

# Facts

from the **Savannah River Site**

ENVIRONMENTAL STEWARDSHIP • NATIONAL SECURITY • SCIENCE AND ENERGY

## Environmental Monitoring

The Savannah River Site (SRS) performs extensive environmental monitoring to assess the Site's impact on the public and the environment and to comply with federal regulations, state permits and Department of Energy (DOE) Orders. Environmental monitoring involves 1) monitoring point-source discharges, known as effluent monitoring, and 2) sampling beyond the discharge points and from the surrounding environment, which is environmental surveillance. Every year, SRS collects environmental samples at regular intervals, ranging from weekly to annually, for the following programs:

- Air
- Drinking water
- Fish
- Food products
- Groundwater
- Sediment
- Soil
- Surface water
- Stream/river water quality
- Vegetation
- Wildlife



*Environmental sampling data collection*

SRS analyzes samples for radionuclides, metals and other chemicals that could be present in the environment because of SRS activities, although many of these analytes occur naturally or can be present due to human activities not related to SRS. The Site collects thousands of samples annually onsite and offsite in the surrounding communities.

Data collected for these programs are consistent with previous years and indicate that releases (radiological and nonradiological) by SRS operations have a minimal effect on public health and the environment.

Results are reported in the annual Savannah River Site Environmental Report, which is available electronically at: <http://www.srs.gov/general/pubs/ERsum/index.html>.



U.S. DEPARTMENT OF  
**ENERGY**

The Savannah River Site is owned by the U.S. Department of Energy. Savannah River Nuclear Solutions is the management and operations contractor at the Savannah River Site. Savannah River Remediation is the current liquid waste contractor at the Savannah River Site.

**SRS**<sup>™</sup>  
SAVANNAH RIVER SITE

## Radiation Dose

SRS calculates the potential impact on human health from SRS operations based on effluent monitoring and environmental surveillance data. This impact, commonly called a dose, is from radionuclides released into the air or water, or radiation emanating directly from buildings or other objects at SRS. The United States Environmental Protection Agency (EPA) has a 10 millirem (mrem)/year dose limit from radionuclides released to the air, and DOE has a 100 mrem/year dose limit from radionuclides from all potential pathways (inhalation, ingestion, skin absorption and external exposure).

Humans, plants and animals potentially receive radiation from natural and man-made sources. The average annual “background” dose for Americans is 625 mrem. This includes an average background dose of 311 mrem from naturally occurring radionuclides found in our bodies, in the earth and cosmic radiation. It also includes 300 mrem from medical procedures, 13 mrem from consumer products and less than 1 mrem from industrial and occupational exposures.

## Radiation Dose from SRS Operations

The annual Savannah River Site Environmental Report presents the radiological dose to the public from radionuclides released to the environment. The maximum dose that a member of the public could receive from radiation released from SRS is less than 1 mrem, based on a maximum combined dose from airborne and liquid releases.

This dose calculation uses a worst-case approach. It assumes the same hypothetical individual receives the maximum exposure due to SRS operations from each pathway. This dose is significantly less than the 100 mrem/year limit set by DOE for a member of the public from all potential pathways.

## Quality Assurance and Quality Control

Data reliability is essential for monitoring releases and measuring radiation in the environment. To demonstrate the monitoring and measurement results are accurate, within prescribed limits of precision, and ultimately representative of the local systems, SRS has implemented a quality assurance and quality control program based on guidelines from the EPA, the American Society for Testing and Materials and other federal and state agencies. SRS administers numerous quality control activities to verify reliability of the data on a day-to-day basis and to continually assess data collection techniques.

SRS also participates in quality control programs administered by agencies at both the state and federal level, such as South Carolina Department of Health and Environmental Control and EPA. The laboratories that SRS uses are licensed to handle and analyze radioactive materials and must participate in the Mixed Analyte Performance Evaluation Program (MAPEP). MAPEP is a performance testing program that evaluates the quality of analytical measurements by laboratories supporting DOE for environmental decision-making. MAPEP tracks the reliability and credibility of the analytical results with regards to DOE’s radiological protection programs, environmental remediation/monitoring programs and long-term stewardship activities. MAPEP requires participating laboratories to quantify both radioactive and nonradioactive analytes. Their sample matrices include water, soil, air filters and vegetation.

