

Date: Wed, 06 Mar 2002 12:44:30 -0800
From: PHMC_Lessons_Learned@rl.gov
Subject: Yellow Alert- Building 776/777 Gas Venting Incident

Title: Yellow Alert- Building 776/777 Gas Venting Incident

Date: March 4, 2002 Identifier: RFETS-02-0009

Lesson Learned Statement: A chemist failed to follow established conduct of operations and work control processes when venting gas cylinders into lab and building ventilation system causing individuals to become ill from released chemical gases.

Discussion: On October 10, 2001, B776/777 personnel reported a possible burning or chemical odor in the building. Five individuals reported symptoms of nausea, dizziness, sore throats and coughing. The building was evacuated and the Fire Department HazMat team responded. A total of 67 people who may have been exposed to the chemical reported to Occupational Medicine - all were evaluated and released. Although the chemical gas released is a suspected carcinogen, medical checks and blood tests were negative and a toxicologist's evaluation indicated that no long-term adverse effects are expected. The odor was discovered to be a release of chemical gas by a chemist in the B776/777 Mass Spectrometer Lab. He vented a small gas cylinder of 1,3-butadiene into the lab and building ventilation system. He was cleaning out the lab and removing test equipment prior to D&D of the B776/777 lab.

Analysis: The direct cause of this event was one individual's failure to comply with established conduct of operations and work control processes. The chemist acted without the knowledge or approval of the Configuration Control Authority (CCA) or lab manager and without an approved work package or procedure. His supervisor was not notified that gas bottles were being vented. The Integrated Work Control Program (IWCP) process was not followed, which would have defined the scope of his work, identified the hazards and established appropriate controls. The proper process for disposal of chemical gases existed but was not followed. Although this individual's actions were the primary cause, there were other ISM and Conduct of Operations deficiencies that contributed to the event.

1. Clear roles and responsibilities for operations or for turnover of the lab for D&D were not defined, contrary to the guiding principles of ISM.
2. Supervisor wasn't notified when the scope of work expanded to include bottle venting so that the IWCP process could be initiated.
3. The scope of the activities, including the venting of gas cylinders was not fully described to the Building Configuration Control Authority (CCA).
4. Laboratory management did not invoke the IWCP process.
5. Implementation of ISM/IWCP in lab operations requires improvement.
6. Neither the removal of equipment from the Lab, equipment disassembly, nor the gas venting was adequately described in the Plan-Of-the-Day (POD).
7. Check in and check out with the Building 776/777 CCA was not accomplished for this work activity.
8. The activities of the chemist were not effectively monitored to ensure building and laboratory management adequately understood the work scope. The chemical gases and excess bottles were

not properly dispositioned in accordance with site procedures (the Chemical Management Manual [CMM]).

Recommended Actions: This event clearly shows the importance of rigorous compliance with the ISM and Conduct of Operations processes by all workers and supervisors.

- * Clear communication and understanding between projects, management and workers is an important element in working safely. Always make sure everyone involved in a task understands the scope of the work and their roles and responsibilities in the activity.
- * When the scope of work changes, it requires a review of the hazard analysis. Let your supervisor know when the scope changes in any way.
- * Don't wing it. Follow an approved procedure or work instruction.
- * The CCA is responsible for controlling all work in the facility. Therefore, the CCA must know what work is in progress. * Workers - be sure you check in with the CCAs.

Estimated Savings/Cost Avoidance (if applicable): N/A

Priority Descriptor: Yellow/Caution

Work/ Function(s): Conduct of Operations-Work Control, Environmental Protection-Releases

Hazard(s): Personal injury/exposure

ISM Core Function(s): Perform work

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Keywords: venting, gas releases, work control, conduct of operations

References: NA

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 significant actions taken as a result of this report or of any technical inaccuracies you find. Your feedback is appreciated.