

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 7, 2000

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: C. H. Keilers / R. T. Davis
SUBJECT: SRS Report for Week Ending July 7, 2000

H-Canyon: WSRC has developed a Justification for Continued Operations (JCO) for the canyon exhaust tunnel leak discussed last week and expects to resume Mark-22 spent fuel dissolution shortly. Under certain conditions, about 0.6 percent of the canyon exhaust leaks into the old HB-Line exhaust duct. This duct directs flow through the underground tunnel, up into the fan house, through HEPA filters and fans, and then back into the tunnel upstream of the sand filter. The leak has allowed fission products to build up on the HEPA filters during the last 6 years. Maximum radiation levels now are about 0.8 Rem/hour.

The duct in the fan-house is not treated as safety-rated and is a potential unfiltered, ground-level release point during canyon accidents. WSRC had assumed accident consequences would be mitigated by the safety class tunnel, sand filter, and stack. The leak into the duct could more than double the consequences, but they would still be roughly a factor of 5 or more below evaluation guidelines. WSRC considers that the net increase in risk is a few percent since such accidents are extremely unlikely (i.e., they require concurrent failures in both canyon and fan-house). WSRC plans to implement compensatory measures this month, consisting of administrative controls, increased surveillance, and a new abnormal operating procedure. Longer-term, WSRC plans to modify the duct and eliminate the unfiltered release path. The JCO is valid for one year.

H-Tank Farm: During removal of a jumper from a pump pit, radioactive contamination was released outside of the controlled area. Tank farm operators were attempting to remove a jumper that had recently been disconnected and stored in the pump pit. However, they incorrectly began removing another jumper that had been stored in the pump pit since the late-1980's. The error was discovered while the jumper was being hoisted. It was placed back into the pit. Subsequent surveys within the wind shield erected around the job identified contamination, which was cleaned up prior to removal of the correct jumper. After the job was completed and the wind shield removed, contamination was found North of the job site. The contamination extended over 70 yards from the pump pit, and the area was controlled and decontaminated. This event underscores the importance of communications and response to unexpected conditions. It may also indicate that WSRC should re-visit their approach to contamination control during these types of activities.

3H Evaporator: During a shutdown of the 3H evaporator on Tuesday, the Tank 30 backflush valve became stuck and would not cycle. Binding problems with this valve caused significant delays in evaporator startup earlier this year (site rep weekly 5/5/00). Subsequent manual attempts to cycle this valve using higher torque have been unsuccessful. WSRC is developing a path forward. In the interim, residual waste in the evaporator pot has not been removed. Therefore, WSRC entered an administrative control that requires removal of waste within 7 days. This is a safety basis control to address hydrogen deflagration. Although WSRC could lift the waste, this activity would adversely impact the ability to work on the tank 30 backflush valve. If near-term repair is unsuccessful, WSRC will likely develop a response plan to justify exceeding the 7 day limit based on characteristics of waste currently being processed (i.e., the 7 day limit is based on bounding waste).