

SRS Facts

SAVANNAH RIVER SITE • AIKEN • SC

Environmental Monitoring at SRS

Environmental monitoring is completed at the Savannah River Site (SRS) to comply with regulations, permit requirements, and Department of Energy (DOE) Orders, and assess impacts to the public and on the environment from site operations. 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 biota). Every year, environmental monitoring information is collected for the following programs: air, discharges to surface water, drinking water, fish, food products, groundwater, sediment and soil, stream/river water quality, vegetation and wildlife

Samples are analyzed for radionuclides, metals, and other chemicals that could be present in the environment due to SRS activities, although many of these analytes also 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.

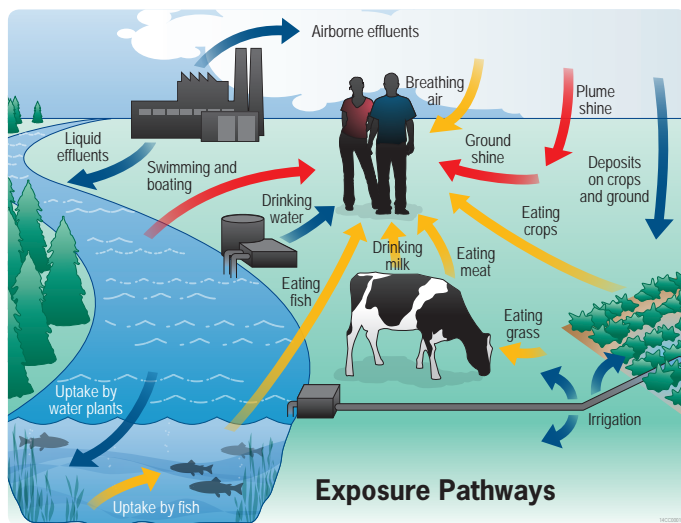
Results are reported in the annual Savannah River Site Environmental Report, which can be accessed electronically at <http://www.srs.gov/general/pubs/ERsum/index.html>.

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. 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



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Environmental Monitoring *(continued)*

naturally occurring radionuclides found in our bodies and in the earth, and from 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; that is, the calculation assumes that 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 that 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 (SCDHEC) 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.

SCDHEC evaluates the effectiveness of SRS monitoring activities. To accomplish this function, SCDHEC conducts non-regulatory monitoring activities on and around SRS, conducts evaluations of the SRS monitoring program and provides an independent source of information to the public pertaining to levels of contaminants in the environment from historical and current SRS operations.

Independent assessments of the SRS Environmental Monitoring program have been conducted by the Center for Disease Control (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR). The CDC published the SRS Dose Reconstruction Project report in 2005. Three ATSDR assessments (groundwater, biota, and air) have been published and studies have not identified any health hazards to the public resulting from SRS operations.

Reports of the SCDHEC, CDC and ATSDR assessments are available on the World Wide Web.

