

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

May 21, 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 May 21, 2010

Saltstone: As part of a special procedure to test the salt feed tank (SFT) agitator's variable frequency drive, operators recirculate the contents of the SFT through the full process system. No grout is produced during this 2-hour recirculation. An operator initialed a procedure indicating that he had aligned a 4-way valve to return the solution back to the SFT, but he actually forgot to change the valve's position. This lineup did not recirculate the solution, but it ended up transferring the solution to vault 4 cell F. When a later procedure step directed the operator to monitor the level of the SFT, he initially dismissed the observed volume decrease as just being the expected holdup in the hopper and pipes. By the time the operator realized his mistake seventeen minutes later and stopped the transfer, the SFT volume had dropped by approximately 1870 gallons. Later, the vault bleed water return system collected approximately 1400 gallons of this solution and sent it back to the SFT. As evidenced by the low specific gravity of 1.01, the remaining Tank 50 heel solution was greatly diluted by several clean cap runs in the interim. During normal grout runs, this 4-way valve's position must be independently verified and the computer will not allow the operator to put it in the wrong position. In this special procedure, a single operator error caused an inadvertent transfer; however, the valve lineup could have easily been modified to add extra barriers to prevent a transfer to the vault.

SRR is considering screening out chemicals found in the saltstone waste stream. Analysts screened out 85 of the 87 chemicals present because their vapor pressure was less than 1 mm Hg or because the chemicals were less than 1 wt% of the solution. The staff is reviewing this proposed methodology.

F/H Laboratory: The laboratory holds much of the working inventory of its radioactive material in containers fabricated with glass, plastic, or metal. If this material is heated beyond its boiling point, the material could become superheated under pressure until the container failed. During a fire, the resulting accident could result in collocated workers receiving large doses (>300 rem TED). The contractor created a justification for continuing operation (JCO) to account for this potential scenario during those instances when the fire suppression system is inoperable. This JCO requires the laboratory to, "Shutdown non-essential analytical equipment which utilizes heating lamps, heating elements, flames or plasmas within the affected building..." and "Continuously monitor essential analytical equipment..." The laboratory has been in this JCO for an extended time while the contractor severs the fire suppression system from F-Canyon. During this last weekend, laboratory personnel operated a gas chromatograph (GC) to process samples from the Modular Caustic Side Solvent Extraction Unit (MCU). Because of confusing operating characteristics and potential inattention to detail, a technician left the GC on Saturday. The GC flame maintained the furnace temperature at 300°C until Tuesday when laboratory personnel noticed that it was on, shut it off, and notified management of the technical safety requirement (TSR) violation. Laboratory personnel took appropriate action to place the laboratory in a safe condition and to verify that all other controls of the JCO were observed.

H-Canyon: During minor battery maintenance, personnel operated a switch that isolated the battery from the system rather than just from the battery charger. The maintenance planning documents failed to identify that the operation of the wrong switch could result in a condition where the diesel generators may not have operated if called upon.

A worker was contaminated with nitric acid during maintenance when more acid was drained than was expected. The worker promptly washed the acid from his skin and averted any significant injury. The guidance document for wearing protective equipment for acids has not been issued. The site promised it after last year's acid injury. It was also noted that acid resistant tape had been placed in site stores to allow the workers to better tape their acid protective clothing, but personnel involved in planning work were not notified that it was on site.