

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 16, 2006

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending June 16, 2006

Andersen, Hadjian, Jones, and Rizzo were here this week reviewing CMRR geotechnical information.

Chemistry and Metallurgy Research Building (CMR): This afternoon, a researcher making space in a Wing 5 hood inadvertently spilt an unknown liquid that spontaneously ignited. The researcher extinguished the fire. LANL emergency personnel responded, and the situation appears under control.

Plutonium Facility (TA-55): Last Friday (6/9), a KSL worker sustained first and second degree burns on one hand due to a malfunction of a soldering torch; he was working under a glove-box in a Pu-238 lab room and was wearing cotton anti-Cs and rubber gloves. KSL suspended work using this type of torch and is investigating the event, including the personal protective equipment requirements.

Also last week, LANL proposed that TA-55 continue to operate under the interim technical safety requirements (iTSRs) until the new safety basis is completed. When approving the iTSRs, NNSA required that they expire on July 28th, 2006. The iTSRs – which are still not fully implemented – capture compensatory measures to address the passive confinement issue discussed below, as well as other needed controls identified since the last safety basis approval in 1996 (site rep weekly 8/5/05).

Recommendation 04-2: In 2004, the Board recommended that DOE disallow reliance on passive confinement and require an active confinement ventilation system for defense nuclear facilities with the potential for radiological release. For Hazard Category 2 facilities, such as TA-55, the Board stated an expectation that these systems would be categorized as safety-class or safety-significant, depending on a conservative application of DOE-approved methodology, and that they would be designed and maintained to function during abnormal and accident conditions. The Secretary accepted this in March 2005. The Board subsequently accepted DOE's implementation plan (IP).

In accordance with the IP, DOE has developed confinement ventilation performance criteria and a structured evaluation process. It involves teams identifying gaps between the ventilation system, the criteria, and the safety basis; reviewing potential upgrades using a structured cost-benefit approach; and recommending to the Program Secretarial Officer those upgrades needed to enhance ventilation reliability under normal and accident conditions. DOE has committed to pilot the process with TA-55.

In a parallel but uncoupled effort, NNSA and LANL have doggedly pursued refining their analyses to justify TA-55's passive confinement strategy, in spite of Recommendation 04-2 observations on the credibility of such analyses. Last August, NNSA expressed doubt that TA-55's ventilation system meets even safety-significant requirements (site rep weekly 8/5/05). In March, LANL observed that neither passive nor active ventilation confinement is sufficient and proposed a series of controls (site rep weekly 3/3/06). LANL's conclusion that active confinement is ineffective is counter to their calculations of a year ago and is based on subsequent model tuning. NNSA has not yet acted on LANL's recommendations, which focus on installing a safety-class door in the corridor adjacent to the Pu-238 lab-rooms, developing safety-class containers, and seismically upgrading glove-box supports.

Perhaps, a convergent course might be for the site to implement LANL's proposed controls, to fully engage in the 04-2 pilot, and to pursue the ventilation reliability upgrades that are thus identified (related reports: 12/24/04, 3/4/05, 4/1/05, 7/15/05, 9/2/05, 9/16/05, 9/23/05, 12/9/05, 4/14/06).