



U.S. DEPARTMENT OF  
**ENERGY**

# Environmental Monitoring and Cleanup

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## Savannah River Site Information Pods

Barnwell High School, Barnwell, S.C.  
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# Purpose

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- How SRS operations may impact the environment
  - How SRS monitors
  - How and why SRS cleans up



# SRS is Bigger Than a Breadbox... But How Big is It?



The Savannah River Site (SRS) covers 310 square miles or 198,344 acres. It encompasses parts of Aiken, Barnwell and Allendale counties.

# Evolution of Site Monitoring and Remediation

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- During Site construction in the early 1950s, the first environmental studies were being conducted by:
  - E. I. du Pont de Nemours
  - U.S. Department of Health, Education and Welfare
  - Academy of Natural Sciences of Philadelphia
- Environmental monitoring program established in 1953



Dr. Ruth Patrick, pioneer in studying the health of freshwater streams and rivers, and member of the Academy of Natural Sciences

# Why SRS Monitors

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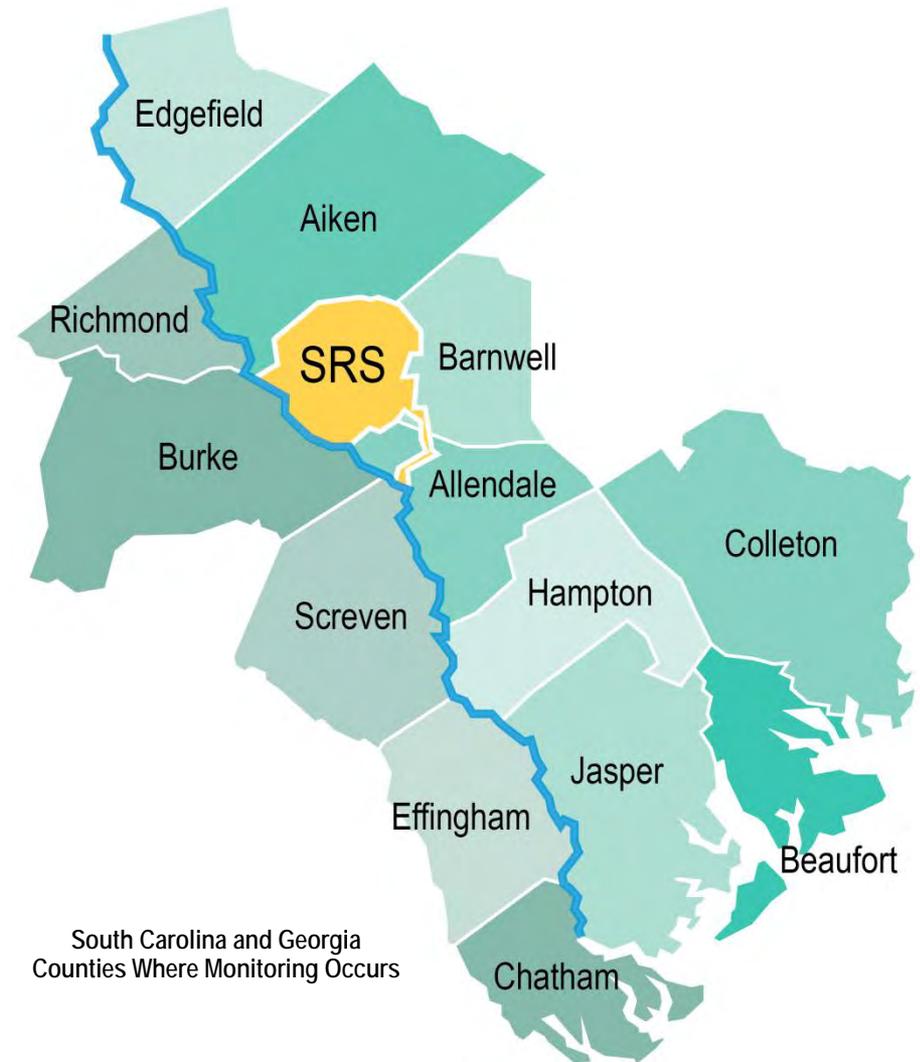


To ensure protection of the public and the environment



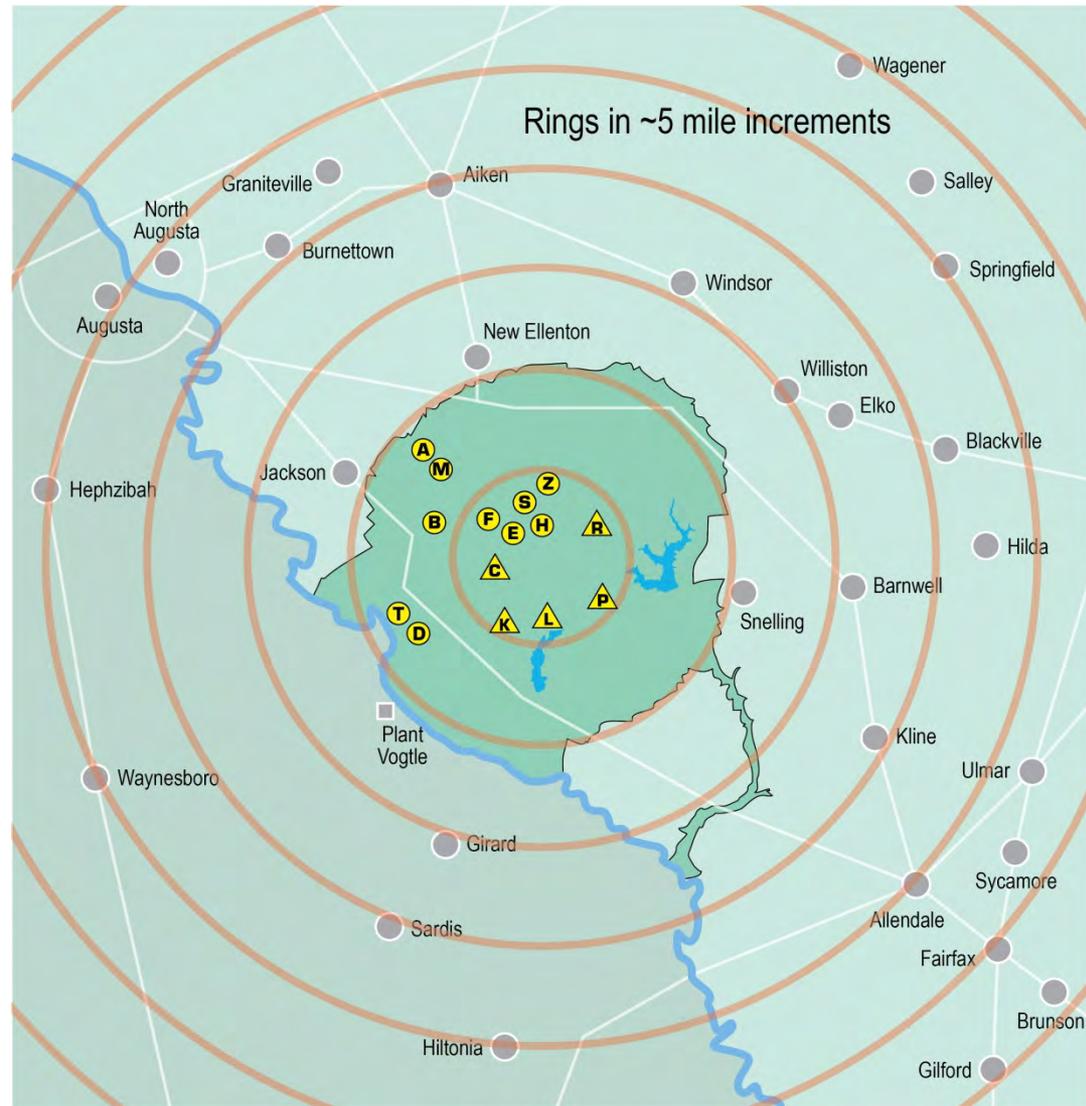
# Environmental Monitoring

- SRS has performed environmental sampling for over 60 years
  - Earliest baseline sampling initiated in early 1950s
  - Assess impact to the public and environment from site operations
  - Monitor facility discharges
  - Extensive on- and off-site, extending to Savannah
  - Sample media: air, water, groundwater, soil, food products (including fish) and vegetation
    - *Chemical*
    - *Radiological*

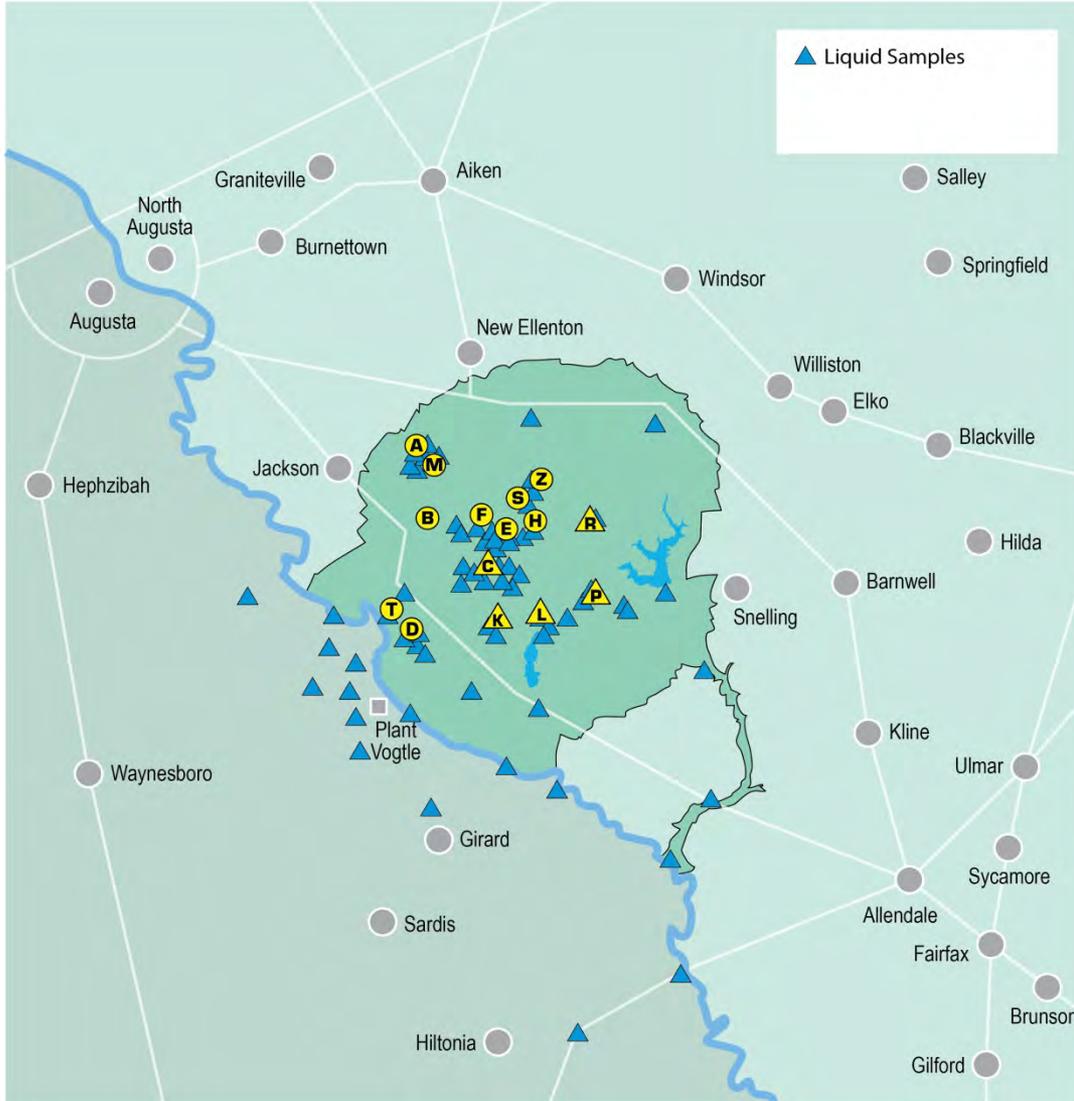


# Environmental Monitoring: Site Operations

- Site operations
  - Located in the center of site
- Provides large buffer area
- Monitoring focused on Site operational areas
- Monitored population centers
  - Aiken
  - Williston
  - New Ellenton
  - Barnwell
  - Allendale
  - Augusta
  - North Augusta
  - Waynesboro



# Liquid Sample Locations

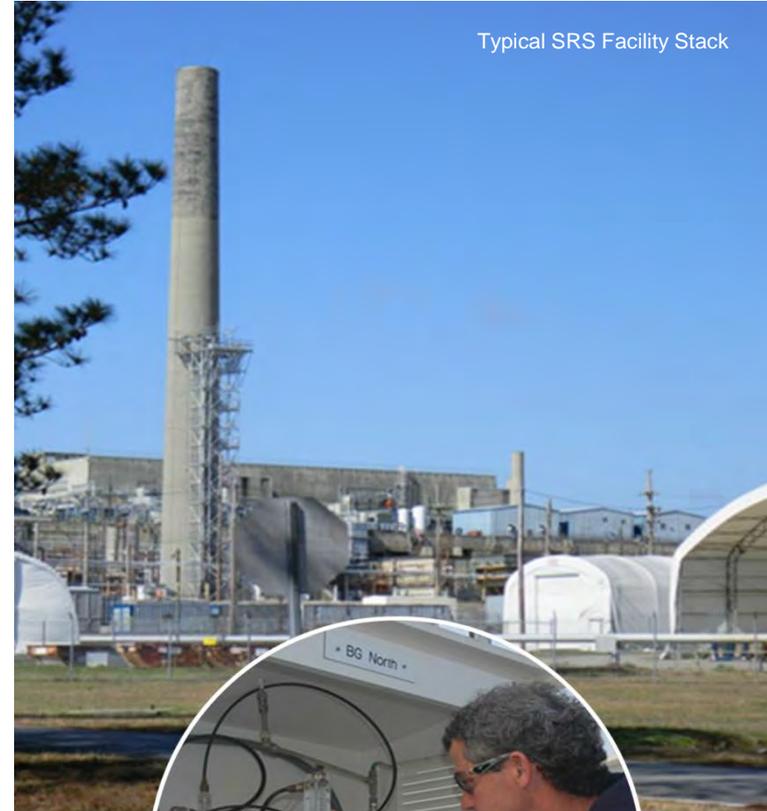
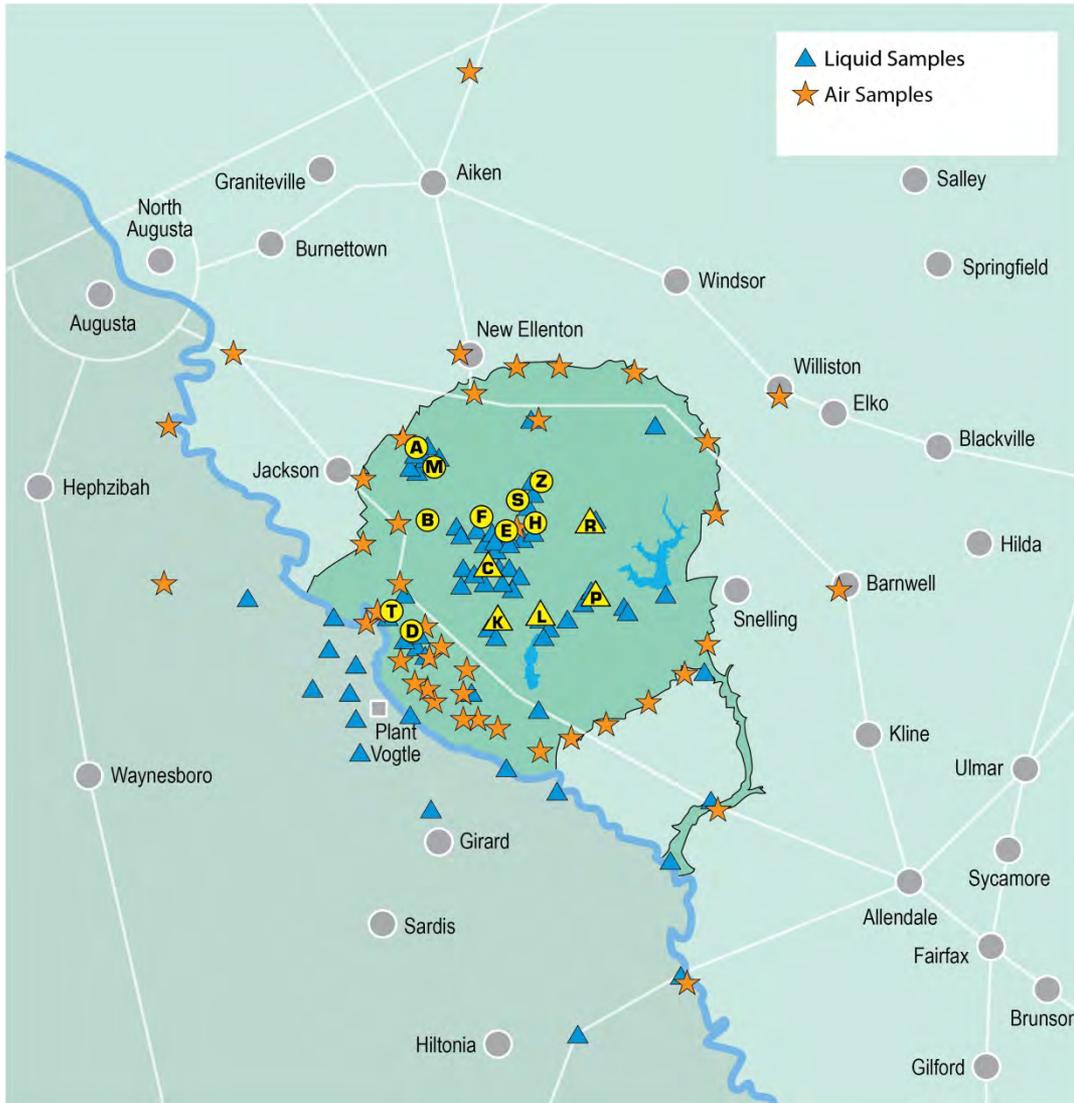


SRS employees collect Savannah River water samples



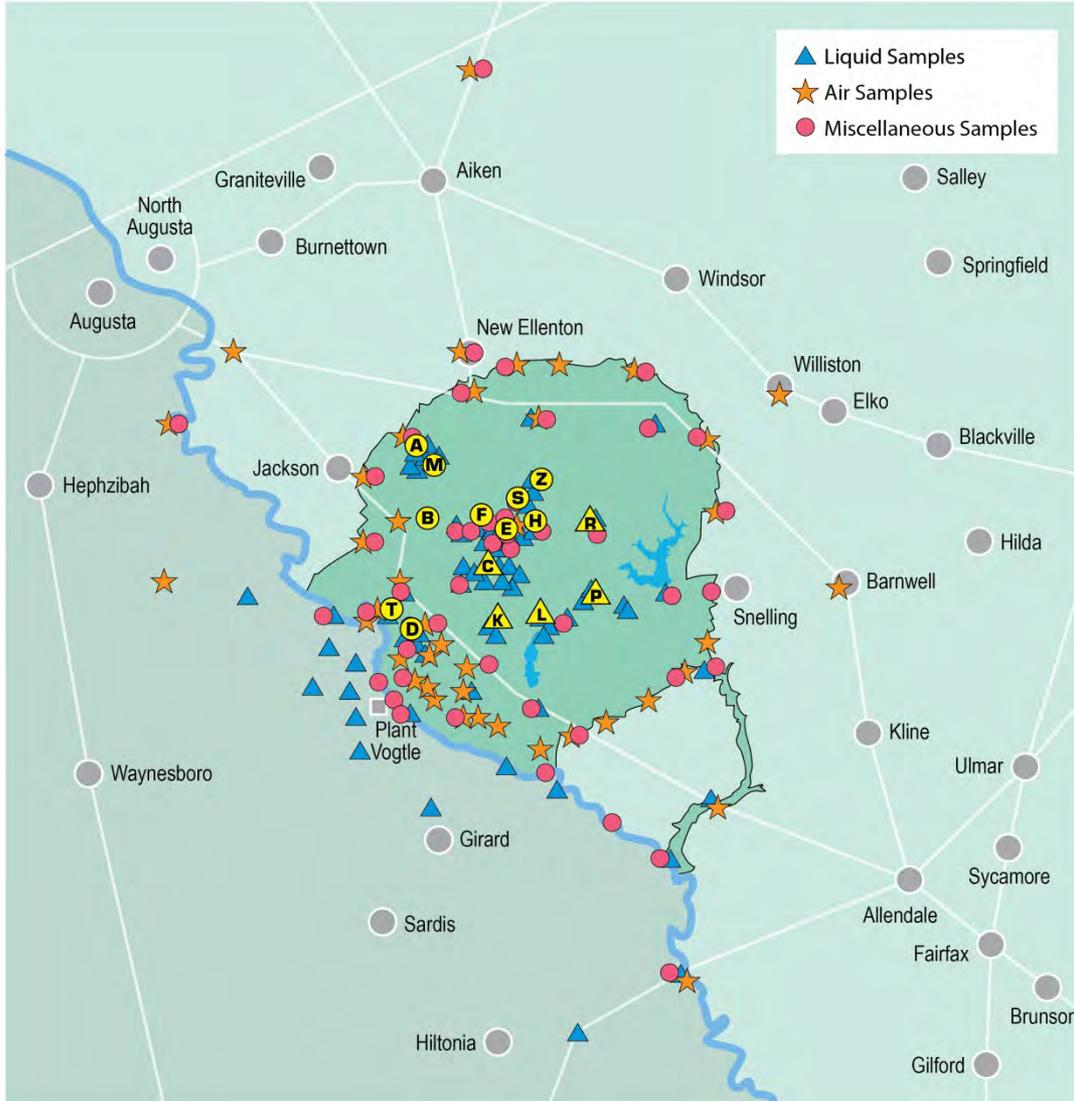
SRS employees measure water flow in an SRS stream

# Liquid and Air Sample Locations



An SRS employee reads air flow at a monitoring station

# Liquid, Air and Other Sample Locations



An SRS employee collects sediment samples in Savannah River



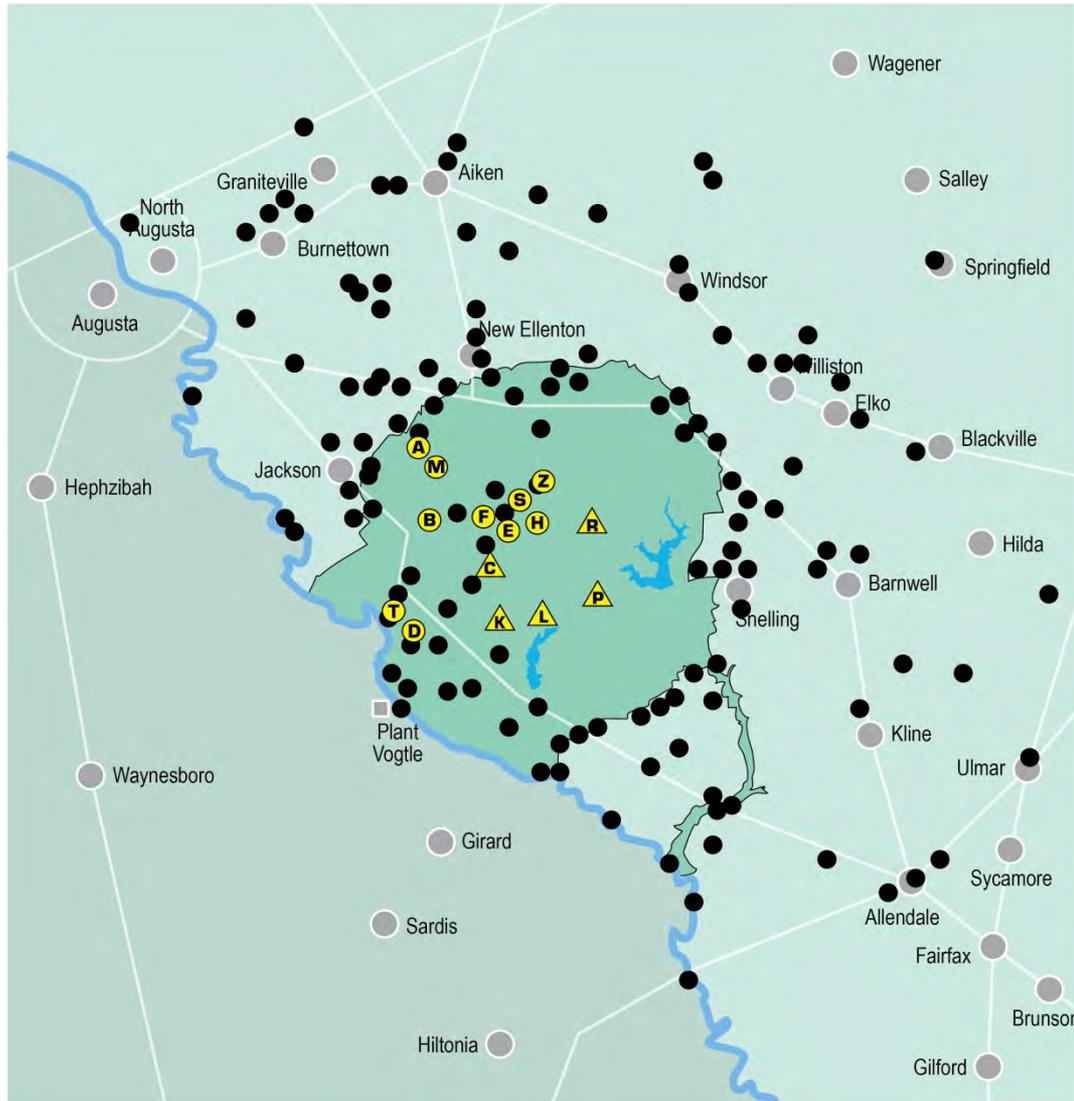
SRS employees collect fish in Savannah River

# Drinking Water Locations

- Samples collected at offsite water treatment plants
  - Upriver at North Augusta
  - Downriver at Beaufort-Jasper Chelsea
- Use Savannah River as a water supply
- SRS provides data results to communicate with organizations potentially impacted by site operations.



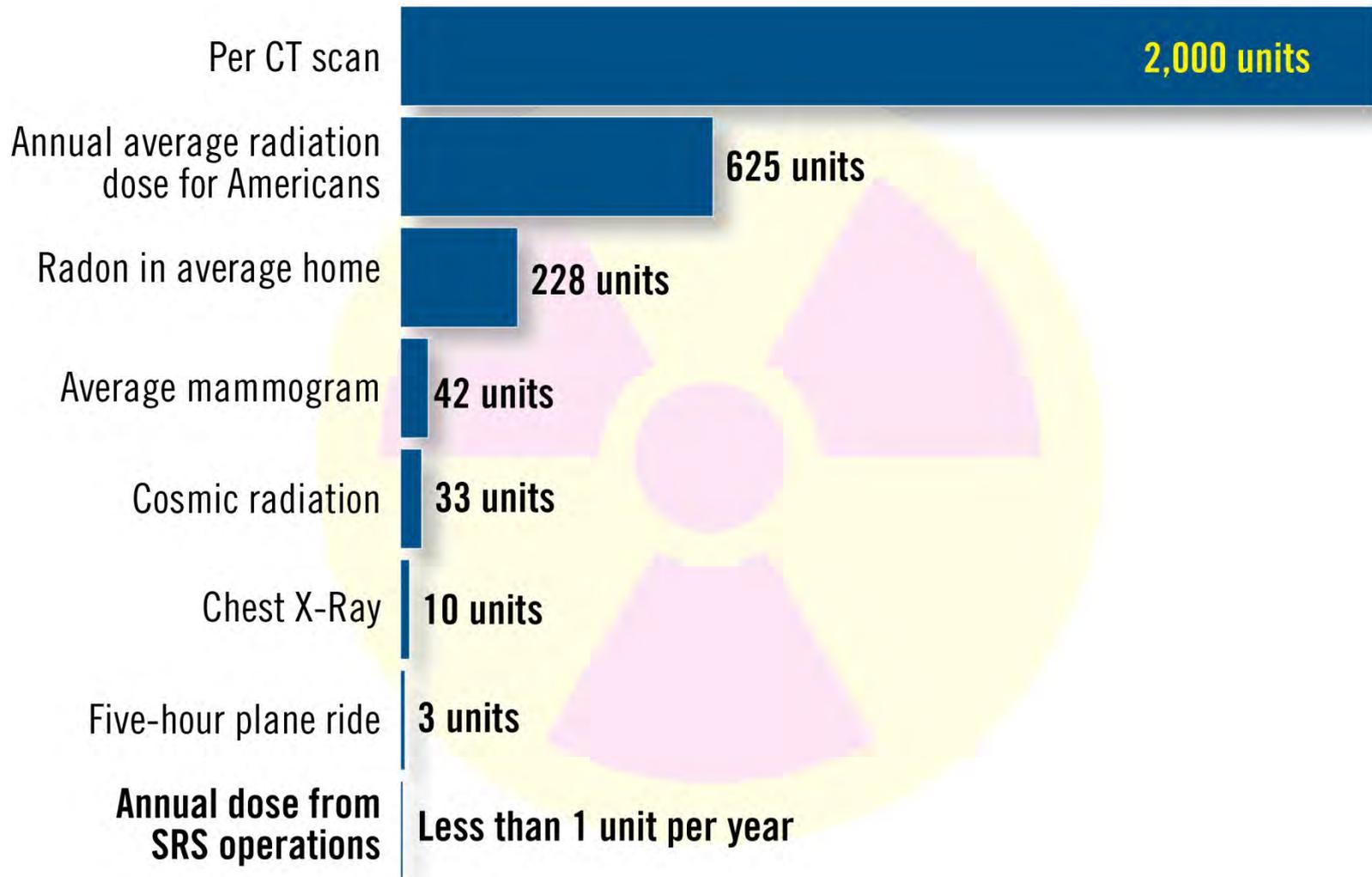
# SCDHEC: Independent Verification Sample Locations



SCDHEC samples include various media:

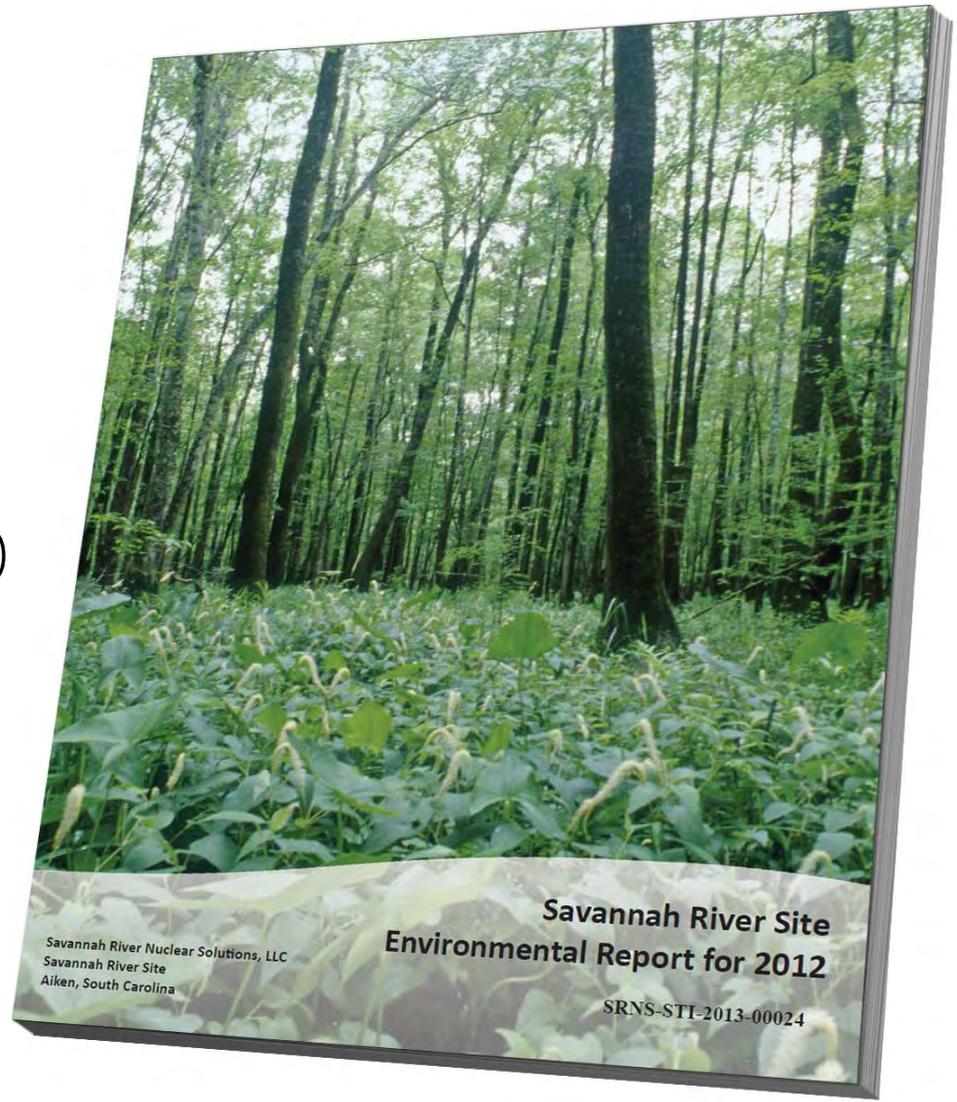
- Vegetation
- Soil
- Sediment
- Fish
- Surface Water
- Drinking Water
- Milk
- Groundwater
- Air
- Thermoluminescent dosimeter

# Impact from Radiation Sources



# Environmental Monitoring Reporting

- SRS issues monitoring and sampling results annually in the SRS Environmental Report
  - Available to the public in print or at [www.srs.gov/general/pubs/ERsum](http://www.srs.gov/general/pubs/ERsum)
- Independent assessments are conducted to validate SRS results.
  - South Carolina Department of Health and Environmental Control (SCDHEC)
  - Centers for Disease Control and Protection (CDC)
  - Agency for Toxic Substances and Disease Registry (ATSDR)
- Results confirm SRS operations are protective of the environment and human health.



# Soil and Groundwater Cleanup

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- What is contamination and how did it get there?
- How do we find contamination in soil and groundwater?
- How do we clean it up?

# What is Contamination and How Did it Get There?

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## Landfills



# What is Contamination and How Did it Get There?

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## Basins



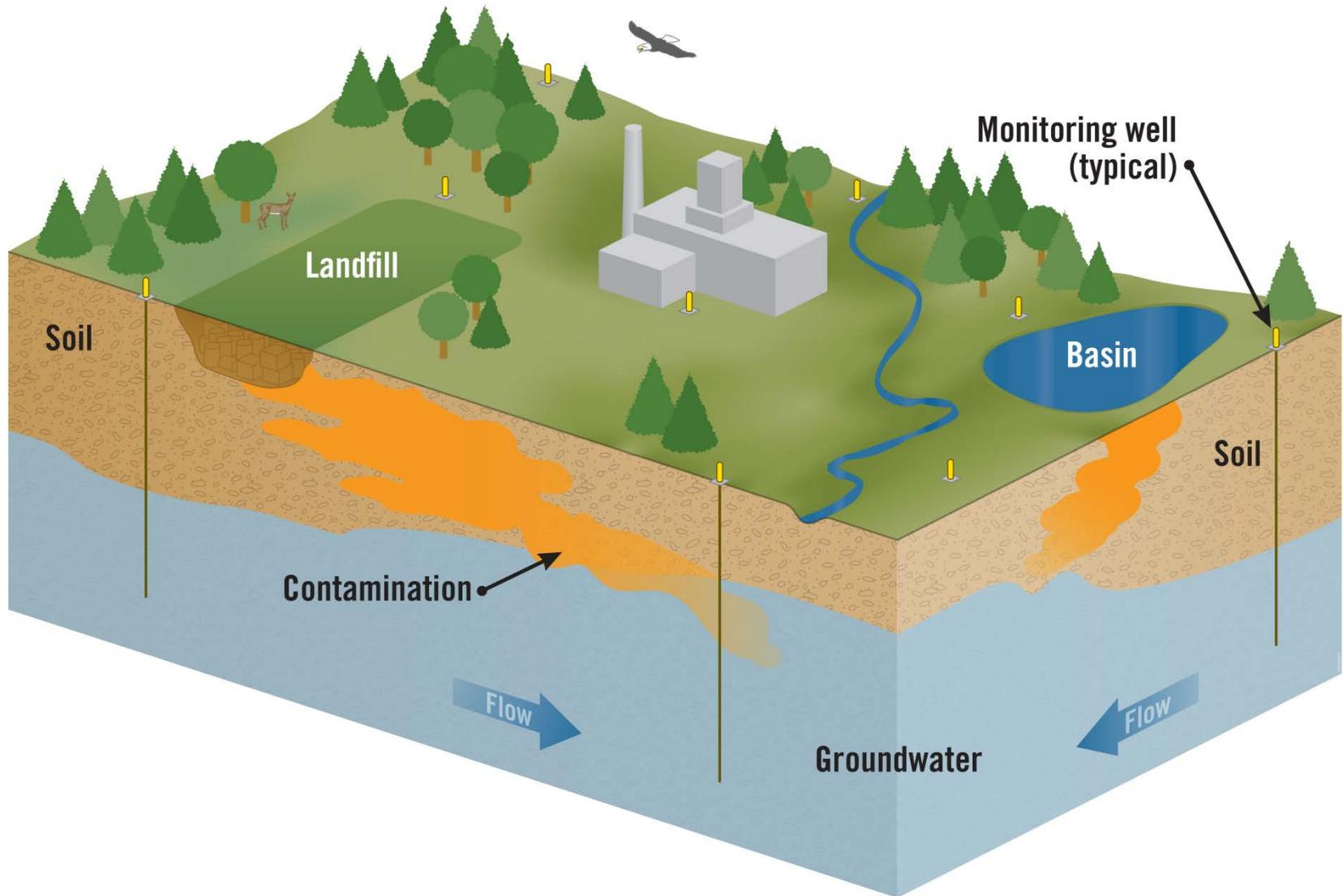
# What is Contamination and How Did it Get There?

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Streams / Lakes / Ponds



# How Does Contamination Get into Soil and Groundwater?



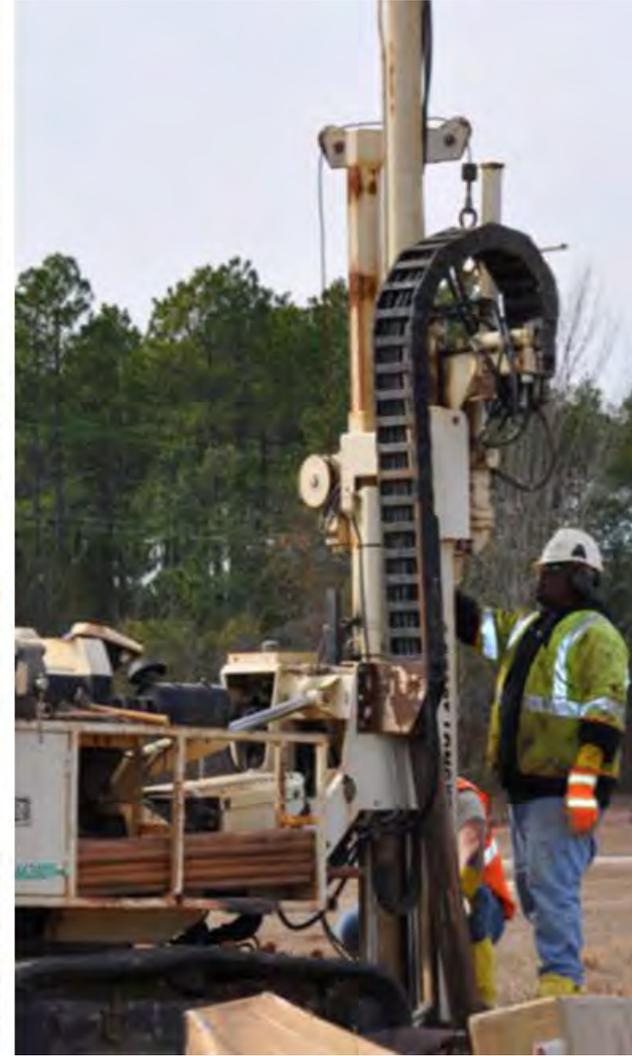
# How Do We Find Contamination in Soil and Groundwater?

- Soil
- Groundwater



# How Do We Find Contamination in Soil and Groundwater?

## Soil



# How Do We Find Contamination in Soil and Groundwater?

## Groundwater



# How Do We Clean It Up?

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- Soils
- Groundwater



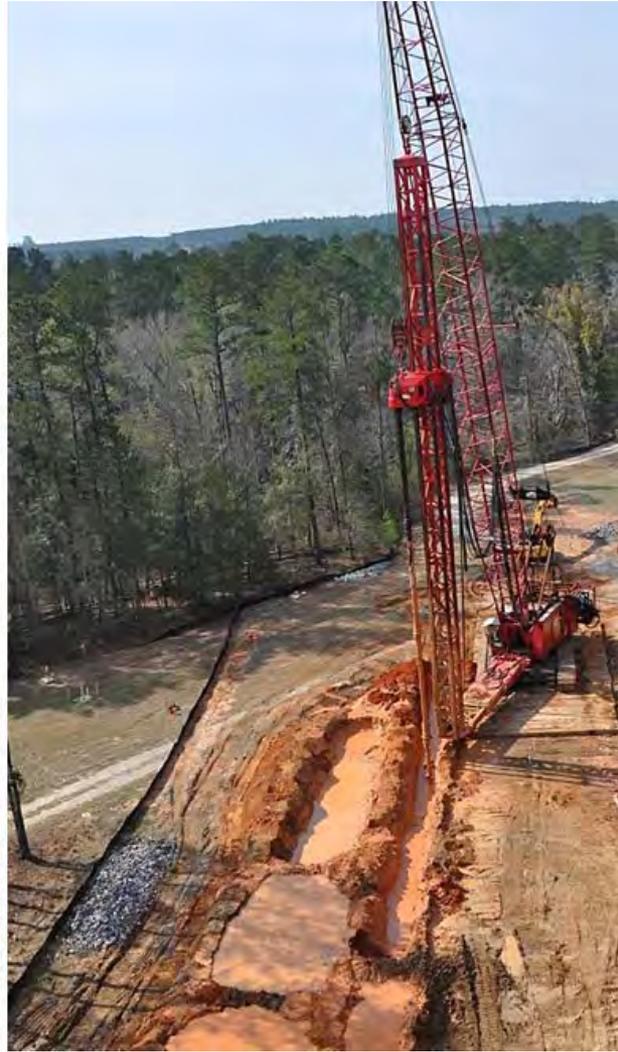
# How Do We Clean It Up?

## Soil



# How Do We Clean It Up?

## Groundwater



# Where Are We Now?

- 85% of the Site's area is cleaned to regulatory standards
- Remaining contamination areas typically within the core of the Site
- For the future:
  - Continue partnering with the Savannah River National Laboratory to develop innovative cost-effective technologies
  - Maintain strong regulatory oversight and coordination
  - Continue public involvement

