

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 14, 2017

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and Z. C. McCabe, Resident Inspectors
SUBJECT: Savannah River Site Resident Inspector Report for Week Ending July 14, 2017

H-Canyon Exhaust (HCAEX) Tunnel: H-Canyon personnel entered the potential inadequacy in the safety analysis (PISA) process and determined that a positive unreviewed safety question (USQ) existed when Savannah River National Laboratory personnel reported preliminary indications from testing performed on concrete that had been exposed to the HCAEX environment (see 6/30/17 report). The preliminary indications suggest that a portion of the concrete exposed to the HCAEX environment may be affected more than what was previously considered in the structural analysis. Therefore, the ability of the HCAEX tunnel to perform its safety function is indeterminate. As a result of the PISA, SRNS personnel identified compensatory measures to reduce the risk of a radiological release following a seismic event. However, SRNS personnel did not identify any compensatory measures associated with static loading conditions (e.g., limiting traffic over the tunnel) based on engineering judgement. The resident inspector reviewed an SRNS calculation from 2014 that suggests that if the concrete is degraded to the extent that led to SRNS conservatively entering the PISA process, that the tunnel may not meet static load requirements, even with a significantly reduced soil load factor. The resident inspector then discussed the calculation with DOE-SR and SRNS management and expressed a concern with not including compensatory measures for the static loading conditions. Although SRNS is confident in their engineering judgement, they have determined that it would be appropriate to develop an engineering document that describes their technical basis for why static load cases should be excluded from consideration for the PISA compensatory measures. SRNS is planning to complete their technical justification early next week and to include the document as a reference to the first revision to the evaluation of the safety of the situation (ESS).

DOE-SR approved the ESS which allows SRNS to continue processing Target Residue Material (see 7/7/17 report).

K-Area: Per DOE-SR direction (see 3/24/17 report), K-Area personnel have completed the draining and removal of the mineral oil from the digital radiography unit.

Salt Waste Processing Facility: The gamma radiation monitors downstream of the barium-137 decay tank (BDT) and interlocks ensure that only a cesium-137 depleted waste stream enters the Alpha Finishing Facility. Upon detection of high gamma radiation, safety interlocks will stop the respective BDT pump and salt solution feed pumps to the caustic-side solvent extraction process. The resident inspector observed safety interlock checks for some of these pumps.

Emergency Preparedness (EP): SRR completed an effectiveness review of the 75 corrective actions they completed to address nine findings and 28 opportunities for improvement identified in their drill program assessment (see 6/5/15 and 11/14/14 reports). The review concluded the actions improved the program and the improvements appear to be sustained.