

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 21, 2005

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** J. S. Contardi, SRS Site Representative  
**SUBJECT:** SRS Report for Week Ending January 21, 2005

**Gamma Beam Irradiator:** During maintenance of a gamma irradiator, an outside vendor was attempting to deinventory the irradiator when a cobalt-60 source became lodged in the transfer drawer. The transfer door does not provide adequate shielding for the source which contains approximately 1400 curies. Area radiation alarms annunciated and the room was evacuated, locked, and posted as a very high radiation area. The two area radiation alarms (detectors) indicated dose rates of 50 and 120 mrem/hr. However, the location of detectors and the geometry of the transfer drawer indicate significantly larger dose rates may be present closer to the irradiator. To better characterize the room, a manned entry is being planned. Prior to a personnel entry, a remote entry was made by a robot with an electronic personnel dosimeter, which indicated dose rates less than 25 mrem/hr at the planned personnel survey point.

In order to dislodge the source, the top of the irradiator will need to be lifted which weighs approximately 3000 pounds. A monorail hoist is located above the irradiator and can be manipulated in a relatively low dose rate area. A path forward is being developed to determine if the top will need to be removed or slightly lifted. In either case, the source will have to be physically dislodged.

**Tank Farm Corrective Actions:** In an August 23, 2004, letter to the Department of Energy, the Board identified several concerns related to electrical and ventilation systems for the high-level waste Concentration, Storage, and Transfer Facilities at SRS. In response to the Board letter, the following corrective actions are being implemented:

- WSRC has developed work packages to correct deficiencies related to safety significant electrical equipment directly exposed to fire suppression sprinkler heads. A site wide lessons learned package regarding this condition was also disseminated to other SRS facilities.
- Eleven new electrical generators have been procured and will be dedicated to providing emergency power for temporary ventilation. The generators were selected based upon DOE procedures for seismically evaluating equipment.
- A tank farm upgrade project has been developed that will ensure proper protection of electrical equipment relied upon following a seismic event. However, this project is not likely to move forward in the near future.

Several other corrective actions are still under evaluation regarding lightning protection, preventative maintenance, and adequacy of self assessments.

**Tritium Extraction Facility:** The Tritium Extraction Facility is nearing completion with only nine milestones remaining for system turnover to startup operations. General Haeckel will be attending a physical completion and flag raising ceremony on January 27, 2005.