

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 8, 2006

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director

FROM: C. H. Keilers, Jr.

SUBJECT: Los Alamos Report for Week Ending September 8, 2006

Radioactive Liquid Waste Treatment Facility (RLWTF) Upgrade Project: This week, NNSA approved with comments the preliminary hazard analysis, submitted in April, for a new hazard category 2 (HC-2) RLWTF, which would replace the current 43-year-old facility in 2010. The schedule is to complete preliminary design in mid-FY-07, final design in mid-FY-08, construction in mid-FY-10, and decontamination and decommissioning of the current facility in FY-12. Total project cost range is \$82M to \$104M. Size is ~21,000 ft². Current acquisition strategy is design-bid-build.

The dominant public hazards are chemicals used for pH adjustment (i.e., HCl and NaOH solutions); the design basis radioactive inventory (Am-241) is under 200 Ci, which is about four times the HC-2 threshold; this is one to three orders of magnitude lower than the radioactive inventories in other LANL HC-2 nuclear facilities. LANL assumes that TA-55 will start up and operate the CLEAR line and thereby reduce the new facility's source term most of the time to under 20 Ci. LANL's proposed initial functional classification includes no safety-class systems and has building structure, vehicle barriers, lightning protection, certain chemical and radioactive systems, and a natural gas seismic shut-off valve as safety-significant. The building and systems would be performance category 2 (PC-2). NNSA disagreed that the functional classification was complete and requested further evaluation, particularly of active confinement ventilation, which was proposed as defense-in-depth.

Waste Operations: NNSA and LANL continue to search for a path-forward for the high-activity transuranic waste drums reported last week; discussion focuses on whether to use the TA-54 DVRS Facility or the TA-50 WCRR Facility for repackaging these drums (ref: site rep weekly 6/30/06). The site rep believes that either facility could work for the high-activity drums and both will eventually be needed for drum repackaging. Given the activity levels (150 Ci avg, 750 Ci max), appropriate additional controls (e.g., respirators) and contingency planning appear key regardless of the selection.

Criticality Safety: An NNSA Service Center review of several of LANL's recent criticality safety evaluations has raised questions, particularly on their completeness as justification for the control set for fissile material operations. One root cause may be insufficient qualified staff to systematically accomplish the growing workload and drive the LANL criticality safety program to a state that meets DOE requirements and applicable national consensus standards (site rep weekly 8/4/06).

Federal Oversight: On Sep 1st, the NNSA Site Office provided headquarters an initial management system description for the two-year federal oversight pilot; it indicates that • federal oversight of nuclear operations will be transactional based on a graded approach; • it will rely on the contractor assurance system (CAS) to target areas needing more specific oversight; • it will include those institutional programs that nuclear facilities depend on for safe and secure operations; • non-nuclear operations that have the potential to release radiological or chemical constituents to the public will also receive federal transactional oversight. The model has the potential to increase federal oversight in facilities with postulated high-consequence accident scenarios but relies on CAS to find and respond to precursors in lower hazard facilities that have been problematic. It might be worthwhile for LASO to develop maturity metrics that guide improvements during the pilot; one useful metric would be the state of qualification of federal staff and team leaders being assigned to new positions.

Chemistry and Metallurgy Research Facility (CMR): LANL's accident investigation report for the June CMR hood fire is late and is undergoing LANL management review (site rep weekly 7/14/06).