

Safety Report

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Organization and Mission

The Environment, Safety, Health, and Quality (ESH/Q) Division is headed by William (Bob) Casey. The ESH/Q Division consists of 6 full time personnel who are assigned to develop and manage the NSLS ESH/Q program. The department also receives important support from members of the BNL Radiological Control and Environmental Services Divisions.



This division strives to work with all department staff and users to ensure safe and productive work within our facility. Working safely is one of the highest priorities within the Laboratory, and the ESH/Q mission at the NSLS is to help make that happen. ESH/Q staff are heavily involved with the daily work of the department through activities such as: experimental safety review, work planning, training, interlock tests, radiation and industrial hygiene monitoring, design review, chemical/waste handling and storage, inspections, audits and assessments, emergency planning, and accident and injury investigation.

2002 Activities

It is disappointing to report that the NSLS had inconsistent safety performance during FY 2002. While a number of important performance indicators remained excellent (e.g. the total radiation exposure was low, the number of injuries was low, the amount of hazardous waste generated continued to decrease, and no noteworthy spills occurred), we had a significant increase in the number of incidents on the experimental floor that required investigation and follow-up. No one was hurt in these incidents, however each event involved a failure to adhere to one or more important requirements that users and staff are expected to follow while working on the experimental floor. A considerable amount of time was devoted to each incident, as well as examination of the implications to the overall safety program at the NSLS. It is worthwhile to briefly review each incident.

Incident # 1 – A first time user arrived at the NSLS

with a number of small samples of biological material. One of these materials had been designated by the Center for Disease Control as a biological "Select Agent", which invokes a special set of requirements, potentially involving a lengthy review and approval process external to BNL. Failure to comply with these requirements also carries the potential for very significant fines by the federal government. While this incident was resolved within a few hours to everyone's satisfaction, handling of

the issue rose to the level of the Laboratory's Deputy Director for Operations and the Lab's Chief Counsel. Failures by the user to submit his Safety Approval Form in a timely manner, and to confirm approval to bring the materials to the NSLS, were the principal underlying factors.

Incident # 2 – A new beamline was being commissioned by an experienced beamline group. Difficulties with a monochromator required the beamline to be opened and a number of adjustments to be made. In reconfiguring the beamline prior to resumption of commissioning, a lead glass cover, required to control radiation levels through a view port, was not replaced. Although no significant radiation exposure occurred before the omission was corrected, the failure to maintain a required shield on the view port during operation was a significant violation of NSLS requirements.

Incident # 3 – A postdoc serving as a local contact for one of the beamlines received an electrical shock when he touched an exposed surface energized by a 1000 volt, 100 mA dc power supply. He had made modifications to his equipment in an effort to address a problem created by a failed thermocouple. Inadequate planning and analysis of the changes resulted in him unknowingly working with surfaces exposed at 1000 V.

Incident # 4 – Two general users arrived at a beamline on a Sunday morning and found the hutch posted as a "Radioactive Material Area – Radiation Work Permit Required." The users disregarded the

sign since it was posted for a previous experiment and did not apply to their work. Although no conditions existed within the hutch warranting a permit, their failure to comply with an existing radiological posting until removed by authorized personnel was cited by the BNL Price Anderson Act Coordinator as a non-compliance with BNL and DOE radiological requirements.

Incident # 5 - Four general users arrived at a beamline on a Sunday morning without a radiation dosimetry badge. A fifth user from the same group reported to the beamline wearing a radiation badge assigned to another worker. The failure of the group to wear proper dosimetry resulted in cancellation of the experiment and the revocation of their research privileges at the NSLS for 90 days. This incident was also cited by the BNL Price Anderson Act Coordinator as a non-compliance with BNL and DOE radiological requirements.

In each case, these incidents involved a lack of com-

pliance with established safety requirements and created the obvious concern that our safety program and culture needs attention. An extended critique conducted over the past several months with users and staff has identified the following areas for improvement in 2003:

- Greater emphasis on compliance and increased overall rigor in safety expectations
- Increased support and oversight of the general users at the beamlines
- Improved definition of roles and safety responsibilities of users and beamline personnel
- Increased safety training for all beamline staff
- Improved work planning for routine duties at the beamlines
- Improved NSLS facility specific training

Everyone will hear more about these issues during FY 2003. Improvement in our performance is needed, and the efforts and involvement of our users will be vital to this effort.

Key ESH Requirements Applicable to working at the NSLS

- Make sure that your Safety Approval Forms (SAFs) are submitted in a timely and complete manner (at least 1 week prior to planned arrival - some types of experiments will require much greater lead time) and confirm that the SAF has been approved before traveling to the NSLS.
- Ensure that any conditions required in the safety review are understood by all members of the experimental team and are adhered to throughout the experiment.
- Ensure that all required training is completed - keep in mind that there is specific additional training required if you generate hazardous wastes, if you operate a laser, or if you need to operate material handling equipment such as a hoist.
- Minimize the amount of chemicals that are used in your experiment and ensure that they are safely stored at the NSLS and properly transported to and from the NSLS.
- Abide by the following requirements at all times while working on the experimental floor:
 - Do not work on powered electrical systems with exposed parts above 50 V without a formal permit issued by the NSLS Electrical Safety Officer.
 - Always comply with posted requirements for work in radiation or radioactive material areas.
 - Do not alter interlock systems.
 - Do not alter beamline shielding configurations without a permit.
 - Do not discharge hazardous materials (chemicals or oil) to a sink or drain.
 - All hutches must be cleared of personnel and secured prior to introduction of beam.
 - Wear radiation badges at all times while on the floor and adhere to other requirements specified on signs or designated in training or work planning.
 - Store all hazardous and industrial wastes in designated areas and abide by all storage rules for these materials.
 - Call x2222 or 911 (and the NSLS control room, x2550) if you discover any kind of emergency (medical, spills, fire, etc). If no phone is close by, pull a fire alarm box.
 - Leave the building immediately through the nearest safe exit when fire alarms sound and proceed to the front of the building so that we can account for personnel.