

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 16, 2010

**MEMORANDUM FOR:** Timothy Dwyer, Technical Director  
**FROM:** Jonathan Plaue, DNFSB Site Representative  
**SUBJECT:** LLNL Activity Report for Week Ending April 16, 2010

**Emergency Management:** On April 7, 2010, the Laboratory performed the annual site-wide emergency exercise. This year's scenario occurred in a non-nuclear facility; however, one concern regarding the lab-wide Emergency Voice Alarm (EVA) system has emerged that is relevant to the nuclear facilities. During the exercise, a dispatcher in the Alameda County Regional Emergency Communications Center, which controls the EVA system for the Laboratory, unknowingly entered incompatible instructions to the system. As a result, the software supporting the laboratory-built EVA system experienced a temporary impairment while it reset. The implications of this impairment and other potential failure modes are under study.

Of relevance, during their recent review, the Office of Health, Safety and Security (HSS) issued a recommendation concerning the EVA system. HSS suggested that the Laboratory consider developing a procedure and technical specification to include, "operation and signal response protocol, alarm system testing and maintenance, configuration management, design and installation requirements, and system impairments." The Laboratory, with Livermore Site Office (LSO) concurrence, did not develop a formal corrective action for this recommendation.

**Plutonium Facility:** During the temporary EVA impairment discussed above, the facility experienced a loss of control of the Evacuation Voice/Alarm Audio Warning and Building Paging (AW/P) System. The AW/P is identified as a safety-significant component of the facility's Fire Detection and Alarm System (FDAS). The safety function of the FDAS is "to detect fires and alert personnel." One of the performance criteria for this function is that upon detection "the AW/P system fire announcement shall be heard in all occupied areas of the Radioactive Materials Area." The AW/P could not perform this function during the brief impairment. Further, facility personnel received no formal indication that the AW/P was impaired. In the event of AW/P loss, the technical safety requirements dictate immediate actions. On April, 15, 2010, LSO and Laboratory personnel discussed the interaction of the EVA system with the AW/P system. The LSO system engineer plans to further investigate the quality assurance, configuration management, and overall operability implications for this system interaction. Separately, alarm technicians and facility personnel continued to troubleshoot and develop a path forward regarding the inadvertent legacy alarm actuation (see weekly report dated April 2, 2010). Efforts this week included a detailed mapping of portions of the AW/P system wiring.

**Requirements Reform:** Last month, the LSO Manager and the Laboratory Director established a charter for a Requirements Change Control Board (CCB). The purpose of the CCB is to review and adjudicate recommendations to the LSO Manager for approval to modify, substitute, or delete any Department of Energy requirement applicable to the laboratory contract. As written, the charter does not prohibit review of nuclear safety requirements, provide criteria for how a given requirement will be examined, or establish mechanisms for interface with the normal directives equivalency process, such as Central Technical Authority concurrence. The LSO CCB co-chair expects that processes and procedures to supplement the charter in these areas will be developed at the first CCB meeting to be held by the end of April 2010.