

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 26, 2010

MEMORANDUM FOR: Timothy Dwyer, Technical Director
FROM: Jonathan Plaue, DNFSB Site Representative
SUBJECT: LLNL Activity Report for Week Ending February 26, 2010

Staff members Anderson, Laake, Martin, Shackelford, Rauch, Spatz, and Von Holle were on site this week to review implementation of Department of Energy Standard 3016-2006, *Hazard Analysis Reports for Nuclear Explosive Operations*, for laboratory support of W84 operations at the Pantex Plant.

Tritium Facility: On February 22, 2010, the laboratory and the Livermore Site Office (LSO) approved the scope and key issues statement for a safety basis amendment to re-baseline the hazards analysis (HA) and subsequent control flowdown for the Tritium Facility safety basis. The statement notes a process which includes the following steps: (1) preparation of mass flows by material form for all activities in the facility, (2) restructuring of the HA using generic and specific activities derived from the mass flows, (3) derivation of material limits with a stated basis for all generic activities, (4) examination of process-specific failure mechanisms, (5) association of processes and activities with hazards to develop new scenarios as necessary, (6) re-examination of frequency and consequences with clear identification of initial conditions and credited controls, and (7) functional classification of engineered and administrative controls derived from the HA, including well-defined safety functions and performance criteria.

The amendment is due at the end of June 2010 and will take the form of either page changes or revised safety basis chapters depending on the outcome of the effort. Earlier in the month, a separate scope and key issues statement was approved for the safety basis annual update. The update is due by March 26, 2010, and is expected to resolve concerns regarding consideration of special tritium compounds, clarify controls for handling and storage of reactive compounds, revise the scope of the hydrogen species special administrative control to include hydrogen in connected vessels that are external to the glovebox, and provide several other refinements of the safety basis. LSO is developing a review plan and schedule, which will likely include review of both submittals together.

Plutonium Facility: On Thursday, facility management called a critique to examine how authorization was received to operate the Hydride/Dehydride/Casting (HYDEC) unit with nuclear material before all necessary design review comments were formally closed. HYDEC operations were suspended in October 2009 as a result of the Potential Inadequacy in the Safety Analysis associated with the Hydrogen Gas Isolation System (see weekly report dated October 30, 2009). It was clear from the critique discussions that improvements are needed to better document the specific process and steps associated with design reviews and the facility acceptance process. For example, there are currently no formal written expectations for when supporting calculations, drawings, and system design descriptions must be approved in relation to authorization to introduce nuclear material. The laboratory had previously identified the need to improve the design review and acceptance process, which is part of the ongoing revision to the work control manual. Per procedure, the critique report with the specific issues and corrective actions is expected to be approved in two weeks. The actual HYDEC operations occurred without incident, including successful removal of material from the redesigned crucible.