

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 8, 2013

**TO:** S. A. Stokes, Technical Director  
**FROM:** M. T. Sautman and D. L. Burnfield, Site Representatives  
**SUBJECT:** Savannah River Site Weekly Report for Week Ending November 8, 2013

**SRNL:** Several months ago a thermocouple well housing failed in the melter of DWPF. (See 4/19/13 report.) DWPF had taken similar tubing samples from the melter and sent them to SRNL for metallographic failure analyses. This week, an SRNL researcher was grinding these metallographic samples to prepare the samples for analysis. The samples were highly contaminated, reading between 15 and 120 rad/hr on contact. This operation was performed in an old, recently reactivated, hood that was brought back in service using a commercially available grinder in a locally fabricated box. The radiological protection inspector (RPI) assigned to cover the job found a radioactive particle on the researcher's cloth hood (1,000,000 dpm  $\beta/\gamma$ ). The particle was determined to be ~99%  $^{90}\text{Sr}$  and ~1%  $^{137}\text{Cs}$ , representative of tank waste. These particles have been described as very fine shards of glass. A survey of the floor found a particle reading 1 Rad/hr  $\beta/\gamma$ . The researcher, his assistant, and the RPI performed multiple whole body frisks and were monitored using the laboratory's portal monitor three times and no contamination was found. The site rep is following the activities of the radiological protection manager to determine what other actions might be appropriate.

**Nuclear Safety:** SRNS spent more than two years reevaluating their methodology for atmospheric dispersion modeling (see 8/12/11 report and 8/19/11 Board letter). SRNS has issued a plan for incorporating their conclusions for surface roughness, deposition velocities, leak path factor, dispersion coefficients, and release durations into the facility Documented Safety Analyses. The calculated dose consequences for the maximally exposed offsite individual will increase by a factor of ~1.3 to 2.6 for most facilities. Some facilities will face larger impacts – 3.4 at F/H Laboratory, 3.5 at tritium facilities, and 5.2 at Savannah River National Laboratory (SRNL). For most facilities, the collocated worker dose will actually shrink 17%, with a few notable exceptions. For example, doses will increase by a factor of 1.4 at SRNL, 6 at F/H Laboratory, and 7.4 at the tritium facilities. Some of these increased doses may drive new, revised, or upgraded safety controls. Meanwhile, SRNS is upgrading the functional classification of some dampers in the F- and H-Canyon so they can isolate portions of the ventilation system following a seismic event.

**F-Area:** Now that transuranic waste repacking is finished at F-Canyon, SRNS is proposing that 1) F-Canyon return to its deactivated state and 2) the periodicity of entries be reduced from weekly to annually. SRNS is also modeling the ventilation at F-Canyon to support reducing the number operating canyon exhaust fans from two to one.

**Readiness Reviews:** The site rep reviewed draft Plans of Action for upcoming readiness assessments at HB-Line and K-Area. The site rep identified weaknesses with the proposed scopes, prerequisites, and lines of inquiry.

**Tank Farms:** H-Tank Farm personnel are preparing for an outage of the H-Area Diversion Box 8. As a part of this outage, they will replace Flush Water Valve (FWV) 13 that had previously failed. This week while performing flushing operations, FWV 19 also failed in the open position. FWV 19 is a safety class component providing protection from waste returning through the flush path. The valve failed in the open position, and flow continued through the valve until operators closed a FWV 12, further upstream. The valve has been in service approximately 20 years with only one other similar failure. Since management precluded waste transfers and no siphon path back through this valve exists, SRR determined that the valve could be replaced during the upcoming outage.