

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 17, 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 January 17, 2014

Cold Weather Recovery: Across the site, SRNS and SRR spent much of the week fixing leaks, repairing or replacing freeze-damaged equipment, and restoring facility steam, ventilation, and fire protection systems back to service. This recovery work will continue into next week. When workers tried to restart the HB-Line air supply fans, the facility's differential pressure went positive, which tripped a safety-class interlock. This procedure was recently revised to reflect a new control strategy and deleted a key step, but these changes may have actually made the system harder to control. The operators were not aware of these modifications because the procedure change summary reflected only a small portion of the changes and there are no revision bars for deleted steps. Furthermore, an operator became distracted as the facility lost vacuum and failed to shut down the air supply fans to prevent the facility from going positive.

The site rep performed a field observation of the extensive damage in the older tritium facilities e.g., H-Area Old Manufacturing) This included loss of the fire protection systems because of broken piping, loss of heating and cooling systems, and potential other damage to the facilities and sophisticated equipment. With the exception of the fire protection system, which has effective compensatory measures in place, little damage was done to other safety related equipment. This damage will have to be quantified as time progresses.

Ventilation: SRR and SRNS received notifications that several models of high efficiency particulate air filters used at SRS recently failed their requalification testing. Many of the affected filters are already installed at SRS and some are likely used for safety systems.

Underneath the original or "old" sand filter bed for H-Canyon and HB-Line is a concrete lattice sitting on laterals. Acid fumes would degrade the concrete causing the lattice to break and allow the sand filter media to flow down between the laterals and form a depression in the filter bed. In 1969, stainless steel supports were installed for most of the laterals to prevent further collapses, but depressions still occasionally occur in the sections that could not be reinforced. Historical data indicates that the old and new sand filters can still provide an overall 99.51% credited filtration efficiency even with a depression in the old sand filter bed. Meanwhile, SRNS needs to increase the overall credited efficiency to 99.8% in order to address a potential inadequacy in the safety analysis related to ground level releases (see 12/13/13 report). However, a SRNL report indicates that the sand filters may not be able to perform at this higher level following a seismic event that causes several depressions to form in the old sand filter. As a result, SRNS is considering installing plugs in the old sand filter (similar to what was done in F-Area in 2006) and solely rely on the new sand filter for filtration.

L-Area: The site rep observed workers using an underwater vacuum to remove bacterial growth from the top of spent fuel bundles (see 10/28/11 report).

K-Area: Site Services attempted to complete the initial testing of the electric pump while the equipment vendor was present. They performed the first stage of the test acceptably, with a flow test of 165% flow established; but then attempted to recirculate water through the water tank. During this part of the test, the pressure dropped from 170 psi to 17 psi. During the post job review, the site postulated that either the pump had failed, or the suction side of the pump was plugged. Further troubleshooting is ongoing.