DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 25, 2010

TO: T. J. Dwyer, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending June 25, 2010

Puncture Wound: SRNS is reviewing all hands-on operations that have cut/puncture hazards to try to eliminate the hazard or identify lower risk alternatives. SRNS initiated a formal root cause analysis. SRNS is also reviewing waste repackaging hazards analyses and all tools used during operations. Waste workers are going through additional training and mockups. The Savannah River National Laboratory will also be conducting comparative tests to examine the cut and puncture resistance of several types of gloves.

Tritium: SRNS identified that they were tracking the incorrect design life for a particular unit. The error occurred in the 1990's, likely due to confusion regarding the various terms used to describe design lives. A significant number of units are affected, but preliminary calculations indicate that the worst case, current pressure is less than half the burst test pressure. SRS is awaiting further guidance from the Design Agency on the disposition of the affected units.

H-Canyon: If a seismic event causes a loss of purge airflow to vessels, a new Technical Safety Requirement requires operators to periodically purge the vessels by connecting a hose from a portable process air compressor to the vessel. Based on the cumulative, calculated purge times, the site rep questioned whether it was physically possible for the available operators to set up the equipment and complete these purges on as many as 31 vessels within the required 8 hours.

Trainers revised the Documented Safety Analysis (DSA) course to more clearly highlight the changes in the new DSA. (See 6/11/10 report). During a walkdown with operators, labels were noted missing for the circulated cooling water (CCW) return pumps. A new Technical Safety Requirement requires operators to manually shut down these pumps following the discovery of high radioactivity in the CCW system.

Saltstone: Inadequate three-way communications caused an operator to turn off the maintenance isolation switch breaker without turning on the maintenance bypass switch breaker. Power to the uninterruptible power supply and distributed control system was temporarily lost. This is another case where operators signed off procedure steps as complete that were not. (See 5/21/10 report).

F-Tank Farms: Shortly after resuming an inter area transfer, a pump pit sump alarmed, indicative that the pump tank overflowed. Engineers believe that a plugged dip tube caused the pump tank level to read low.

During the removal of pumps from tanks, SRR uses a "sleever" to wrap the contaminated item with plastic. Based upon lessons learned from previous contamination events, SRR recently redesigned the sleever used to remove submersible mixing pumps. The designers and work planners did not realize that the extended length of the redesigned sleever would preclude the insertion of the pump in the standard B-25 waste box. After removing this sleever from tank 5 and wrapping it in plastic, the crew attempted to place it in the pre-staged waste box. When it would not fit, they placed the sleever on a pallet jack while they used the crane to replace shielding. After a pause, workers placed the sleever inside a sealand container using a forklift truck. When radiological control personnel later surveyed the sealand container, they detected 30,000 dpm/100 cm^2 β/γ on the floor of the container. While the level of contamination was not a significant safety issue, SRR did not heed several telltale indicators. These included adverse weather, an abnormal event the night before which resulted in the crew working longer than normal hours, and performing a routine task in a non-routine way on a Friday afternoon. The incident could have been much worse had the forklift punctured the plastic wrapping when lifting the sleever; contamination could have been spread over a wide area.