Nitrogen Use at WCMC

While nitrogen gas makes up 78% of the air we breathe, liquefied nitrogen is used as a cryogenic liquid in clinics and laboratories to store biological samples and freeze tissue. It is a colorless, odorless, extremely cold liquid under pressure. Liquid nitrogen produces a large volume of gas when it vaporizes which can displace the oxygen in the air or cause over-pressurization and explosions in unvented containers. Exposure to liquid nitrogen or cold nitrogen vapors can also cause extensive tissue damage and burns. Due to these potential hazards, special precautions must be taken during handling and use.

Anyone handling liquid nitrogen must use waterproof thermal insulated gloves, chemical splash goggles, and lab coats. In addition, liquid nitrogen must only be stored and transported in approved containers with vented lids such as the Thermolyne Thermo-Flask®.

Too much nitrogen in the air can cause an oxygen-deficient atmosphere (<19.5%). Since nitrogen is colorless and odorless, oxygen monitors are installed in certain areas storing large amounts of liquid nitrogen. EHS assesses spaces to determine where these monitors are needed. Monitors are provided and calibrated by EHS as required. New York City Fire Department (FDNY) permits these spaces and inspects them at least annually.

Currently, we have approximately 100 oxygen monitors installed around campus in mechanical rooms, clinical spaces, and laboratories where there is enough nitrogen to unsafely displace the amount of oxygen in the room. The monitor is set to alarm when the oxygen level falls below 19.5%. Procedures to follow in the event of an alarm are placed next to every monitor. All alarm activations must be treated as real. If the alarm is activated while performing a routine task, such as dispensing of liquid nitrogen or retrieving specimens from the freezer or dewar, stop the task immediately and close all valves/containers. Then proceed to notify all personnel and evacuate the area, closing doors to contain the release. After evacuation, contact EHS and do not re-enter the area until EHS has cleared the space.

More information is available in the Liquid Nitrogen Handling and Use update on the EHS website, or by contacting EHS.

Did you know...?

Fluorescent light bulbs may contain toxic metals (such as mercury) and require special disposal. If you have equipment with a bulb that you maintain (e.g. light box), submit the Chemical Collection Request Form online at this address: weill.cornell.edu/ehs/chemwaste when you replace the bulb. EHS will collect the bulb for proper disposal. More information is available on the EHS website.

Obstruction of Emergency Equipment

As accidents can occur at any time, it is important to always maintain ready access to emergency equipment and fire exits. Never block emergency equipment such as fire extinguishers, sprinklers, fire alarm devices, safety showers, eyewashes, and spill kits. Your safety and that of your colleagues may depend on it.

For example, the obstruction of safety showers can cause delays in exposure response leading to serious injury. As a result, a minimum clearance of 3 feet should be maintained around the safety shower at all times.

Contact EHS at 646-962-7233 if you have any questions.
## 2014 – Top EHS Achievements

Since our last newsletter, the number of services we provide has substantially grown as the WCMC community continues to expand. Here is some of what we have been up to lately.

Do you have suggestions on areas where EHS can improve? Email EHS at ehs@med.cornell.edu.

### Emergency Response & Planning
- Responded to 27 water damage and flood events, 22 hazardous materials spills, and 4 fires.
- Emergency Notification System: 131 emergency groups and 2263 individual contacts.
- Developed a Lessons Learned Section on the EHS website in an effort to prevent reoccurrence of accidents at WCMC.

### Fire Safety
- Maintained an inventory of 1,545 Fire Extinguishers
- Issued 1,257 permits for welding or doing work that could cause a fire or the false activation of a fire alarm in WCMC buildings.
- Conducted 65 fire drills.
- Operated fire alarm systems in 12 different WCMC buildings and maintained 2,779 fire alarm devices in these systems.
- Assessed 125 Utility Shutdowns and coordinated 80 temporary impairments of fire and life safety equipment for construction or repair.

### General and Construction Safety
- Conducted 544 hazard assessments of confined spaces, high noise, air monitoring equipment, physical hazard equipment, mechanical shops and local exhaust systems.
- Completed 36 asbestos surveys and 13 asbestos abatement projects with 443 linear feet and 5390 square feet of asbestos removed.
- Performed 158 Construction Site inspections.

### Customer Service
- Responded to over 1,334 service requests for immediate assistance, some of which included: indoor air quality assessments, chemical hoods repairs, biological waste issues, and construction safety concerns.
- Conducted 132 hazardous materials shipping and import/export assessments.
- Investigated 156 employee and student accidents and provided accident prevention recommendations.
- Coordinated 25 laboratory moves including the relocation of over 8,300 chemicals.
- Provided Respirator Fit Testing to 264 employees and students.

### Biological Safety
- Reviewed 113 biological/recombinant DNA research proposals.
- Performed 199 biological safety lab inspections.
- Conducted 249 risk assessments for research involving biological/chemical agent use in animals.
- Investigated 43 bloodborne pathogen exposures and provided accident prevention assistance to departments, employees and students.

### Waste Disposal
- Chemical waste: Received 1,153 collection requests to collect 9,253 containers (22.89 tons) within an average of 1.49 days of submittal.
- Radioactive waste: Received 33 collection requests to collect 78 containers (549 lbs).
- Regulated Medical Waste (Sharps):
  - Labs: Received 1,249 collection requests to collect 8,268 sharps containers (122.87 tons)
  - Clinics: Collected 2,461 sharps containers (8.44 tons)
  - Reusable sharps containers (provided by EHS), saved $456,000 and prevented 37,200 lbs of plastic from going into landfills
- Universal Waste:
  - Recycled 4,915 lbs of fluorescent lamps/bulbs
  - Recycled 4,827 lbs of used batteries
  - Recycled 1,305 computer monitors and CPU’s
  - Recycled 32,141 lbs of lead
- Oversaw the NYSDEC regulatory inspection of the College’s chemical hazardous waste program. The 2-day inspection included 3 inspectors assessing hazardous waste generating locations, waste storage facilities and performing a record-keeping audit. Weill Cornell passed without violations or fines.

### Radiation Safety
- Provided 20,270 dosimetry badges.
- Handled 290 Clinical Patient Radiation Therapy Cases.
- Conducted 513 x-ray acceptance and routine testing.
- Oversaw 253 isotope laboratory purchases.

### EHS Safety Training Program
- Provided over 180 small group trainings to Departments, Divisions, and units that were tailored to address the specific safety issues of each group.
- Provided approximately 60 regularly scheduled instructor-led safety trainings.
- Trained over 2,600 employees in instructor-led safety trainings and small-group sessions.
- Provided online training to approximately 2,000 employees.

### Laboratory Safety
- Coordinated 295 FDNY lab inspections for over 1,041 lab rooms and ensured 100% resolution of violations.
- Performed 428 chemical hood surveys.
- ChemTracker was utilized by 294 Principal Investigators and 655 users to manage >65,000 chemicals and promote proper chemical segregation.
- Identified 1,200 highly hazardous substances.
- Posted 287 new Health and Safety Door Signs which provides hazard information and emergency contacts.