DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 15, 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 Dec. 15, 2017

Operations: A number of multi-month outages have ended or are nearing completion. The resident inspector observed parts of the following activities:

- Following the repair of the 3H Evaporator pot leak (see 2/19/16, 2/26/16 and 11/17/17 weekly reports), SRR resumed evaporation operations Tuesday, but shut it down early Friday morning. Engineers noticed salt nodules on two parts of the pot and wanted to investigate whether the salt was coming from an active leak or whether the hotter temperatures dissolved waste that had previously leaked into residual pieces of insulation. Neither nodule is originating from the previously identified leak sites or from the weld of the new cone cap.
- The Modular Caustic Side Solvent Extraction Unit (MCU) has not operated since January due to the Defense Waste Processing Facility (DWPF) melter and the Salt Waste Processing Facility (SWPF) tie-in outages. This week, SRR conducted short operational runs for each of the shift crews to improve proficiency until normal operations resume next year.
- Last June, Saltstone experienced a grout spill and the facility was not operated due to spill recovery activities and the lack of feed from MCU. This week, SRR planned to perform a process run. However, a post maintenance test identified a leak from a recently repaired valve while grouting water so SRR did not transition to grouting waste. The valve is being repaired.

SRR began the multi-week heating of the new melter at DWPF. When the melter reached 600°C, SRR conducted a megger test of the electrodes and measured less resistance than specified in the procedure. This also occurred with the previous melter and is believed to be due to absorbed moisture. SRR is working on a path forward to allow the lower electrodes to be energized. SRR may pour one canister next week using existing feed, but will not resume normal operations until March to allow the SWPF tie-in outage, facility modifications, and a safety basis revision to be completed.

Emergency Preparedness (EP): The resident inspectors observed the H-Canyon/HB-Line annual EP exercise. The scenario simulated three HB-Line workers causing a nuclear criticality while handling 3013 containers and one of these workers getting injured during their evacuation. While SRNS conducts annual criticality evacuation drills, this was the first one in memory involving the overall response to a criticality event. Accountability was slower than usual since it involved all the day workers versus just a shift crew and there was confusion over which workers were exempted from the exercise. The identification of the missing injured worker was also slow. (Better selection and coaching of the two victims who reported to the rally point might have improved the timeliness of this). Furthermore, weak command and control resulted in a lack of coordination in the search for the missing victim. Three efforts occurred in parallel. First, the H-Canyon shift operations manager (acting as Area Emergency Coordinator) was having a team from the Operations Support Center prepared. Second, the HB-Line SOM directed the Incident Scene Coordinator to form a team. Meanwhile, after being told of the missing person by a Radiological Protection Department employee, the Fire Department dispatched two emergency medical technicians, who actually found the missing victim.