DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 13, 2003

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: C. H. Keilers, Jr.
SUBJECT: Los Alamos Report for Week Ending June 13, 2003

Plutonium Facility (TA-55): On Tuesday, TA-55 reported another failed glovebox glove in the Pu-238 operations (see last week's report). The worker discovered the failed glove while monitoring his surgeon gloved hand after closing an interconnecting spool-piece door between two gloveboxes. Radcon responded and detected in excess of 1M dpm on the worker's left gloved hand. Like last week, the room was evacuated and controlled. Subsequent investigation identified this was an older glove (installed in October 2000). All fixed head samples in the room were elevated. The one at the workstation with the failed glove read 1065 DAC-hrs (daily sample). There were no continuous airborne monitoring alarms, and no skin contaminations. One worker had an elevated nasal smear. The 5 affected workers are being placed in diagnostic bioassay. On Wednesday, the site rep toured the space with LANL and a DOE facility rep. It appears that this glove failed by being mechanically pinched. A piece of glove was visible, wedged in the threads of the spool-piece door closure.

Because of repeated glove failures, TA-55 has started an investigation to determine if there are any common causes between the Pu-238 related failures. This appears necessary but insufficient. LANL recognizes that the gloves are the weakest link in the safety-significant glovebox confinement system. LANL thoroughly investigates each failure, and periodically has pursued means to reduce failures. The site rep believes LANL could be well-served by implementing a continuous improvement effort for glovebox gloves and glovebox operations to minimize these failures. Areas to consider may include engineering, quality assurance, and operator training. Several DOE sites rely on glovebox operations, likely have similar issues, and could all benefit from active sharing of lessons learned.

Radiochemistry Laboratory (TA-48): Two weeks ago, NNSA downgraded TA-48 to a radiological facility (site rep weekly 5/30/03). On Thursday, TA-48 reported that their inventory exceeded the radiological facility limit. This resulted from a data entry error in the material control database for a Pu-238 sample. TA-48 has frozen material receipts and has suspended its Pu-238 operations. The site rep believes that LANL has better facilities for Pu-238 chemistry than TA-48. Given the tiny amount of Pu-238 a radiological facility can handle before exceeding material-at-risk limits (i.e., max: 36 mg – provided there is no other source term), it isn't clear why these operations should be conducted in TA-48 in its present status as a radiological facility. These activities could be a hold-over from TA-48 operations up to two weeks ago as a Hazard Category 3 nuclear facility.

Chemistry and Metallurgical Research Building Replacement Project (CMRR): On Monday and Tuesday, the site rep attended an NNSA/LANL workshop on the CMRR Project. This project is intended to replace the aging CMR Building and maintain LANL capabilities in actinide analytical chemistry and material characterization, as well as increase LANL secure vault space. It is about midway through the conceptual design phase (roughly, 3% design stage). LANL estimates the cost range is $420M - $955M and schedule range is 9 - 14 years. Near-term schedule includes layout selection in September, record of decision next January, and start of preliminary design next March.

Quality Assurance: DOE Office of Assessments (DOE-OA) is conducting a complex-wide review of suspect counterfeit item controls and practices. A DOE-OA team was here this week and completed its field investigative work on NNSA Site Office and LANL practices.