

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 25, 2016

TO: S. A. Stokes, Technical Director
FROM: M. T. Sautman and Z. C. McCabe, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending March 25, 2016

Savannah River National Laboratory: A research project involved the melting of a metal alloy powder in a crucible and then injecting helium gas to cause spray atomization of the molten metal. As the temperature rose above 1600°C, an observer saw molten metal leaking out of the crucible/nozzle and a bright light from the secondary catch pan. The investigator pressed the emergency shutdown button, told others to evacuate, and notified the control room. As designed, the molten metal (~1.5 kg) was contained in a sand-filled catch pan. An O-ring at the bottom of the collection system ignited and later self-extinguished. The fire department responded. The fire did not involve any nuclear material. The reason for the leak is under investigation.

Defense Waste Processing Facility (DWPF): The shift operations manager authorized mechanics to troubleshoot erratic steam pressures while the melter was operating. When the mechanics switched the steam system to manual control, the steam pressure quickly dropped, causing a distributed control system interlock to shut off the melter feed pump. (This avoided tripping a safety class hardwire interlock). In response to this event, facility management is reviewing all upcoming tasks and flagging certain activities based on their risk potential. DWPF personnel will need to complete a human performance initiative worksheet (i.e., risks, assumptions, potential impacts) and receive management approval before commencing these tasks.

Last week the Slurry Receipt and Adjustment Tank (SRAT) agitator failed. According to a recent DOE letter to the DNFSB, DWPF personnel have 13 days to restore agitation to ensure an undesired accumulation of hydrogen does not occur in the sludge. The replacement agitator passed the 24 hour run-in test and has been placed in the SRAT. Agitation is restored when the agitator runs for 2 hours.

Savannah River Remediation (SRR): In light of recent events, SRR is taking a Conduct of Operations Time Out and conducting all-hands briefings (see 11/13/15, 2/12/16, 3/11/16, and 3/18/16 reports). Tank Farms is entering Deliberate Operations mode in order to increase attention on critical steps. Senior Supervisory Watches will be held round-the-clock focusing on transfers, startups and shutdowns, and non-routine activities and grading the performance observed. The facility manager with senior management concurrence will release Tank Farms from deliberate operations when management oversight verifies satisfactory performance of activities.

L-Basin: L-Basin personnel received a new tool required to handle nonconforming fuel staged in the unloading station (see 2/26/16 report). After the procedure was revised, L-Basin personnel completed bundling the three nonconforming fuel assemblies and removed the empty basket from the unloading station.

The site reps observed L-Basin personnel call a time-out when a procedure reader noticed they skipped a step in the procedure while processing another basket of spent fuel. Following the time-out, the first line manager took the necessary actions to assure that the fuel was in a safe condition and then contacted the shift operation manager to determine the path forward. L-Basin personnel determined that no safety or criticality controls were violated so the evolution continued by resuming the procedure beginning with the skipped step.