

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 22, 2016

TO: S. A. Stokes, Technical Director
FROM: P. Fox and D. Gutowski Hanford Site Representatives
SUBJECT: Hanford Activity Report for the Week Ending April 22, 2016

Tank Farms. During retrieval on Sunday morning, level detectors in the AY-102 annulus rapidly rose above 8". Retrieval was shut down promptly. The annulus levels decreased steadily after they reached their maximum. There was no level increase or pH rise in the leak detection pit that would indicate a leak from the secondary tank. Contractor engineering believes that the annulus level decrease was most likely due to a combination of flowback to the air distribution chamber and absorption of the liquid into the refractory pad the primary tank sits on. Annulus pumping was delayed several times due to procedure and equipment issues. The site rep observed the first successful pump down from the control room midday on Thursday. Following the pump down, the annulus level began to slowly rise again. The site reps also observed the resumption of primary tank retrieval Thursday afternoon. Activation of the sluicers did not change the rate of level rise in the annulus. The current operational strategy is to run the annulus pump after the annulus level hits 5", but prior to 8". The annulus was pumped down again Thursday night and the annulus level is currently holding steady at approximately 3 inches following that pump down. The refractory pad is expected to degrade during long contact with liquid tank waste. Tank settlement due to refractory degradation has been previously analyzed by the contractor and their analysis does not show a nuclear safety hazard.

There was an anomalous reading on an annulus continuous air monitor (CAM) for tank AY-101. The CAM did not reach its alarm set point. Sample analysis indicated manmade isotopes as opposed to radon. The contractor performed visual video inspections that covered approximately 90% of the annulus and has not yet found anything that would explain the reading.

242-A Evaporator. Following last week's unplanned dump of the evaporator pot just before the campaign target (see Activity Report 4/15/2016), the contractor decided not to restart that campaign. Instead, they transferred additional material to tank AW-102 and completed the next evaporator campaign without incident. The two campaigns will provide approximately 300,000 gallons of waste volume reduction.

Sludge Treatment Project. RL approved revision 7 of the Sludge Treatment Project Safety Design Strategy. There were no conditions of approval.

The site rep observed ongoing preoperational acceptance testing of the engineered container retrieval and transport system at the Maintenance and Storage Facility. He noted that testing operations were well controlled and there were no significant deficiencies in team performance.

Plutonium Finishing Plant. The operating breathing air compressor that was supporting work in 242-Z stopped due to high temperature while workers were in the facility. The backup breathing air compressor subsequently failed to start because of a faulty oxygen sensor and the regulator on the backup air bottle system also failed to operate correctly. Workers were shifted to backup bottle carts and performed a controlled exit from the facility. Entries into 242-Z have been suspended until the air system problems are resolved.