

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 23, 2006

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending June 23, 2006

Plaue was here this week augmenting site rep coverage.

Weapons Engineering Tritium Facility (WETF): Last Friday (6/16), WETF had a tritium release to a room while workers were leak-checking secondary containers. The workers evacuated the room, and the tritium (less than 100 Ci total) was exhausted via an approved stack until Wednesday when workers in bubble suits found and fixed the source. Health consequences appear minimal (e.g., micro-rem range to the public). WETF had a similar room release in 2003 (site rep weekly 4/18/03).

Chemistry and Metallurgy Research Building (CMR): The facility's and the emergency response team's immediate actions for last Friday's hood fire were appropriate overall; the event also offers lessons learned. As followup, CMR suspended both facility and programmatic operations on Monday, conducted sweeps for unidentified legacy materials, and resumed operations in most rooms by Thursday. Other facilities have begun sweeps. LANL has started a formal investigation.

Waste Operations: Area G has several hundred transuranic waste drums with no clear disposition path because their contents exceed the WIPP drum limit (80 Ci) and the LANL repackaging facility (WCRRF) safety basis limit (56 Ci). The 2003 Area G safety basis indicates: these drums range up to 760 Ci; in total, they constitute more than 25 % of the Area G transuranic inventory but only about 1 % of the number of drums; of the 3 dozen analyzed accident scenarios, about half have predicted unmitigated off-site consequences exceeding 100 rem (CEDE), and about a third of these are due to these drums.

The choke point for disposing of these drums is WCRRF and its safety basis limit, which is driven by seismic scenarios. WCRRF is LANL's only asset with WIPP-certified capabilities for visual examination and repackaging drums with greater than 0.5 Ci. WCRRF was running well earlier this year, in spite of issues with glovebox ventilation and its 6-year-old safety basis. LANL plans to upgrade WCRRF ventilation this summer and to submit a safety basis revision this fall. LANL is also considering using CMR for drum repackaging because of its higher limits, but CMR also has seismic concerns.

Plutonium 238 Operations: TA-55's Pu-238 residue inventory is a major nuclear safety challenge (site rep weekly 6/2/06). For perspective, if designated as waste and packaged to typical Area G drum levels (i.e., 6 Ci/drum), this inventory's total volume would correspond to about a decade's worth of transuranic waste shipments from TA-55 and to about an eighth of the current number of drums in Area G.

LANL and the WIPP contractor have negotiated a tentative path-forward for Pu-238 debris waste that will allow loading drums to the WCRRF limit, 56 Ci. Paradoxically, pyrolysis of the combustible residues would generate a safer, more chemically inert ash but that material form is currently classified not as debris but as homogenous waste without an approved WIPP pathway (site rep weekly 1/20/06).

For debris waste, the tentative path-forward will require TA-55 to open containers, split the contents, and repackage residues into drums, and for WCRRF to later open, empty, and visually confirm the contents of some of the drums. There are significant handling risks involved; it would be advantageous to only have to do these steps once, preferably combined into a single WIPP-certified operation in TA-55, which would require increasing priority and coordination. LANL and WIPP are working on the path forward.