

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 22, 2011

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending April 22, 2011

Transuranic Waste Operations – Safety Basis: This week, the discovery of new information related to the Area G Drum Venting System (DVS) prompted LANL management to declare a Potential Inadequacy of the Safety Analysis (PISA). Startup of the DVS is intended to reestablish the capability to safely vent the thousands of unvented drums currently stored above and below ground at Area G in preparation for final disposition. Earlier this year, LANL management declared implementation of the safety basis revision that covered DVS operations in advance of a Contractor Readiness Assessment (CRA), which ultimately failed to demonstrate adequate readiness to begin venting operations.

The implemented safety basis analyzes a drum deflagration event and the resulting overpressure challenges to DVS components. The analysis assumes the deflagration occurs in a drum with a 12% headspace gas concentration of hydrogen and also assumes the failure of internal DVS valves designed to contain blast pressure, allowing the deflagration overpressure to be vented into a greater volume. In the course of pursuing a question raised during the recent CRA, LANL personnel recognized that the assumptions related to hydrogen concentration and the failure of the blast valves may not be conservative. Higher hydrogen concentrations and actuation of the blast valves, both of which are credible, would lead to a more energetic deflagration confined to a smaller volume. This situation produces calculated pressure conditions inside the DVS chamber that are greater than those analyzed in the current safety basis, which prompted the PISA. LANL personnel are developing a path forward to address the PISA and evaluating the impact of these issues on the DVS startup schedule.

Integrated Work Management (IWM): Based on several events that occurred between late-2010 and early-2011 involving issues with work planning/execution and conduct of operations, the laboratory deputy director chartered a senior team to develop a comprehensive understanding of obstacles and issues negatively impacting LANL's IWM program. This team recently completed their review and identified the following four Judgments of Need (JON) along with recommendations for corrective actions to address these JONs: 1) LANL needs to accelerate full implementation of conduct of operations within craft and vendor work planning and execution; 2) LANL needs to strengthen the subcontractor technical representative program; 3) LANL needs to develop and implement an effective tool to evaluate operational performance that provides indicators for issues that require broad-based corrective actions; and 4) LANL needs to develop a mechanism to evaluate major organizational changes that may impact institutional IWM implementation. The team recommended nineteen specific corrective actions to laboratory senior management to address the identified JONs.

Seismic Safety: This week, the site office forwarded the Board's April 8th letter on issues with the computer software SASSI (A System for the Analysis of Soil-Structure Interaction) to LANL and requested a summary of the site's use of this code, information on code versions used, the basis for software quality assurance and any other information relevant to responding to the Board's letter. The site office directed LANL to respond to this request within three weeks.

Plutonium Facility – Seismic Safety: The site office memorandum discussed above also requests LANL to provide plans for identification and anchorage of critical equipment within Plutonium Facility gloveboxes

(e.g., furnaces that could contribute to post-seismic fire initiation). These plans will be included in the overall project execution plan for upgrades in response to Board Recommendation 2009-2.