SRS Citizen's Advisory Board

Recommendation No. 84

May 25, 1999

Risk Summary - Savannah River Site

Background:

A Risk Summary draft has been prepared for the Savannah River Site (Ref. 1). This was done by the Center for Risk Excellence of DOE with input from SRS. Comments on it have been requested by DOE-SR by the first week in May 1999 (Ref. 2). The purpose of this motion is to provide such comments. This draft will be shared with DOE-SR by the SRS Citizens Advisory Board subcommittee on Risk Management and Future Use by the first week in May but will be finalized at the Savannah River Site Citizens Advisory Board meeting on May 25, 1999. This study identified the following seven major Risk-Related Challenges:

- 75 (actual SRS number is 34) million gallons of high-level waste in 49 underground storage tanks.
- 66 tons of heavy metal-contaminated spent nuclear fuel, with 0.09 tons of it rapidly deteriorating research reactor fuel.
- An additional 34.3 tons of heavy metal-contaminated spent nuclear fuel to be received between 1999 and 2035.
- 36,000 drums of depleted uranium oxide; 80,000 gallons of depleted uranium solution; and 60,000 gallons of highly enriched uranium.
- 2,800 packages of plutonium metal, solids, residues; 12,400 gallons of plutonium solutions; and 1,600 gallons of neptunium nitrate.
- 14,000 cubic yards of transuranic (TRU) waste in drums and other containers, with another 14,000 cubic yards of TRU waste expected as facilities are cleaned out.
- 88 cubic yards of contaminated lead plus 177 cubic yards of LLW contaminated with lead; 4,186 cubic yards of debris and contaminated soil in MLLW inventory; 58,000 gallons of aqueous and organic liquid MLLW; 2.5 million gallons of MLLW and 0.5 million gallons of liquid MLLW from decontaminating facilities.

The above potential hazards are all being currently safely managed and there are programs to further reduce the hazard potential. Programs for removing these hazards are progressing at differing rates as a function of funding, technology, opening of waste repositories, etc.

Graphs are given in the report showing relative hazard reduction from proposed programs as a function of relative time for each of the above hazards.

Recommendation:

The SRS Citizens Advisory Board agrees that the identified hazards are the major ones at SRS. The Risk Summary Report (Ref. 1) identifies major potential hazards but not risks and therefore the report title is inappropriate and the report itself is confusing in discussing hazards and risks. Hazard is defined as the "potential to cause illness, death, etc." and can be related to activity in the material times a dispersal capability of the material. Risk is defined as hazard times probability of release and dilution in environment before reaching receptors and considers various barries (natural or engineered). The main substance of the report is the relative hazard curves given at the end of the report. However, there is no information on how they were developed. A major interest of the SRS CAB Risk Management and Future Use Subcommittee and of the public is understanding risk on a comparable basis between all of the SRS programs. Therefore the SRS CAB recommends that:

1. DOE-SR and the Center for Risk Excellence develop a basis for calculation of the relative hazard and then prepare a set of hazard curves as a function of time. The basis should be consistent for all hazards so that comparisons can be made between different hazards. These hazard curves should contain units of measurement on the x and y axes of the graphs.

2. DOE-SR provide the Center for Risk Excellence with data from the existing SRS facility Safety Analysis Reports to quantify the probability and consequences associated with the nuclear facilities now and under proposed hazard reduction actions. Risks to the offsite public should be considered. Identify engineering and procedural barriers to exposure used in the analysis.

3. DOE-SR and the Center for Risk Excellence use the output of recommendation 2 to prepare risk reduction graphs as a function of time with units of measurement on the x and y axis of the graphs. This would permit comparisons between differing SRS operations and assist in providing a basis for cost-effective use of risk reduction resources.

4. DOE-SR and the Center for Risk Excellence should also include risk reduction graphs as a function of time for the major environmental remediation sites for the offsite public for the same time period as in recommendation 3.

5. SRS carefully review the SRS quantities used in the Draft Risk Summary (Ref. 1) for accuracy.

References:

1. Draft Risk Summary - Savannah River Site, The Center for Risk Excellence, U. S. Department of Energy, March 1999.

2. Virginia Kay, DOE-SR; SRS Citizens Advisory Board Risk Management and Future Use subcommittee meeting, April 13, 1999.

Agency Responses

Center for Risk Excellence
Department of Energy-SR