

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 21, 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 November 21, 2014

Training and Qualification (T&Q) Programs: Messrs. Davis, Roscetti, Migliorini, and the site reps conducted a review of the SRNS and SRR T&Q programs and DOE's oversight of them.

Defense Waste Processing Facility: The technical staff recently questioned SRR's reliance on a melter vapor space low temperature interlock to prevent the melter feed rate from exceeding the rate assumed in the safety analysis (i.e., to prevent off-gas system explosions). While preparing to respond to the staff's questions, SRR identified that their analysis was valid only for non-bubbled operation, but not for current operation with "agitation" bubblers. SRR declared a Potential Inadequacy in the Safety Analysis and prohibited operations of the melter in bubbler mode.

H-Area Inadvertent Loss of Steam: Early Wednesday morning, H-Area personnel found that steam pressure was degrading. The temperature on site was near 20°F at that time. When site services personnel arrived on the scene, they found that an automatic 24" valve had unexpectedly closed and that pressure was dropping in the steam line (from ~ 300 psi to ~ 50 psi). The H-Area operator switched to manual operations, reopened the 24" valve, and slowly repressurized the steam line over the next three hours. Meanwhile, operations staff in the tritium facilities, H-Canyon, and other facilities had begun implementing their abnormal operating procedures (AOP) for a loss of steam event although they later suspended implementation once it became apparent that steam would not be completely lost. Per their AOP, SRNS placed H-Area Old Manufacturing (HAOM) and other tritium facilities in reduced ventilation mode, began draining the fire suppression system header in HAOM, and stopped a plastic suit job in H-Area New Manufacturing (HANM). Despite this mitigation, dropping facility temperatures caused the HANM ventilation chiller to fail as two supply coils started to leak. SRNS has mandated that the 24" valve remain in manual mode until they complete troubleshooting and resolve the problem.

H-Canyon: A 2" normal cooling water line started to leak last week. Early Monday morning the line completely failed, releasing a large amount of water and causing standing water over several sections of first level until the line was isolated. Radiological surveys did not detect any spread of contamination and the damage has mostly been limited to things like floor tiles. Because the water has been secured until repairs can be made and water normally cools the system's air compressors, SRNS installed a portable breathing air system. SRNS is trying to repair the pipe, but ultrasonic examinations of the nearby 24" header appear to indicate extensive corrosion of the general service piping. SRNS will not be able to run the evaporators or neutralize solutions until the system is returned to service. Although the dissolvers are cooled with an independent system, SRNS stopped the dissolution of a spent fuel batch as a precaution. Furthermore, DOE has requested that SRNS discontinue using the dissolvers after one of their analysts identified a potential software quality assurance issue with the program used to perform criticality modeling.

HB-Line: SRNS has now had four reportable cases of degradation of safety significant equipment in the last 3 weeks plus a fifth one when a fire maintenance technician pushed the wrong button and triggered a SS interlock (see 11/7/14 report). In addition, the SRNS Independent Evaluation Board issued a core issue after the HB-Line team demonstrated a reluctance to remove equipment from service despite identified hazards, out of limit readings, and significant maintenance issues.