

Facts

from the **Savannah River Site**

ENVIRONMENTAL STEWARDSHIP • NATIONAL SECURITY • SCIENCE AND ENERGY

Environmental Monitoring

Extensive environmental monitoring is completed at the Savannah River Site (SRS) to comply with regulations, permit requirements and Department of Energy (DOE) Orders, and to assess the site's impact to the public and the environment. Environmental monitoring includes the collection of air, water, soil, food products, vegetation and wildlife on a regular basis that ranges from weekly (surface water) to annually (sediment, soil, vegetation and wildlife). Every year, environmental monitoring information is collected for the following programs:

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



Environmental sampling data collection

Samples are analyzed 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. More than 5,000 samples are collected on an annual basis on and off site.

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

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

Radiation Dose

Potential impacts on human health from radionuclides released by SRS operations are calculated based on effluent monitoring and environmental surveillance data. This impact, commonly called a dose, can be caused by 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) sets a 10 millirem (mrem)/year limit for the dose from radionuclides released to the air, and DOE sets a 100 mrem/year limit for the dose from radionuclides from all potential pathways (inhalation, ingestion, skin absorption and external exposure).

Humans, plants and animals potentially receive radiation doses from natural and man-made occurrences. 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 dose from airborne and liquid releases.

This dose calculation uses a worst-case approach; i.e., the calculation assumes the same individual receives hypothetically 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 the dose to a member of the public from all potential pathways.

Quality Assurance And Quality Control

Data reliability is of the utmost importance for monitoring releases and measuring radiation in the environment. To demonstrate the monitoring and measurement results are accurate, SRS has implemented a quality assurance and quality control program based on guidelines from 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.

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. Laboratories used by SRS participate in the Mixed Analyte Performance Evaluation Program (MAPEP) program, a laboratory comparison program that tracks performance accuracy and tests the quality of environmental data reported to DOE. MAPEP samples include water, soil, air filter and vegetation matrices, all with environmentally important stable inorganic, organic and radioactive constituents.