

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 9, 2007

**MEMORANDUM FOR:** J. K. Fortenberry, Technical Director  
**FROM:** M. J. Merritt, DNFSB Site Representative  
**SUBJECT:** Lawrence Livermore National Laboratory (LLNL)  
Report for Week Ending March 9, 2007

**Plutonium Facility Criticality Safety Implementation:** The LLNL Criticality Safety Section (CSS) has completed its review of a condition identified in the Plutonium Facility involving the use of an unauthorized mold for melting plutonium (see weekly report dated February 23, 2007). The issue is related to the use of a plutonium casting mold that was not approved for use by the Operational Safety Plan (OSP) for the glovebox. The CSS review concluded that the condition resulted in a level 4 criticality infraction (the least severe reporting requirement as defined by the LLNL procedure CSG-P-013, *Response to a Criticality Safety Infraction*).

The designation of approved equipment in the OSP ensures that the equipment has been analyzed by the CSS for use in the glovebox and that the equipment complies with the Standard Criticality Control Condition (SCCC) for the operation. Based on the assessment process used by the CSS, the review concluded that only one parameter (barrier) relied on by the criticality safety evaluation was compromised, that is geometry. Controls for the other parameters – mass, moderation, interaction, and reflection – were preserved. The CSS review also concluded that the safety margin was not compromised. Review of trending by the CSS indicated that this event did not support a trend with respect to previous non-compliant conditions. One of the lessons learned was that configuration management of approved equipment in OSPs should be improved.

**Readiness Assessment for Legacy Item Disposition:** This week, the Livermore Site Office (LSO) conducted its readiness assessment (RA) to evaluate the proposed disposition of a legacy item referred to as Object-77. The LSO RA identified two pre-start findings, one in the area of training, and the other related to inadequate plans to transition from dry runs to actual radiological operations. The specific pre-start findings were:

- insufficient evidence exists that the training and qualification requirements for participants in the activity are identified and tracked to ensure that qualifications have been met and are current at the time the activity begins; and
- prerequisite tasks to begin the activity are not adequately defined in a plan (e.g., a startup plan).

The pre-start finding related to training is important for this activity since it will be conducted using a variety of different types of procedures, each invoking certain training and qualification requirements. In fact, to safely conduct this activity, general controls contained in the Facility Safety Plan and an OSP have been supplemented by specific controls contained in critical lift plans, work permits, an emergency response plan and special assembly procedures. LLNL will likely prepare a training matrix to ensure closure of this finding. Closure of the pre-start finding on prerequisite tasks will require LLNL to map out the necessary equipment and procedural changes to transition from practice to actual performance. The LSO RA also identified some issues related to procedures and work control, however, resolution of those issues was underway during the RA, thus a pre-start finding was not generated. Overall, the LSO RA was effective in validating the results of the LLNL RA and identifying additional issues important to safety. The final report by the LSO RA team is expected next week.