



Recommendation No. 94

July 27, 1999

Solid Waste Division System Plan Low-Level Radioactive Waste Disposal

Background

The purpose of the Solid Waste System Plan (Ref. 1 & 2) is to perform a comparative analysis of options for treating and disposing of different kinds of solid waste, to select a preferred option and to provide a management plan for allocation of scarce resources. A portion of this plan deals with the preferred option for the management and disposal of low-level radioactive solid waste (LLW; in Ref. 3) and is the subject of this motion.

The Department of Energy has sole regulatory authority for the disposal of LLW under the Atomic Energy Act of 1954 and issues regulations for LLW disposal through DOE Orders 5820.2A and 435.1.

LLW is being disposed in the E-Area Vault Facility in the Savannah River Site (SRS) E-Area near the center of SRS. This 200-acre facility contains vaults and trenches for disposal of LLW. Performance Assessments (PA) and Composite Analysis (CA) have been performed on the vaults and the trenches. The PA and CA analyze the potential release and migration of radionuclides from the vaults and the trenches over a 10,000 year period. All possible pathways to humans are analyzed to ensure protection of human health and the environment. The performance objectives that must be met by the PA and CA include protection of the groundwater. The groundwater must be shown to meet drinking water standards for the entire 10,000 year period. The PA and CA analyses provide the basis for developing Waste Acceptance Criteria (WAC; maximum number of curies of each radionuclide contained in a vault or trench) for LLW going into these facilities.

Currently, only material with very low radionuclide concentrations - soil, rubble, wood, and stabilized ash from the Consolidated Incineration Facility (CIF) - is disposed in the earthen trenches; other LLW, regardless of radionuclide content, is disposed in a vault.

The System Plan (Ref. 1) analyses found that current disposal practices are overly conservative. The PA and WAC indicate that disposal of low activity LLW in the vault is needlessly using expensive vault space when instead it could meet the WAC for the trenches. The analyses found that about 50 percent of the LLW now going to the vaults would meet the trench WAC. Vault space could then be reserved for high activity LLW.

If the vaults are reserved for high activity LLW and the trenches are used for disposal of low activity LLW meeting the trench WAC, the need for another vault will be pushed out 10 years. Otherwise, work towards designing and budgeting another vault needs to start next year. The System Plan recommends using the trenches for disposal of LLW meeting the trench WAC.

The SRS Citizens Advisory Board is concerned about SRS funding and supports actions that minimize expenditures while still protecting human health and the environment. We believe that the PA and the trench WAC provide a sound technical basis for protecting human health and the environment and that disposing of low activity LLW in trenches does not pose a threat to human health or the environment. The Board believes that the System Plan approach of using scientific/technical criteria and systems engineering is an excellent way to analyze options for treatment, storage and disposal of LLW.

Recommendation

The SRS Citizens Advisory Board (CAB) concurs with the System Plan recommendation to use the trenches for disposal of LLW meeting the trench WAC. The CAB also recommends that SRS:

1. Present to the CAB by February 10, 2000, the performance of the E-Area LLW disposal facility from the available data (e.g., waste receipts, monitoring, testing and research) as it compares to the assumptions and results of the PA and CA reports.
2. Present to the CAB by February 10, 2000, the operations cost and time savings expected by

implementing the System Plan recommendation.

3. Present to the CAB by February 10, 2000, and annually thereafter, a comparison of PA and CA results with comparable methods from the scientific community. The CAB understands that the PA and CA have undergone extensive ISPR and cross-validation; we encourage SRS to perform additional Independent Scientific Peer Review (ISPR's) of the PA and CA on a regular basis to continue to assure the public and the scientific community of the robustness of these models.

References

1. System Plan for the Solid Waste Division, Westinghouse Savannah River Company Report WSRC-RP-98-00226, Rev. 1, February 22, 1999.
2. Brief on the Solid Waste Division (SWD) System Plan, Presentation to the ER & WM Subcommittee, CAB, by Peter I. Hudson, April 14, 1999.
3. Solid Waste Division System Plan, Low-Level Radioactive Waste Disposal (LLW), Presentation to the ER & WM Subcommittee, CAB, by W. T. (Sonny) Goldston, July 13, 1999.

Agency Responses

[Department of Energy-SR](#)