DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 8, 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 Sept. 8, 2017

H-Canyon: H-Canyon personnel recently discovered that they had failed to implement a criticality safety control since 2010 although it was only required sporadically over that period of time. If inadvertently heated, the Head End strike tank (ST) contents can evaporate and lead to an overconcentration of fissile material resulting in an inadvertent criticality. To prevent this, the H-Canyon criticality safety analysis credits two administrative controls while the ST is not in fissile storage mode (FSM). One control requires them to isolate the tank from steam to prevent overheating. The other control requires them to routinely monitor either the tank liquid level (LL) or temperature. When an operator is performing rounds using an electronic rounds sheet and selects that the ST is not in FSM, the software pre-populates the subsequent related fields with the previous data entered. This feature caused the ST LL data field to be incorrectly populated as not applicable (N/A), which was entered previously. The operator then added a remark that the step was N/A because the ST is not in FSM. H-Canyon personnel recently identified that this resulted in the ST LL control not being implemented. After identifying the issue, H-Canyon personnel reviewed completed past electronic rounds and identified that the LL control had not been implemented during any of the 13 times it was required since 2010. However, H-Canyon personnel did successfully implement the steam isolation credited control. Additionally, H-Canyon personnel routinely monitor the ST temperature via the same round sheet; however it is not marked as a credited control. Other credited and uncredited controls were in place at various times over the last seven years that provided additional margin against an inadvertent criticality.

Salt Waste Processing Facility: On Monday, workers installed a lockout/tagout (LO/TO) on a section of piping. However, since this affected other systems, a jumper hose was installed the next day to bypass valves that had been locked out in order to supply air to the process water pressure tank. A spectacle flange was also installed in the closed position to ensure air isolation in the original work area. On Wednesday, when an operator opened two valves to supply plant air to the jumper hose, air unexpectedly flowed into a section that had been locked out and was released from a vent valve and he stopped the work. Several breakdowns occurred during this event. First, the shift operations manager (SOM) did not update the system status file for the first installed LO/TO. Second, the SOM never authorized the work order for installing the flange and hose jumper and the operators failed to complete the required temporary modification forms or add this work order to the original LO/TO. Third, the SOM did not review the system status files during the pre-job or prior to releasing the work to pressurize the plant air system. Further reviews identified that SOMs were not properly maintaining system status files. Parsons management stopped all testing, operations (except rounds and housekeeping), maintenance, and construction because of uncertainty with the current facility configuration. These activities will resume when plant personnel complete 100% verification of lockout status files, system alignment checklists of systems turned over to Operations, and the system status of systems under control of Testing. The fact finding meeting was also unstructured and hampered by not developing a timeline up front or providing a clear drawing of the system configuration.