

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

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1. Injury Response Planning – Local Level

Do you and others in your work area know what to do if someone is injured? Many emergency scenarios of a general nature are covered in the web-based training, **Emergency Preparedness**. As with all emergency scenarios, general campus guidance must be supplemented with worksite-specific information and/or procedures as appropriate to capture unique needs and circumstances. This is often done at the department or unit level.

The EHS Safe Operating Procedure (SOP) **On-The-Job and Student Injuries** has recently been updated to provide some general guidance for responding to injuries, including a template/checklist that may be used to assist in planning at the local level.

A few of the items covered are:

- General definitions of: Near-Miss/Close Call, Minor Injuries/Illnesses, Moderate Injuries/Illnesses, Major Injuries/Illnesses. This is intended to be general guidance and is not intended as a first aid guide.
- Information on Medical Care Facilities in Lincoln Nebraska and additional such as:
 - Use of emergency rooms should be reserved for after-hours care and severe injuries or illnesses.
 - Injured employees should bring their employee ID card when seeking medical care for a work-related injury/illness.
 - Students not conducting work for compensation at the time of their injury/illness should seek medical attention at the University Health Center or their own private physician unless their medical condition or the time of day (after clinic hours) warrants use of a hospital emergency room.
- “Establishing Worker’s Compensation Benefit Eligibility” which includes a list of forms for completion, where to find the forms, and where to submit the forms once completed.

- Scenarios under which incidents must be immediately reported to EHS and in the case of student injuries of the types noted, reported to the Vice Chancellor for Academic Affairs.
- How to find the ***Student Injury/Illness Reporter***, which is a tool for reporting injuries of students who are not employees.
- Information on special precautions for occupational and student exposures to bloodborne pathogens, such as treatment and medications.

Every area needs to have procedures in place with specifics of what to do in case of an injury, especially areas with potential hazards such as chemicals, lasers, machinery, etc. The “Checklist for Local Planning for Responses to Injuries” provided within this SOP is a helpful tool to accomplish the task of developing procedures.

“Emergency Contacts” is one item on the checklist/template provided. There should be a readily accessible list of emergency contact numbers for faculty/staff/students. When an injury occurs the injured person may not be able to provide their emergency contact information.

Faculty and staff should complete the “Emergency Contact” section of *Firefly* and keep the information up-to-date. That section of *Firefly* is where University Police will look if they need to find an emergency contact for a faculty or staff member.

Be aware that injured people may not be able to assess their own potential level of injury and make rational decisions about use of eyewashes/safety showers, whether they are safe to drive themselves, whether to seek medical attention, etc. If you already have procedures for handling injuries, use the checklist to review your area’s procedures. If you do not have such procedures in place, now is a good time to develop them.

Resources:

- ***On-The-Job and Student Injuries*** SOP <http://ehs.unl.edu/sop/s-injury.pdf>
- Web-based ***Emergency Preparedness*** training <http://ehs.unl.edu/onlinetraining>
- Worker’s Compensation Forms http://hr.unl.edu/forms/pdf/firstreport_incidentreport_choiceofdoctor.pdf

2. Prevent/Minimize Heat-Related Illness

We often associate heat-related illness with outdoor operations such as farm work, landscaping, and research “in the field.” In the recent past a UNL employee working INSIDE a building suffered heat exhaustion. Be aware workers may be subject to heat stress in any area where there is heat build-up due to low levels of cooling or the opportunity for heat buildup, for example, inside warehouses, storerooms, kitchens/baking areas, laundry areas, etc.

Working in the heat stresses the body and can lead to illness or even death in severe cases. Exposure to heat can also increase the risk of other injuries because of sweaty palms,

fogged-up safety glasses, dizziness, and burns from hot surfaces. Every year thousands of workers become sick from heat exposure and a number of workers die. Most heat-related health problems can be prevented, or the risk of developing them can be reduced.

There are two main categories of risk factor the worker should evaluate when contemplating outdoor work:

- **Weather Conditions.** The risk of heat stress is relative to temperature, humidity, sunlight, and wind speed. High temperature, high humidity, direct sunlight and low wind speed make the worst combination. If possible, schedule heavy work for the cooler parts of the day.
- **Personal Factors and Physical Demands.** The risk of heat stress increases with physical demands. For example, a worker who is walking is at higher risk than a worker who is riding in a vehicle. A worker who is lifting and carrying heavy items is at the greatest risk. Older workers, obese workers, and persons taking certain types of medication, such as antihistamines, are at a greater risk for heat illness.

It may not always be possible to work only in cooler parts of the day. The risk of heat-related illness can be reduced by:

- **Acclimation.** Acclimation means “become accustomed to.” If possible build up tolerance to heat by short exposures before undertaking longer periods of work in a hot environment.
- **Appropriate clothing.** Light, loose clothing and a hat are the clothing of choice.
- **Hydration.** Drink 8-16 ounces of water *before* working in the heat. Drink 4-8 ounces of water or electrolytes every 15-20 minutes while working in the heat. AVOID alcohol, coffee, tea, or soda pop, which further dehydrate the body.
- **Adequate Rest Periods.** Work at a steady pace. Take breaks when your body signals you need one, preferably in shaded or cool areas.
- **Education.** Heat stress can manifest as a number of conditions, all to be taken seriously and some requiring medical assistance to avoid permanent aftereffects. Workers should be able to recognize the signs and symptoms of these conditions so they can take proper action if they or their co-workers are affected.

More in-depth information on the above five mitigation suggestions, including signs/symptoms and treatment information on six possible results of heat stress may be found within the EHS SOP, **Heat Stress**.

OSHA recently has developed a Heat Safety smartphone app so workers and supervisors can calculate the heat index for their worksite and, based on the heat index, see a display of risk level associated with the particular heat index. The app also provides reminders about protective measures that should be taken at the indicated risk level to protect workers from heat-related illness, for example, reminders about drinking enough water, recognizing signs and symptoms of heat-related illness, planning for and knowing what to do in an emergency.

Resources:

- OSHA Health and Safety Topics: Occupational Heat Exposure
<http://www.osha.gov/SLTC/heatstress/>
- OSHA Heat Safety Tool (phone app-English & Spanish)
http://www.osha.gov/SLTC/heatillness/heat_index/heat_app.html
- OSHA Health and Safety Topics: Using the Heat Index
http://www.osha.gov/SLTC/heatillness/heat_index/index.html
- Heat Stress SOP <http://ehs.unl.edu/sop/s-heatstress.pdf>
- National Institute for Health & Safety (NIOSH) Safety & Health Topics: *Heat Stress* <http://www.cdc.gov/niosh/topics/heatstress/>
- National Weather Service, Office of Climate, Water and Weather Services - *Heat: A Major Killer* <http://www.nws.noaa.gov/om/heat/index.shtml>
- Centers for Disease Control (CDC) Podcasts: Beat the Heat
<http://www2c.cdc.gov/podcasts/player.asp?f=9889>

3. Elements of Creating Safety Cultures in Academic Institutions #7: Emphasize Safety Throughout Curriculum

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 focuses 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. The seventh recommendation in the ACS report is:

Build awareness and caring for safety by emphasizing safety throughout the curriculum.

Solid safety awareness and attitudes and following safety policies and procedures are as important as the topic-specific information students receive in a presentation or the knowledge the student gains from conducting an experiment/research. Therefore everyone who teaches or trains others in chemistry or other disciplines should know and follow the appropriate safety practices.

Over the course of their education, future scientists and engineers should grow to understand and appreciate that working safely without injuring themselves or the larger environment is an essential career goal. Building safety awareness requires a long-term effort where safety is highlighted repeatedly by everyone involved in the teaching and learning process. Every member of the organization must share in the

safety vision and demonstrate a high level of safety awareness, especially toward laboratory safety.

The seventh recommendation, highlighted in this issue of the EHS listserv, is closely related to the “Educate for Safety” recommendation, which was detailed in the February 20, 2013 issue of the EHS listserv. Consider reviewing that issue as you contemplate means of incorporating the ACS seventh recommendation. The proper attitude toward safety is reflected in the “Safety Ethic,” espoused by the Safety Culture Task Force of the ACS Committee on Chemical Safety:

- **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.
- **Work safely:** One continues to learn about safety, learns to recognize hazards, assesses the risks of hazards, manages the risk of hazards, and prepares to handle emergencies.
- **Prevent at-risk behavior:** One does not cut corners or bypass safety measures in the laboratory (or other work environment) and shares this information with others, as needed.
- **Promote safety:** One encourages and acknowledges others in working safely.
- **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
- **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. Don't Let This Happen in YOUR lab!

Recently there was a chemical spill at UNL that did not result in an injury but easily might have. This particular incident occurred in a teaching laboratory but the situation could have arisen in other locations where excess chemicals are disposed. Let's take a brief look at this incident to see what happened so you can prevent a similar incident in YOUR lab.

At the conclusion of a chemical operation a student added excess 6 M aqueous nitric acid to a container intended for recovery of aqueous solutions of hydrochloric, sulfuric, and nitric acids and then closed the sash to the chemical fume hood where the container was located. A few minutes after adding the excess nitric acid solution, the container began fuming and discharging a pink vapor. The student and

substitute TA moved away from the hood. The container then exploded, breaking several nearby bottles.

The TA, new to this lab, was unsure of the spill kit location and sought help in cleaning up a potentially hazardous mixture. Assistance was provided by several department faculty members and EHS.

Clearly something other than an *inorganic* acid was placed in the “used acid” bottle. Given that the hood also contained organic solvents, including acetone, it seems likely that a student had rinsed acetone/an acetone-mixture into the bottle designated for inorganic acids. The strongly oxidizing acids reacted violently with the organic solvent.

To prevent such incidents in the future, the two different waste streams will be physically segregated into two different fume hoods and clear warnings about **not** mixing these used chemicals will be communicated and posted.

Resources:

- **Waste Management** SOPs <http://ehs.unl.edu/sop/safety-audit-guidelines>
- **Chemical Safety** SOPs <http://ehs.unl.edu/sop/chemical-safety>
- **Pre-Planning For and Responding To Chemical Spills** SOP http://ehs.unl.edu/sop/s-preplan_respond_spills.pdf

5. UNL Injury Incidents and Safety Audits

EHS will periodically provide highlights of campus-wide safety audit findings and information on a few of UNL’s 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 similar situations. The goal is to raise awareness and correct hazards before they result in adverse events.

During the period of January 1 – March 31, 2013, several of the reported injuries were related to weather conditions and housekeeping.

- **Weather Conditions.** Four employees were injured when they slipped on icy surfaces. While these incidents involved ice, be alert to the potential for slippery surfaces due to rain, mud, and similar conditions. Wear sturdy, slip-resistant shoes. Be alert to the walking surface, and watch where you are going. Slow down. Avoid areas that are likely slippery. Keep hands free to help regain balance or break a fall. Use handrails when navigating steps. Be particularly vigilant in unfamiliar areas.
- **Housekeeping.** People often overlook the importance of housekeeping when thinking about safety. Housekeeping is not just cleanliness. It includes keeping the work area neat and orderly; maintaining halls and floors free of slip and trip hazards; and removing materials such as paper, cardboard and

other fire hazards from work areas. Poor housekeeping can lead to injuries such as being hit by falling objects, slips/trips/falls due to loose objects/wetness on floors/stairs, or running into projecting/poorly stacked items or misplaced material.

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

- Used fluorescent light bulbs were not contained in a sealed box, labeled appropriately and dated.
- Emergency eyewashes are not readily accessible or in good working order.

Spent fluorescent light bulbs are subject to certain waste handling regulatory requirements. While “fluorescent light bulbs” are mentioned specifically, there are other items generated in/used by offices, shops, and labs that should not be disposed in the regular trash, such as rechargeable and button batteries, used electronics, aerosol cans, and other items. For further information as it relates to your work area refer to applicable Safe Operating Procedures under the “Waste Management” heading.

Emergency eyewash stations and showers should have unobstructed access so as to be immediately available in the event of a chemical exposure, clothing fire, or other situation that requires their use. Toward that end:

- Do not position items in front of or otherwise block access to the eyewash station or safety shower;
- Do not stack items in the eyewash bowl or obstructing the operating mechanism;
- Do not use the eyewash station for a ‘coat rack’, etc.
- Do not loop the activation handle up and over the water service line to get it out of the way; it must remain in its intended position so that the shower can be activated immediately when needed.

Flush eyewash stations weekly and notify the Facilities Service Desk (21550) immediately if the flow or spray pattern appear inadequate.

Resources:

- **Safety Audit Guidelines** SOPs <http://ehs.unl.edu/sop/safety-audit-guidelines>
- **Emergency Eyewash and Shower Equipment** SOP http://ehs.unl.edu/sop/s-emerg_eyewash_shower.pdf
- **Waste Management** SOPs <http://ehs.unl.edu/sop/waste-management>

6. Revised Safe Operating Procedures & Training

- **Door Postings for Potentially Hazardous Locations** SOP http://ehs.unl.edu/sop/s-door_posting.pdf

Revisions made to reflect adoption of the OSHA Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

- **General Material Handling/Safe Lifting** http://ehs.unl.edu/sop/s-gen_safe_lifting.pdf
Additional safety guidance added.

Remember...SAFETY IS AN ATTITUDE!

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