

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 7, 2007

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: M. P. Duncan and M. T. Sautman, SRS Site Representatives
SUBJECT: SRS Report for Week Ending December 7, 2007

Transuranic Waste: The TRU drum remediation lines at both the Solid Waste Management Facility (SWMF) and F-Canyon experienced significant contamination releases while workers were handling heavy cans that had been used to store Pu-238 oxide at HB-Line. At SWMF, an operator getting ready to bag out a can noticed a small slit in the bag and placed tape over it. While a continuous air monitor was alarming, the operator spent several minutes having his gloves surveyed (offscale), removing his outer gloves, covering the sleeve with two bags, and shutting down power. The operator and RadCon inspector evacuated to the adjacent room where another inspector spent two hours surveying them and affixing tape over contamination on the single pair of anti-contamination clothing (operator was 90% covered) until the operator became fatigued. It was fortuitous that the operator and inspector kept their powered air purifying respirators on during this time (a previous lessons learned) since this small, unventilated room was later found to have up to 240,000 dpm $\alpha/100 \text{ cm}^2$ on the floor. Contamination was spread to the operator's modesty clothing (11,000 dpm) and skin (3400 and 8000 dpm), possibly due to cross-contamination while cutting off the contaminated anti-contamination clothing. Room air monitors recorded between 1860 and 4798 Derived Air Concentration (DAC)-hours during the release. At F-Canyon, nearby count rate meters pegged after a plastic bag containing 3 heavy cans was lowered into a drum through a sleeved port. After surveys found elevated surface and airborne contamination levels, workers immediately evacuated. Although all the workers had significant contamination over their outer pairs of anti-contamination clothing, no contamination was found on their inner pairs or modesty clothing. When workers reentered the truckwell in plastic suits the next day, they found 1000's to 1 million dpm $\alpha/100 \text{ cm}^2$ over everything. Filter paper on room air samplers indicated cumulative airborne radioactivity up to 400,000 DAC-hr. A 5" rip in the plastic sleeving was also seen. A recovery plan was developed. The extensive use of mockups to refine recovery actions and contamination control techniques allowed workers to safely cover the ripped sleeving, do a bag-cut, and place the lid on the drum. Decontamination of the truckwell and waste enclosure will be next. In light of these two events, the contractor is revising their techniques for handling these product cans and contaminated workers. In addition, the contractor formed a management team with extensive Pu-238 experience to identify additional corrective actions and controls and evaluate operator proficiency.

235-F: After it was decided to house the Canister Surveillance and Storage Capability project elsewhere, the planned physical upgrades to 235-F were cancelled and the facility was deinventoried in 2006. Unfortunately, the anticipated funds for deactivation and decommissioning (D&D) did not materialize. The D&D Basis for Interim Operations was cancelled and the facility faced being in a Surveillance and Maintenance mode for the indefinite future. However, nondestructive analysis indicates the facility is still highly contaminated with Pu-238. The unmitigated consequences of a seismically induced full facility fire are 23,000 rem TEDE to the co-located worker (using EM-1 Interim Guidance methodology). Not only is this a risk to F Area workers, but the Pit Disassembly and Conversion Facility and Waste Solidification Building are within 100 m and the Mixed Oxide Fuel Fabrication Facility is within 300 m of 235-F. In light of this risk, DOE management intends to make 235-F a higher priority for risk mitigation although funding has not been identified yet.