DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 21, 2012

TO: T. J. Dwyer, Technical Director
FROM: M. T. Sautman, Site Representative
SUBJECT: Savannah River Site Weekly Report for Week Ending December 21, 2012

HB-Line: The staff has identified several concerns with the proposed alternate purge control strategy that gets invoked upon loss of purge air for vessels and dissolvers. In order to respond to these concerns, SRNS has made several changes to the draft Technical Safety Requirements and developed an Alternate Purge Operability Program to initially and periodically verify that the airflow paths are not blocked. One of the staff's main concerns was that the airflow rates predicted by a SRNL model had not been confirmed in the field. This week, HB-Line personnel used rotameters to measure the airflow rates for the four tanks predicted to have the lowest airflow rates. Preliminary data are positive, indicating that measured flowrates are in the range needed to maintain hydrogen concentrations at a safe level. The staff has also been interested in the amount of combustibles in abandoned process areas (see 7/6/12 report). Over the last several weeks, SRNS removed ~40 waste drums of trash (e.g., wood scaffolding, plastic suits and hoses, plastic hut, craft paper) from a normally sealed room that contained 89% of the material at risk in Old HB-Line.

H-Canyon: Engineers determined that a general service process air pressure regulator is not capable of supplying sufficient pressure and purge airflow when both dissolvers are operating simultaneously. When engineers looked at vendor and historical field data, they did not see any signs of performance degradation, but rather performance that strongly implied that the pressure regulator installed in 2003 likely has a 3/8" orifice rather than the desired ½" orifice. SRNS approved a conditional release allowing only one dissolver to be operated at a time until the regulator can be inspected and fixed.

L-Basin: As part of their spent fuel inspection plan, SRNS drew water samples from 11 fuel bundles to determine the water quality and conditions within the bundle. The sampled fuels were predominantly U-Al alloy fuel that covered a range of designs and burnups. One bundle contained Sodium Reactor Experiment fuel. The specific bundles chosen were those known to have pitting damage or are stored in the location with the highest "cobweb" severity.

K-Area: The site rep inspected the new diesel fire pump. The existing engine will require some shims because the lack of tolerance data in the vendor's drawings resulted in a shaft misalignment between the pump and engine. The site rep also met with the systems engineering manager to discuss the preventive maintenance (PM) optimization process that is eliminating or extending some PMs. The site rep suggested that future system health reports monitor whether any PM reductions had the expected impacts on system performance.

F-Tank Farms: A breathing air operator shut down the breathing air compressor while four workers wearing fresh air hoods were still working inside a containment hut. The breathing air operator did not receive or verify the shutdown command with the manifold attendant nor did he confirm that all personnel had exited the hut prior to shutting down the breathing air compressor. Workers safely exited the hut.

F-Canyon: SRNS completed their planned scope of transuranic waste remediation.

Defense Waste Processing Facility (DWPF): Based on inspections and facility data, SRR engineers believe that the transformer fire resulted from an internal fault failure as opposed to an external failure. DWPF personnel previously conducted limited PMs during the last melter replacement outage, but DOE does not believe that performing PMs would have corrected or identified the failure mechanism. SRR plans to take melter transformer temperatures during operator rounds, reevaluate the scope and frequency of melter power supply PMs, and purchase another spare transformer. (See 12/7/12 weekly report).