

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 19, 2004

**MEMORANDUM FOR:** J. K. Fortenberry, Technical Director  
**FROM:** Michael J. Merritt, DNFSB Site Representative  
**SUBJECT:** Lawrence Livermore National Laboratory (LLNL)  
Report for Week Ending November 19, 2004

**Building 241 Contamination Incident:** On November 11, 2004, radioactive contamination was released inadvertently from a sealed source during work in the machine shop in Building 241. According to the occurrence report (ORPS report OAK-LLNL-LLNL-2004-0062), the Cobalt-57 ( $^{57}\text{Co}$ ) sealed source was breached during operations to remove it from a metal shield. The  $^{57}\text{Co}$  powder was released from its container to the surface of a work bench. Once the spill was recognized, appropriate actions were taken to contain the material, and subsequent monitoring did not detect the spread of contamination. Initially, the occurrence was categorized as a management concern (significance category 3), but on November 17, 2004 the classification was upgraded (to significance category 2) to reflect that this incident met the reporting requirements of a spread of contamination greater than 100 times the 10CFR835, *Occupational Radiation Protection*, Appendix D values. DOE Order 231.1A, *Occurrence Reporting and Processing of Operations Information*, requires that if the categorization is not clear, then the occurrence shall be categorized at the higher level and then lowered if additional information justifies a downgrading.

This contamination incident resulted from work that was not authorized to be performed in the facility. According to the Building 241 Facility Safety Plan (FSP), this work would have required that an Operational Safety Plan (OSP) or Integration Work Sheet (IWS) be developed in order to ensure that Integrated Safety Management requirements were implemented. The shop area where this work was performed was not authorized for radiological work and an OSP or IWS was not utilized. Additionally, Building 241 is a material science facility and is categorized as a Radiological Facility in accordance with DOE-STD-1027-92, *Hazard Categorization and Accident Analysis Techniques for Compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports*. According to the FSP, a "robust radioactive material inventory system" is required to ensure that the facility inventory is not inadvertently increased beyond the limit for a Nuclear Hazard Category 3 facility. The transfer of the source to Building 241 was not tracked by the Radioactivity Allowance Tracking System (RATS). In this case, the relatively small quantity of radioactive material would not have triggered the need for RATS controls.

**Independent Oversight Inspection:** This week, an inspection team from the Department of Energy Office of Independent Oversight and Performance Assurance (OA) was at LLNL to confirm the factual accuracy of inspection results from data collected October 18-28, 2004 (see weekly report dated October 29, 2004). The formal results of the inspection will be published in December. Based on the draft report and briefings this week, the report will identify weaknesses in the following areas:

- hazards analysis and control processes;
- safety system design, configuration management and quality assurance;
- safety system surveillance and testing programs;
- implementation of ALARA requirements; and
- feedback and improvement management systems.