

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 27, 2014

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending June 27, 2014

Messrs. Gwal and Foster reviewed the electrical distribution and lightning protection systems at H-Canyon and the Defense Waste Processing Facility.

Defense Waste Processing Facility: Engineers identified this week that the starting air compressors, part of the air start systems for the diesel generators (DG), are not code compliant and have design issues with their pressure relief valves (PRV). If the general service starting air compressor or its discharge piping overpressurized, the resulting fragments could damage the safety significant (SS) air start receiver or diesel generator. As a result, SRR declared both DGs inoperable, barricaded the DG room, and placed all processing vessels in standby. Since the main function being credited is that the air start receivers can hold sufficient air to start the DGs, SRR is performing tests to confirm that if they charge an air start receiver once per shift, it will retain sufficient air to perform this function. A key part of this strategy is that when one starting air compressor is running and charging its air start receiver, the associated DG is inoperable per the Technical Safety Requirement (TSR). Meanwhile, the other DG would be TSR operable and its air start receiver pressurized, but its starting air compressor would be turned off, locked out, and isolated from the SS equipment. SRR does not plan to resume waste processing until they complete design modifications to make the starting air compressors code compliant and resolve the PRV design issues.

H-Canyon: During a functional test of the seismically qualified vessel air purge equipment in early June, SRNS found a leak with one of the four rotameters. H-Canyon personnel stopped the test and exited the Limiting Condition for Operation (LCO) after reviewing a calculation that showed that the required amount of purge air could be delivered within the required time period with two rotameters. This week, an engineer realized that the Technical Safety Requirement (TSR) bases referenced a procedure that required four rotameters during the functional test. As a result, SRNS determined that they had incorrectly exited the LCO and declared a TSR violation. In the site rep's opinion, part of the problem is that the required number of rotameters is not specified in the "operable" definition or in the surveillance description in the TSR bases. Rather this is defined in a procedure note and drawing, neither of which are reviewed or approved by DOE.

H-Canyon personnel shipped a high dose rate sample to F/H Laboratory, but did not secure the shielded container with a plastic wire tie as required by site procedures. Laboratory radiological protection personnel received the sample and measured the external dose rates, but did not read the attached tag listing the dose rates for the unshielded sample. As a result, they did not implement high radiation area control (e.g., posting).

Modular Caustic Side Solvent Extraction Unit: Samples taken after flushing the salt solution feed tank indicated that the mass of solids in the tank was ~100 kg rather than the previously estimated 1000 kg (see 6/13/14 report). A later inspection revealed that this deionized water flush removed almost all of the oxalates. SRR also performed a causal analysis for the solids buildup. Furthermore, SRR engaged outside experts to assist them with identifying corrective actions and are working through the actions to restart the facility. They have no projected restart date.

DOE M 441.1-1 Nuclear Materials Packaging Manual: SRNS has identified 138 items that require repackaging to be brought into compliance with the manual. Most of these are at the Savannah River National Laboratory.