

In this issue of the Environmental Health and Safety (EHS) Listserv, July 2, 2013:

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1. ATV Safety

All-Terrain Vehicles (ATVs) are used in a wide variety of work locations at UNL and nationally ATV use in the workplace is increasing. Employees can reduce the risk of injury by modifying work practices, operating ATVs within manufacturer's limitations, wearing helmets, and obtaining vehicle-specific training.

The Occupational Safety and Health Administration (OSHA) provides the following description of hazards associated with ATVs:

- **ATV Terrain and Operating Conditions.** ATVs are useful because they enable workers to traverse rough terrain and get to remote locations quickly. It is very important that the operator drives at a safe speed to accommodate the changing terrain (rocks, logs, ditches, and other obstacles) and to reduce the risk of overturning or rolling over the ATV. Traversing a slope also presents a rollover hazard to ATV operators. Rolling over or overturning an ATV is one of the leading incidents that result in fatalities. ATVs are specifically designed for off-road use and are not intended to be driven on concrete or paved roads. Injuries and fatalities can occur as a result of collisions with other vehicles and as a result of the difficulty of controlling an ATV on pavement.
- **Load Limitations and ATV Modification.** ATVs are engineered for certain operating conditions and for handling specific loads. Modifications to an ATV may alter its performance and increase the potential for an accident. To effectively steer and control an ATV, the driver often needs to make quick body weight shifts combined with acceleration and braking. A passenger can impair the safe operation and maneuverability of the ATV and the additional passenger weight may exceed the manufacturer's weight limit for the ATV. Passengers are put at a high risk of injury when riding on an ATV.
- **ATV Operator Qualifications and Training.** Inexperienced drivers face a higher risk of injury. Statistics show that during the first month of operation, new recreational ATV drivers have an injury rate 13 times higher than the overall average injury rate for ATV operators. Almost half of injured drivers have less

than one year of experience and one-fourth of the injured drivers have less than one month of experience.

- **Personal Protective Equipment.** The potential rollover hazards require the use of a DOT-approved helmet. According to a study of recreational ATV-related deaths in West Virginia, 65 percent of the deaths resulted from head and neck injuries. Of these fatalities, three-quarters of the ATV users were not wearing a helmet at the time of the incident. The Consumer Products Safety Commission (CSPC) indicates that 25 percent of those who died from head injuries sustained in recreational ATV accidents would have lived if they had been wearing a proper helmet. While there is not a similar study of workplace ATV-related deaths, it is generally accepted that 'recreational use' studies should be considered when determining workplace ATV safety practices.
- **ATV Maintenance.** Like any piece of workplace machinery, ATVs must have regular maintenance. Poor ATV maintenance contributes to serious accidents and fatalities.
- **Other Considerations.** Three-wheel ATVs have not been manufactured since 1988, but older three-wheel ATVs are still in use. While the stability of ATVs as a whole is low, the stability of three-wheel ATVs is generally worse than for four-wheel ATVs. Cornering and traversing slopes on three-wheel vehicles can be particularly dangerous.

The following guidelines will help reduce the risk of injury:

- Undergo instruction and hands-on training on safe handling and operation of ATVs. Everyone using an ATV should be competent in operating ***their specific*** ATV under the variety of conditions in which they will be driving. The ATV Safety Institute offers ATV classes nationally. Training, both online and hands-on, is available for UNL employees through Robert Meduna, Extension Educator, Southeast Research and Extension District.
- If you are a driver or likely ATV driver review and understand the operator's manual.
- Review, understand, and follow all manufacturer's warnings.
- Do not carry passengers.
- Be sure to wear proper helmets and boots. Where conditions require, ensure the use of goggles, gloves, and other safety clothing.
- Conduct a pre-ride inspection: + Check the tire condition and pressure. + Ensure that the throttle, brakes, and other controls are working properly. + Ensure that headlight(s) and taillight(s) are working properly. + Test the steering before

starting, initially at low speeds. + Test the suspension system. Report any damage or mechanical failures so that repairs can be made.

- Be aware of any site-specific hazards, such as excavations, trenches, ditches or other obstacles and areas where ATV use is prohibited.
- Follow a maintenance program that meets the manufacturer's recommendations.
- Only haul items on the ATV in accordance with the manufacturer's specifications and never exceed the weight limit. Ensure loads are evenly distributed.
- Do not modify ATVs without approval from the manufacturer.
- Monitor manufacturer's recalls and report them to ensure prompt action when a recall is issued for your ATV(s).

Resources:

- **ATV Safety SOP** <http://ehs.unl.edu/sop/s-atv.pdf>
- Specialty Vehicle Institute of America <http://www.svia.org/>
- OSHA Safety and Health Information Bulletin: Hazards Associated with All-Terrain Vehicles (ATVs) in the Workplace <http://www.osha.gov/dts/shib/shib080306.html>
- Online UNL ATV Safety Training <http://southeast.unl.edu/atvsafedty>
- Hands-on ATV Training Contact: Robert J. Meduna, Extension Educator, 402-624-8064 or rmeduha1@unl.edu

➤ 2. **Biosafety Manuals Now Easier**

EHS significantly revised the Safe Operating Procedure (SOP) ***Preparing a Laboratory Biosafety Manual***. Various standards, as outlined within the SOP, require that a Principal Investigator develop and implement a biosafety manual (or procedures equivalent to a biosafety manual). The UNL IBC (Institutional Biosafety Committee) also requires a biosafety manual. The primary purpose of a biosafety manual is to provide an appropriate training and reference tool relative to biosafety for laboratory staff. The revised SOP expands the acceptable ways in which a manual can be prepared in order to clarify content requirements and make compliance as simple as possible.

Note that there is a new requirement regarding a “Biosafety Manual Contents” checklist. A sample “Biosafety Manual Contents” checklist is provided as “Appendix A” within the SOP. This checklist must now be completed and submitted with the Institutional Biosafety Protocol Form. Completion of this checklist will allow the Biosafety Officer and the IBC to verify that the required content has been prepared and made available to lab personnel without physical verification of the existence of a biosafety manual.

Creation of an EHS **Virtual Manual** with the applicable sections checked constitutes the majority of the required Biosafety Manual content. With use of the **Virtual Manual** there is no longer a hardcopy requirement for any part of the manual. Only a hard copy of the “Biosafety Manual Contents” (Appendix A of the SOP) must be kept in the laboratory to be verified during safety surveys and to serve as a reference for laboratory personnel.

Resources:

- **Preparing A Laboratory Biosafety** http://ehs.unl.edu/sop/s-preparing_lab_biosafety_manual.pdf
- **Virtual Manual** <https://scsapps.unl.edu/VirtualManual/>
- **Biosafety SOPs** <http://ehs.unl.edu/sop/biosafety>

3. Elements of Creating Safety Cultures in Academic Institutions

#8: Safety in Research

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 eighth recommendation in the ACS report is:

Include safety education and training (for undergraduate students, graduate students, and postdoctoral scholars participating in proposed research) in research grant proposals, and oversight of research for safety.

The ACS report explains the basis of this recommendation as follows:

A driving force for safety in the research environment can be found in the requirements of the National Science Foundation’s (NSF), The Responsible Conduct of Research....The NSF requires a plan to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduate students, graduate students, and postdoctoral scholars who participate in proposed research. Safety should play a significant and substantial role in this plan. Faculty and staff applying for financial assistance from NSF (and other organizations, such as the National Institutes of Health (NIH)) should include safety education and training, and oversight of research for safety, as a basic and integral part of their plan to conduct responsible and ethical research.

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
- EHS Web Based training, <http://ehs.unl.edu/onlinetraining>
- EHS Laboratory Safety Colloquium Series, <http://ehs.unl.edu/training/Colloquium>
- EHS Virtual Manual, <https://scsapps.unl.edu/VirtualManual/>

4. Working Outdoors & West Nile Virus

West Nile Virus (WNV) is a potentially serious illness transmitted by mosquitos to workers, primarily those working outdoors or in settings where there is periodic access to the outdoors, e.g. warehouses/docks. WNV is considered a seasonal epidemic which flares up in the summer and continues into the fall. According to the Centers for Disease Control (CDC) Nebraska is one of the states with higher levels of incidence of this disease.

Knowledge of some key steps that workers can take to minimize the risk of mosquito bites is important in reducing the risk of WNV infection. Especially when working at sites where mosquitoes may be active and biting, workers should use the following steps to minimize the likelihood of getting bitten:

- Inspect work areas and, where possible, get rid of/avoid sources of stagnant or standing water, a breeding ground for mosquitos.
- Cover as much skin as possible by wearing long-sleeved shirts, long pants and socks when possible.
- Avoid use of perfumes and colognes when working outdoors.
- Use an insect repellent containing DEET or Picaridin on skin that is not covered by clothing.

- Choose a repellent that provides protection for the amount of time that you will be exposed. The more DEET or Picaridin a repellent contains, the longer time it can protect you.
- Spray insect repellent on the outside of your clothing (mosquitoes can bite through thin clothing).
- Do not spray insect repellent on skin that is under clothing.
- Do not spray aerosol or pump products in enclosed areas or directly on your face. Do not allow insect repellent to contact your eyes or mouth. Do not use repellents on cuts, wounds or irritated skin.
- After working, use soap and water to wash skin and clothing that has been treated with insect repellent.
- Be extra vigilant from dusk to dawn when mosquitoes are most active.

Resources:

- OSHA Safety and Health Information Bulletin: Workplace Precautions Against West Nile Virus <http://www.osha.gov/dts/shib/shib082903b.html>
- CDC West Nile Virus (homepage) <http://www.cdc.gov/westnile/index.html>
- CDC: Protection Against Mosquitos, Ticks & Other Insects & Arthropods <http://www.cdc.gov/westnile/index.html>
- CDC: New Mosquito Repellents Fight West Nile <http://www.webmd.com/news/20050428/cdc-new-mosquito-repellents-fight-west-nile>
- EPA (Environmental Protection Agency): Using Insect Repellents Safely <http://epa.gov/pesticides/insect/safe.htm>

5. Eye Protection for Outdoor Workers

Outdoor workers and researchers in the field can be exposed to a number of eye hazards. Here are some hazards to be aware of/evaluate to ensure you have the proper eye protection when you work outdoors.

- **The sun:** Sunlight poses hazards both seen and unseen. Bright light (particularly if looking in the direction of the sun) can make it hard to see; glare off of objects can temporarily blind; and invisible ultraviolet (UV) light can cause long-term damage to the eye and lead to the development of cataracts. Use eye protection that mitigates the effects of the sun when driving or working outdoors. And remember, the sun isn't just a summer phenomenon it's present year-round, and you need protection year-round.
- **Dust:** Blowing dust and grit at worksites can get in workers' eyes, causing injuries like abraded corneas. When working on sites/tasks with blowing dust, wear properly fitting goggles. Safety glasses do not provide appropriate protection for blowing dust because they do not fit tightly to the face and thus allow dust in. There are safety glasses available which are lined with foam around the lens to add protection against dust and other airborne debris. This

type of safety glasses may be more comfortable than goggles for extended wear.

- **Impact.** When chipping, using grinding machinery, doing masonry work, riveting, sanding, etc., flying fragments/objects, large chips/particles can cause eye damage. Select from safety glasses with side protection, goggles, and face shields as appropriate for the task. Often a face shield is needed in combination with spectacles to protect the face from flying fragments.
- **Sprays:** When working with spraying equipment outdoors, workers should wear goggles. They should not rely on the wind to carry the spray away from them. A change in wind direction can blow spray back on the worker and into their eyes. Goggles are needed when working with sprays because safety glasses do not provide the necessary protection.
- **Dirty hands:** Eye infections and chemical eye injuries from outdoor workers rubbing their eyes with dirty hands are far more common than you may think. Whether from general dirt and grit, germs, chemicals, or plant secretions, you can easily protect your eyes by wearing work gloves to keep the material off your hands and wash hands after glove removal.
- **Infectious materials:** Workers who are at risk of coming in contact with fecal matter, animal respiratory secretions, and other potentially infectious matter must wear protective eyewear. Diseases can be transmitted through the mucous membranes of the eye as a result of direct exposure (for example, splashes or airborne material from activities such as animals coughing) or, as noted above, from touching the eyes with contaminated hands. For infectious matter, appropriate eyewear will depend on the nature and extent of the hazard.

Some outdoor tasks that would require protective eyewear are:

- Chemical handling/spraying/mixing
- Chipping/grinding
- Sawing/cutting
- Masonry work
- Landscaping tasks
- Harvesting/grain handling
- Animal care

When selecting proper eye/face protection verify that the product meets ANSI (American National Standards Institute) testing standards.

Resources:

- **Personal Protective Equipment** web-based training
<http://ehs.unl.edu/training/online>
- **Personal Protective Equipment (PPE) – Eyes And Face**
http://ehs.unl.edu/sop/s-PPE_eyes-face.pdf

6. Revised Safe Operating Procedures & Training

- **Chemical Container Labeling** <http://ehs.unl.edu/sop/s-chemlabelguideline.pdf>
Revised for create consistency with the OSHA Globally Harmonized System of chemical classification.
- **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.
- **Preparing a Laboratory Biosafety Manual** http://ehs.unl.edu/sop/s-preparing_lab_biosafety_manual.pdf
Revisions reviewed in article above.

Remember...SAFETY IS AN ATTITUDE!

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