

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 27, 2004

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: Michael J. Merritt, DNFSB Site Representative
SUBJECT: Lawrence Livermore National Laboratory (LLNL)
Report for Week Ending August 27, 2004

WIPP Mobile Vendor Contamination Incident: LLNL is completing the characterization of transuranic (TRU) waste drums to allow future shipment of the drums to WIPP. A temporary facility consisting of multiple trailers began operation earlier this year to characterize more than 700 TRU waste drums. One trailer, the Mobile Visual Examination and Repackaging Unit (MOVER), contains the capability to open waste drums and perform visual examination and repackaging of the waste as required. The MOVER trailer contains a glovebox with engineered ventilation and ports to allow the bag-in and bag-out of drums.

On August 19, 2004, contamination was detected outside of the MOVER glovebox and, subsequently, a continuous air monitor (CAM) alarmed indicating airborne contamination (ORPS report OAK-LLNL-LLNL-2004-0039). Operators immediately exited the unit. Nasal smears for four of five operators tested positive, but chest counts for internal contamination tested negative. Operations to decontaminate the unit and return the MOVER to operation are being planned. According to the Livermore Site Office duty officers log book, the event was initially categorized as a significance category 3 and later upgraded to significance category 2 as defined by DOE Order 231.1A, *Occurrence Reporting and Processing of Operations Information*. Weaknesses in implementing the order requirements in terms of timely notification and classification were noted. An investigation of the incident is in-progress and the lessons learned should be shared with the other sites that are utilizing WIPP Mobile Vendor equipment.

Based on Site Representative observations at the MOVER mockup, it appears that excessive wear of the hardware used for bag-in and bag-out operations is the likely cause of this incident. Specifically, a large clamp (similar in design to an automotive radiator hose clamp) is used to establish a seal between the glovebox structure and the plastic sleeve attached to the waste drum. In this case, the clamp became excessively worn to the point where containment integrity could not be maintained. The clamp was reused about 175 times before it became ineffective. The Technical Safety Requirements include a program for in-service inspection, but it is not clear if the clamp required inspection. The operators, to their credit, did notice the wear and replaced the clamp just prior to the incident - albeit too late.

Legacy Item Disposition Activities: LLNL is preparing for the final disposition of a legacy item referred to as Object-77. Disposition of this item requires LSO authorization since the activity is not bounded by the existing authorization basis. The Board's staff has been conducting reviews in parallel with LLNL's preparations.

DOE Order 425.1 B, *Startup and Restart of Nuclear Facilities*, requires a Readiness Assessment (RA) for this activity. LLNL implementation of this order is contained in the LLNL Environment, Safety, and Health Manual, Volume 5, Document 51.4. Based on these requirements, a Type 2 Readiness Assessment will be performed. This level of RA requires LLNL to demonstrate readiness to an independent review team with LSO observation. The RA is expected to commence on September 20, 2004. Reports on the adequacy of the RA and closure of findings will follow.