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SRNS℠

We make the world safer.

SRS 2022 Annual Site Environmental Report (ASER)

ASER Development Core Team

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CAB

What is the ASER?

- **ASER stands for the Annual Site Environmental Report and is the primary document that the U.S. Department of Energy uses to inform the public of environmental performance and conditions at SRS.**

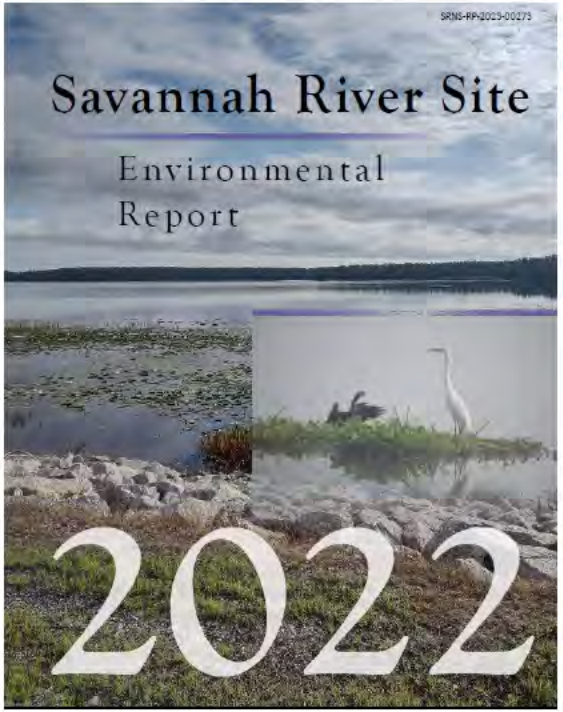
- **ASERs are required by U.S. Department of Energy to provide the public and stakeholders information on:**
  - Environmental program performance
  - Site-wide environmental monitoring and surveillance effectiveness
  - Compliance status with environmental standards and requirements

- **SRS published its first ASER in 1959**

SRS Annual Site Environmental Report Format

- **The Annual Site Environmental Report is broken down into 9 chapters and discusses 3 basic themes**
  - Environmental Monitoring
  - Environmental Compliance
  - Environmental Stewardship

Chapter	Title
1	Introduction
2	Environmental Management System
3	Environmental Compliance
4	Non radiological EMP
5	Radiological EMP
6	Dose Assessment
7	Groundwater Management Program
8	Quality Assurance
9	Per-and polyfluororalkyl substances (PFAS)



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The Annual Site Environmental Report

Why is this important to me?

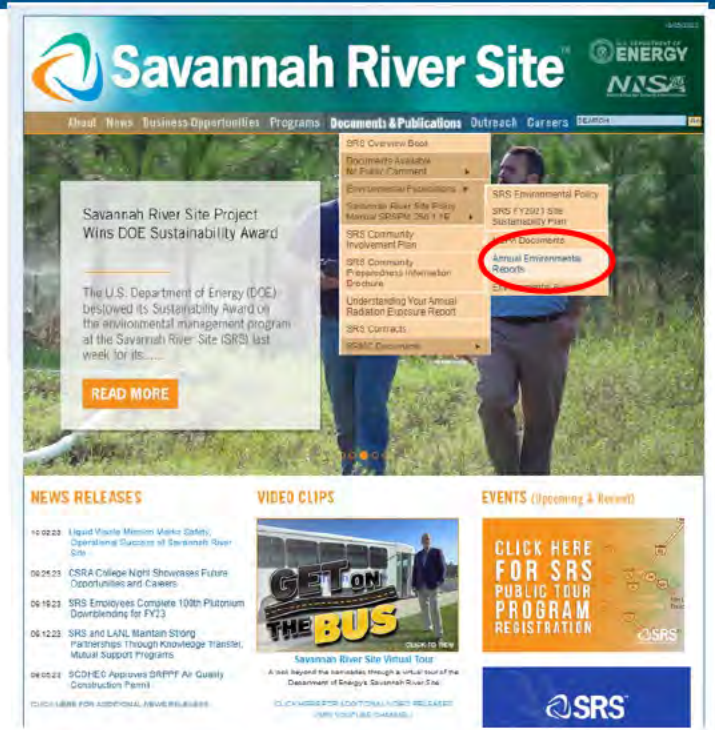
Who reads the ASER?

- **The ASER is a public document, so anyone interested in the site's impacts to the surrounding areas.**
  - DOE Headquarters
  - Regulators
  - Congress
  - The Public
    - *Citizens Advisory Group*
    - *Activist Groups*
    - *Researchers*
    - *Professors and Students*

An aerial view of the Savannah River

Where is it available?

- The ASER is available electronically to the public on or before October 1 each year
- It provides environmental updates and results that you can trust.
- The data and analysis within the report demonstrate that the safety and health of our workers and the surrounding area is the priority of the Savannah River Site.
- The last 21 reports can be found by going to srs.gov and selecting Annual Environmental Reports from the Documents and Publications drop down.



2022 ASER Highlights

No regulatory commitment dates were missed, and all regulatory deliverables were completed on or ahead of schedule.

Managed all site permits to ensure environmental compliance.

SRS did not receive any Notices of Violation (NOV)s in 2022.

2022 ASER Highlights

- Savannah River Mission Completion (SRMC) became the liquid waste operations contractor.
- SRS made 16 Transuranic (TRU) shipments in 2022, including the first shipment from K Area of down blended surplus plutonium.
- Savannah River Tritium Enterprises continued facility infrastructure improvements contributing to overall efficiency and the ability to meet mission needs.
- During 2022, SRS began design work for the conversion of an unfinished NNSA facility, which will become the Savannah River Plutonium Pit Facility (SRPPF).

The first shipment of downblended surplus plutonium from SRS's K Area leaves SRS.

2022 ASER Highlights

- **Awards**
  - SRS received recognition as part of the DOE agency-wide Sustainability Awards, under the Innovative Approach to Sustainability Category for the SRS Phytoremediation Project.
  - The Accelerated Basin De-Inventory, SRS Lower Three Runs Final Remedial Decision, and SRS Phytoremediation Project Teams received Secretary of Energy Achievement Award.
  - SRS received the Global Electronics Council Electronic Product Environmental Assessment Tool (EPEAT) Purchasers award in 3 categories:
  - SRS was recognized for participating in the Sustainable Climate-Ready Sites (SCRS) pilot project

DOE Phytoremediation Team Award Recipients

SUSTAINABLE CLIMATE-READY SITES
SCRS
U.S. DEPARTMENT OF ENERGY
Office of Sustainable Environmental Stewardship

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Environmental Monitoring

How we measure the health of our environment

Environmental Monitoring Program

- **SRS environmental monitoring program serves two purposes:**
  - Confirms the Site is complying with state and federal regulations and permits
  - Monitors any effects SRS has on the environment, both onsite and offsite

- **The ASER is owned by the site's Environmental Monitoring Program.**
  - The site's environmental personnel are responsible for the health of the environment and the impacts that a healthy environment have on the people on-site and in surrounding areas.
  - The following slides highlight what the environmental program does and introduces the ASER and how we assess the impact of site operations on neighboring communities.

Monitoring Scope

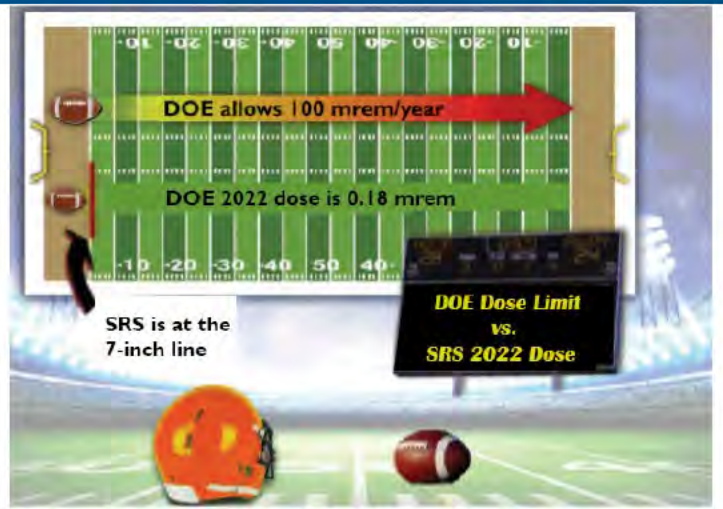
- **SRS monitors a 2,000-square-mile area beyond the Site boundary.**
  - This area includes neighboring cities, towns, and counties in South Carolina and Georgia.
  - SRS collects thousands of samples of air, rainwater, surface water, drinking water, groundwater, food products, wildlife, soil, sediment, and vegetation.
  - These samples are checked for radionuclides, metals, and other chemicals that could be in the environment because of activities at SRS.

Environmental Monitoring Program

- **Nonradiological and Radiological monitoring program**
  - Air Pathway
    - All air contaminants released were below applicable permit and regulatory limits.
    - Radiological results for surveillance media was within historical levels.
  - Water Pathway
    - All industrial stormwater outfalls, industrial wastewater and drinking water systems were compliant with applicable standards.
    - Radiological water contaminants released by SRS were all below applicable standards and within historic levels.
    - Surveillance results from streams, stormwater basins, and the Savannah River were consistent with the background control locations and were comparable with historical levels.
  - Surveillance Media
    - Sediment, SRS streams, stormwater basins, and Savannah River samples were consistent with the background control locations and were comparable with historical levels.
    - Fish flesh sample results were consistent with historical levels
    - All harvested animals SRS monitored during the annual onsite hunts were below the applicable standards.
      - SRS monitored the deer, feral hogs, turkeys, and coyotes harvested during the hunts and released 319 animals.

Dose Comparison

- **There were no specific events during 2022 that negatively impacted results of the Radiological Dose Assessment**
  - DOE Dose Limit = 100 mrem/yr
  - The potential representative person all-pathway dose is very small (<<1 mrem)
    - *Air pathway 15-20% of all pathway dose*
    - *Liquid pathway 80-85% of the all pathway dose*



In 2022, the dose to the offsite representative person was *0.17 mrem from liquid* releases and *0.016 mrem* from air releases. The total representative person dose was *0.18 mrem*, which is 0.18% of the 100 mrem/yr DOE dose limit. A decrease from last year's 0.30 mrem

Environmental Compliance

How the site meets the requirements of environmental laws, regulations and orders

Environmental Compliance

- **Protection of the Environment is everyone's responsibility at SRS**
- **We protect the environment through:**
  - **Regulatory Compliance** – worker and environmental
    - *Compliance Reports – submitted to Federal and State agencies to show compliance with Federal and State regulations.*
    - *Internal Reports – to track historical trends, assess programs and protocols, identify areas for improvement*
    - *External Reports – published to provide information to stakeholders and provide transparency to the public*
  - **Remediation**
  - **Worker Engagement**

2022 Compliance Summary

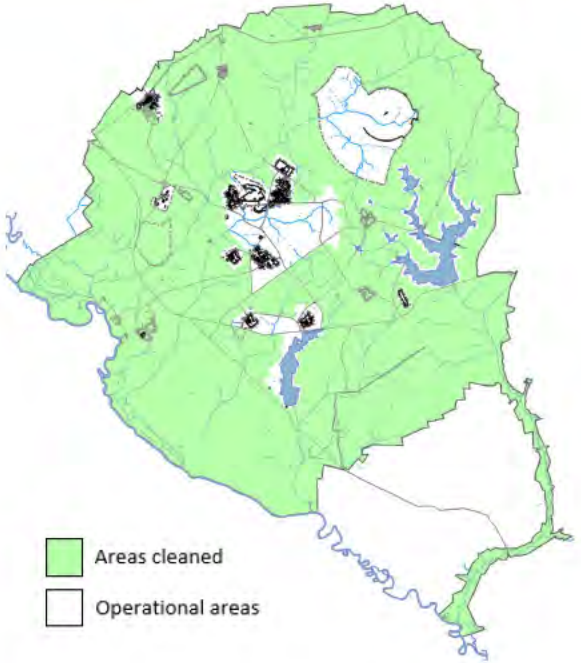
- **SRS maintained full regulatory compliance for the 2022 reporting year submitting all Environmental Compliance reports and documents to SCDHEC and/or the EPA and did not receive any Notices of Violation in 2022.**
- **Permitting**
  - SCDHEC issued the Air Operating Permit (Title V) for Air Quality Protection for the site effective April 1, 2022.
  - All SRS Industrial stormwater outfalls in the Site's Stormwater Pollution Prevention Plan's General Permit complied with plan requirements.
- **External Audits and Inspections**
  - To ensure regulatory compliance, EPA and SCDHEC conducted audits, inspections, and site visits of various SRS environmental programs.
  - A dam safety inspection was performed by The Federal Energy Regulatory Commission (FERC) in May 2022.

In 2022, SRS continued construction of additional Saltstone Disposal Units (SDUs)

Environmental Remediation

- **Over 85% of the Site's area has been cleaned to regulatory standards**
- **Groundwater Remediation 2022**
  - Removed 12,730 pounds of volatile organic compounds from groundwater and the vadose zone
  - Prevented 45.2 curies of tritium from reaching SRS streams (through the phytoremediation project)

Remaining contamination areas typically within the core of the Site



Pollution Prevention

- **During 2022 SRS recycled 84.3% (812 metric tons) of nonhazardous solid waste.**

- **SRS has met and even surpassed federal goals in the continued reduction of greenhouse gas emissions.**
  - Since 2008, the site has reduced
    - *Direct GHG emissions by 79.4%*
    - *Indirect GHG emissions by 90.8%*

- **Fleet management goals were exceeded with 86% of current fleet of light-duty vehicles being hybrid, electric, or powered by E85 fuel.**

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Environmental Stewardship

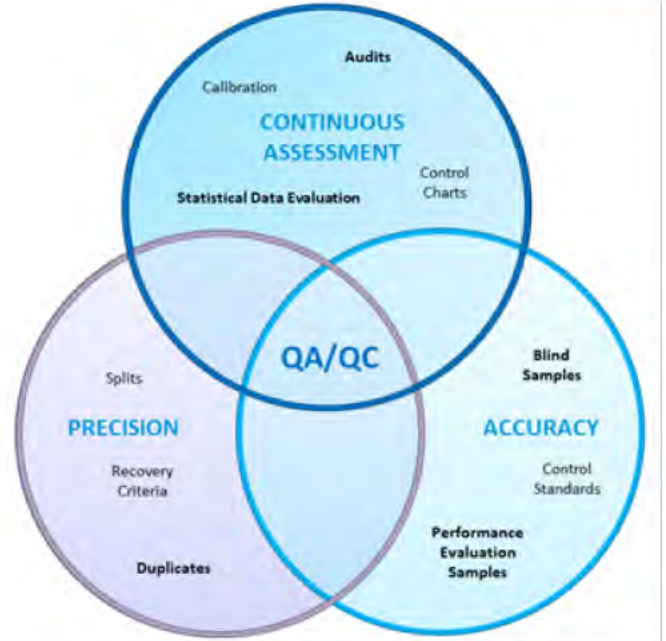
How the site reduces its impact to the environment and operates sustainably

Stewardship

- **It is the policy of SRS to be a leader in Environmental excellence through:**
  - Continuous improvement and research in engineering and scientific disciplines
  - Pollution prevention and waste minimization
  - Safeguarding natural, archaeological, and cultural resources on the site and throughout our communities.

Quality Assurance

- **Analytical Laboratory Quality Assurance**
  - Multiple external audits of 4 treatment, storage, and disposal facilities determined the facilities to be in good standing and eligible to continue to provide services to DOE.
- **Quality Control Activities**
  - Quality Control samples identified no defects affecting the analytical results of the surveillance and monitoring programs.
- **Continuous Improvement**
  - SRS Radiological Liquid Effluent Program added a basin location to their program.
  - SRS transitioned to a new comprehensive environmental database system.
  - SRS implemented more portable refrigerated samplers, flowmeters with modem communication, and camera technology. Also implemented automatic sampling equipment for NPDES Stormwater Permit.

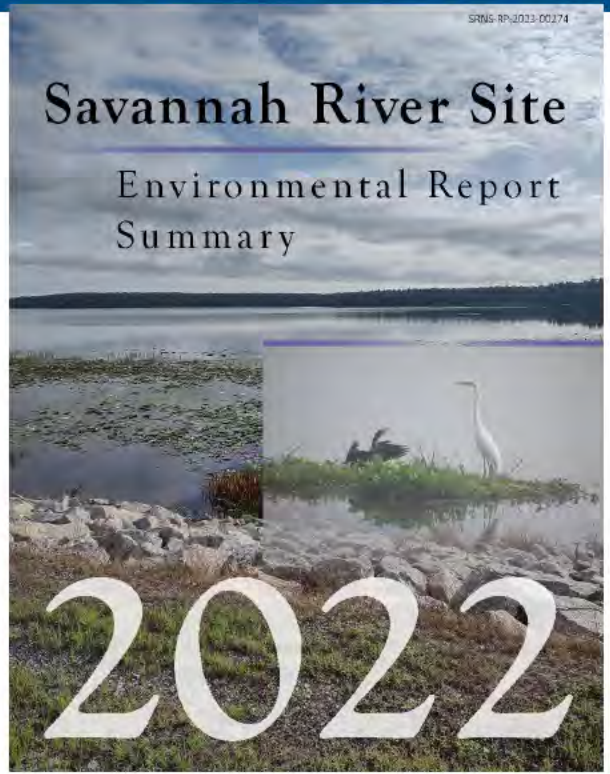


Interrelationship between QA/QC Activities

2022 ASER Summary Report

- **Uses magazine-style articles to summarize the results of the ASER and further establish SRS's commitment to environmental stewardship**

- **Links articles to comparable sections of the full report**
  - *Topics include*
    - *Overview of SRS*
    - *Radiological Monitoring and Dose*
    - *Environmental Accomplishments*
    - *Environmental Sustainability*
    - *Education Outreach*
    - *Engaging the Public*



2022 ASER Summary Report

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Savannah River Site Achieves 4,000th Cleanup Milestone

Savannah River Site Project Wins DOE Sustainability Award

Innovative Well Closure at SRS Leads to $900,000 in Taxpayer Savings

Building 235-F Deactivation Complete

An aerial photograph of Building 235-F at the Savannah River Site

SRS Liquid Waste Team Reduces Risk and Cost with Spare Equipment

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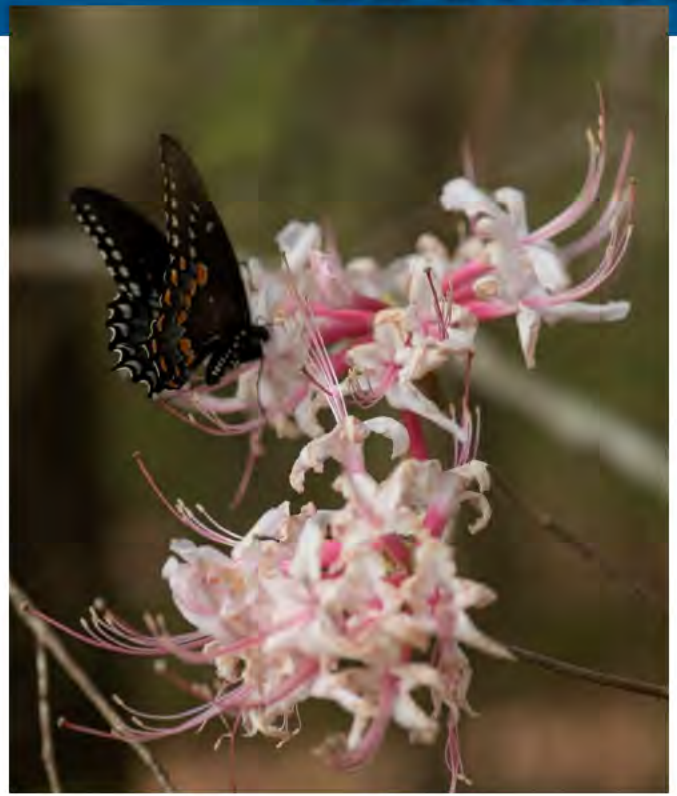
Savannah River Site Citizens Advisory Board

Conclusion and Summary

- SRS maintained Environmental Regulatory and DOE Order Compliance throughout 2022.
- 2022 results (chemical and radiological) confirm SRS operations remained protective of the environment and human health.
- The ASER full report was issued on September 28, 2023.



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