

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 25, 2005

**MEMORANDUM FOR:** J. Kent Fortenberry, Technical Director  
**FROM:** T. D. Burns Jr. and C. H. Keilers, Jr.  
**SUBJECT:** Los Alamos Report for Week Ending February 25, 2005

**Management:** The NNSA Source Evaluation Board for the LANL contract competition is seeking authority to extend the current contract by 180 days (i.e., to nearly the end of March 2006). This is to allow (a) the successful bidder to propose a substantially equivalent benefits package, (b) NNSA to evaluate the package, and (c) current employees appropriate time to evaluate their options. A longer transition may increase uncertainty for some; on the other hand, if this is done right, it could reduce the very real potential for momentary worker distractions and lapses affecting safety during this period.

**Integrated Safety Management:** LANL managers responsible for plutonium, tritium, and radiography operations are beginning a sequence of courses on human performance elements, developed by the Institute of Nuclear Power Operations (INPO). The training is compelling in communicating its key points, including that even the best make mistakes; most human-factor-related events are due to latent organizational weaknesses; error-tolerant organizations focus on learning from such events rather than assigning blame; and such organizations develop processes with defense-in-depth against human errors.

**Plutonium Facility (TA-55):** Based on bioassays, TA-55 has identified four individuals who may have received possible Pu-238 uptakes while working in a Pu-239 lab room last June (site rep weekly 12/10/05); some gloveboxes in the room have legacy Pu-238 contamination. The most-recent dose estimates have central tendencies below 5 Rem CEDE. The estimates tend to decrease during followup bioassays.

The sequence of events is as follows. In June 2004, one of 52 fixed-head air samples in the room was high. A glove-box glove was found with a pin-hole leak. Nine employees working in the room submitted special bioassays. In July, another employee self-identified he had been in the room and submitted a kit. In December, bioassay results became available; reasons for the delay are being addressed. Initial results for the self-identified employee were high but dropped during followup sampling. Upon further review, TA-55 identified 28 people who were in the room during the week of the high fixed head sample. Initial bioassay results from this larger set have identified three other individuals who may have received a Pu-238 uptake. Detailed radiological surveys in the room have identified a capped copper vent line that had a small amount of loose Pu-238 contamination, which may or may not be the cause; the line runs under a glove-box line and is connected to Zone 1 ventilation. Other than the delay in bioassay analyses, LANL appears to have followed their procedures in responding to this event; however, the sparse workplace indicators (e.g., no positive nasal swipes) and the apparent lack of motive force to spread contamination are curious.

**Waste Operations:** During the last two months, TA-54 Area G has received transuranic waste drums from TA-55 (~1,400 Ci), temporarily alleviating TA-55 solid waste inventory issues (site rep weekly 1/14/05). LANL also appears on track to resume WIPP shipments in mid-April. One constraint may be NNSA and LANL achieving timely resolution of open safety basis issues involving the seismic capacity of the TA-54 RANT facility, which is used for loading TRUPACT shipping containers.

During the next seven months, TA-55 would like to ship another roughly 4,000 Ci to TA-54 to make vault space for TA-18 Early Move and to meet Secretarial commitments to the Board under Recommendations 94-1/00-1 (i.e., for direct discard of excess material). The constraint here was the TA-54 safety basis material-at-risk limit. NNSA has approved changes to the Technical Safety Requirements (TSRs) that credit robust packaging of sealed sources from the Off-site Source Recovery Program; these changes may provide sufficient operating margin for TA-54 to receive these shipments. This risk-balancing between TA-54 and TA-55 warrants continued close monitoring through this fiscal year and beyond.