

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 2, 2001

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** C. H. Keilers, Jr.  
**SUBJECT:** Los Alamos Report for Week Ending November 2, 2001

**Los Alamos Neutron Science Center (LANSCE):** On Monday, DOE approved a Basis for Interim Operation (BIO) for LANSCE experiments involving neutron scattering by actinide targets. These will be Hazard Category 3 activities (HC-3). The targets will consist of double-encapsulated solid samples containing up to 60 grams of Pu-239 equivalent (PuE). The experiments support the Stockpile Stewardship and Management Program and are expected to continue through 2003. LANL anticipates some future experiments will need to be conducted at elevated temperatures, which is not currently approved. This will require DOE and LANL to revisit the actinide BIO.

**Plutonium Handling and Processing Facility (TA-55):** TA-55 has discovered that the most hydraulically remote sprinkler heads in PF-4 will not deliver the minimum flow density specified in the original facility design and the FSAR (i.e., 0.19 gpm/ft<sup>2</sup> over a minimum of 1500 ft<sup>2</sup>). LANL asserts that the original design requirement was not based on actual risk factors, such as combustible content, and that the as-built system will deliver 0.15 gpm/ft<sup>2</sup>, sufficient to meet current NFPA codes for chemical laboratories (e.g., NFPA 45, NFPA 13 Ordinary Hazard Group 1). LANL has submitted to DOE a positive Unreviewed Safety Question (USQ) based on this discovery. DOE review and action on the USQ are forthcoming.

**Decontamination and Volume Reduction System (DVRS):** LANL has about 2,400 m<sup>3</sup> of TRU waste that is oversized (e.g., gloveboxes) and stored in about 300 fiberglass-reinforced wooden crates. The crates range from 10 to 40 feet in length and from 4 to 12 feet in width and height. This is a form unsuitable for shipment to WIPP. The radiological contents of about one-tenth of the crates have been well characterized. Current knowledge of the remainder is based primarily on waste generator records. LANL believes that about half the crates could be processed, one at a time, in a radiological facility (i.e., less than 8.4 gm PuE), and nearly all (95%) could be processed in a HC-3 facility (i.e., less than 450 gm PuE, 900 gm PuE for critical safe forms). A small number of crates (~14) may require a HC-2 facility, depending on results of further characterization (e.g., Pu-238 content).

To prepare this waste for shipment, LANL is proposing to start up the DVRS within the next 2 months as a radiological facility and to transition this facility in future years to HC-3 and maybe eventually to HC-2. DVRS operations will be manually intensive and involve unpacking crates, fixing or removing contamination, segregating low level waste, and packaging for shipment. Oversized components will be hoisted and lowered into a shearing and compaction machine (a car crusher) that would reduce metal objects to pucks that can be loaded into standard waste drums. The facility has several safety features including PC-2 structure, dry-sprinkler fire suppression, 2-hour rated fire walls for both bays and building, HEPA filters on bay exhaust and on building supply and exhaust, and an emergency diesel generator to ensure ventilation remains negative. As of this week, the startup team has not completed a startup plan for radiological operations (it's close) or a transition plan, safety analyses, and function classification required for later HC-3 or HC-2 operations. Without the latter, it is difficult to say now that, once contaminated, upgrading the facility to HC-3 or HC-2 operations in the future won't entail either prohibitively expensive modifications or burdensome administrative controls. Additional forethought, such as a well-developed transition plan, appears warranted.