DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 13, 2007

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: A. Matteucci, Acting DNFSB Site Representative
SUBJECT: Report for Week Ending April 13, 2007

Activity Summary: Michael Merritt was on leave for the week. Al Matteucci was on site to provide support to the DNFSB site office.

Contamination in the Plutonium Facility: On April 5, 2007, a permanent alpha Continuous Air Monitor (CAM) alarmed in a room located in the Plutonium Facility's Radioactive Materials Area (RMA). During the next several hours, three other CAMs in connecting rooms, both permanent and portable, alarmed. Prior to the initial CAM alarm, a stainless steel sample was being transferred to a metallograph machine after the sample was ultrasonically cleaned and removed from a workstation in a connecting room. The metallograph machine is labeled "Potentially Contaminated." The Operational Safety Plan (OSP) for the area requires that the work areas (including the metallograph) be monitored for contamination and, if detected, shall be immediately cleaned to below detectable levels. Prior to analysis of the sample, the operators used a microduster twice to clean the lens of the metallograph. The use of a microduster, although not identified in the OSP, has been employed before to clean the lens of the metallograph. Within minutes of the second use of the microduster, the CAM positioned adjacent to the metallograph machine alarmed.

Nasal smears from five workers in the area at the time of the alarm and one worker who had just exited the area were negative. Lung counts for the two workers who were in the immediate area of the metallograph machine were negative. Results of bioassays from the six workers are expected next week. The latest survey of the area indicates the contamination is in the "tunnel" of the metallograph where the lens is positioned. That survey found removable alpha contamination at a level of 24,000 disintegrations per minute.

The first critique for this event was conducted within an hour of the initial alarm and a second critique was conducted on April 10. The second critique consisted of discussions regarding actions prior to the event, possible sources of the contamination, and continuing decontamination efforts. A third critique conducted on April 12 discussed needed actions to determine how and when the contamination got into the tunnel of the machine, and continuing efforts to decontaminate the area and remove current restrictions.

Configuration Management: LLNL is continuing efforts to implement configuration management for facility drawings and system design documents for vital safety systems. A review of redline drawings of systems scheduled to have been done in 2006 and early 2007 found that they appear to need additional work. For example, the Gloveboxes-Argon Supply System drawing is a hand sketch and the Criticality Alarm System drawing is the original plant drawing.