

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 5, 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 June 5, 2009

D. Burnfield, J. MacSleyne, and R. Raabe reviewed work planning and control for P and R reactors.

H-Canyon: Thousands of extra pounds of highly enriched uranium solution were inadvertently transferred to a low enriched uranium blend tank. Once the desired amount was transferred, the pump was shut down. Normally, the distributed control system (DCS) would have then automatically closed a valve in the transfer path. However, engineers knew that this and other valves were not functioning properly with the DCS and could not be placed in automatic mode. Because of this, a new procedure was written to bypass some of the DCS automation. Unfortunately, the procedure writer and all of the reviewers believed that once the pump was shut down, the transfer would stop so the procedure did not require closing this valve to isolate the transfer path. Because the transfer path between the two tanks remained open after the pump was shut down and there was a significant difference in pressure head, fluid continued to flow for about an hour before the problem was discovered. While the operator may have been able to detect the problem by carefully observing the liquid levels in both of the tanks, his primary indication was a software flow totalizer that stops updating once the pump is turned off, regardless of the flow meter reading.

This is the most recent of a series of events since last November involving inadvertent transfers and other events where second person/independent verification and/or supervisory review failed to detect errors as precursors to events. DOE wrote a letter to SRNS expressing concern that these events continue to occur despite SRNS' implementation of the Conduct of Operations improvement initiative, the Human Performance Improvement initiative, operational pauses to reinforce management expectations for safety and operations, and scheduled/unscheduled Senior Supervisory Watches. DOE is also concerned that investigations into the previous events were apparently ineffective in identifying and correcting the underlying causes. DOE requested that SRNS re-examine all related events and develop a corrective action plan to prevent recurrence. Corrective actions already planned include 1) deliberate operations mode for all transfers, 2) a two-day process pause session to reinforce management expectations, 3) continuous Senior Supervisory Watch for a week, and 4) a Facility Evaluation Board assist visit. (11/14/08, 2/13/09, and 5/29/09 reports)

F-Area: A work order instructed mechanics to perform preventive maintenance (e.g., visual inspections, tightening connections) on a transformer. When condensate was noticed on the heater, they interpreted "perform minor repairs as necessary" to allow them to troubleshoot the heater and eventually move two leads because they mistakenly concluded the wires were on the wrong contacts. Afterwards, the mechanics notified the system engineer that they had changed the configuration, but it was not until the next day that the engineer determined the wiring had been correct as found and needed to be changed back. While the heater had not been returned to service, management is concerned because the mechanics went beyond the authorized scope of work.

Radiological Protection (RP): Because of inconsistent anti-contamination clothing postings and practices across SRS, a standard template for posted instructions will be used, posting revisions will be controlled, and RP Director approval will be required for any deviations. (3/20/09 report)

Interim Salt Disposition Project: A record 98,420 gallons from Tank 49 were processed in May.