

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 18, 2008

MEMORANDUM FOR: T. Dwyer, Technical Director
FROM: B. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending July 18, 2008

Plutonium Facility: Over the last few weeks, there have been a number of equipment and performance problems associated with the Facility Control System (FCS). Based on the persistence and severity of these problems, facility management placed the Plutonium Facility in standby (Mode 2). The FCS is a safety-significant system that provides facility monitoring and control capabilities, and serves as a support system for the facility's active confinement ventilation. Recent FCS problems are related to the communication infrastructure for the system and were resulting in numerous failures each day. When the FCS is declared inoperable, the facility enters a limiting condition of operation requiring verification of differential pressure provided by facility ventilation every 15 minutes and restoration of the FCS within 24 hours. In response, facility personnel performed troubleshooting and maintenance that involved removing some FCS hardware from service to reduce the load on the communication network. These actions restored system operability and allowed the facility to resume normal operations late this week. Limited system upgrades to replace servers and software are in progress; however, persistent failures and system age seem to indicate problems with FCS reliability.

While the FCS was inoperable, facility management identified two mission-critical material shipments that could not be performed while the facility was in standby mode. A temporary safety basis modification was submitted to the site office to allow these activities to be performed with compensatory measures (mainly ventilation monitoring). The site office approved the safety basis change but did not issue a safety evaluation report or formal memo documenting the approval basis.

Glovebox Safety: Recently, LANL began an effectiveness evaluation of the corrective actions associated with the puncture wounds that resulted in internal contamination in early-2007. The review plan includes evaluation of institutional actions but will maintain a specific focus on the safety of glovebox operations. The evaluation team is developing guidance cards with specific lines of inquiry for line managers who will perform parts of the evaluation. In addition, the institutional evaluation team will perform an independent verification for a subset of the line management evaluations. Field activities are expected to be complete in August. Several other reviews of glove box safety issues are also on-going, including a management evaluation of glove breaches over the last two years and an assessment of the Plutonium Facility glove integrity program.

Site-wide Fire Protection: Recently, a rupture in the system that supplies fire water to TA-21 caused a release of nearly 4 million gallons of water. Although this failure impacted fire protection and response capabilities for facilities in TA-21, the laboratory did not receive timely notification of the problem. In response, LANL is formalizing protocols with Los Alamos County for timely notification when abnormalities are detected that could affect LANL systems. TA-21-specific compensatory measures have also been developed that include performing more frequent system surveillances and establishing a limited remote monitoring and alarm capability. LANL management indicated that the need for additional site-wide action will be evaluated. Understanding and addressing the site-wide extent of condition appears warranted to increase confidence that a failure elsewhere in the site-wide water supply system that could impact credited fire suppression systems in nuclear facilities would be identified quickly to allow the affected facilities to take appropriate response actions.