

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 15, 2006

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director

FROM: B. Broderick and C. H. Keilers, Jr.

SUBJECT: Los Alamos Report for Week Ending December 15, 2006

Transuranic (TRU) Waste Operations: NNSA has terminated reviews of the proposed safety bases for two key facilities needed to process and ship high-activity TRU waste drums to WIPP. NNSA has committed to provide LANL rough sets of representative comments from the curtailed reviews and to deploy a two-person team to liaison between NNSA and LANL during the document revision process.

In parallel with the safety basis revisions, LANL is completing engineering work packages for natural gas line removal and for fire suppression and seismic/structural upgrades in one of the key facilities – the WCRR repackaging facility. The site reps understand that these modifications are intended to align the systems with their descriptions in the safety basis revision; the modifications appear relatively small in scope but large in benefit in improving the facility's safety posture. For example, the structural modifications, which may start and complete next month, increase assurance that the building meets performance category 1 (PC-1) and possibly even PC-2 requirements; this is positive.

There may be other such opportunities, but as discussed last week, there are risks associated with continuing delay. It is advisable for NNSA and LANL to quickly but deliberately examine the suite of available safety systems for these two facilities, aggressively pursue straight-forward high-benefit upgrades, and equally aggressively pursue reaching agreement on compensating administrative controls when no straight-forward upgrade exists.

Recommendation 04-2: LANL has completed its evaluation of the TA-55 PF-4 confinement ventilation system; it included a cost-benefit analysis of 11 potential backfit options that could improve building confinement during bounding fire and seismic accident scenarios; NNSA site office action on the evaluation is pending (site rep weeklies 9/22/06, 9/1/06, 12/9/05).

The study asserts that upgrading confinement ventilation to safety-class would be costly and would be insufficient to mitigate all accidents considered, particularly a seismically-induced fire. While several options potentially address all the scenarios, a combination of two options—glovebox seismic support upgrades already planned (\$20M) and ventilation bleedoff subsystem modifications (\$5M)—was identified as the most cost-effective; the bleedoff subsystem modifications would focus on providing safety-significant active confinement during fires. The study concluded that this combination would drive mitigated consequences for most accidents to 0.1 rem CEDE or below and would reduce the mitigated consequence for a seismically-induced fire from about 174 to 15 rem CEDE.

Plutonium Facility (TA-55): Weaknesses in the TA-55 electrical distribution system leave the facility vulnerable to power loss from even minor grid transients. Nineteen transient events have impacted the facility over the past six months, ten of which led to significant operational interruptions. These events cause unplanned interruption of hazardous work; they adversely affect the operability of facility safety systems, particularly confinement ventilation; and while the transient lasts milliseconds, orderly recovery typically takes about 2 hours. Near-term, the facility is pursuing installation of a power conditioner and/or capacitor bank to reduce sensitivity to short duration transients. Longer-term, planned switchgear upgrades are intended to automatically transfer key loads to a backup diesel generator when offsite power is interrupted or lost (site rep weeklies 10/13/06, 4/2/04).