

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 24, 2001

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director

FROM: R. T. Davis

SUBJECT: SRS Report for Week Ending August 24, 2001

Recommendation 94-1/2000-1: In March, WSRC began dissolving Rocky Flats scrub alloy consistent with the Recommendation 94-1 implementation plan. This week, WSRC charged the last batch of this material at F-Canyon completing the implementation plan milestone approximately one month ahead of schedule. WSRC also charged the last batch of Mark-42 compacts. The compacts were considered higher risk because of the potential to pressurize the crimp-sealed containers (site rep weekly 3/23/01). F-Canyon is currently scheduled to process sand, slag and crucible (SS&C) though Spring 2002. It does not appear that DOE will pursue processing the Rocky Flats composites in F-Canyon because WSRC estimates that it would likely be FY '03 before this campaign could begin. After the SS&C processing, no other F-Canyon missions are currently planned. However, WSRC continues to evaluate options to utilize existing facilities for processing plutonium to feed the MOX facility. An initial evaluation of these options, including use of F-Canyon and FB-Line, is expected in September.

H-Canyon: On Wednesday, WSRC identified that the fissile material accumulation in the H-Canyon section 17 cell floor exceeded the Criticality Safety Limit (CSL). The CSL is 624 grams U-235 equivalent and sample results from the sump flush receipt tank indicated that the fissile material accumulation was 664 grams U-235 equivalent. Immediate actions taken by facility management included suspension of fissile material movement in this area and a cell inspection. In accordance with the Technical Safety Requirements, a response plan is being developed for this CSL violation.

The criticality scenario associated with this CSL involves a slow solution leak to the cell floor that evaporates before reaching the sump and results in a significant accumulation of material. The H-Canyon Double Contingency Analysis (DCA) identifies two defenses to protect this CSL. The first defense is periodic flushing of the cell floor. The second defense requires periodic inspection of the cell floor and fissile material transfer piping. It appears that this material accumulated in the cell floor because of recent jumper removals and minor jumper leaks. The initial evaluation by WSRC concluded that the flushing defense was not appropriately implemented because the frequency of flushing did not account for maintenance activities that could increase the buildup of fissile material. However, because neither defense prevented the CSL violation it may be appropriate to reevaluate the overall controls identified for this scenario.

Recommendation 2001-1: In July, WSRC chartered an independent review of the HLW tank management program to identify cost effective alternatives and high-risk/high-payback strategies. The team made the following recommendations: accelerate salt processing; reduce tank contingency space and develop tank repair strategies; regain evaporator performance and flexibility; and eliminate DWPF recycle to the tank farms. For salt processing, the team noted that the project design may unnecessarily couple actinide and cesium removal and that DOE should consider actinide removal in waste tanks separate from the cesium removal facility.