

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 22, 2011

TO: T. J. Dwyer, Technical Director
FROM: M. T. Sautman and D. L. Burnfield, Site Representatives
SUBJECT: Savannah River Site Weekly Report for Week Ending April 22, 2011

F-Tank Farms: Two waste verification (WV) personnel accompanied by radiological control operations (RCO) personnel collected 79 bags of job control waste from intermediate storage locations and transferred this waste to container-type storage, which was maintained as a contamination area. They made several different pick-ups and each time they left the bags of waste (weighing up to 50 pounds each) inside the radiological buffer area surrounding the container-type storage until the last truckload was unloaded. Once they unloaded the last truckload, they moved the waste into the Sea-Land™ container. Those personnel who entered the contamination area wore only shoe covers and gloves in accordance with the radiological work permit. The RCOs monitored only the hands and feet of all four personnel, who then went to the nearest portal monitor. The portal monitor indicated that the two WV personnel were contaminated, but the more senior RCO performed a frisk of the alarming area of clothing and released them and they returned to their normal workspace. While they were returning to their workspace, the two RCOs also used the portal monitor, which alarmed indicating they were also contaminated. The more senior RCO cleared both RCOs by frisking the contaminated area and they then went to another portal monitor. When the second portal monitor indicated that they were contaminated, the RCO first line manager became involved and recalled the WV personnel. Additional surveys found all 4 personnel to have contaminated clothing ($\leq 30,000$ dpm $\beta\gamma$) and the skin of one RCO was also contaminated (6000 dpm $\beta\gamma$). The truck was found to have ($\leq 40,000$ dpm removable $\beta\gamma$ contamination) and ($\leq 140,000$ dpm $\beta\gamma$ contamination by direct probe.) The probable cause is either a truck that was previously contaminated or a suspect bag of waste. Because of the area traversed during this work and the numerous errors made by the work team, SRR management is directing several corrective actions.

Nuclear Safety: SRNS is invoking a “self-protection philosophy” for unmitigated fire, worker-initiated spills, and seismic scenarios. This philosophy is the basis for a proposal to no longer credit the 1) fire detection and alarm notification and 2) smoke detection and alarm systems in HB-Line. The Consolidated Hazard Analysis Process manual states the following:

“The exposure time is assumed to be one minute if the worker is not trapped and there is an obvious hazard (e.g., fire, dropped container). This is crediting the worker’s ability to self-protect.” This philosophy was loosely derived from DOE-STD-5506, which only applies to transuranic waste facilities. The standard states that controls should be considered for facility workers to protect them from energetic events when they would normally be immediately present and thus unable to take self-protective actions. The context is one of adding controls, not eliminating controls. The site rep also questioned applying this to plutonium operations inside a facility with many rooms and corridors where a spill or fire may not be readily noticed by all affected workers versus a large, open waste handling warehouse or tent. Furthermore, a worker may not be able to evacuate past all potential release locations following a seismic event within one minute.

Solid Waste Management Facility (SWMF): Last week, SWMF personnel had an airborne event while mining culverts for TRU drums (see 2/18/11 report). While recovering from that event, SWMF personnel painted over the fixed contamination that remained on the work platform. After working in the area for approximately a shift, an employee complained about the fumes from the paint can. At the post job review, it was determined that the automated hazard analysis (AHA) that they used was for mining the culverts and not for a recovery action. The SWMF personnel also determined that the pre-job brief was not adequate to convey the hazards associated with the recovery actions.