

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 10, 2017

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and Z. C. McCabe, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending February 10, 2017

Defense Waste Processing Facility (DWPF): Last week's failure of the L4 electrode caused a breach between the L4 lower electrode stem and the cooling water supplied to the stem which led to contamination in the recirculated cooling water system. Engineers later identified that there was an active leak from melter cooling water into the melter shell and decided to shut down the melter cooling water system. The site rep observed operators in the control room and field shutdown and de-energize the melter and remove a thermowell from the melter. Normally it would take approximately six days for the melter to cool, but without cooling water this will take longer. SRR has developed a rough schedule for replacing the melter. The resumption of melter operations may take longer than initially expected since the melter electrode control cabinet is obsolete and the new one was not scheduled to arrive until the fall, but this may be accelerated.

Emergency Preparedness (EP): The site rep observed the annual evaluated EP exercise at tank farms. The scenario involved a seismic event that releases trapped hydrogen gas in Tank 47, which causes a deflagration when operators try to restart the tank's ventilation system. Workers also had to deploy an emergency purge ventilation system for Tank 38. While most tank farms EP scenarios are focused on H-Tank Farms, this one required workers to respond to both F and H-Tank Farms and to transport a dozen radiological control inspectors from H to F-Tank Farm to help evacuate workers from the 18F control room, which was very close to Tank 47. In general, the response was satisfactory although some of the radiological control inspectors on standby at F-Tank Farms could have been used earlier to determine the radiological conditions around Tank 47. In addition, consolidating the four sets of periodic public address system announcements would have reduced the impact of having to repeatedly stop discussions every time one of them was occurring.

Implementation Verification Reviews (IVR): SRR completed their IVR for the latest DWPF annual update with 8 findings and 16 opportunities for improvement. Some of these addressed legacy issues that were identified while reviewing the implementation of new requirements. The site rep also observed an IVR for the revised safety basis at F/H Laboratory, which involved several new inventory controls and the use of safes in lieu of crediting a leak path factor (see 10/29/10 report).

Tritium Extraction Facility (TEF) Readiness Assessment (RA): The site rep observed the SRNS TEF furnace extraction RA. This week's RA evolutions, which included a valve line up and an extraction in the TEF simulator, were also observed by the NNSA RA team before the NNSA RA started. DOE O 425.1D allows a DOE RA team to observe "specific events significant to the startup and restart process that occur prior to the formal commencement of the DOE RA."

H-Canyon Exhaust (HCAEX): During the recent HCAEX fans functional checks, the Fan 1 damper did not close after it was shut down because the isolation valve on the solenoid failed to open. The operator performing the functional check manually manipulated the solenoid valve to close the damper, per their training but outside the procedure. Additionally, the time delay relay (TDR) on Fan 3 took longer than expected to activate once the power was turned off. H-Canyon personnel then conservatively entered the limited condition for operation associated with two fans being out of service and are pursuing multiple corrective actions to prevent similar issues in the future.