The Savannah River Site
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U. S. Department of Energy Conducts Phased Submittals of the Fifth Five Year Remedy Review at Savannah River Site

Fifth Phase: Savannah River Site Operable Units with Operating Equipment

The U.S. Department of Energy (DOE) is conducting the Fifth Five-Year Remedy Review for active remedial actions implemented at the Savannah River Site (SRS). The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that remedial actions that result in hazardous substances, pollutants, or contaminants remaining at an operable unit at levels unsuitable for unrestricted exposure be subject to a five-year remedy review. The purpose of this review is to determine whether the remedies remain protective of human health and the environment and to evaluate the implementation and performance of the selected remedies. The U.S. Environmental Protection Agency (EPA) and South Carolina Department of Health and Environmental Control (SCDHEC) will review and approve whether the five-year remedy review adequately addresses the protectiveness of each remedy. The methods, findings, and conclusions of the five-year remedy review will be documented in a report that will be made available to the public.

SRS occupies approximately 310 square miles of land adjacent to the Savannah River in Aiken, Allendale, and Barnwell counties of South Carolina. SRS is located approximately 25 miles southeast of Augusta, Georgia, and 20 miles south of Aiken, South Carolina. During the early 1950s, SRS began to produce materials used in nuclear weapons. Chemical and radioactive wastes are by-products of nuclear material production processes. These wastes have been treated, sorted, and in some cases disposed of at SRS. Hazardous substances, as defined by CERCLA, are currently present in the environment at SRS, with past disposal practices resulting in soil and groundwater contamination.

Each SRS operable unit is unique in size, location, environmental factors, and contaminant type. Contaminants may include chemicals (e.g., trichloroethylene, tetrachloroethylene, etc.), metals, pesticides, polychlorinated biphenyls, and radionuclides (e.g., tritium, cesium-137, etc.). Contaminants may be found in surface soils, subsurface soils, and/or groundwater. Operable unit-specific remedial actions are designed to address the contaminants for the protection of human health and the environment. In general, contaminated media are either covered, stabilized in place, treated, removed, or managed with land use controls (LUCs). Common remedies implemented at SRS include LUCs, cover systems (i.e., soil covers, geosynthetic covers), excavation and disposal actions, removal systems (i.e., soil vapor extraction, electrical resistance heating, dynamic underground stripping), treatment systems (i.e., enhanced bioremediation, chemical oxidation), stabilization (i.e., in situ grouting), mixing zones, and monitored natural attenuation.

Previous five-year remedy reviews were conducted for all SRS operable units (OUs) that have implemented a remedial action with the results documented in a single report. Due to the increasingly large size of a single report, this strategy was altered for the Fifth Five-Year Remedy Review Report. The strategy is to now conduct phased remedy reviews for operable unit groupings based on remedy similarity rather than combining all operable unit reviews in a single report. The operable units will be grouped by the following remedy types: (1) native soil cover and/or LUCs, (2) groundwater, (3) engineered cover system, (4) geosynthetic or stabilization/solidification cover

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system, and (5) operating equipment. The remedy reviews for each group will be performed in successive years, so that all groups/reviews are completed within five years from the Fourth Five-Year Remedy Review Report, which was issued on February 4, 2014. The phased submittals allow DOE, EPA, and SCDHEC to effectively identify and resolve issues for similar remedies simultaneously and efficiently implement any needed optimization initiatives for similar projects. The phased approach began with the submittal of the *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Native Soil Covers and/or Land Use Controls* in December 2014.

The five-year remedy review will address three major questions:

- Are the remedies functioning as intended by the decision document?
- Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?
- Has any other information emerged that could call into question the protectiveness of the remedy?

The fifth phased submittal of the Fifth Five-Year Remedy Review Report will focus on SRS operable units with operating equipment (i.e., ongoing active remediation). A range of active remediation systems are used at SRS to address contaminants in soil and groundwater. Soil vapor extraction systems are used to remove volatile organic compounds (VOCs) from vadose zone source areas before the contaminants can migrate to the water table. Air strippers are employed to remove VOCs from groundwater in the source zone while active recirculation well systems remove VOCs from groundwater plumes. Pump and treat systems are used to remove contaminant mass and exert hydraulic control over contaminated groundwater plumes. Thermal technologies (e.g., dynamic underground stripping and electrical resistance heating) have been employed in several areas to mobilize dense non-aqueous phase liquid VOCs in the vadose zone and groundwater. DOE will notify the public when the *Fifth Five-Year Remedy Review Report for Savannah River Site Operable Units with Operating Equipment* is complete and is available to the public. The report is currently planned to be available to the public in February 2019.

The Fifth Five-Year Remedy Review Report for SRS operable units with Operating Equipment includes a review of the following operable units:

- A/M Area Groundwater
- A-Area Burning/Rubble Pits (731-A/1A) and Rubble Pit (731-2A), Miscellaneous Chemical Basin (731-4A) and Metals Burning Pit (731-5A)
- A-Area Miscellaneous Rubble Pile (731-6A)
- C-Area Burning/Rubble Pit (131-C) and Old C-Area Burning/Rubble Pit (NBN)
- D-Area Operable Unit
- F-Area Groundwater
- H-Area Groundwater
- M-Area Operable Unit
- M-Area Inactive Process Sewer Line (081-M)
- P-Area Burning/Rubble Pit (131-P)
- TNX Area

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