

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 29, 2011

**MEMORANDUM FOR:** Timothy Dwyer, Technical Director  
**FROM:** Jonathan Plaue, DNFSB Site Representative  
**SUBJECT:** LLNL Activity Report for Week Ending April 29, 2011

**DNFSB Staff Activity:** On April 28, 2011, the staff held a teleconference with Livermore Site Office (LSO) personnel to discuss the adequacy of proposed control strategies to prevent hydrogen deflagrations in tritium gloveboxes.

**Livermore Site Office:** On April 20, 2011, LSO transmitted a Periodic Issues Report (PIR) to the contractor containing several issues of relevance to the nuclear facilities, including:

- A weakness related to the contractor's lack of processes and procedures to maintain listings of documents subject to the unreviewed safety question process.
- A weakness regarding the lack of holistic trending analyses for procedural conduct of operations issues in the Tritium Facility. The weakness provided 14 examples of conduct of operations issues identified during the past two years. While corrective actions were taken for most on an individual basis, the issue noted that broader trending analysis was not performed. The issue was proposed as a deficiency, which would require the contractor to develop a formal corrective action plan; however, the LSO management team downgraded it to a weakness. A cursory review of LSO's tracking system indicated that LSO has documented similar types and numbers of procedural issues for the Plutonium Facility during this same time period.
- Two weaknesses related to the procedure and associated training used to implement a combustible loading Specific Administrative Control (SAC) in the Tritium Facility.

**Tritium Facility:** On April 15, 2011, the contractor declared a technical safety requirement violation regarding inadequate implementation of the combustible loading SAC. Specifically, the listing of rooms included in the SAC implementing procedure did not accurately reflect the safety basis. As a result, a locker room and a mechanical room were not included on the combustible loading surveys. No limits were exceeded and the procedure has been corrected. The addition of the mechanical room also prompted discussions on how to account for the combustible inventory associated with natural gas lines used to supply a boiler and water heater. After consultations with the Fire Marshall, the contractor determined that the natural gas did not need to be accounted for in the combustible inventory.

Recently, tritium program personnel completed phase 4 of the startup plan for the Tritium Process Station. Phase 4 required the transfer of tritium gas from a product vessel into the process manifold for loading onto a solid bed. Management and a senior supervisory watch observed the evolution and provided mentoring and re-enforcement of best practices. These individuals are currently compiling recommendations for the startup report, which is expected to be completed next week. The Site Representative notes that operations continue to be executed by general-use procedures and operator aids, which was an issue identified in a letter from the Board dated January 27, 2010. While most of the committed improvements have been completed, management believes that the increased rigor afforded by either a continuous-use procedure or second person verification is unwarranted given the contractor's calculated consequences to a worker resulting from an inadvertent transfer of tritium to the glovebox or the room.