

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 27, 2009

TO: T. J. Dwyer, Technical Director
FROM: M. P. Duncan and M. T. Sautman, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending March 27, 2009

Saltstone: The process room was decontaminated and the failed grout pump was replaced with a spare pump. Based on inspections, equipment data, and vendor input; engineers believe that some blockage was interfering with the pump suction. As the pump speed increased, the grout pump hose repeatedly collapsed and then quickly repressurized, resulting in pressure surges. Later, the blockage passed through the pump hose, leaving visible surface marks along the hose. The object then became stuck at the pump discharge until the resulting pressure buildup caused the hose to fail and dislodged the blockage. (It would have taken only $\frac{1}{4}$ of a turn for the positive displacement pump to increase the pressure to 800 psi). Since the pump speed and hopper level control returned to normal, it was fortunate that operations staff noticed the leak quickly or waste would have continued to be pumped out. Approximately 16 gallons of grout waste (equivalent to 3 revolutions) was forced into the glycerin bath while another gallon was sprayed into the process room. Because there was no evidence of the object passing through upstream equipment, engineers suspect that some hardened grout had accumulated in the system until it broke free. Engineers plan to develop a correlation between hopper level and pump speed changes to set off an alarm if similar indications are seen in the future. They also plan to do fluid dynamics modeling of the suction/discharge pipe to identify potential problem spots (3/20/09 report).

Loss of Power: In response to a suggestion by the Board's staff, the power company will be reconfiguring their equipment to eliminate a potential common mode failure where a single trip can cause a complete loss of power to H or other areas (1/23/09 and 3/6/09 reports).

Integrated Safety Management System: The SRNS Phase II Verification Review team conducted extra interviews and developed additional lines of inquiry to make their plans consistent with work planning and control initiatives that resulted from Recommendation 2004-1 (3/20/09 report).

K Area: A Potential Inadequacy in the Safety Analysis was declared after personnel discovered that the radiological dose potential of some plutonium items currently stored in K Area is not bounded by the calculations in the Documented Safety Analysis. Specifically, the Am-241 concentration is higher than previously analyzed. An extent of condition review is ongoing and compensatory measures are in place. No additional safety controls or changes to the functional classification of existing controls are expected to be required.

Tritium Extraction Facility: A "responsive operations" strategy has been implemented this year due to a reduction in projected mission requirements. The current extraction schedule is designed to fully operate the facility at least once per year for the next four years to avoid the requirement to perform an Operational Readiness Review per DOE Order 425.1C, *Startup and Restart of Nuclear Facilities*. Personnel from both H Area New Manufacturing and the Tritium Extraction Facility have been cross trained to operate and maintain both facilities, allowing for a reduction in operations costs. However, in an effort to further reduce costs, NNSA is considering a temporary shutdown of up to ten years.

H-Canyon: SRNS submitted the upgraded H-Canyon Documented Safety Analysis and Technical Safety Requirements and requested DOE approval by July 6.