

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 12, 2004

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
J. J. McConnell, Deputy Technical Director
FROM: R. T. Davis/ T. D. Burns
SUBJECT: SRS Report for Week Ending March 12, 2004

F-Canyon: On Monday, WSRC identified a management concern for the buildup of ammonium nitrate on the F-Canyon Process Vessel Vent (PVV) filters. Prior to removal of solvent from F-Canyon, the safety analysis identified an accident scenario involving detonation of ammonium nitrate that builds up on the PVV filters. Removal of the solvent eliminates the potential for a solvent fire that initiates the ammonium nitrate detonation. Therefore, the control of ammonium nitrate is no longer captured as a safety basis control. Prior to the solvent removal, the safety basis limit for ammonium nitrate on these filters was 550 kgs and was administratively controlled to 450 kgs. Annual calculations are performed to estimate the amount of buildup. During recent flushing of the F-Canyon filters, WSRC noted significantly more ammonium nitrate than was estimated by calculation.

Ammonia gas is produced in F-Canyon vessels when waste is neutralized prior to transfer to the High Level Waste system. The ammonia gas that enters the PVV system can combine with dilute nitric acid vapors to form ammonium nitrate crystals on the PVV filters. Ammonia scrubbers are used during the neutralization process; however, these scrubbers are not 100% efficient and are sometimes shut down if tank level is high. The F-Canyon calculation performed annually is an empirical correlation between number of waste batches processed and ammonium nitrate buildup. This calculation was developed over 10 years ago. In the interim, processing changes have occurred that impact the amount of buildup (e.g., greater use of ferrous sulfate). WSRC is revising the procedure for estimate of buildup in F-Canyon. For H-Canyon, control of ammonium nitrate buildup remains a safety basis control. WSRC is preparing a New Information (NI) to review the method of calculating buildup on the filters. However, initial review indicates that H-Canyon uses a different method that conservatively estimates ammonium nitrate buildup.

Performance Execution Plan: In 2002, DOE-SR and WSRC developed a plan to significantly reduce the forecast cost and schedule to complete Environmental Management cleanup activities at SRS. The Performance Execution Plan (PMP) was issued in August 2002. The plan identified project plans that drive contractor activities to achieve cleanup as early as 2025. Because of significant changes in the SRS program and drivers (e.g., the 2003 contract modification with WSRC), DOE and WSRC concluded that a PMP revision is required. This effort began in December 2003 with a conceptual plan completed in March 2004.

There are several significant changes in the assumptions associated with development of the revised plan. Notably, the previous PMP assumed extensive transfer of facilities to NNSA (e.g., H-Canyon and HB-Line in 2006). The new plan will not assume transfer to NNSA. Instead the plan will assume that H-Canyon and HB-Line are ready for deactivation in 2011. Prior to 2011, these facilities will be used to handle problem spent nuclear fuel and nuclear materials that are not suitable for the proposed plutonium vitrification process. The revised PMP is scheduled to be finalized in May 2004.