

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 27, 2009

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending February 27, 2009

Bamdad, Batherson, Grover, Gwal, Kasdorf, March and Spatz were onsite this week to review the preliminary documented safety analysis and the designs for key safety systems for the Chemistry and Metallurgy Research Building Replacement Project.

Chemistry and Metallurgy Research Building (CMR): Last week, a custodian's personal protective equipment became contaminated while mopping a floor in the basement of Wing 7 of CMR. Follow-up actions identified an area on the floor of the affected basement room with contamination levels greater than one million dpm (removable contamination measured at roughly 150,000 dpm). The source of contamination was traced to a leak in the (uncredited) Industrial Liquid Waste System piping that transfers low-level radioactive liquid waste from CMR laboratory rooms to the collection system that routes it to the Radioactive Liquid Waste Treatment Facility in TA-50. The CMR Industrial Liquid Waste System is known to have significant material condition issues and some effort has been made to wrap and bag pipe flanges to help control leaks. The leak site that caused last week's Wing 7 basement contamination event did not have any form of leak containment.

In response to this event, facility management has directed that all Industrial Liquid Waste System flanges be systematically wrapped and bagged. Management also intends to establish a periodic surveillance of the bagged flanges to identify and respond to active leak sites and areas where containment may have been lost. Although ensuring potential leak sites have catch containment bags is an important compensatory measure for widespread Industrial Liquid Waste System material condition issues, there are currently no funded plans for physical repairs or upgrades for this system. The Industrial Liquid Waste System is required to remain in service to support current and future programmatic analytical chemistry activities in Wings 5 and 7 of CMR. Since radioactive liquid released from the Industrial Liquid Waste System is a routine source of contamination in certain parts of CMR, improvements or upgrades may warrant additional consideration as part of the ongoing campaign to reduce operational risks and extend the service life of CMR.

Plutonium Facility: A criticality safety infraction was declared recently when an overmass condition was discovered in a glovebox. Last week, operators moved a plutonium part from a casting glovebox into a machining glovebox that still contained metal turnings from a previous operation. The machining glovebox had separate criticality safety limits for approved metal shapes and plutonium metal. The casting operators mistakenly believed that the higher mass limit for approved metal shapes applied to this material move; however, since the machining glovebox already contained metal turnings from a different part, the plutonium metal limit should have been applied. Once the part was moved, the aggregate mass of plutonium in the glovebox was roughly 110% of the posted limit for plutonium metal. Machining operators recognized the overmass condition the next day and responded appropriately. Upon consultation with the Nuclear Criticality Safety Group, facility personnel corrected the overmass condition. This infraction was binned in the lowest significance category.

This event appears to highlight opportunities to improve the clarity and operator understanding of which posted limit (if multiple limits exist) is in force for a given material move, and to strengthen communications between operators on the transferring and receiving ends of material moves.