

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 15, 2003

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** C. H. Keilers, Jr.  
**SUBJECT:** Los Alamos Report for Week Ending August 15, 2003

On Thursday, the staff held a video-teleconference with LANL, the NNSA Site Office, and DOE headquarters on the Board's issues with the Pu-238 scrap recovery line hazard analysis and controls.

**Integrated Safety Management:** More attention is needed on workers following safety requirements (i.e., formality of operations), on adequate work planning to meet requirements, and on improving on-floor supervision with emphasis on safety requirements when appropriate, as further illustrated by this week's events. In the Plutonium Facility (TA-55), 3 workers were exposed to a mist that caused a slight burning sensation and difficult breathing. They were attempting to clear an obstruction in a non-radioactive line by using compressed air. Upon investigation, TA-55 management identified issues in defining work, identifying hazards, mitigating hazards, and following the work package as written. They are following up. In the Radiochemistry Lab (TA-48), the evolution that resulted in the "acid-to-the-eyes" event 2 weeks ago was restarted this week then suspended when a worker received a skin contamination. TA-48 management has suspended work done under the affected hazard control plan. Besides work control, this event raises questions on formal restart of a suspended activity and compensatory measures applied until a formal investigation of the previous event is complete. The site rep understands that this week's event will be incorporated into the LANL investigation underway.

**Plutonium Facility (TA-55):** On Wednesday, the NNSA Type B investigation began on last week's Pu-238 contamination event. The team appears well-qualified and is from multiple DOE sites, including the Savannah River Site (non-NNSA). The team leader anticipates completing the investigation on or around October 3<sup>rd</sup>. A new question that emerged this week is why the continuous air monitor alarmed in an adjacent room that doesn't appear to be directly connected to the affected room. Last week, this alarm was attributed to radon. The affected room is also adjacent to another room that contains the new Pu-238 scrap recovery line. NNSA intends to wait until after the in-facility investigation work is completed and analyzed before authorizing the start of the NNSA readiness assessment (RA) for the new line. As of Wednesday, the LANL RA report had not yet been finalized.

**Authorization Basis (AB):** Better institutional criteria are needed here and need to be consistently applied for functional classification, evaluating worker hazards, and designating AB controls. Engineered features are designated as "safety significant" (SS) when a hazard analysis determines they are of particular importance to defense in depth or worker safety. An administrative control may warrant SS designation if an engineered control is impractical. This designation of controls is part of the functional classification process described in DOE-STD-3009. In April 2002, DOE revised this standard so that functional classification as SS would be considered not only for prompt worker fatality and serious injury but also significant worker radiological or chemical exposure.

This week, when discussing a significant worker hazard scenario, LANL indicated that the criteria for SS used in one major facility is a calculated accident dose of 5 Rem to the maximal exposed off-site individual and thereby concluded an SS-level control to protect workers was unwarranted. While this covers the defense in depth aspect, the worker safety aspect specified in the DOE standard was apparently missing, particularly for significant radiological or chemical exposure to workers. This and previous observations raise questions of whether LANL has adequate criteria that are being consistently applied (e.g., site rep weekly 7/3/03). This has implications on recent evaluations, such as the Pu-238 scrap recovery line analysis and the new ABs prepared as 10 CFR 830 updates.