

In this issue of the Environmental Health and Safety (EHS) Listserv, February 20, 2013:

1. **Enhancing Laboratory Safety** Colloquium
 2. Are YOU ready for an EPA Audit?
 3. Elements of Creating Safety Cultures in Academic Institutions: Educate for Safety
 4. UNL Injury Incidents and Safety Audits
 5. Revised Safe Operating Procedures
-

1. Enhancing Laboratory Safety - Colloquium

The next Laboratory Safety Colloquium, **Enhancing Laboratory Safety** features Dr. Craig Merlic, UCLA Professor in the Department of Chemistry and Biochemistry. Dr. Merlic will share his experience in building the laboratory safety culture at UCLA following a laboratory accident that claimed the life of a graduate student in 2009. Dr. Merlic has created a “*Safety In Chemical and Biochemical Research*” course required for all graduate students in the UCLA Department of Chemistry and Biochemistry, is Chair of that department’s Safety Committee, and is a member of the UCLA Laboratory Safety Committee.

There will be one session only on Thursday, April 11, 2013, 1:30 – 3:00 p.m. in the Regency Suite of Nebraska City Union. This spring’s colloquium will be held in conjunction with the Office of Research and Economic Development *Spring UNL Research Fair 2013*. Mark your calendars for this important safety event!

Pre-registration is NOT required. To suggest future colloquium topics contact Elizabeth (Betsy) Howe at ehowe2@unl.edu or (402) 472-5488. To access past colloquia, visit the EHS or Office of Research and Economic Development (ORED) web site.

Resources:

- Laboratory Safety Colloquium Series
 - EHS web site: <http://ehs.unl.edu/training/Colloquium/>
 - ORED web site: http://research.unl.edu/lsi_9-06.shtml

3. Are YOU Ready for an EPA Audit?

In the January 4, 2013, listserv we listed resources to assist in ensuring that your laboratory/work area is READY for an EPA (Environmental Protection Agency) audit. Have you reviewed the Waste Management Safe Operating Procedures (SOPs)? NOW is the time!

UNL is subject to unannounced inspections by the Environmental Protection Agency (EPA) and/or Nebraska Department of Environmental Quality (NDEQ), to assess compliance with waste management regulations. These inspections typically occur every 2-3 years. We anticipate an inspection sometime during the next several months.

As a reminder, to prepare for such an inspection:

- Review the **Items/Materials Prohibited from Trash Cans and Dumpsters** SOP.
- Review your work area. Keep all containers closed, properly labeled, in good condition, and located in the same area where the waste was generated.
- If an inspector visits your work location, answer their questions honestly, but answer **only** the question asked. There is no need to volunteer information. After you have answered the inspector's question, wait silently and patiently for their next question.
- Ensure all personnel understand they should avoid the temptation to keep talking because silence is uncomfortable. If you don't know the answer to a question - **don't guess** just say that you don't know. You may direct the inspector to your supervisor or someone else who may know the answer.

If you have questions or wonder if this applies to you, contact Tony Lloyd, Senior Environmental Specialist, alloyd4@unl.edu or 402-472-4942.

Resources:

- **State or Federal Hazardous Waste Inspections** SOP
http://ehs.unl.edu/sop/s-state_fed_inspections.pdf
- **Waste Management** SOPs <http://ehs.unl.edu/sop/waste-management>
- **Items/Materials Prohibited From Trash Cans and Dumpsters** SOP
http://ehs.unl.edu/sop/s-dumpster_ban.pdf

3. Elements of Creating Safety Cultures in Academic Institutions: Educate for Safety

As you may recall from previous issues of the EHS listserv, there has been a great deal of national attention given to the topic of laboratory safety in higher education following investigations of serious incidents at UCLA and Texas Tech. As a result, the American Chemical Society (ACS) recently issued a report, **Creating Safety Cultures in Academic Institutions**. While this report is focused on laboratory safety, its content is applicable to all campus settings.

This report contained seventeen specific recommendations for creating vibrant, strong safety cultures in academic institutions. Each of these recommendations will be highlighted individually and presented as a series in the EHS listserv. This is the fourth issue in the series. The fourth recommendation in the ACS report is:

Ensure graduating chemistry undergraduate students have strong skills in laboratory safety and strong safety ethics by teaching safety lessons in each laboratory session, and by evaluating and testing these skills throughout the educational process.

The ACS report cites the National Research Council's latest edition of *Prudent Practices in the Laboratory*, a well-known reference publication on laboratory safety developed with the participation of academic faculty:

- "Teaching safety and safe work practices in the laboratory should be a top priority for faculty as they prepare students for careers. By promoting safety during undergraduate and graduate years, the faculty will have a significant impact not just on their students but also on everyone who will share their future work environments."
- "A critical component of chemical education at every level is to nurture basic attitudes and habits of prudent behavior, so that safety is a valued and inseparable part of all laboratory activities. In this way, a culture of laboratory safety becomes an internalized attitude, not just an external expectation driven by institutional rules. The process must be included in each person's chemical education throughout his or her scientific career."
- "Forming the foundation for a lifelong attitude of safety consciousness, risk assessment, and prudent laboratory practice is an integral part of every stage of scientific education. Teaching and academic institutions must accept this unique responsibility for attitude development."
- "[Undergraduate students]...must learn to evaluate the wide range of hazards in laboratories and learn risk management techniques that are designed to eliminate various potential dangers in the laboratory."

Both the ACS and Prudent Practices publications emphasize the importance of continuous learning and commitment to safety, which can be accomplished with a variety of tools, such as:

- Including laboratory safety topics in all undergraduate chemistry program curricula. The ACS Committee on Professional Training provides guidance to the academic community on topics that chemistry majors should understand.
- Continuously applying the risk assessment process to all laboratory operations.
- Evaluating understanding of safety principles and practices by testing, quizzing, or observation and feedback on performance.
- Utilizing safety teams to encourage peer-to-peer learning with facilitation by a safety mentor.
- Providing a capstone safety course for individuals responsible for supervising or mentoring less experienced lab students so that they understand what they should be teaching.
- Providing regular seminars on safety topics.

- Adhering to the “Safety Ethic”: 1) **Value Safety** – Safety is an integral part of what one does, its automatic, and it does not change its priorities - it is never questioned and never compromised; 2) **Work Safely** – One continues to learn about safety, learns to recognize hazards, assesses the risks of hazards, manages the risks of hazards, and prepares to handle emergencies; 3) **Prevent At-Risk Behavior** – One does not cut corners or bypass safety measures in the laboratory and shares this information with others, as needed; 4) **Promote Safety** – One encourages and acknowledges others for working safely; 5) **Accept Responsibility for Safety** – One takes steps to work safely, setting a positive example for others, and being accountable for safety.

Resources:

- Creating Safety Cultures in Academic Institutions
http://portal.acs.org/portal/PublicWebSite/about/governance/committees/chemicalsafety/CNBP_029720
- **Chemical Hazard Assessment & Risk Minimization** SOP
http://ehs.unl.edu/sop/s-corrosive_chem_haz_risk_min.pdf
- **Job Safety Assessments** SOP <http://ehs.unl.edu/sop/s-JSA.pdf>
- **Virtual Manual** tool <https://scsapps.unl.edu/VirtualManual/>
- **EHS Laboratory Safety Colloquium Series**
<http://ehs.unl.edu/training/Colloquium>
- ACS Committee on Chemical Safety resources <http://www.acs.org/safety>
- **Prudent Practices in the Laboratory: Handling and Disposal of Chemicals, Revised 2011 Edition** http://www.nap.edu/catalog.php?record_id=12654
- UC (University of California) Center for Laboratory Safety (Resources)
<http://cls.ucla.edu/>

4. UNL Injury Incidents and Safety Audits

As a new feature of this listserv, EHS will periodically include a summary of campus-wide safety audit findings and highlight a few of the recent occupational injuries. By sharing this information, we hope to create an opportunity to learn from the experiences of others. When reviewing audit findings, consider whether the condition may exist in your work area and, if so, take action to remedy the situation. When reviewing injury information, consider actions that you can take to avoid a similar situation. The goal is to raise awareness and correct hazards before they result in adverse events.

During the period of October 1 – December 31, 2012 there were thirty-nine (39) reports of occupational injury/illness.

- Several employees sustained foot, leg, and/or ankle sprains, bruises, or fractures when they tripped while walking. In some cases, it was hidden terrain, such as holes in fields. In other cases, the trip hazard was visually detectable (e.g., exposed tree roots, uneven sidewalks, curled floor mats,

- icy/snowy/slick surface), but the employees were not closely watching their step. In one case, an employee tripped over an appliance cord stretched across an office aisle.
- Several employees sustained fractures and/or bruises in office chair mishaps. In one case, an employee was leaning forward and exerting force causing the chair to roll out from them. In another case, the chair was not in good condition and the employee fell out of the chair when the back broke off suddenly. Another employee was not completely aware of their position and the chair rolled away as the employee was trying to sit down causing them to land on the floor.
 - Three employees sustained injuries while using a tool/equipment improperly or using an improper tool for the job. One employee was using a pocket knife to separate glass and plastic tubing. Another was using a pick to pry away old gasket sealant. The third employee was using a stepladder as if it were an extension ladder and the ladder slipped away from the wall that was it was leaning on for support.
 - A laboratory worker experienced severe headaches when a laser beam reflected off a matt screwdriver during an alignment process.

Following are common items of concern recently noted by EHS during safety audits of offices, laboratories, and shops:

- Power strips, extension cords or multi-plug adaptors are not plugged directly into a permanently installed electrical outlet.
- Extension or flexible cords are not restricted to temporary use only.
- Electrical appliances are not UL or FM approved or have been altered in a manner that compromises UL or FM approval. The most common finding was “homemade” multi-outlet extension cords.
- An accurate inventory of hazardous chemicals stored or used is not available.
- Bench-top or floor-mounted grinders are out of adjustment (1/8” tool/work rest on bottom and 1/4” maximum on upper tongue guard).
- Guards, interlocks, shields, shutoff devices, or other safety interlocks/devices/accessories are missing, damaged, inoperable, or defeated.
- Electrical cords/plugs are not protected from damage and/or in good repair.

Resources:

- ***Slips, Trips, Falls – Reducing Risk and Avoiding Injury*** SOP http://ehs.unl.edu/sop/s-slips_trips_falls.pdf
- ***General Electrical Safety*** SOP <http://ehs.unl.edu/sop/s-electricalsafety.pdf>
- ***General Electrical Safety Awareness*** web-based training <http://ehs.unl.edu/onlinetraining/>.
- ***General Machine Safety*** SOP http://ehs.unl.edu/sop/s-gen_machine_safety.pdf

- **Machine Shop Safety** (November 2012 colloquium)
<http://ehs.unl.edu/training/Colloquium>
- **Lockout/Tagout (LO/TO) for Machines & Equipment** web-based training
<http://ehs.unl.edu/onlinetraining/>.
- **Portable Ladder Safety** web-based training
<http://ehs.unl.edu/onlinetraining/>.
- **Ladder Safety** SOP <http://ehs.unl.edu/sop/s-ladder.pdf>

5. Revised Safe Operating Procedures

- **Emergency Eyewash and Shower Equipment** http://ehs.unl.edu/sop/s-emerg_eyewash_shower.pdf
Changed the gpm flow information to be consistent with ANSI specifications.
- **General Guidance for Chemical Ordering, Receipt, Distribution, Use & Storage** http://ehs.unl.edu/sop/s-gen_chem_guidance_o_r_d_u_s.pdf
Updated to reflect the Globally Harmonized System of chemical classification and inclusion of recent new/updated SOPs.
- **Safety & Compliance Survey Guidelines for Chemical Laboratories**
http://ehs.unl.edu/sop/s-SAG_chemical_lab.pdf
Updated to reflect our revised lab safety & compliance survey checklist which now includes items requiring a chemical hygiene plan, proper PPE use and appropriate lab attire, chemical safety training as well as a few other items related to lab design and engineering controls.

Remember...SAFETY IS AN ATTITUDE!

Environmental Health and Safety

University of Nebraska-Lincoln
3630 East Campus Loop
Lincoln, NE 68583-0824
(402) 472-4925
<http://ehs.unl.edu>