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Subject: Blue Alert: Familiar Activities/New Hazards

TITLE: Familiar Activities May Present New Hazards When the Scale or Speed of Work Changes

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LESSONS LEARNED: When operations are undertaken that involve performing an unusually large number of routine activities in an accelerated time frame, previous safety reviews may be inadequate to identify and control the hazards associated with the larger-scale and/or rapid operations. Treating the familiar but potentially more hazardous operations as new activities ensures that comprehensive safety reviews are completed, new hazards are identified, and adequate controls are developed.

DESCRIPTION: In March 1998 personnel began preparations for removing legacy materials from the 550,000-square-foot Chemistry and Metallurgy Research facility. To facilitate characterization and prompt removal of the materials, temporary staging areas consisting of 10 by 16 foot portable storage sheds were to be set up outside the facility and designated as less than 90-day waste accumulation areas.

The first shed was set up approximately 10 feet from the facility near a loading dock, and personnel began moving legacy materials, including flammable chemicals, into the shed. After being informed that these materials were being stored in the temporary structure, the facility manager became concerned that the shed had been sited without the necessary approvals. A fire protection engineer was asked to evaluate the shed location, and he determined that it had been sited too close to the facility, posing a potential fire hazard and violating National Fire Protection Association NFPA-80A requirements. The engineer calculated that the shed should have been sited a minimum of 37 feet from the facility.

ANALYSIS and RECOMMENDATIONS: No fire detection or suppression equipment was identified for installation in the sheds, where 3,000 to 5,000 legacy items were anticipated to be collected. Additionally, the possibility of chemical reactions caused by increased concentrations of legacy materials with potentially leaking containers, the possibility that legacy materials may have become unstable after extended storage periods, and the likelihood that some legacy materials stored in radiologically controlled areas might be contaminated was overlooked during the planning stages of the material removal initiative.

These oversights stemmed in part from facility management personnel's failure to evaluate the legacy materials removal activities as a new project requiring a comprehensive safety review covering both chemical and radiological hazards, and, as a nuclear facility, an unreviewed safety question determination (USQD) review. Facility management personnel subsequently performed a USQD and determined that the legacy project was not addressed through the facility's authorization basis and, therefore, it constituted an unreviewed safety question.

Although not a concern in this incident, other occurrences have demonstrated that the existence of possible or known radiological hazards can diminish attention toward potential chemical hazards. All hazards, including radiological and chemical hazards, should be assessed to identify necessary protective measures (i.e., engineered controls, protective equipment, etc.). Any protective measures that are to be implemented should then be evaluated to ensure the measures themselves do not introduce new hazards, such as dangerously restricting visibility or excessive heat stress.

Problems may also arise if personnel involved in identifying, characterizing, or removing legacy materials (e.g., radiological control technicians) are not familiar with the chemicals they are handling and the associated non-radiological hazards such as crystallization and compatibility issues. Basic hazard communication training should be considered for involved personnel who do not have expertise or experience with handling chemicals.

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DOE FUNCTIONAL CATEGORY: Conduct of Operations

KEYWORDS: legacy material, temporary storage, radiological hazards, chemical hazards

REFERENCES: Occurrence Report ALO-LA-LANL-CMR-1998-0012

FOLLOW-UP ACTIONS: Information in this report is accurate to the best of our knowledge. As a means of measuring the effectiveness of this report, please contact the originator of any action taken as a result of this report or of any technical inaccuracies you find. Your feedback is appreciated.