

Date Tue, 21 Mar 2000 154333 -0700  
From Meredith Brown [racer@lanl.gov](mailto:racer@lanl.gov)  
Subject- Blue Alert- Contamination Dislodged

**Title: Blue Alert-Scaffolding Work Dislodged Contamination**

Date March 15, 2000 Identifier 2000-RL-HNF-0009

**Lessons Learned Statement-**

- \* Radioactive contamination beneath a walking surface can be knocked loose and made airborne by banging on the floor with heavy objects.
- \* Unusual work activities in a normally benign environment can produce unexpected hazards. Planners should specify precautions to prevent unnecessary worker exposure.

**Discussion of Activities-** Scaffolding was erected in Room 262 in the Plutonium Finishing Plant in the duct level above Analytical Labs (A-Labs) to support sampling a propane line. The scaffold was erected without any detected occurrences and the workers departed the area after the required exit contamination survey. No contamination was detected during the exit survey. The floor in Room 262 is painted corrugated metal sheets secured to steel I-beams. A week later a routine review of air sampling data from a Continuous Air Monitor (CAM) recorder chart located in A-Labs determined that a short duration increase in airborne concentration occurred in the A-Labs during the same time the scaffolding work was being performed. Personnel were not present in the A-Labs at the time the elevated airborne condition existed. Two weeks later the three ironworkers dismantled the scaffolding in Room 262. A more detailed review of air sampling data determined that airborne contamination might have been present in Room 262 during the work on the scaffolding. A short time later the workers who were potentially exposed were identified and notified of the possible exposure. Bioassay results indicated the internal doses for the three ironworkers ranged from 14 to 210 millirem Effective Dose Equivalent (EDE).

**Analysis-** An investigation determined that the source of the airborne contamination was an area in the crawlspace between the A-Labs (Room 135) and Room 262 with significant loose contamination. Because the scaffold was erected and dismantled immediately above the crawlspace contamination area, those activities most likely caused the contamination to become airborne.

**Recommended Actions-** A restriction was placed on all heavy work in the east end of the duct level until the source of the contamination was identified and corrected. Fully operational CAMS were placed in two locations in the duct level, job-specific air sampling was initiated, and Radiological Control Technician (RCT) coverage was enhanced. When the source of contamination was identified, a semi-permanent fixative (polymeric barrier system) was applied to the contaminated area in the crawlspace. Follow-up surveys demonstrated that the contamination had been isolated. A portable Continuous Air Monitor will be set up and operating in the immediate vicinity of the heavy-duty type work in the affected area. They will remain operating until a determination is made regarding additional permanent air monitoring

locations in the duct level. A specific Radiological Work Permit (RWP) will be issued for heavy-duty work in the duct level.

Estimated Savings/Cost Avoidance N/A

Priority Descriptor BLUE/Information

Work / Function Conduct of Operations - Work Planning, Occupational Safety and Health - Personnel Protective Equipment, Radiation Protection, Hazard Elevated Work, Personal Exposure

Radiation/Contamination, Radiological Release

ISM Core Function Analyze Hazards, Develop/Implement Controls

Originator Fluor Hanford, Inc.

Contact Project Hanford Lessons Learned Coordinator; (509) 373-7664; e-mail

[PHMC\\_Lessons\\_Learned@rl.gov](mailto:PHMC_Lessons_Learned@rl.gov)

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References PFP-LL-00-002, WORK CONTROLS FOR DUCT LEVEL SCAFFOLDING WORK