SRS Citizen's Advisory Board

Recommendation No. 56

March 24, 1998

Remediation of F-Area Retention Basin

Background

The F-Area Retention Basin is an unlined basin 120 by 200 feet, that collected lightly contaminated cooling water from the F-Area Canyon Facility as well as storm water drainage from the F-Area Tank Farm. The basin was used from 1955 to 1972. In 1978, its soil was sampled and analyzed, contaminated soil removed, and the basin closed. Closure consisted of filling the basin with about 7 to 10 feet of clean dirt and seeding the surface with grass.

Numerous environmental investigations were completed on the retention basin and the connecting process sewer line between 1993 and 1997. Extensive sampling data and analyses were published along with pathway and risk calculations.(1) The most significant contaminates are Arsenic and Cesium-137. Also, fate and transport analyses have indicated that levels of certain radionuclides (e.g., technetium, strontium) could exceed acceptable concentrations in the groundwater under the basin. The risk analyses, under conservative assumptions, indicate a risk above the CERCLA guidelines only for an onsite resident exposed to the remaining contaminated soils in the basin. However, there is currently no risk to onsite workers or the offsite public. Further, this site is located in an industrial cleanup zone (see Motion 2).

Remedial Action Objectives for an onsite resident have been identified and remediation alternatives have been evaluated. (2) These Remedial Action Objectives are: prevent future ingestion of shallow aquifer groundwater; prevent direct contact with and ingestion of soils (basin and pipeline); prevent direct contact with and ingestion of sediments from the abandoned process sewer line; and prevent the transport of contaminants from subsurface soils to groundwater (basin and pipeline). Remedial alternatives were evaluated for basin soils (4 alternatives), for groundwater (2 alternatives) and process sewer line and pipeline soils (3 alternatives).(2,3) All alternatives require institutional

control and the recording of basin and pipeline locations as deed restrictions before releasing the land to the public. The preferred alternatives are: for the basin soils - institutional controls, grouting and low permeability cover ($1,460,929); for groundwater - non action ($9,578); and for the process sewer line and pipeline soils - institutional controls, pipeline grouting and soil excavation and disposition with the basin soils ($319,265). The reduction in risk was not evaluated quantitatively for any of these alternatives; however, the relative risk reductions were evaluated qualitatively.

Recommendation:

Because the F-Area Retention Basin and associated pipelines are in the nuclear industrial area and will be under institutional controls followed by deed restrictions, and because this site has been buried for 20 years with no identified contaminant migration, the SRS Citizens Advisory Board believes that the Remedial Action Objectives can be met with less extensive remediation. We recommend a low-permeability cap for the basin, continued groundwater monitoring and grouting the inside of the pipeline. These changes should reduce the total remediation costs by about $1 million.

Because the amount of risk reduction for different remediation alternatives is critical in the selection of cost effective remediation strategies, the SRS Citizens Advisory Board recommends that in the future that all SRS remediation studies include analyses of the risk remaining after remediation for the most likely alternative and the most probable pathway and exposure scenarios.

Furthermore, the extensive analyses and documentation for the F-Area Retention Basin and associated pipeline probably cost as much or more than the planned remediation. This leads us to make the more general recommendation that the three agencies (DOE, EPA and SCDHEC) expeditiously implement the Plug-In-ROD approach to reduce future paperwork costs.

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(1) Remedial Investigation Report with the Baseline Risk Assessment for the F-Area Retention Basin (281-3F), Final, WSRC-RP-96-356, Rev.1.2, July 1997

(2) Corrective Measures Study/Feasibility Study for the F-Area Retention Basin (281-3F), Final, WSRC-RP-96-00906, Rev. 1.2, November 1997

(3) Statement of Basis/Proposed Plan for the F-Area Retention Basin (281-3F), Final, WSRC-RP-97-00128, Rev. 1.2, November 1997

Agency Responses

Department of Energy-SR