

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 1, 2017

TO: S. A. Stokes, Technical Director
FROM: Z. C. McCabe, Resident Inspector
SUBJECT: Savannah River Site Resident Inspector Report for Week Ending Dec. 1, 2017

H-Canyon: Due to an inaccurate tank liquid level reading, SRNS did not implement the required criticality safety control since January 2017. (See 11/17 and 11/24/17 reports). As a result, this allowed the concentration of the solution remaining in the tank to concentrate between January and November and exceed the criticality safety limit (CSL) of 6.75 grams Pu-239 equivalent/liter. Although the concentration exceeded the CSL, SRNS personnel have determined that an inadvertent criticality did not occur because the mass of the material in the vessel was less than the areal density CSL of 10,000 grams Pu-239. A soluble neutron poison was also present in the solution which provided additional margin against an inadvertent criticality. Neither the areal density CSL nor the neutron poison were credited or documented controls for the event of concern.

Investigation into the erroneous liquid level (LL) measurement revealed that the vessel instrument air jumper most likely had a bent gasket obstructing the reference leg air flow. SRNS has reason to believe that the obstruction occurred when the jumper was originally installed in circa 1993. SRNS decided to halt all transfers until they could verify that other vessels did not have the same issue that could result in an inaccurate heel volume measurement. Furthermore, the instrument air provides the credited purge to prevent the buildup of flammable hydrogen gas in the vessel headspace. With the instrument air jumper removed the credited purge is not provided. Per the H-Canyon technical safety requirements, they must restore the purge within 14 days even though another non-credited purge is still available. The removed jumper is too damaged to be reused so H-Canyon personnel are attempting to remove a jumper from another vessel and install it within 14 days. Meanwhile, H-Canyon personnel have drafted a response plan should they fail to restore the credited hydrogen purge within 14 days.

Salt Waste Processing Facility (SWPF): Four minor maintenance work packages at SWPF were completed without the on-duty shift operations manager's (SOM) review or release. Two of the work packages were reviewed and initialed by the work release coordinator (WRC), a qualified SOM. The other two were signed and released by the WRC, which is not currently permitted although Parson's is working to revise their procedures to allow this practice for minor maintenance. Parson's initially placed all work on hold but has since released all work groups but maintenance until corrective actions can be performed.

H-Canyon Exhaust (HCAEX) Tunnel: DOE-SR approved the justification for continued operations for H-Canyon while the ability of the HCAEX Tunnel to perform its safety class safety function is indeterminate (see 10/27/17 and 6/30/17 reports).

Tritium Facilities: Ms. L. Lin of the Board's technical staff and the resident inspector observed the contractor readiness assessment (RA) for portable Z-bed recovery operation. Observations included field activities, control room evolutions, and interviews with various plant personnel. The RA will continue next week.