

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 1, 2003

**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 August 1, 2003

**FB-Line:** On Tuesday, three FB-Line operators received a higher than expected radiation dose while performing repackaging activities at the material characterization line. The dose for two of the operators was estimated to be greater than 250 millirem. However, none of the operators exceeded the DOE yearly dose limit.

FB-Line personnel are repackaging scrub alloy in preparation for shipment and dissolution at the H-Canyon facility. This particular evolution involved 13 cans of scrub alloy and was estimated to take approximately 4 days to repackage. During day shift on Monday, the cans were staged for repackaging. During this activity, the Radiological Controls Inspector (RCI) recognized that radiation levels associated with the material were high and required personnel to use lead vests during transport of the material. During the night shift, operators began the repackaging activity in the material characterization line. Lead vests were not used by these operators. Electronic Personal Dosimeters (EPDs) were in use by operators and alarmed multiple times during the evolution for high dose rate and high dose. However, operators did not take action to suspend the job and all 13 cans were repackaged. It was not until they exited the area that the excessive dose received by the operators was recognized. Based on this event, WSRC has suspended all discretionary work at FB-Line.

On Wednesday, DOE-SR sent a letter to WSRC noting a breakdown in several fundamental areas of Integrated Safety Management. Initial investigation indicates several factors contributed to this event: lack of management involvement, poor pre-job brief, inadequate identification of protective equipment (i.e., lead vests), and poor conduct of operations. WSRC has developed a phased approach to resuming operations in the facility. Phase I includes assessment of facility programs and personnel to identify weaknesses that contributed to this event. Phase II will be a disciplined resumption of operations with management oversight in place. WSRC is also performing an independent evaluation of FB-Line activities to validate corrective actions.

**Tank Integrity:** During routine visual examination of the Tank 34 (a Type III tank) primary tank wall, an anomalous stain was observed between the A4 and P3 risers. The stain began just above the upper plate weld (~ 4") and extended below the center of the middle plate. Augmented visual inspection of the localized area verified the initial observations, and review of archived inspection data indicated that the discoloration was not present during the most recent previous visual inspection in July, 1999. To determine if the emergent stain was a result of a leak in the primary tank wall, surface swipes of the area were taken and ultrasonic testing was commenced. The surface swipes showed no detectable surface contamination and the ultrasonic inspection did not indicate the presence of any reportable thinning, pitting, or cracking in a 12" wide by 24" high area centered at the top of the stain. Based on these results, WSRC has concluded that the anomalous stain is not due to a leak in the primary tank wall of Tank 34. An alternate explanation for the emergence of the stain has not yet been determined.