



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

ENVIRONMENTAL MONITORING PROGRAM

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Environmental Quality Management Division

Facilities Disposition & Site Remediation Committee

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PURPOSE OF ENVIRONMENTAL MONITORING PROGRAM

To determine the impact of emissions and discharges to the public and surrounding environment

- ❖ **Design – program to measure or model contaminants from a facility**
- ❖ **Implement and operate – appropriate methods to sample and collect monitoring data**
- ❖ **Analyze – sample media and interpret data**
- ❖ **Report – analytical results and monitoring data to internal and external customers**

WHAT, HOW, WHERE, WHEN, WHO?

- ❖ What type of operation – commercial, industrial, domestic
- ❖ What will be discharged or emitted – chemicals, radionuclides
- ❖ How much– small, medium or large amounts
- ❖ When– once, in batches, continuously
- ❖ What form – gas, liquid, particulate
- ❖ Where from – pipe, stack, vent
- ❖ Where will it go – into the environment - air, stream, lake, river, groundwater
- ❖ Who will be impacted – people, animals, food, plants, wildlife

MONITORING PROTOCOLS

- ❖ Where do we sample – at the point of discharge (effluent) or at points beyond (surveillance)
- ❖ What do we sample – everything, chemicals produced by the activity
- ❖ How do we sample – grab, composite, instrumentation, sampling devices
- ❖ How much sample do we need – depends on the laboratory needs; Quality Assurance samples
- ❖ How frequent do we sample – regulatory requirements and standards, historical knowledge
- ❖ Do samples need to be preserved – depends on the analysis

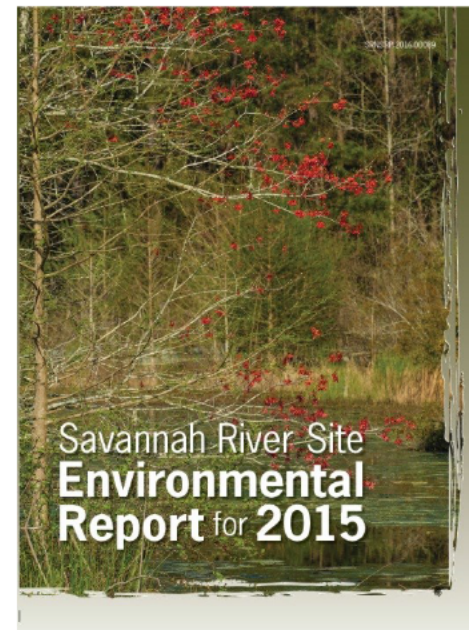
SAMPLE DETERMINATION AND DATA ANALYSES

- ❖ Why do we analyze the collected samples – to determine if and what amount of chemical or radionuclide is present in the sample
- ❖ Who analyzes the collected samples – field technicians, in house laboratory, a contract laboratory
- ❖ When and how are the samples analyzed – depends on the analysis
- ❖ Who sees the results before they're published – usually the data users to review the results and determine if the data is valid, falls within normal trends and if not, what to do next
- ❖ When the data is finalized, what happens – provided to customer, documented in reports.



WHAT ARE THE REPORTS?

- ❖ 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 the public
 - Annual Site Environmental Report and Summary Report
 - <http://www.srs.gov/general/pubs/ERsum/index.html>



SRS ENVIRONMENT MONITORING PROGRAM?



To ensure protection of the public
and the environment

SRS Environmental Monitoring Program Components

Effluent Monitoring

- ❖ Radiological air releases from facility stacks and vents, inline, or offline monitoring
- ❖ Non- radiological air releases are estimated using standard models
- ❖ Liquid discharges from facility

Environmental Surveillance

❖ Radiological Surveillance

- Air, Streams, Rivers, Storm water, Vegetation, Soil, Sediment, Drinking Water, Foodstuffs, Dairy, Wildlife

❖ Nonradiological Surveillance

- Facility drinking water
- Air, Streams, Rivers, Wastewater, Storm water, Sediment, Fish

(15) Radiological Liquid Effluent Sampling Locations

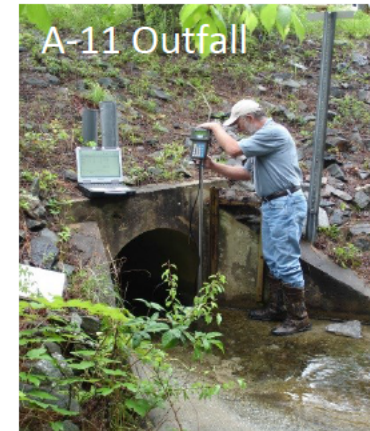
F-05 Outfall



(28) NPDES Industrial Wastewater Outfall Sampling Locations

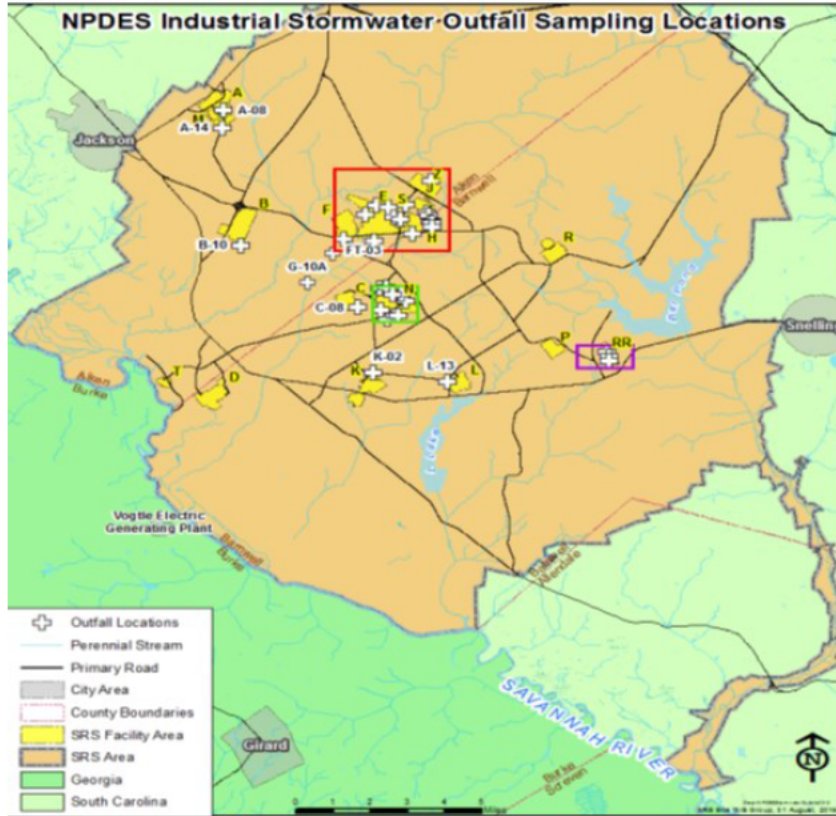


**A Field Technician Verifies Flow Rate
at an Industrial Wastewater Outfall**



**Field Technician Collects Flow Measurements
at an Industrial Wastewater Outfall¹⁰**

(37) NPDES Industrial Storm water Outfall Sampling Locations



(222) Air Effluent Monitoring Locations



Environmental Surveillance

- The Collection of Samples of Air, Water, Soil, Foodstuffs, Biota and Other Media from the Ambient Environment (beyond the point of discharge)



(11) “Outer Perimeter” & (3) “25 Mile” Locations



Radiological Surface Water Sampling Locations

39 Total Locations On- and Off-Site

(25) Stream & Lake Locations, (8) Basin Locations, (6) River Mile Locations



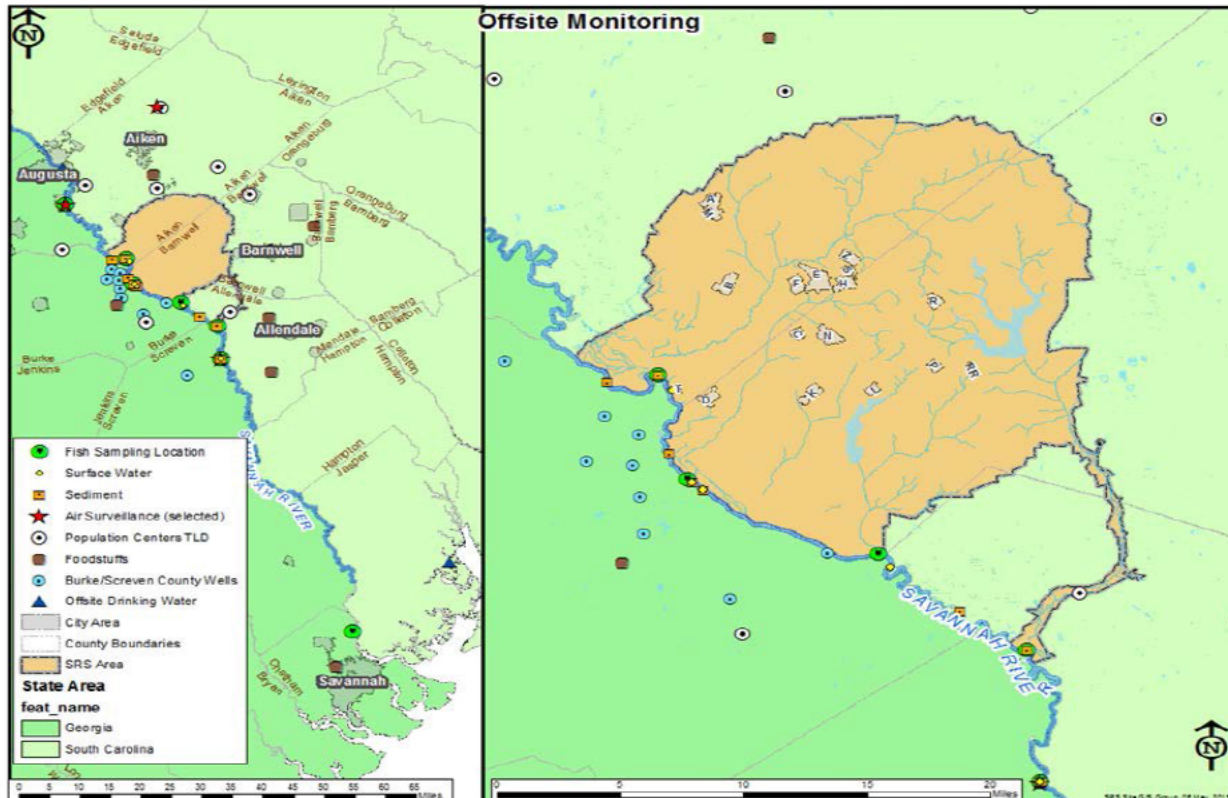
Offsite Drinking Water Surveillance

- Samples collected at offsite water treatment plants
 - Upriver at North Augusta
 - Downriver at Beaufort-Jasper Chelsea
- Plants use Savannah River as a water supply
- SRS provides data results to communicate with organizations potentially impacted by site operations
- Reported in Annual Site Environmental Report



SRS Off-Site Surveillance

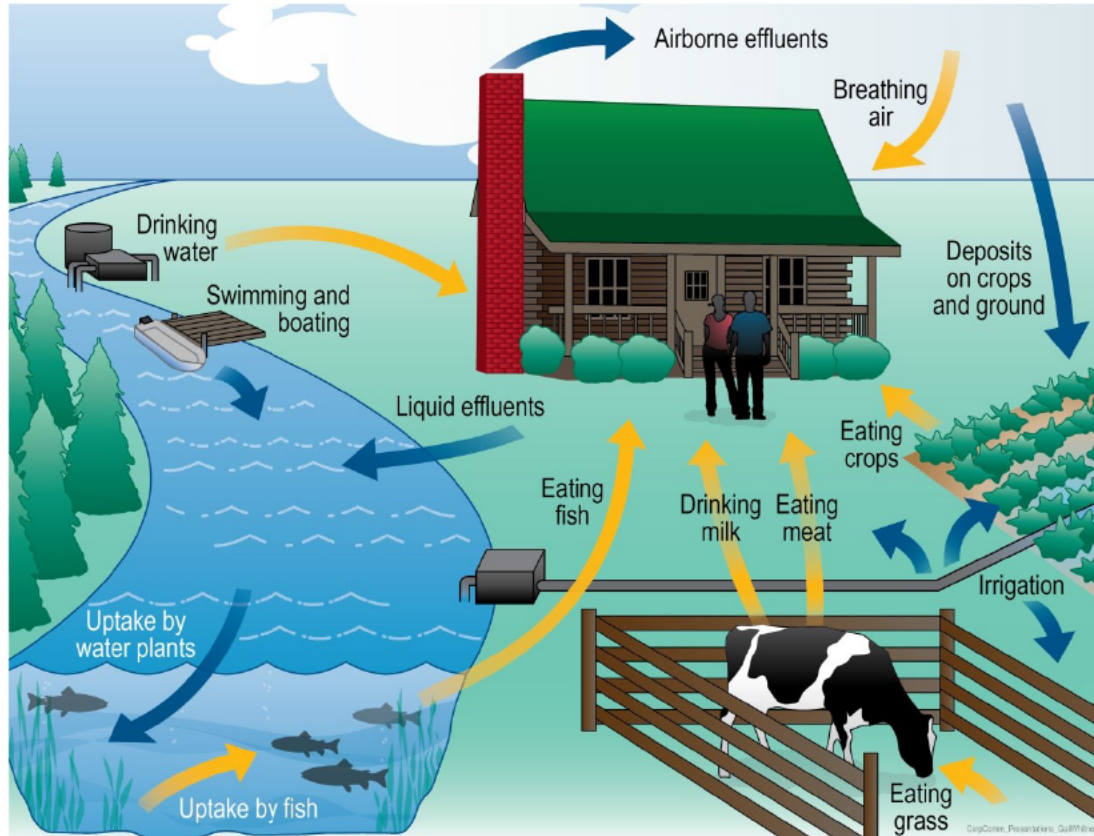
Total Offsite Sampling Locations 37 in South Carolina (SC) and 32 in Georgia (GA)
Including population centers of Aiken, Allendale, Barnwell, New Ellenton, North Augusta, in SC
and Augusta, Savannah, and Waynesboro in GA.



SRS OFFSITE LOCATIONS BY STATE

ENVIRONMENTAL MEDIA	SOUTH CAROLINA	GEORGIA
AIR	1	2
FOODSTUFF	20	5
MILK	4	4
SOIL	1	3
DRINKING WATER	2	0
GROUNDWATER	0	10
VEGETATION (Non-edible)	1	1
TLD's	7	4
RAINWATER	1	2
GAME ANIMALS	-	1

CAB ROLLING HILLS EXPOSURE PATHWAYS



South Carolina Department of Health and Environmental Control Environmental Surveillance Oversight Program

- ❖ Conduct independent environmental monitoring, sampling, analyses confirmatory measurements on and around SRS, its facilities.
- ❖ Review and assess the SRS environmental monitoring programs and systems
- ❖ Evaluate the potential impacts from SRS operations.
- ❖ Educate the public by providing an independent and factual source of information pertaining to all site non-regulatory environmental monitoring programs and related activities.

City of Savannah Georgia

Lower Savannah River Tritium Monitoring Project

- ❖ Collect and analyze Savannah River water for tritium analysis
- ❖ Sampling locations
 - Highway 301 Bridge and Savannah Industrial and
 - Domestic Water Supply Plant, (Savannah, GA)

University of Georgia – Savannah River Ecology Laboratory Burke County Georgia Radionuclide Education Monitoring and Outreach Project (REMOP)

Community outreach program intended to inform and educate persons living in the Shell Bluff community about radionuclide sources, concentrations and associated risk. The program will conduct some limited environmental monitoring over a two year period, but is not a long term continuous monitoring program.

Central Savannah River Area Radiological Environmental Monitoring Program (REMP)

- ❖ Established by the 1992 the Energy and Water Appropriations Bill
 - Directed the Department of Energy to develop a plan to determine the level of risk to the public from the ingestion of fish from the Savannah River and Savannah River Site creek mouths
 - Further stated, the plan should be completed and recommendations made to the States of Georgia and South Carolina by September 1992
 - Membership
 - **States of GA and SC**
 - **DOE-SR, and Westinghouse** (Savannah River Nuclear Solutions)
 - **Chem Nuclear** (Energy Solutions)
 - **Georgia Power – Vogtle Electric Generating Plant and Environmental Laboratory** (Southern Nuclear Company)
 - Evolved into a technical working group – environmental analytical methods, data comparisons, quality assurance, notification and reporting improvements

ENVIRONMENTAL STEWARDSHIP AND OTHER OUTREACH INITIATIVES

- ❖ **Environmental Protection Agency – Environmental Justice Community Workshops**
 - Address concerns raised by the community about the environmental impacts of SRS operations
- ❖ **Savannah River Site Outreach Program**
 - Public tours
- ❖ **Citizens Advisory Board**
 - Inform the board about onsite and offsite environmental impacts of SRS operations
- ❖ **Environmental Bulletin**
 - Provides updates to stakeholders and surrounding communities

- Continue to serve as environmental stewards
- Continue to conduct a comprehensive environmental monitoring program in both states
- Continue to evaluate our program to ensure adequate monitoring is conducted to quantify the impacts, if any, of SRS operations on the public and the environment
- Continue to maintain an open door policy to address any public environmental concerns related to SRS



SRS Environmental Monitoring Program Contacts

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