Savannah River Site Citizens Advisory Board

Recommendation 168

R- Area Reactor Seepage Basin

Background
The Savannah River Site (SRS) R-Reactor Seepage Basins are located next to the inactive R-Area Reactor in the central part of the site. The six unlined, earthen basins were designed to disperse spent cooling water from reactor operations and were active from 1953 to 1964. The series of six basins were constructed partly in response to a non-routine incident in 1957 where approximately 2,700 curies of radionuclides were released primarily to Basin 1. Basins 2 through 6 were constructed between November 1957 and March 1958 to handle the large volume of contaminated purge water, estimated to be 5 million gallons.

By 1960, Basins 1 through 5 were all deactivated and backfilled. In 1964, Basin 6 was deactiviated and in 1977 it was backfilled. In 1996, all of the Basins were covered with clean soil and an asphalt cover was installed to prevent surface water infiltration and vegetative growth within the basins.

Based upon an assessment of the sub-units within the Basins area, remedial action was proposed for the seepage basins, the abandoned process sewer lines, the contaminated sanitary sewer lines and the underlying groundwater. To accomplish these actions the preferred alternatives are to install reinforced concrete Intruder Barrier System, excavate the process lines outside the boundary fence and implement a mixing zone permit with institutional controls for the groundwater (Ref. 1).

Comment
The SRS Citizens Advisory Board (CAB) has been a proponent of the Plug-In Record of Decision (ROD) approach since it was first introduced at SRS in 1997 (Ref. 2 and 3). Using the Plug-In ROD streamlines the remedy decision process, reduces documentation, and expedites remediation. We expected to see the use of the Plug-In ROD at the original Reactor Basin sites and anticipate its use at other candidate sites. However, the R-Reactor Seepage Basins is not a candidate site for the Plug-In ROD. The volume of contaminated material and the activities of radioactive contaminants are larger than those in other Reactor Basins. The groundwater plume is not moving, making excavation and grouting impractical. While still a proponent of the Plug-In ROD, the SRS CAB is pleased to see that SRS is applying a common sense approach and allowing site conditions to dictate the most appropriate remedial actions. The SRS CAB has endorsed the use of mixing zones and believe it is a viable and cost effective remedy for the R-Reactor Seepage Basins groundwater (Ref. 4).

Recommendation
The SRS CAB supports the R-Reactor Seepage Basins Proposed Plan and the preferred alternatives. We support the use of mixing zones, where applicable, for remedial actions. Therefore we recommend and encourage continued cooperation between SRS and SCDHEC to avoid any costly and ineffective remedial system, such as pump and treat and re-inject, for contaminated groundwater in the R-Reactor Seepage Basins area.

References

1. R-Reactor Seepage Basins (RRSB) 108-4R Overflow Basin Operable Unit (OU) Proposed Plan, presentation to the ER Committee by Bruce Schappell, June 17, 2003.
2. Citizens Advisory Board Recommendation No. 46 (adopted November 18, 1997), "Plug-in ROD Approach."

3. Citizens Advisory Board Recommendation No. 76 (adopted January 26, 1999), "Plug In Records of Decision."
4. Citizens Advisory Board Recommendation No. 145 (adopted October 23, 2001), "Groundwater Mixing Zones."

Agency Responses

Department of Energy-SR (PDF)