

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 27, 2015

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 February 27, 2015

Messrs. Caleca, McCabe, and Sircar reviewed seismic and structural condition topics at H-Canyon and melter off-gas topics at the Defense Waste Processing Facility.

H-Canyon/HB-Line: The site reps and Mr. Beauvais followed the contractor's and DOE's efforts to identify the causes of the recent criticality violation (see 2/20/15 report) and develop corrective actions. While the investigation identified a number of weaknesses in how tank level fluctuations were used to confirm agitator operation, SRNS is focusing more on developing a direct means to confirm agitator operation rather than trying to improve the rigor with how the current method was implemented. The site reps believe the emphasis on directly confirming agitation is desirable. Furthermore, because the current Nuclear Criticality Safety Evaluation (NCSE) did not identify loss of agitation as a common mode failure, SRNS will likely conduct an extent of condition review of their existing NCSEs. This is not the first time that engineers identified that a tank associated with the plutonium oxide production process was not being mixed as expected. Last August (see 8/22/14 report), unexpected sample results in the concentrate tank were found to be due to solution stratification, sampling location, and the orifice size used in a recirculation line. Once the causal analysis and corrective actions are approved, SRNS will develop a recovery plan.

Following the February 8 loss of power event, SRNS took until February 19 to return to normal power feed, exit the 11 limiting conditions for operations that were entered, and return equipment to service. One of the major factors contributing to this event was that the H-Canyon standby diesel generator (DG) was out-of-service between December 14, 2014 and February 19, 2015. Because the standby DG was unable to carry the load when needed, power was lost to the Nuclear Incident Monitor alarm system, alarms and indications on the control room panel board, the distributive control system, and the public address system. Despite these significant facility impacts, the standby DG is not currently part of the system health report process because it is general service (please note H-Canyon also has safety class emergency DGs). This is an example of a general service system that might benefit from system health reports. The portable seismic backup air compressor, which supports a Technical Safety Requirement, is another general service system that might also benefit since it has failed five times since May 2012 (see 7/25/14 and 2/13/15 reports).

Building 235-F: As part of the facility self-assessment (FSA) for risk reduction of the Plutonium Fuel Form Facility (PUFF), the site rep observed a drill simulating the response of the F-Area control room to an alarming contamination air monitor in PUFF. While the FSA team had judged that previous drills required improvement, they judged that this drill was acceptable and the site rep agreed. The contractor readiness assessment should begin next week.

Tank Farms: The Tank 37 transfer jet is encased in the surrounding saltcake. In December, SRR inserted a pump-on-a-stick to remove the excess liquids and to allow dissolution of the salt (see 9/5, 9/19 and 12/12/14 weekly reports). As of this week, more than 300,000 gallons have been transferred from Tank 37.

Two weeks ago, the underground steam piping to Tank 39 experienced a leak. Some of the steam from the leak escaped through three above ground electrical junction boxes, which provide power to radiological and temperature monitoring equipment. SRR excavated the surrounding area and examined the junction boxes. Because they determined that the wiring exceeded the maximum allowable temperature, SRR wrote a nonconformance report.