesel powered pumps, and fire engines
- Tons of metal

SRSCRO is the interface organization that takes in items that the Site no longer needs. The SRSCRO sells these items and uses the proceeds for the economic good of numerous businesses throughout the large region surrounding SRS. In FY 2017, SRS shipped $29.5 million in usable assets for reuse and recovery. Based on SRSCRO's 2017 annual report, the program generated by this partnership generated $794,832 in gross revenue during the fiscal year.

2.3.6 Challenges and Barriers to Implementation

SRS has made significant accomplishments in conserving and managing resources over many years. However, the cost effectiveness of achieving new goals is becoming significantly more difficult. Economic paybacks are typically long, due to low energy costs and the high cost of implementing sustainability upgrades in SRS's many aging nuclear production and support (for example, administrative, shops, laboratories, warehouses) facilities. Additionally, the Site will have increases to energy and greenhouse gas emissions as additional processing facilities, such as the MOX Fuel Fabrication Facility and the Salt Waste Processing Facility, begin operating. This is a major challenge to meeting the future goals.