

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 3, 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 3, 2017

Defense Waste Processing Facility: SRR concluded that melter 2 has reached its end of life after having the pour spout heater fail last week and a lower melter electrode fail early Wednesday. After the electrode failed, operators observed melter cooling water dripping from the failed electrode stem and detected a temporary increase in the melter cooling water contamination level. This suggests some cooling water contacted the molten glass, but the resulting cooling of the glass caused the leak site to seal up. This melter had been in operation since 2003, was used to pour 2819 canisters, and was nearly 12 years beyond its design life expectancy. The melters are designed to be operated until they fail. The melter is filled with ~11,000 lbs. of molten high-level waste glass (enough to fill an estimated three canisters). SRR took actions to keep the melter as hot as possible using the available heaters because the glass starts to get too viscous to pour below 800 °C. SRR had two options for removing the molten glass from the melter — via the drain valve assembly or pouring through the spout with a higher vacuum than normal in order to accelerate the pour rate. SRR chose to pursue the drain valve approach first and performed equipment checks and prerequisites. There are five drain valve heaters along the drain tube between the drain valve and the bellows and the first one did not work. When the operators tried to open the drain valve early Saturday, the drain valve would not open. This happened with the first melter too (see 11/29/02 weekly report). SRR decided not to attempt to pour the glass through the pour spout since temperatures in the spout had cooled off too much after the failure of the pour spout heater. The path forward is to de-energize the melter and leave the glass inside of the melter. The replacement melter has been onsite for several years. The outage to remove melter 2 and install and startup melter 3 is estimated to take six months.

SRR Emergency Preparedness: SRR has completed 74 of the 75 corrective actions that resulted from their drill program assessment (see 6/5/15, 10/24/14, and 10/10/14 weekly reports). The remaining item is an effectiveness review of their corrective actions.

H-Canyon Exhaust (HCAEX) Tunnel: SRNS has expanded the original scope of the HCAEX Tunnel concrete evaluation since the compressive strength of multiple concrete cores recently removed from the north wall of the personnel tunnel were significantly lower than expected (see 1/13/17 report). In addition to the expanded scope previously discussed, SRNS is also planning to send samples of the north wall concrete to a third party for petrographic analysis, which will examine the concrete at a microscopic level. SRNS plans to resume concrete coring the week of February 13.

Hazardous Energy Control (HEC): The SRS HEC procedure requires a subcontractor technical representative (STR) to observe when a subcontractor is placing a single point lock out (SPLT) on non-process related equipment. Recently, a STR failed to observe a subcontractor place two SPLTs. After the fact, an independent assessor recognized that this did not comply with the site requirements and questioned the practice. Discussions during a subsequent issue review revealed that this requirement was not completely understood by both the facility personnel and the STR. In addition to reinforcing the requirement to STRs, the contractor is planning on performing an extent of condition review, and is considering editing the site HEC procedure to allow other qualified personnel to observe subcontractor placement of SPLTs, which was the original intent of the requirement, per the responsible site committee.