

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 9, 2015

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 July 9, 2015

Defense Waste Processing Facility (DWPF): In order to address 3 positive Unreviewed Safety Questions (see 11/21/14, 12/19/14 and 5/22/15 weekly reports), SRR is now considering accelerating the implementation of an alternate reductant that is expected to dramatically decrease the amount of flammable gases generated. SRNL testing suggests that the length of time the antifoam agent is allowed to hydrolyze has strong impact on flammable gas generation. Due to a number of issues, SRR will likely not resume operations at DWPF until autumn.

SRR completed rebuilding their electric and diesel fire water pumps (see 7/11/14 and 4/2/15 weekly reports). A recent performance test indicated that both pumps now meet National Fire Protection Association code requirements. However, since the margin is small and both pumps are original equipment, SRR is still planning on procuring two new pumps.

SRR completed their Phase I report on mercury (Hg) in the liquid waste processing facilities. Data indicates that Hg collection and recovery was successful during the sludge-only operations between 1996 and 2008, however with the start of salt processing in conjunction with H-Modified sludge feeds, a shift in Hg behavior occurred. As a result, less Hg was collected in the Mercury Water Wash Tank and the Hg that was recovered was a sludge/Hg mix that could not be successfully processed in the DWPF Mercury Purification Process (MPP). The change in Hg behavior, the failure of the Slurry Mix Evaporator Condensate Tank Hg pump, and the plugging of the MPP with dirty Hg has caused all efforts to collect and recover Hg to be unsuccessful at DWPF since 2008. The exact cause for the change in Hg is still under investigation.

Saltstone: Following DOE's approval of the Evaluation of the Safety of the Situation for Hg hazards, SRR resumed processing in late June. With the exception of a couple runs in the winter, SRR had not operated Saltstone in fiscal year 2015. With a few minor exceptions, resumption of operations has gone smooth and SRR has already processed ~280,000 gallons of Tank 50 decontaminated salt solution since resuming operations. (See 2/6 and 4/17/15 weekly reports).

H-Canyon: Almost three weeks ago, the standby diesel generator (DG) failed the scheduled 24-month parallel load test when the DG started, but did not synchronize with the load. This DG has been formally out-of-service since then although it might actually be able to provide power if required. In February, the H-Canyon control room panel boards and distributed control system, several plant systems, and the HB-Line room exhaust and building supply fans shut down when H-Area lost normal power and this standby DG was out-of-service (see 2/13/15 report).

K-Area: The diesel fire water pump is out-of-service because the engine oil was found to be diluted with 7.5% diesel fuel. SRNS is also preparing a paper to justify deferring the painting of the fire water storage tank until 2017. In 2014, divers equipped with cameras observed that 30 to 40% of the coating on the tank floor was covered with quarter-sized blisters. The tank is protected by cathodic protection, but it is not clear how well it is currently functioning.