

Physics Department Incidents Log

Incident No. 2003 - 09 **Date of Report:** 3/04/04
Reportable/Classification: No/Minor Incident **Date of Incident:** 8/05/03
Status ES&H Committee Final Report
Groups Involved: Electron Spectroscopy
Lead Investigator: M. Strongin

Description:

The liquid transfer tube in a 25-liter "Cryofab" liquid nitrogen dewar blew off during the night. This knocked off the protective cover for two fluorescent lights. The cover was found broken on the floor. A further inspection of the dewar revealed that the safety relief valve, which consists of a needle valve that is set using a hex key, had been over-tightened rendering it inoperable.

This is one of 4 dewars that are more than 30 years old each, are rusted externally, and do not have burst disks or a safety harness for the transfer tube.

Root Cause:

- A6 – Training Deficiency**
- B1 – No Training Provided**
- C02 – Training Requirements not Identified**

The pressure relief valve was set incorrectly. It is conjectured that a visiting collaborator closed the relief valve thinking he/she was stopping a leak. Regular staff is well aware of the function and use of the relief valve.

Contributing Causes:

- A2 – Equipment / Material Problem**
- B6 – Defective, Failed, or Contaminated**
- C01 – Defective of failed part**

These dewars are defective since they are not equipped with integrated safety equipment found on modern dewars.

Corrective Actions (Group):

1. The present transfer tubes and nitrogen dewars will be retired since there are no burst disks incorporated into the design. The safety issues for dewars will be part of the training for new people.

Corrective Actions (Department):

1. Group Safety Coordinators (GSC) will be informed and there will be discussion of this incident at the next GSC meeting, Group Leaders will be briefed, and the Department will be informed of the incident at the next Department Meeting.
2. Make sure no other dewars of this type are being used in the Department.

Lessons Learned:

The use of out-dated equipment increases the risk of injury. In this case, although the regular staff was well aware of the proper use of the dewars, the built-in safety features on modern dewars does not require an additional procedure for setting the level of protection via a relief valve of a dewar.

The above incident has been investigated and requires no further action.

S. Aronson, Department Chair

Date

S. M. Shapiro, ES&H Committee Chair

Date