

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 4, 2009

TO: T. J. Dwyer, Technical Director
FROM: D. L. Burnfield and M. T. Sautman, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending September 4, 2009

Modular Caustic Side Solvent Extraction Unit (MCU): While starting up MCU, a trainee being supervised by a qualified operator forgot to start the scrub feed pump although both operators signed the step as complete. The next shift completed MCU startup. When the new operator later checked some process parameters, he noticed that the pump was off and notified the Shift Operations Manager (SOM). After analyzing the current status, the SOM verbally directed the operator to start the pump and continue operations. The SOM did not consult the Shift Technical Engineer or the Systems Engineer, nor did he alert anyone else that having the scrub feed pump off for three hours may have affected the process. Neither the operator nor the SOM noted this abnormal operation in their logbooks. The next day, a Systems Engineer reviewing the Distributed Control System event log determined that the step to turn on the pump had been skipped during startup. While engineers agree that their recommended path forward would have been to start the pump and continue processing, the SOM did not appear to fully appreciate the processing impacts of the anomaly nor did he know at the time why the pump was not operating. If the scrub feed pump is off, the waste in the scrub contactors and eventually the strip contactors would start to become neutralized, reducing the cesium removal efficiency. The fact that detected gamma activity in the strip effluent decreased indicates this was likely occurring. The MCU process will be shut down until it can be verified that the contents of the Strip Effluent and Decontaminated Salt Solution Hold Tanks meet the waste acceptance criteria of the downstream processing facilities.

Operations management agrees that logkeeping and notifications were inadequate. When the Site Rep questioned why the operating procedure was not formally suspended per the Conduct of Operations Manual, the contractor response was that once startup is complete they are not officially in any procedure although they periodically complete round sheets. Processes like MCU and the evaporators have several procedures for starting up, shutting down, responding to anomalies, and performing other actions to keep the process running. However, there is not a procedure for when these continuous processes are simply operating. This appears to be a gap since the Conduct of Operations Order states that “procedures should be developed for all anticipated operations.” Starting the pump in the middle of operations was atypical. The Conduct of Operations Manual states that departures from a procedure without first initiating a procedure revision may only be taken during emergency situations in order to place the facility in a safe and stable condition. This was not an emergency and the departure from normal operations was simply to allow processing to continue. This is also the second case where MCU operated for some time without a key part of the process being functional (see 5/15/09 report).

American Recovery and Reinvestment Act (ARRA): ARRA management placed all ARRA work in a time out following the F-Canyon A-line acid spill (see 8/21/09 and 8/28/09 reports). Teams of workers, engineers, and subject matter experts are actively reviewing each work package. The review teams take into consideration feedback from the A-line incident as well as the jobs that have already been released. The Vice President or his designee is releasing each work package and DOE Facility Representatives (FR) are providing oversight of the process. The Facility Evaluation Board (FEB) will independently review several work packages next week. The 105-R grout placement resumed soon after the pause began. This week while placing grout in the trench, the expansion joint in the wall of the reactor adjacent to the trench apparently failed and approximately 1 cubic yard of concrete flowed into the -20 level of the reactor building. The FR and contractor personnel discovered the failed joint during a routine walkdown of the facility. ARRA workers will place a plate in front of the expansion joint to prevent further grout transfer during the final grout placement.