

Technology Testbeds at Savannah River National Laboratory

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SRNL Fast Facts

- > The Savannah River National Laboratory (SRNL) has a unique set of assets that can be accessed to test innovative technologies that address Department of Energy, Office of Environmental Management (DOE-EM) high priority needs.
- > Priority DOE-EM concerns include technetium-99 (Tc-99), mercury, cesium-137 and strontium-90,
- > The Groundwater Testbed provides a field site for evaluation of natural and enhanced attenuation mechanisms and for testing chemical/physical reactants to immobilize, precipitate, transform, or fix soluble Tc-99 and other contaminants in a shallow, multi-contaminant groundwater plume and shallow surface water.

Contact Information

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Groundwater Testbed

The Groundwater Testbed is a two square kilometer field site located down gradient of the F Area separations facility. Liquid process waste was disposed into unlined seepage basins during the period between 1955 and 1988.

The associated groundwater plume contains dissolved uranium, strontium, iodine, technetium and tritium, as well as other radionuclides and metals.

Implementation of a phased remedial strategy that combines standard and innovative remedial approaches over several decades has resulted in the development of a rich database of supporting measurements.

Attributes

- Chemically complex, shallow groundwater plume in layered coastal plain sediments
- Mature conceptual site model that includes detailed information on site hydrology, geologic features and contaminant distribution
- Comprehensive monitoring history with 60 years of high quality groundwater data
- Access to applied research measurements made to support deployment and testing of over 20 innovative technologies
- Subsurface access to vadose, saturated, and wetland zones including critical interfaces (vadose zone-groundwater, geochemical treatment interface, and groundwater seepage)
- Climatic, geologic, and hydrologic framework that allows for effective and accelerated testing of technologies due to high precipitation rates
- Administrative infrastructure with a regulatory framework that calls for phased implementation of regulatory actions to encourage continued development and deployment of innovative technologies

Impact

- Field-based evaluation and implementation of monitoring and remedial technologies/strategies
- Demonstrated success in working with both research and commercial entities
- Associated regulatory framework that facilitates acceptance of non-traditional approaches at real-world sites



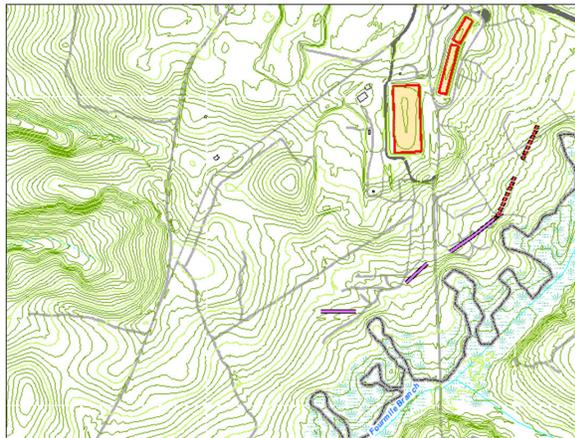
Installation of the funnel and gate system



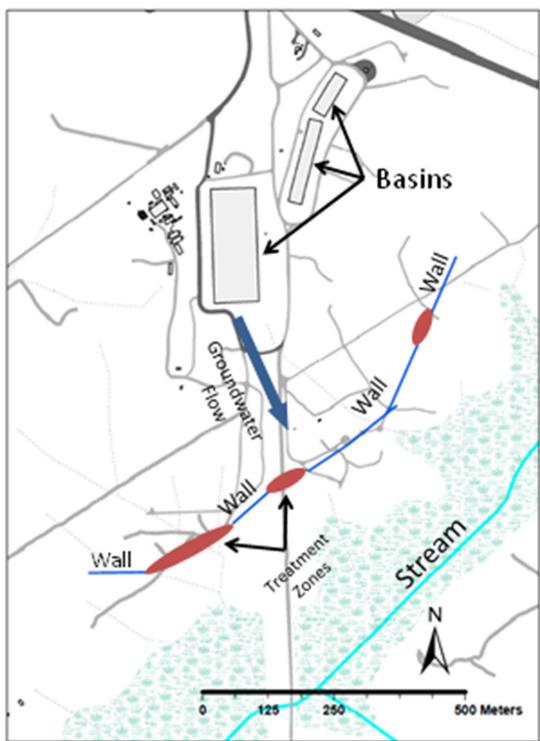
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Aerial view of the Groundwater Testbed (Closed F Area Seepage Basins)



Topography of the Groundwater Testbed (Closed F Area Seepage Basins)



Funnel and Gate System (Closed F Area Seepage Basins)



Installation of Funnel and Gate System

