

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 8, 2016

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman, D. L. Burnfield, and Z. C. McCabe Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending January 8, 2016

Emergency Preparedness: DOE and SRNS concluded that the overall performance of the 2015 site evaluated exercise (see 11/20 and 12/4/15 weekly reports) was satisfactory. In their opinion, all objectives were met. SRS evaluators identified only two weaknesses: 1) a significant delay in the validation of the event classification and source term refinement because the engineering advisors did not believe the technical data supported the event classification and 2) the delayed relocation of personnel in a trailer adjacent to a burning trailer due to poor communications.

HB-Line: When engineers increased the maximum heart cut volume to allow plutonium column operations to resume (see 12/24/15 report), the distributed control system (DCS) changed the flow path of the solution. Engineers determined that the DCS did this because the program added the previous heart cut volume to the revised total heart cut volume and concluded that the intended receiving tank did not have enough volume. Before making this change to the production copy of the software, engineers had tested the change with the training/simulator copy and did not encounter a problem. The reason the problem was not identified was that the training copy was different than the production copy because it contained a software modification that was still undergoing testing. This modification, ironically, was intended to fix this logic error by adding only the net increase in heart cut volume, not the entire revised heart cut volume. SRNS is taking corrective actions to ensure the configuration of the training copy of the software matches the production copy when they test future planned modifications to processing parameters.

H-Canyon: The site representative attended an issue review (IR) concerning multiple leaks identified on safety significant (SS) rotameters which are part of the vessel air purge system. The vessel air purge system, including the rotameters, is credited to provide airflow into the canyon vessel to maintain hydrogen concentrations below 25% of the lower flammability limit. The rotameters have a general service (GS) airline directly connected to them but are inside the SS equipment boundary. The leaks were originally identified on Friday, 1/1/16, however H-Canyon personnel originally believed the leak to be part of the GS system. This was corrected on Monday, 1/4/16 and the facility entered the appropriate limiting condition for operation. Additionally, during the IR H-Canyon personnel identified that there was no requirement to check the SS rotameters for leaks, and these leaks were only identified because another equipment issue led maintenance personnel to investigate the rotameter. H-Canyon personnel are revising the rotameter calibration procedure, performed every two years, to include a leak check. Additionally, H-Canyon personnel are investigating the cause of the leakage to determine which of the additional 150+ rotameters should be checked for leaks in the near term.

Tritium: Tritium personnel found a normally open fire suppression valve in the closed position in one of the processing buildings. The last recorded operation of the valve occurred during a surveillance in October. The logbooks in the control room indicate that the surveillance was performed as planned and that the alarms operated as expected. Following the discovery of the closed valve, SRNS identified that the position indication device, which alarms in the control room, had failed. At this time, SRNS does not know when or why the valve was closed or the failure mechanism for the valve position indicator.