DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 5, 2008

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending September 5, 2008

Radioactive Liquid Waste Treatment Facility (RLWTF): On Saturday (8/30), an equipment malfunction following a maintenance evolution at the Chemistry and Metallurgy Research Building (CMR) caused an inadvertent discharge from the chilled water system at a rate of approximately 60 gallons per minute. This water soon began draining into a line leading to the low-level waste influent collection tanks at RLWTF. The 75,000 gal primary collection tank level began rising at a rate of 5% an hour. The computerized monitoring and control system initiated an automated alarm call-out, an operator reported to RLWTF, assessed the situation and contacted plant management. There was initial confusion about the source of the influent water and early efforts to isolate the upstream source focused on the TA-48 radiochemistry facility rather than CMR. By the time the upstream source was isolated and the plant was put into operation to begin processing liquid, around 300 gallons overflowed from the primary tank and was pumped into a 100,000 gal secondary tank, already approximately 75% full of legacy material. About 50,000 gal of total influent was received.

This event appears to be prompting a comprehensive evaluation of instrumentation both at RLWTF and at generator facilities to ensure that equipment needed for timely and accurate identification of abnormal conditions is appropriately maintained and calibrated. There also appears to be heightened attention and urgency for remediating legacy material held in the secondary tank to increase margin. This remediation requires offsite vendor support and has been delayed due to funding issues.

Transuranic Waste Operations: Waste storage domes in Area G are equipped with lightning protection systems (LPS) credited with reducing the frequency of lightning-induced fires that can impact transuranic waste. Performance and in-service inspection criteria for the safety-significant LPSs are vague and simply reference NFPA 780. A potential inadequacy of the safety analysis (PISA) was declared in May based on metal waste drums staged within the code-mandated arc-flash exclusion area around LPS components. Three months later, this condition was determined to be a positive unreviewed safety question (USQ). Affected domes are in the process of being remediated and operational restrictions are in place for domes where drums remain inside the exclusion area.

This week, the results of an NNSA site office safety system oversight review of the LPS were briefed to Area G management. The review highlighted a number of other code compliance issues, including lack of surge suppression for domes and ground resistance readings for some LPSs that were outside the acceptable range. Many, if not all, of these issues had been previously identified by LANL. After reassessing the known information and deficiencies, Area G management declared a TSR violation. The initial PISA declaration, identification of the positive USQ, and the recent declaration of a TSR violation were all prompted by NNSA engagement (site rep weeklies 5/30/08, 5/9/08).

Weapons Engineering Tritium Facility (WETF): This week, WETF declared a PISA related to the safety-significant fire suppression system. A TSR for this system requires sprinkler heads to have a maximum temperature rating of 100° C. Two sprinkler heads that are collocated with heated equipment have a rating of 141° C. The higher rating of these sprinklers is necessary to comply with NFPA code requirements, but is not consistent with the language in the TSR.