

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 8, 2017

TO: S. A. Stokes, Technical Director
FROM: Z. C. McCabe, Resident Inspector
SUBJECT: Savannah River Site Resident Inspector Report for Week Ending Dec. 8, 2017

Defense Waste Processing Facility (DWPF): DWPF personnel began the heat up of Melter 3 early Thursday morning. The heat up is expected to take approximately 20 days for the lower melt pool to reach the operating temperature of 1000°C.

H-Canyon: DOE-SR approved the SRNS response plan associated with the loss of hydrogen purge from a canyon vessel (see 12/1/2017 report). The response plan cites the non-seismically qualified process vessel ventilation system (PVV) as providing adequate purge to prevent the buildup of hydrogen in vessel headspace. Additionally, should the PVV fail in a seismic event, a supporting calculation determined that it would take 190 days for the vessel headspace to reach the lower flammability limit. The response plans will no longer be valid after 172 days from DOE-SR approval on December 4.

Tritium Extraction Facility (TEF): A combination of lack of detail on a drawing and improper review of a lockout (L/O) resulted in TEF personnel unintentionally placing TEF in a state of reduced ventilation. A TEF operator flipped a breaker as directed by a work order to L/O a diesel generator. Investigation after the fact revealed that flipping the breaker caused the programmable logic controller (PLC) to receive a signal that indicated normal power to the facility was lost. TEF personnel noted that the PLC was referenced on the drawing when reviewing the L/O work order. However, the reference to the PLC did not include any additional information that led the reviewer to understand the ramifications of the work order. Furthermore, the reviewer believed that the reference to the PLC indicated an alarm with not action (i.e., would not have any other effects on TEF), but did not confirm.

During a state of reduced ventilation, TEF implements a requirement for constant habitability surveys for each individual in the facility. The coverage is known as the “Two Person Rule” at Tritium. During the aforementioned event, TEF personnel placed large signs on all of the TEF entrances indicating the “Two Person Rule” was in effect and to contact the shift manager (SM) prior to entry. On four separate occasions while under the “Two Person Rule,” Tritium personnel entered TEF without contacting the SM. For all four instances, the individuals were immediately identified and instructed to exit the facility.

Savannah River National Laboratory (SRNL): The resident inspector observed the annual evaluated exercise at SRNL. The exercise scenario involved a collision between a vehicle and a forklift transporting a drum containing radiological material. Both vehicles were engulfed in a fire upon impact, and the drum was jettisoned from the forklift and punctured, resulting in a radioactive release. Initially, the drill players provided the incorrect protective actions over the public address system to SRNL personnel. The announcement directed SRNL personnel to shelter rather than remain indoors, which resulted in people exiting “soft structures” for designated shelters during a potential radiological release. The drill players noted and corrected the error within three minutes.