

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 19, 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 January 19, 2007

Radiography Facility Operations: Operations were performed in the Radiography Facility this week. The operation involved radiography of a plutonium hemispherical-shell in a container. The performance of the receipt inspection procedure and radiography operations in the facility continues to improve. However, some weaknesses were noted by the Site Representative in the areas of material packaging, work permit development, radiological controls posting, and training. The Facility Safety Plan (FSP) requires the plutonium to be packaged with two contamination barriers, with one being a rigid-walled metal container. For this operation, the primary confinement barrier was the double plastic bag used during the glovebox bag-out process. The secondary contamination barrier was a flimsy metal container with a slip-lid top secured by tape. This packaging configuration is typical at LLNL for this type of material and has been utilized for many years. It is questionable if the packaging configuration actually meets the intent of the FSP. Also, the work permit for this operation specified that the radiation levels from the plutonium container would not exceed the threshold of a radiation area (greater than 5 mr/hr at 30 centimeters). Based on gamma and neutron radiation surveys during receipt inspection, it appeared that the dose rates exceeded the threshold for a radiation area. Since the work permit did not specify a radiation area, the area was not posted as such. The training and qualification requirements for handling nuclear material in this facility are lower than for handling the same material in the Plutonium Facility. Despite the lower standard, hazard controls personnel were employed for this handling operation since there were no facility or program personnel that met the minimum training and qualification requirements specified by the work permit.

Criticality Safety Advisory Committee (CSAC) Meeting: This week, the LLNL CSAC met for its 100th session. The CSAC agenda included discussion of criticality safety issues identified by the Board in an October 11, 2006, letter to NNSA. The committee discussions included the need to better integrate the nuclear criticality safety roles and responsibilities at LLNL. The discussion of this topic by the committee was specifically suggested by the Board.

Critique Process: The Nuclear Materials Technology Program has developed a draft procedure for conducting critiques based on the critique guidance contained in the *LLNL Environment Safety and Health (ES&H) Manual, Document 4.7, ES&H Analysis Methods*. The procedure provides specific instructions similar to those used at other DOE sites. The procedure is nearing completion and includes aspects of Human Performance Improvement (HPI) principles. The goal of NMTP management is to improve the process for collecting information related to undesirable events and, if necessary, revise the facility processes to prevent recurrence using HPI principles. Development of this implementing procedure is a positive step toward improving operations in NMTP facilities. Issuance and use of the procedure is expected in the near future.

Readiness Assessment for Legacy Item Disposition: LLNL has confirmed that the readiness assessment (RA) to disposition a legacy item referred to as Object-77 will commence next week. The LLNL and Livermore Site Office RA teams have been identified and are currently finalizing their review plans. The RA will include document reviews, interviews, and two days of dry runs. The dry runs are intended to demonstrate that the safety controls can be successfully integrated and implemented through the use of procedures, equipment, and fissile material handler proficiency.