U.S. DEPARTMENT OF ENERGY

SRS™

SRS 2021 Annual Site Environmental Report (ASER)

Matt Baker, DOE Environmental Quality Management

Jared Wicker, SRNS ASER Project Lead

Eric Doman, SRNS Environmental Monitoring Program Manager

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Presentation Outline

- SRS Environmental Report: Background
- 2021 SRS Environmental Report: Highlights
- 2021 ASER Summary Report
- Summary

- **Annual Site Environmental Reports (ASERs) are required by U.S. Department of Energy (DOE) Order 231.1B, *Environment, Safety, and Health Reporting,* to provide the public and stakeholders information on:**
  - Environmental program performance
  - Sitewide environmental monitoring and surveillance effectiveness
    - Meets requirements of DOE Order 458.1, Radiation Protection of the Public and the Environment
  - Compliance status with environmental standards and requirements
- **SRS began publishing the ASER in 1959 and the last 20 SRS ASERs are available electronically on the SRS website.**

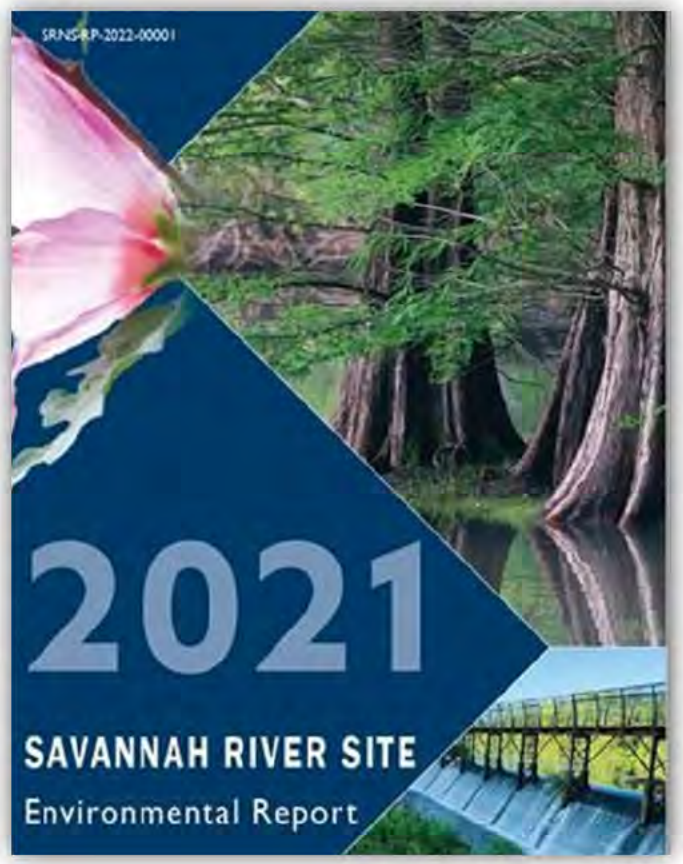
SRS Annual Site Environmental Report for 2021: Cover

- Hummingbird , taken by Ross Fanning, SRNS
- Carolina Bay, taken by Mark Hudson
- Augusta Canal, taken by Charles Crawford, BSRA

- **Table of Contents for Report:**

  Chapter 1: Introduction
  Chapter 2: Environmental Management Systems
  Chapter 3: Compliance Summary
  Chapter 4: Nonradiological Environmental Monitoring Program
  Chapter 5: Radiological Environmental Monitoring Program
  Chapter 6: Radiological Dose Assessment
  Chapter 7: Groundwater Management Program
  Chapter 8: Quality Assurance

- **SRS Environmental Report Summary:**
  - Highlights SRS accomplishments
  - Provides ASER overview
  - Featured articles focused on the SRS history and current commitments to environmental restoration and management



- 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 2021.
- Battelle Savannah River Alliance began managing and operating the Savannah River National Laboratory (SRNL) in June.

- During 2021 SRS recycled 51% (242 metric tons) of nonhazardous solid waste.
- SRS reduced greenhouse gas emissions 84% since 2008, exceeding federal goals.
- Fleet management goals were exceeded with 87% of current fleet of light-duty vehicles being hybrid, electric, or powered by E85 fuel.
- Awards - SRS received recognition as part of the DOE agency-wide Sustainability Awards, under the Innovative Approach to Sustainability Category for the P-Area Permeable Reactive Barrier Wall Project

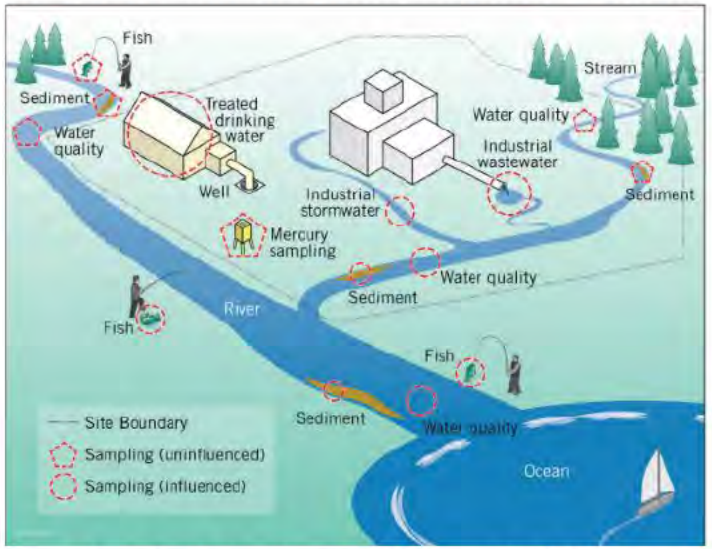
SRS maintained full regulatory compliance for the 2021 reporting year submitting all Environmental Compliance reports and documents to SCDHEC and/or the EPA and did not receive any Notices of Violation in 2021.

- **Permitting**
  - SCDHEC issued the Renewal Title V Air Quality and Protection Operating Permit
  - 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 third-party audit of the Environmental Management System performed in April of 2021 declared the program conformant to the ISO 14001:2015 Standard

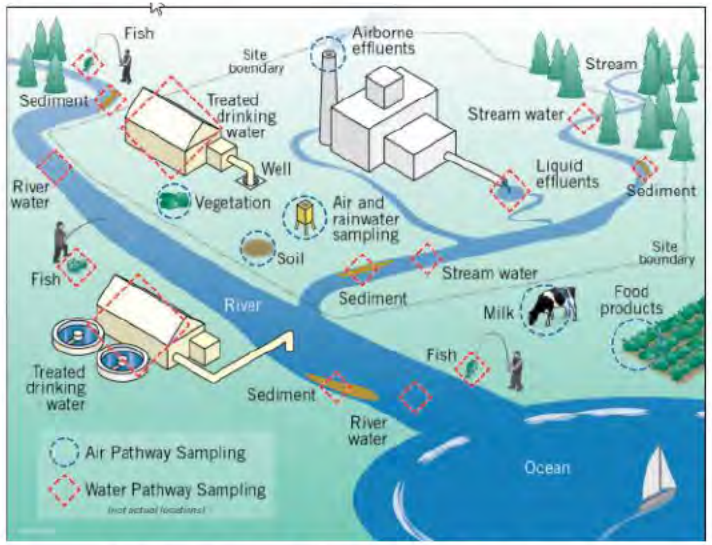
Environmental Monitoring (EM) Program Purpose

Emphasis for Chapters 4 and 5 Environmental Monitoring is twofold:

- **Effluent Monitoring**
  - Monitoring at the points of release to the environment
  - Compliance with applicable permitted/regulated activities and DOE requirements
- **Environmental Surveillance**
  - Compliance with DOE requirements to monitor effects of SRS operations beyond effluent, from the surrounding environment – on and offsite

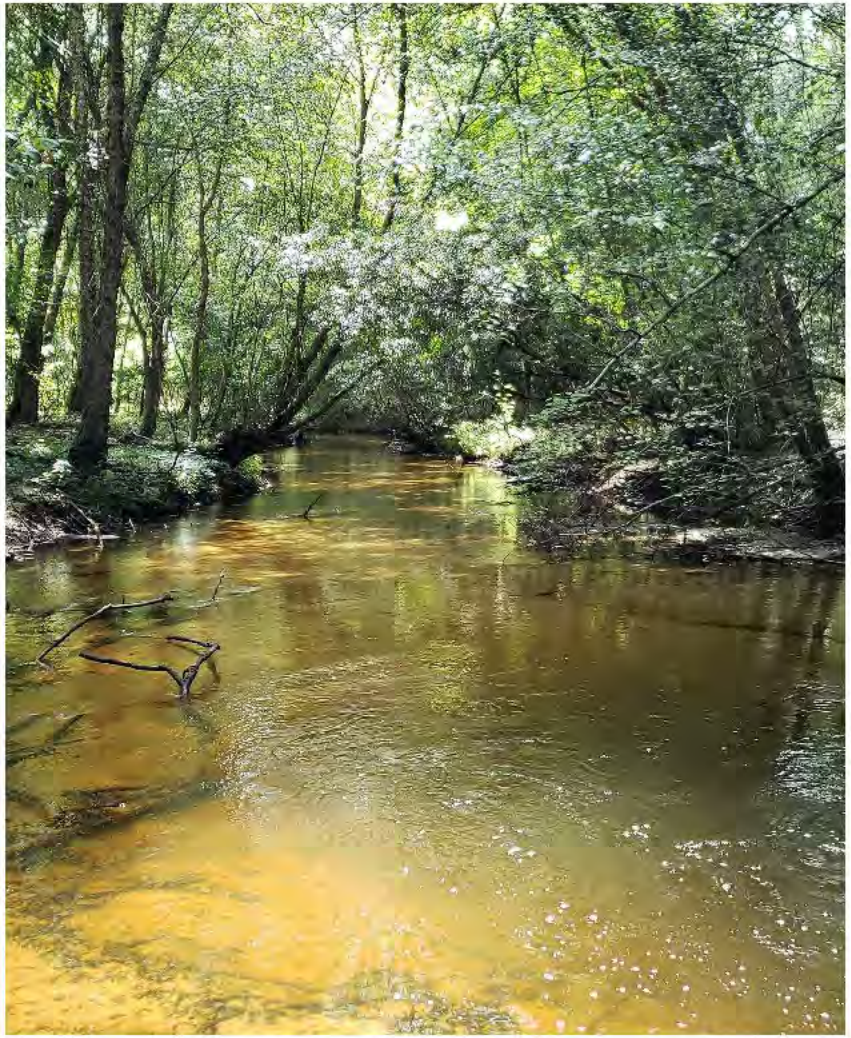


Nonradiological EM Sample Types



Radiological EM Sample Types

- **Air Pathway**
  - All air contaminants released were below applicable permit and regulatory limits.
- **Water Pathway**
  - Non-radiological effluent releases for all categories except industrial wastewater met permit limits and applicable standards.
  - A 99.9% compliance rate was achieved for the SRS National Pollutant Discharge Elimination System industrial wastewater outfalls
  - All industrial stormwater outfalls and drinking water systems were compliant with applicable standards.
- **Surveillance media**
  - Sediment, SRS streams, stormwater basins, Savannah River, and fish were consistent with the background control locations and were comparable with historical levels.



- **Air Pathway**
  - All air contaminants released were below applicable permit and regulatory limits.
  - Results for surveillance media was within historical levels.
- **Water Pathway**
  - 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.
- **Wildlife Surveillance Program**
  - Due to the Covid-19 pandemic, the SRS hunts were cancelled during 2021.
  - Dose to sportsmen in the vicinity of the site was calculated from the flesh samples of 26 feral hogs and was determined to be well below applicable standards.

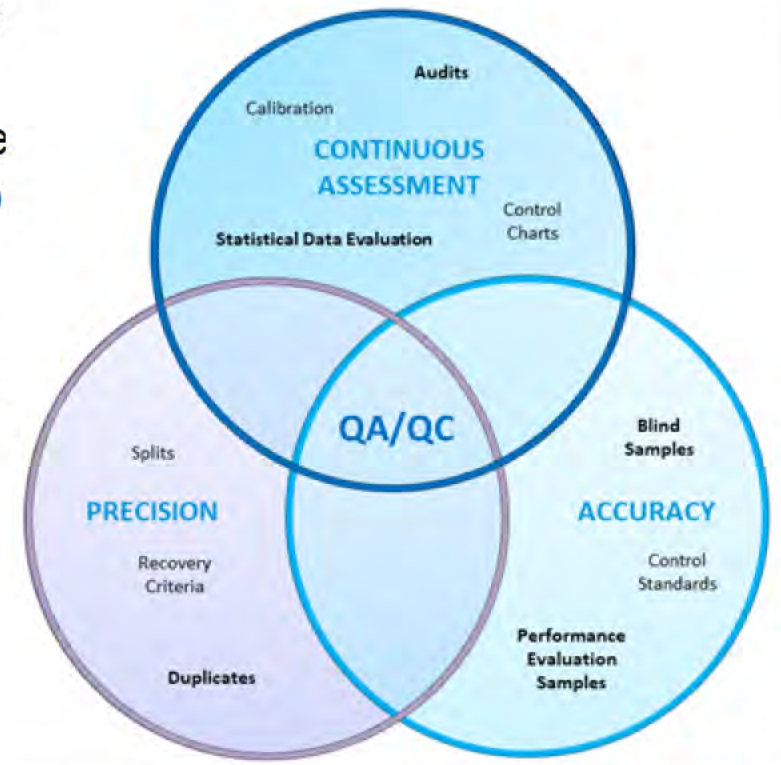
- This chapter delineates the process of determining compliance with established dose limits to the public and environment.
- There were no specific events during 2021 that negatively impacted results of the Radiological Dose Assessment

In 2021, the dose to the offsite representative person was *0.28 mrem from liquid* releases and *0.017 mrem* from air releases. The total representative person dose was *0.30 mrem*, which is 0.30% of the 100 mrem/yr DOE dose limit. A decrease from last year's 0.36 mrem

- **Maintained compliance with EPA Drinking Water Standards**
  - 2021 results indicate no exceedances of drinking water standards in SRS boundary wells near A/M Area.
- **Continued Remediation of Groundwater**
  - Removed 18,544 pounds of volatile organic compounds from groundwater and the vadose zone which
  - Prevented 51.7 curies of tritium from reaching SRS streams.

Phytoremediation Uses Trees and Plants to Remove or Break Down Contaminants.

- **Analytical Laboratory Quality Assurance**
  - Virtual DOECAP 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 implemented portable refrigerated sampler and flowmeter with modem communication and camera technology for automation and calibration checks that can be controlled from a desktop computer or cellphone



Interrelationship between QA/QC Activities

2021 ASER Summary Report

- Uses magazine-style articles to summarize the results of the ASER and link special topics to comparable sections of the full report
- *Introduced new topics from 2021 DOE ASER Guidance*
- *Topics include*
  - *Overview of SRS*
  - *Radiological Monitoring and Dose*
  - *Environmental Accomplishments*
  - *America the Beautiful Project*
  - *Environmental Sustainability*
  - *Education Outreach*
  - *Engaging the Public*

SAVANNAH RIVER SITE

2021 Environmental Report Summary

This report highlights the Savannah River Site's activities, environmental performance, and engagement with the local communities. Many articles in this Summary are based on the information presented in the *2021 Environmental Report* and touch on the following:

- Significant environmental accomplishments that support Site missions
- Compliance with environmental laws and regulations
- Dose to the public from on-site activities
- Monitoring that supports dose calculations and compliance requirements
- Community involvement

When applicable, a text box at the bottom of the page identifies the related chapters and sections in the *2021 Environmental Report* where readers may find more detailed information, along with supporting data, maps, and figures.

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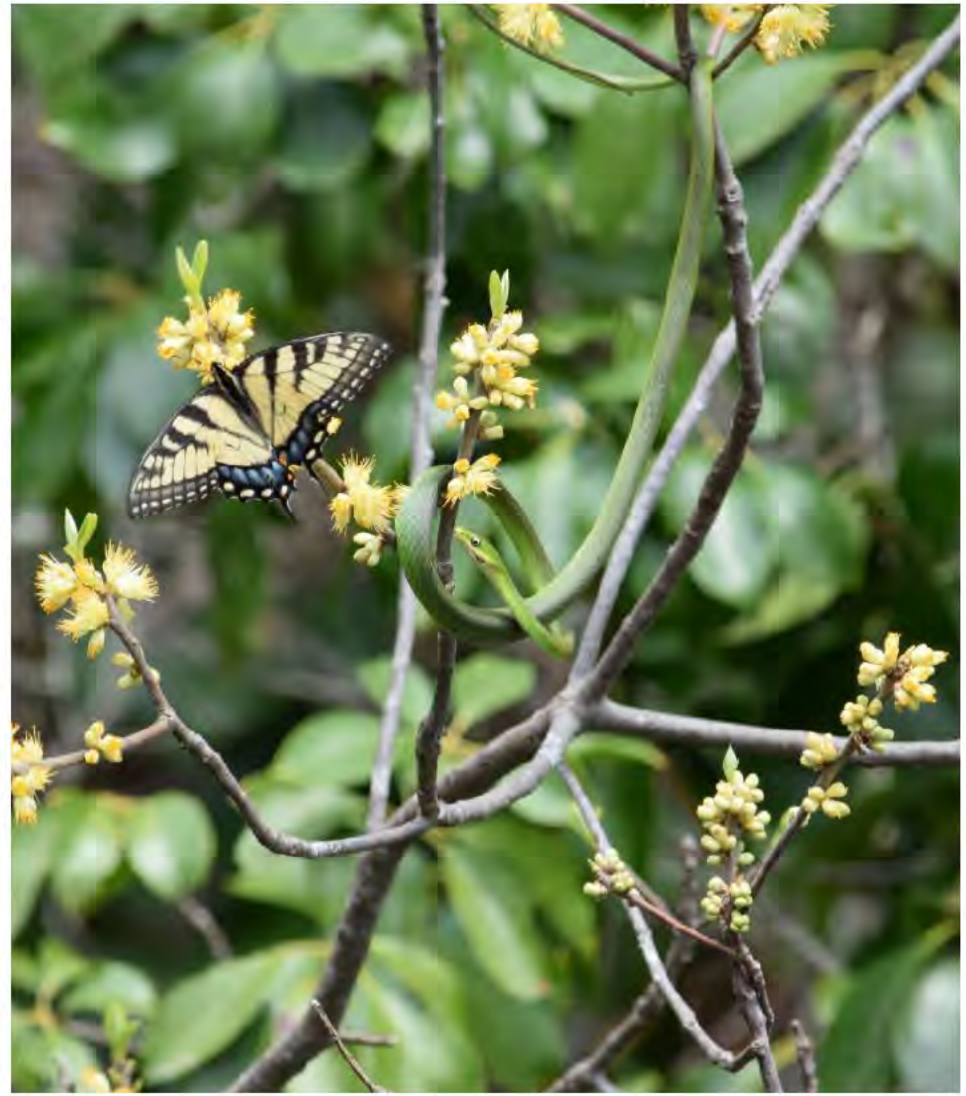
Throughout this document, you will see Savannah River Site workers and visitors distancing themselves from others, wearing a mask, or doing both to protect against the spread of COVID-19. Where a photograph shows masking and distancing precautions taking place, the subjects were following Site guidelines from the Centers for Disease Control and Prevention, the South Carolina Department of Health and Environmental Control, the Georgia Department of Public Health, and the U.S. Department of Energy. If a photograph shows the subjects interacting within 6 feet of one another or not wearing a mask, they were following the appropriate safety protocol for the COVID-19 pandemic at the time the photograph was taken.

Conclusion and Summary

- SRS maintained Environmental Regulatory and DOE Order Compliance throughout 2021.
- SRS continues to employ innovative, cost-effective technologies to achieve the Site's sustainability goals.
- SRS continues to monitor, remediate, and conserve groundwater at SRS, protecting the public and environment from future contamination.
- Annual dose from SRS operations is less than 1 mrem, demonstrating that SRS operations do not cause undue harm to our community.



THANK YOU!

- **The annual site environmental reports can be found at the following link:**
  https://www.srs.gov/general/pubs/ERsum/index.html

- **For additional information please contact:**
  – DOE-SROEA@srs.gov