



U.S. DEPARTMENT OF
ENERGY

An Overview of the SRS Environmental Monitoring Program

Presented to the Facilities Disposition and Site Remediation Committee

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EM *Environmental Management*
safety ♦ performance ♦ cleanup ♦ closure

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Acronyms

ANSP	Academy of Natural Sciences of Philadelphia
MEI	Maximum Exposed Individual
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
SRNS	Savannah River Nuclear Solutions, LLC



Purpose

- Present an overview of the SRS environmental monitoring program
- Request from Citizens Advisory Board



Environmental Monitoring

➤ History

- **Baseline Studies (1951-1952)**
 - Du Pont
 - US. Department of Health, Education and Welfare
- **Academy of Natural Sciences of Philadelphia (1951)**
- **Environmental Monitoring Program (1953)**



Environmental Monitoring

➤ Purpose

- **Characterize and quantify contaminants**
- **Demonstrate compliance with applicable standards**
- **Calculate radiation exposures to the public**
- **Assess the effects, if any, on the local environment**



Program Requirements

- **State and Federal Regulations**
 - **Clean Air Act**
 - **Clean Water Act**
 - **Hazardous Waste Regulations (RCRA)**
 - **Landfill Regulations**
- **DOE Orders**
 - **Environmental Monitoring Plan**
- **Best Management Practices**



Effluent Monitoring versus Environmental Surveillance

➤ Effluent Monitoring

- The collection of samples or data from the point at which a facility discharges liquid or gaseous releases to the environment

➤ Environmental Surveillance

- The collection of samples of air, water, soil, foodstuffs, biota, and other media—or of data—from the ambient environment

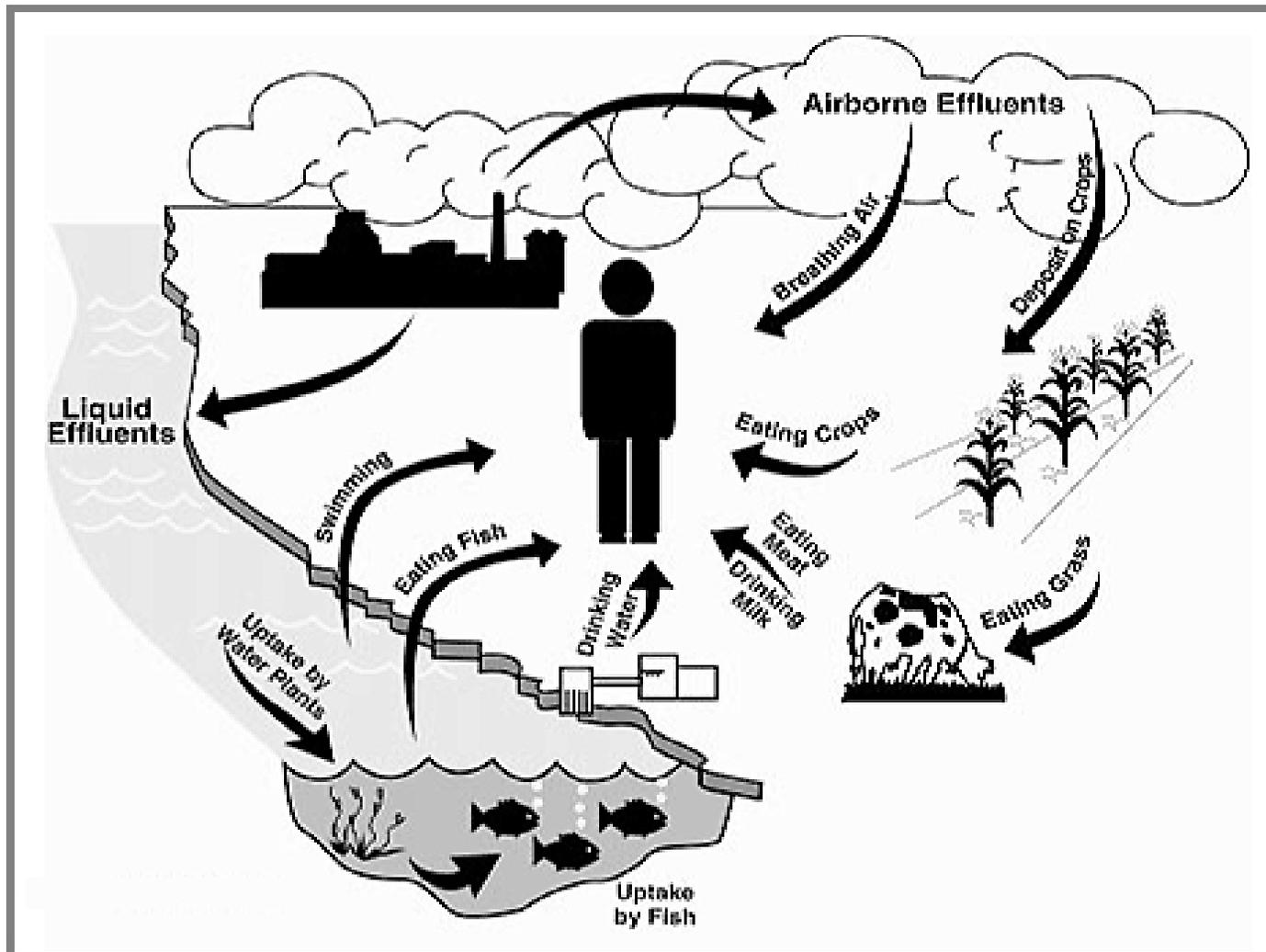


Critical Contaminant / Critical Pathway Analysis

- **Guides the monitoring Program**
- **Many factors are considered, including**
 - **Facility operation**
 - **Types of releases and release paths**
 - **Exposure pathways**
 - **Present and future health and environmental impacts**



Contaminant Pathways



Surveillance Program Design

- **Analyte Selection**
 - **Process knowledge**
 - **Movement through environment**
 - **Health impacts**
- **Sample Location Selection**
 - **Exposure pathways**

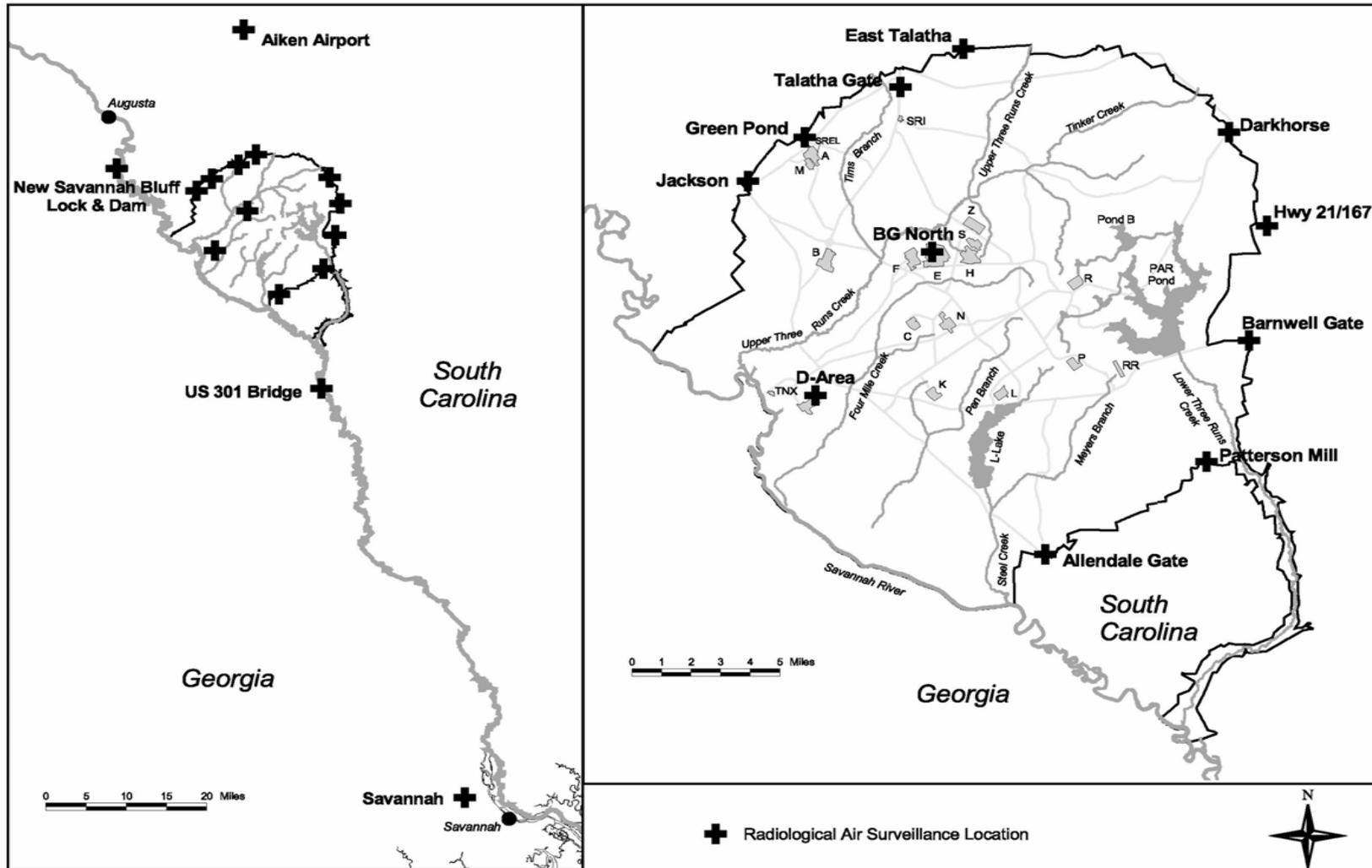


Types of Surveillance Samples

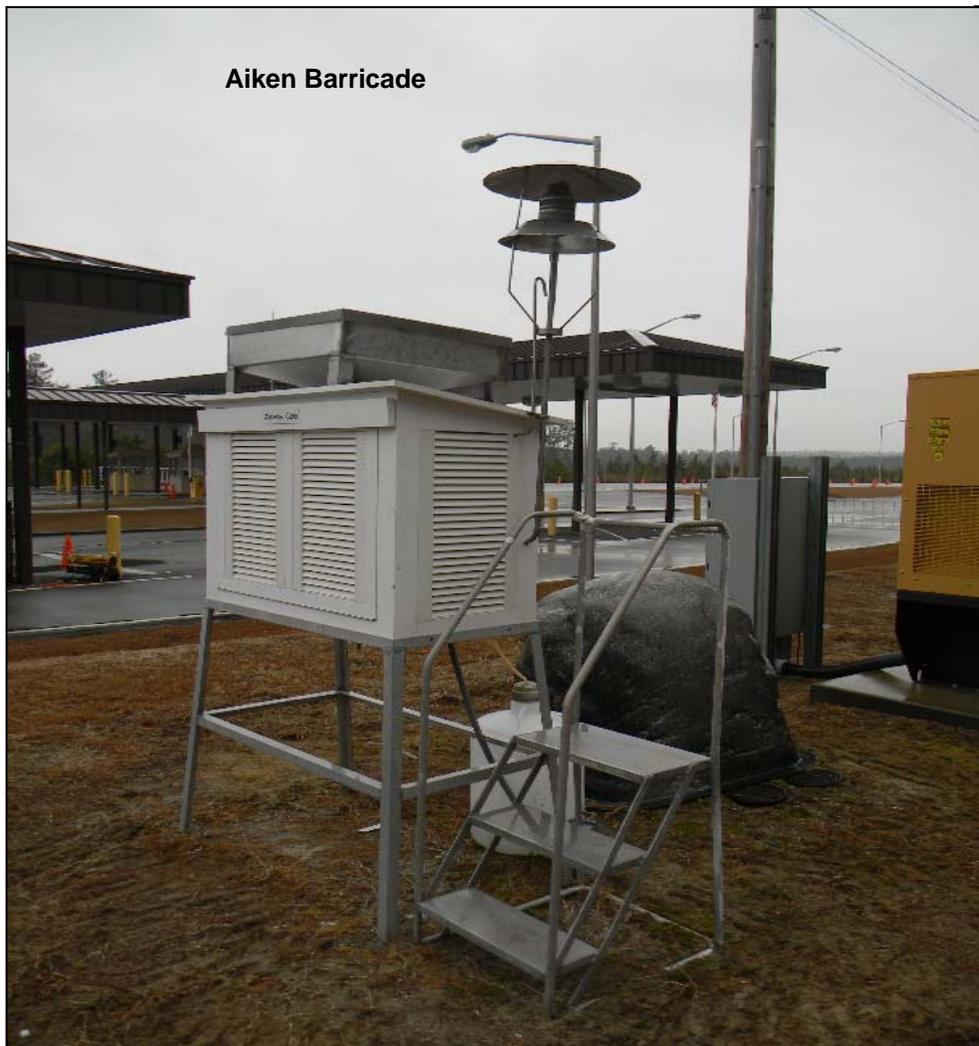
- Ambient Air
- Fish/Shellfish
- Soil
- Sediment
- Vegetation
- Groundwater
- Rainwater
- Surface Water
- Drinking Water
- Food Products
- Deer and Hogs



Radiological Air Surveillance Locations

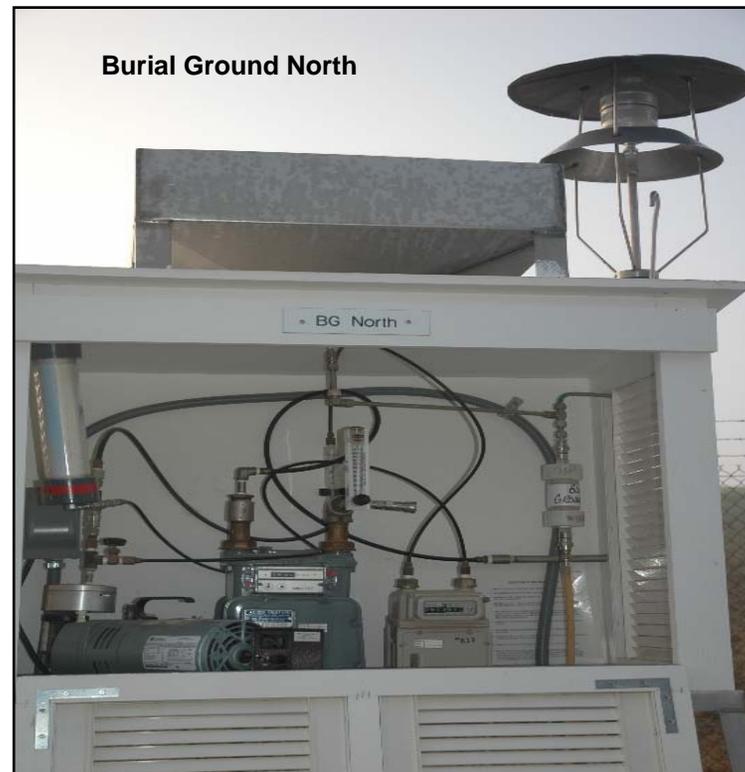


Air Sampling Sites



Air Sampling Internal Configuration

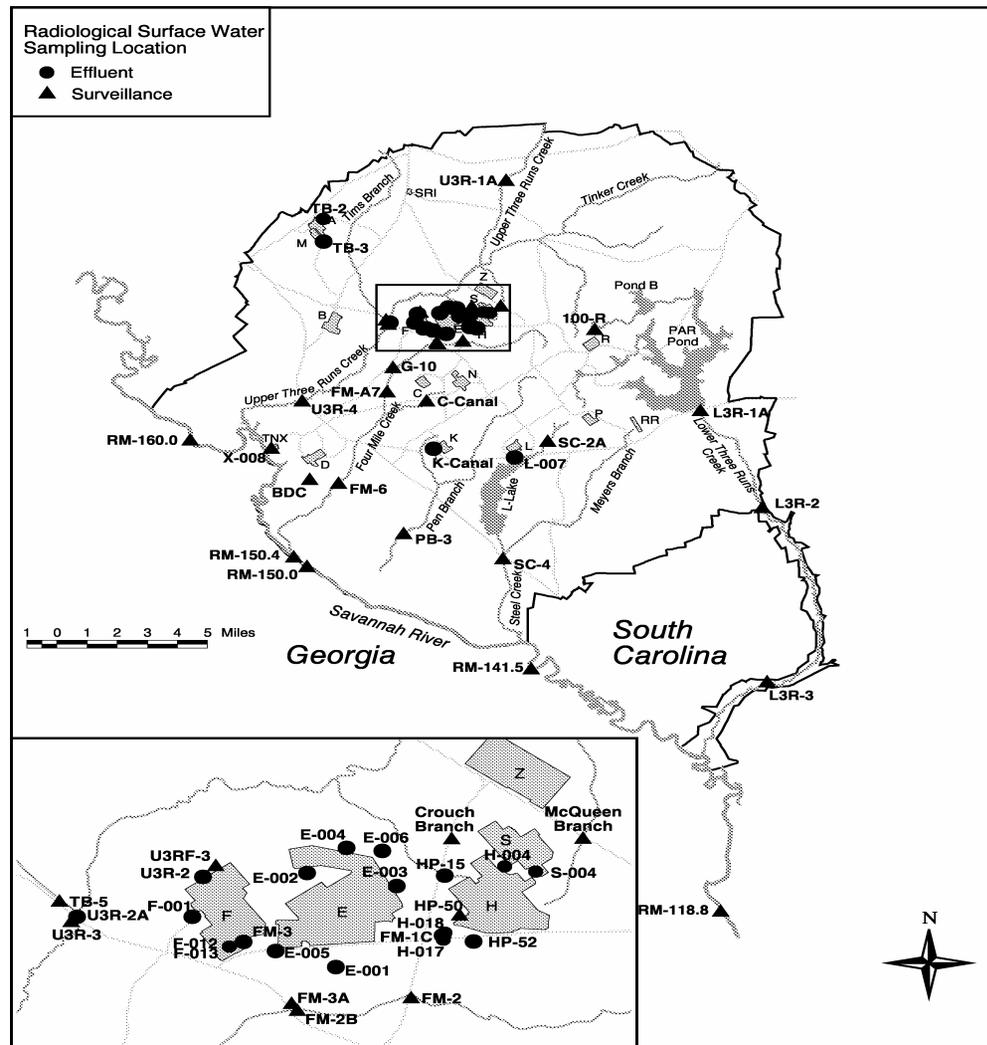
- For ambient air, radionuclides are monitored from airborne particulates, moisture in air (airborne tritium), and rainwater.



Air Sampling



Radiological Liquid Sampling Locations



Effluent Water Monitoring



Effluent Water Monitoring



Surveillance Water Monitoring



Grab Sampling



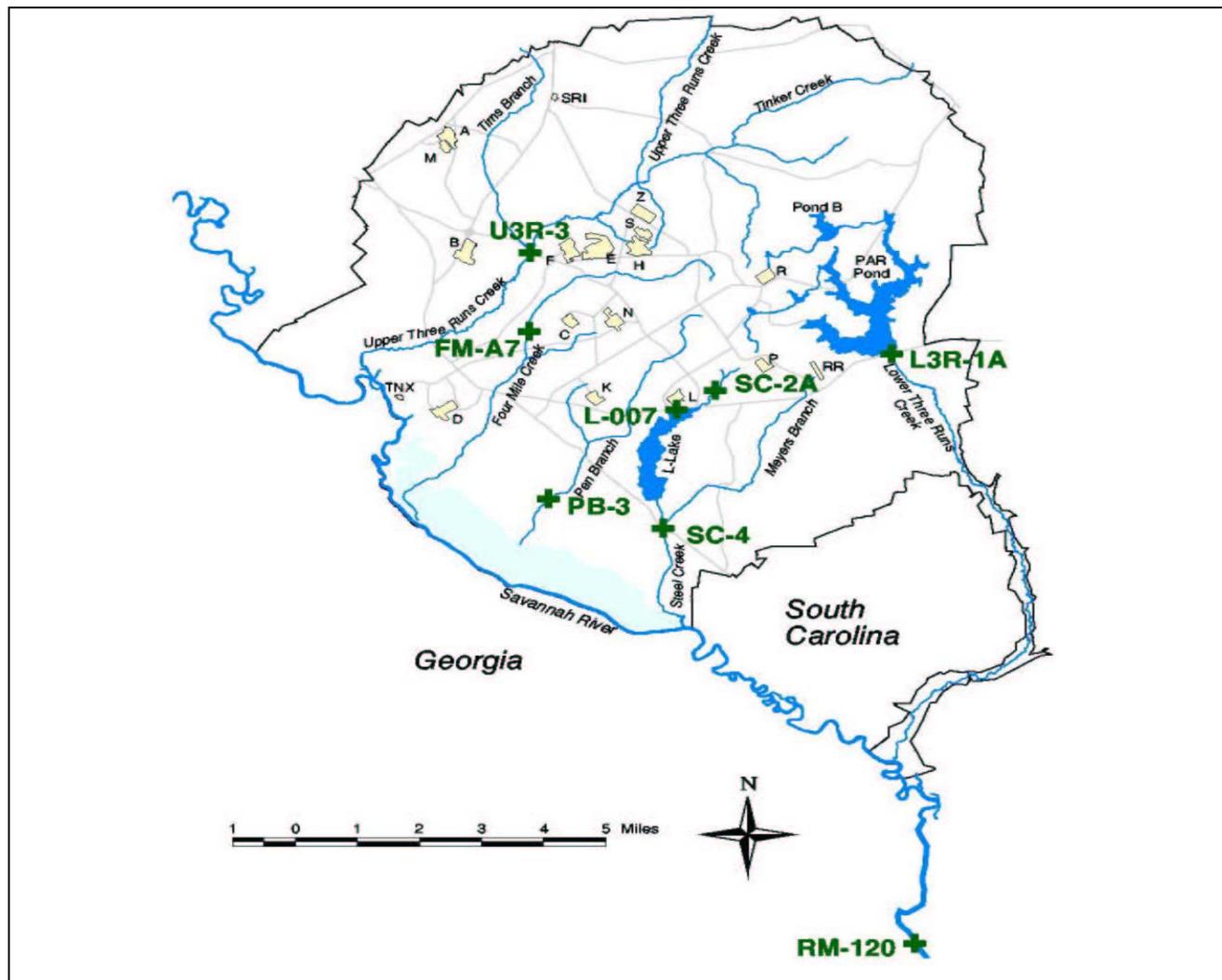
Enhanced Tritium Monitoring (ETM) Program

➤ **ETM is designed to**

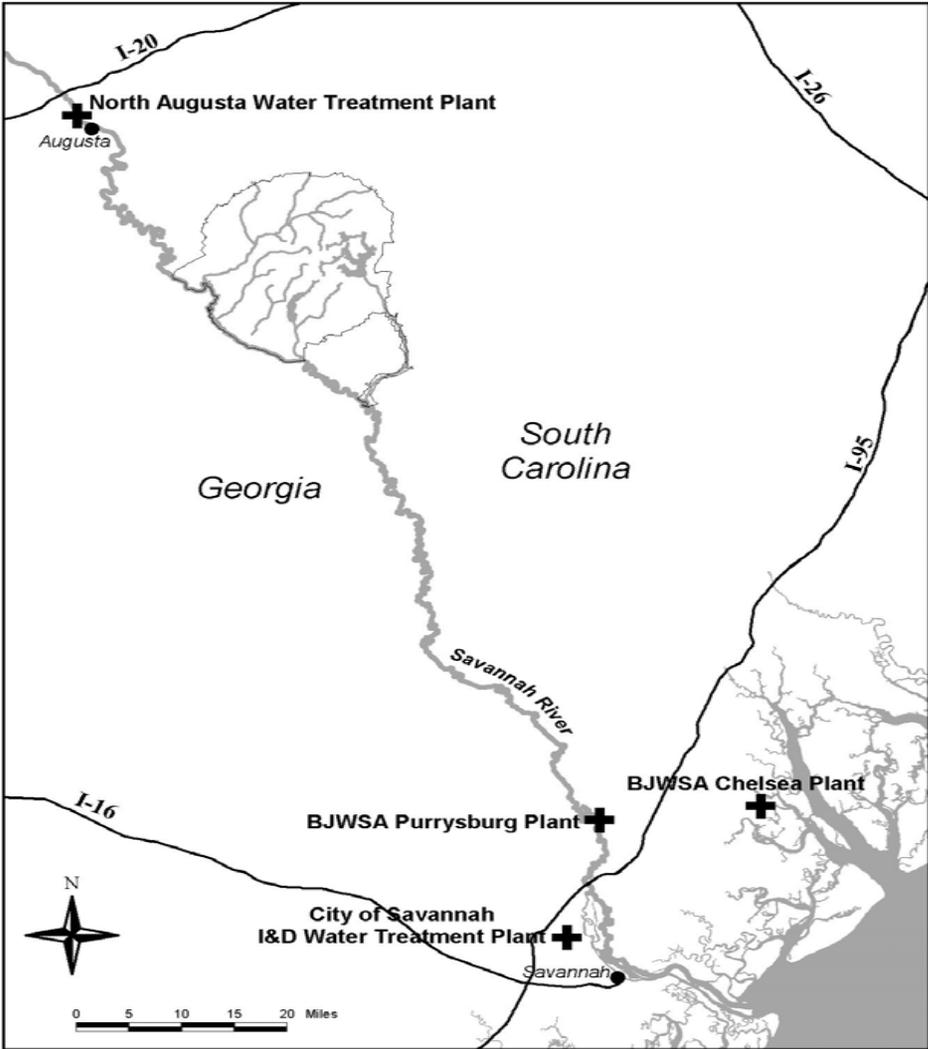
- Provide timely notification to downriver consumers measure significant changes in the river's tritium levels
- Measure tritium concentrations at onsite stream locations
- Calculate river tritium concentration



ETM Sampling Locations



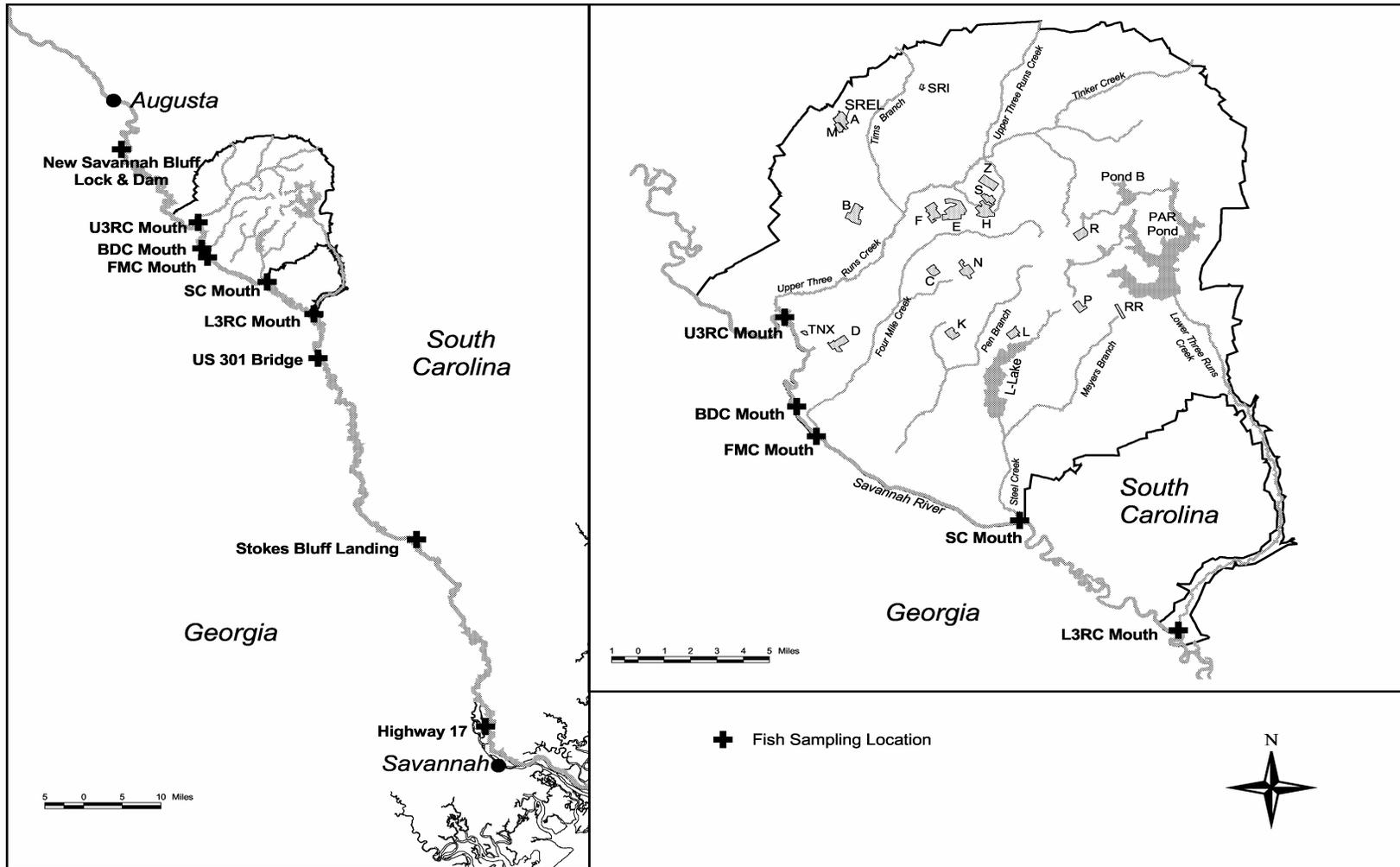
Water Treatment Plant Sampling Locations



Drinking Water Sampling Station



Fish Sampling Locations



✚ Fish Sampling Location



Fish Sampling



Milk Sampling



Deer Monitoring

Gunsite 51



Soil and Vegetation Sampling



Aiken Airport



Creek Plantation



Reporting

- Results are reported annually in the SRS site environmental report
- The 2009 report is available online at <http://www.srs.gov/general/pubs/ERsum/index.html>
- Preparation of the 2010 report is underway and should be distributed in October, 2011



Summary

- SRS has a comprehensive environmental monitoring (since 1950's)
- The site's airborne and liquid releases to the environment continue to decline.
- For 2010, the radiation dose to the
 - public living near SRS is well below DOE's 100-mrem/year standard
 - downriver water consumer is well below EPA's 4-mrem/year standard



Contact Information

➤ **To inquire about the report, contact:**

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