

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 29, 2016

**TO:** S. A. Stokes, Technical Director  
**FROM:** M. T. Sautman, Site Representative  
**SUBJECT:** Savannah River Site Weekly Report for Week Ending September 29, 2016

Mr. McCabe was at an off-site training class and Mr. Fox was onsite providing support.

**Tritium:** A worker helping to disassemble a contamination control hut at the Tritium Extraction Facility (TEF) cut into an energized wire that was powering a smoke detector. The worker did not feel a shock, but the error was identified when a shift technical engineer later inquired if the wire had been cut prior to unplugging a group of detectors. Poor communications during a shift manager turnover and assumptions made during a field walkdown contributed to this event. In response, managers are walking down all established lockouts, shift managers must receive facility manager approval prior to releasing any work package, and teams are reviewing 25% of all work packages.

Post-seismic fires pose one of the highest hazards for the tritium facilities because of the lack of existing controls to prevent or mitigate the dose from a radiological release (see 8/19/11 Board letter). The current safety analyses assume a fire propagates from one facility to another and involves all the material-at-risk. SRNS is proposing to divide the tritium facilities into four building groups, calculate the frequency that two building groups would independently and simultaneously have post-seismic fires, and determine the possibility of fire propagating between two building groups based on separation distances and other conditions. SRNS provided the staff an overview of their proposed methodology for calculating the frequency of fires in the building groups. The staff needs to better understand why the historical post-seismic fire frequencies used in the calculation are relevant and conservative since the assumed frequency is heavily dependent on the building floor space versus the presences of initiators or fuel sources.

**Emergency Preparedness (EP):** The site representative has noted that conducting outside EP drills during cooler parts of the year could reduce the amount of simulated personal protective equipment. SRR's fiscal year 2017 drills and exercise schedule reflects this approach. The site rep has also observed that controllers sometimes did not provide radiological data consistent with the drill scenario, actual wind direction, and distance from the point of release. (See 7/1/16 report). SRR is now using a variation of the simplified fallout prediction method to easily provide ground contamination, airborne concentration, and dose rate data to controllers taking into account wind direction, distance from the release point, and distance from the center of the plume. SRR has also begun incorporating a laser-driven fire extinguisher training system into their fire drills to improve worker's techniques in extinguishing incipient fires.

**Plutonium Processing:** SRNS resumed plutonium metal operations at HB-Line and H-Canyon, which had not been performed in 12 months (see 9/11 -9/18/15 reports). The staff observed a plutonium item being charged in the dissolver. No problems were encountered.

**Safety Basis:** SRNS and SRR have completed their gap analysis with DOE-STD-3009-2014. As expected, many facilities do not meet air dispersion modeling methods (see 8/12/11, 8/19/11 and 11/8/13 weekly reports). Other gaps include assumed damage ratios, implied operator actions or administrative controls, and lack of justifications for deviations from the hierarchy of controls.