

In this issue of the Environmental Health and Safety (EHS) Listserv, June 21, 2017

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1. Heat Illness

We often associate heat-related illness with outdoor operations such as farm work, landscaping, and research “in the field.” However, EHS routinely reviews injury reports from employees working INSIDE an unconditioned building (e.g., warehouse, storeroom) or areas of a building prone to heat build-up (e.g., kitchens, laundry, autoclave rooms, etc.). Nationally, heat kills more people annually than all other weather conditions combined. While this article primarily references outdoor conditions, the principles and practices presented also apply to indoor work in hot environments.

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 hands, fogged-up safety glasses, dizziness, and burns from hot surfaces. Most heat-related health problems can be prevented or the risk of developing them can be reduced.

Following are two main categories of risk factors 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 strenuous 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. 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.** 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 know 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 can be found within the EHS Safe Operating Procedure (SOP), **Heat Stress**.

OSHA developed a Heat Safety smartphone app that calculates a heat index, identifies the associated risk level and provides reminders about protective measures that should be taken to protect workers from heat-related illness.

Further recommendations from the National Institute for Occupational Safety and Health (NIOSH) for those working in hot environments include:

- Limit time in the heat and/or increase recovery time in a cool environment.
- Use a buddy system where workers observe each other for signs of heat intolerance.
- Have adequate amounts of cool, potable water near the work area and encourage each other to drink frequently.

Here are a few examples of heat-related incidents at UNL. These are provided to show a diversity of worker-type to dispel the myth that heat-related illnesses only afflict those working outdoors. None of these workers used the methods detailed above to reduce the risk of heat-related illness.

- A worker reported heat exhaustion while working in a non-air conditioned warehouse on a very hot day. Mitigation strategies to prevent future illness included increased hydration by the employee and installation of a ceiling fan to improve circulation by the department.
- An employee reported heat exhaustion while working outdoors on a very hot day. Mitigation strategies to prevent future illness included the employee wearing light-colored clothing, and the department providing Gatorade. Agricultural workers should consider starting work earlier in

the day to be done before, or take a break during, the hottest part of the day.

- An older concession worker at a football game reported heat exhaustion on a very hot day. Older workers may be more susceptible to the effects of heat. The employee will drink more water and try to stay in a cooler/shaded area at regular intervals

Resources:

- OSHA Health and Safety Topics: Occupational Heat Exposure
<http://www.osha.gov/SLTC/heatstress/>
- OSHA Heat Safety Tool (phone app-English & Spanish)
https://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
- EHS **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>
- Valentic Stefanie. "OSHA-NIOSH Heat Safety Tool Addresses Summer Hazards." *EHS Today*. EHS Today, 9 June 2017. Web. 15 June 2017. <http://ehstoday.com/health/osha-niosh-heat-safety-tool-addresses-summer-hazards?NL=OH-05&Issue=OH-05_20170613_OH-05_408&sfvc4enews=42&cl=article_5&utm_rid=CPG03000001591939&utm_campaign=19945&utm_medium=email&elq2=508ea79cefcd498d8c8e1c407ac80a22>.

2. Safety Shorts – Working in Heat

This series features links to short safety resource(s) each month. Provided this month are resources to help workers avoid heat illness.

- **Hot Enough for You? – Avoid Heat Illness and Injury – Safety Training** (Safety Memos, 2.50 minutes)
<https://www.youtube.com/watch?v=D5dGCuRdtSs>
- **Seven Ways to Beat the Heat – Hot Weather Hazards – Preventing Illness & Death in Hot Environments** (Safety Memos, 3.28 minutes)
<https://www.youtube.com/watch?v=WYnj1G94e6Y&index=2&list=PLmTeuL3c9sPp4ric-q1c3CEqMSf95ce6F>
- **Heat Stress Prevention – Training Video Course – SafetyInfo.com** (SafetyInfo.com, 6.50 minutes)
<https://www.youtube.com/watch?v=wsJXMvZCy2c&t=17s>

NOTE: Resources provided are for informational purposes only. Publication does not indicate endorsement a particular company or product or affect current UNL policies and procedures.

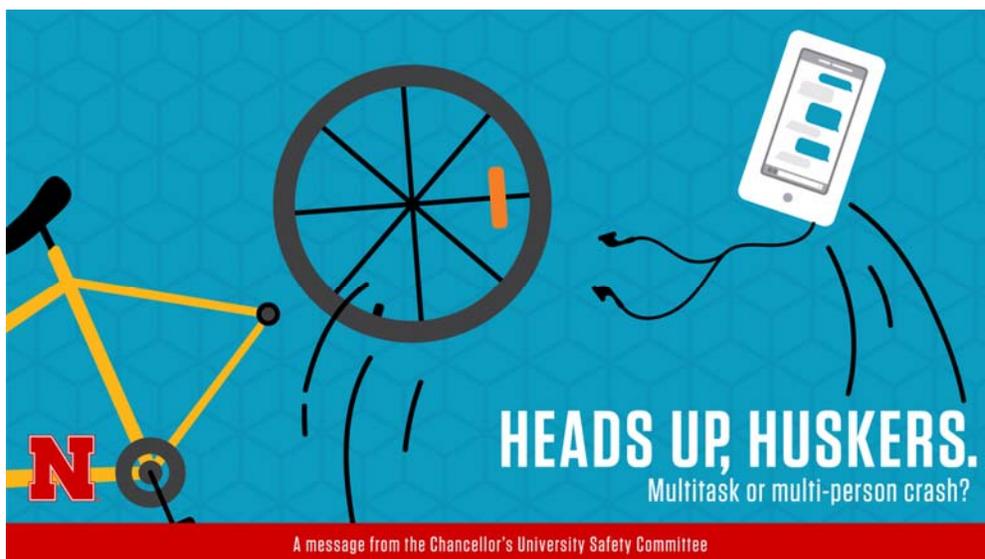
3. Situational Preparedness – Car Crash Prevention

Situational preparedness is so important that we will be looking at various aspects over time, as well as providing resources to assist you to “be prepared” for whatever situations you may encounter at UNL.

According to an article in the Nebraska Safety Council March “Safety 24/7” publication, 94 percent of car crashes are due to human error. Anything that takes your eyes off the road, hands off the steering wheel or mind off your driving environment is considered distracted driving. 80% of the public believe that because manufacturers are installing in-vehicle infotainment systems that *they* must be safe to use. The AAA Foundation for Traffic Safety found the opposite.

A driver’s eyes should be continually scanning the road and surroundings and revisit a spot every 11 – 15 seconds to maintain awareness of potential road hazards such as debris that can cause accidents, positioning and actions of cars around your vehicle, pedestrians or animals likely to enter the roadway, etc. Motorists can be distracted for as long as 27 seconds after issuing voice commands to an in-vehicle infotainment system. At 35 miles per hour, over 27 seconds, your vehicle can travel the length of a football field! Think of all the potential hazards over that time/distance traveled.

The Chancellor’s University Safety Committee has initiated a “*Heads Up!*” campaign to address concerns with unsafe walking/driving/bicycling at UNL.



If you would like to have a PDF or JPG of this *Heads Up!* graphic commissioned by the Chancellor's University Safety Committee in order to encourage safe practices and awareness in your department/area/facility, contact Elizabeth (Betsy) Howe, ehowe2@unl.edu or 402-472-5488.

Resources

- Chancellor's University Safety Committee
<http://ehs.unl.edu/chancellors-university-safety-committee-cusc#cusc>
- AAA Foundation for Traffic Safety
<https://www.aaafoundation.org/about-aaa-foundation-traffic-safety#overview>
- Benson, Scott. "Learning Center." *Nebraska Safety Council - Workwell*. Nebraska Safety Council, n.d. Web. 15 June 2017.
<<https://www.nesafetycouncil.org/index.php/driving/driving-learning-center>>.
- Jansen, Bart. "AAA: Road debris causes avoidable crashes, deaths." *USA Today*, 11 Aug. 2016. Web. 16 June 2017.
<<https://www.usatoday.com/story/news/2016/08/11/aaa-road-debris-causes-avoidable-crashes-deaths/88563500/>>

4. Stormwater Pollution Reporter

Stormwater is water from rain and melting snow and ice. Stormwater can soak into the soil (infiltrate), be held on the surface and evaporate, or run off and end up in a nearby stream, river, or other water body. Before land is developed with buildings, roadways, and agriculture, the majority of stormwater soaks into the soil or evaporates. In a natural area such as a prairie or forest, the soil absorbs considerable amounts of stormwater, and plants help hold stormwater close to where it falls so very little runs off.

As more development takes place, large amounts of runoff are produced from rooftops, concrete, asphalt, and other impervious surfaces that are built to shed water. Rather than soaking into the soil and slowly seeping to surface water, runoff is quickly funneled through storm drainage systems directly to streams, rivers, and lakes.

In accordance with the permit issued for UNL's small municipal separate storm sewer system by the Nebraska Department of Environmental Quality (NDEQ), UNL has developed and implemented a program to detect and eliminate illicit discharges to the storm sewer on City and East Campuses.

Illicit discharges are any discharge to a storm sewer that is not composed entirely of storm water (i.e., rainwater and snow melt) or otherwise allowed under the condition of a State-issued permit. Pollutants in illicit discharges may

include sediments, heavy metals, toxic chemicals, oil and grease, solvents, excess nutrients, and harmful microorganisms. Examples of illicit discharges include sediment from construction sites, effluent from septic tanks or sewage cross-connections, vehicle wash water, laundry wastewater, chemical releases, cooling tower discharges, and automobile oil/grease.

Unlike sanitary sewers, storm sewers discharge pollutants directly to lakes and streams. Sanitary sewers are connected to complex treatment facilities that clean the water of pollutants prior to discharge.

All members of the campus community can play an active role in protecting the quality of surface waters. Submitting information regarding storm water issues on campus is now easier. In addition to calling the EHS office, 402-472-4925, you can use the new "*Stormwater Pollution Reporter*" featured prominently on the right side of all EHS web pages, near the "Report An Accident or Near-Miss" feature.

Information submitted either online or by phone will be used by the Environmental Health and Safety Department to follow up on storm water-related illicit discharge and/or spills, construction site complaints, or illegal dumping. Please immediately report anything that may cause direct or substantial harm/distress to the environment (e.g., petroleum spill, fish kill, etc.).

Note: If you wish to submit a photo using this new online tool you can upload files of limited size. Common image file types are supported.

Resources

- EHS **Storm Water – Illicit Discharge Detection and Elimination (IDDE)** Safe Operating Procedure (SOP) http://ehs.unl.edu/sop/s-stormwater_IDDE.pdf
- EHS **Dewatering** SOP <http://ehs.unl.edu/sop/s-dewatering.pdf>
- **Stormwater Pollution Reporting Form** <http://ehs.unl.edu/stormwater-pollution-reporting-form>
- NebGuide "*Stormwater Management: What Stormwater Management Is and Why It Is Important*" <http://extensionpublications.unl.edu/assets/pdf/g2238.pdf>
- EHS **Stormwater Pollution Prevention** SOPs <http://ehs.unl.edu/sop/storm-water-pollution-prevention>

5. Elevator Safety and Compressed Gas/Liquid Nitrogen Tanks

Have you ever considered the potential safety hazards related to transport of liquid nitrogen and compressed gas tanks by delivery personnel? Delivery personnel must use the elevators to transport heavy cylinders/tanks to and from the labs that ordered the product. This represents a significant hazard during an elevator ride if a spill or leak were to occur, since the elevator is a relatively small, enclosed space.

Delivery personnel are instructed to inform others **NOT** to ride the elevator with them when in the process of compressed gas/liquid nitrogen delivery. However, sometimes delivery personnel may be reluctant to say something or those so instructed may choose to get on the elevator anyway. Compressed gas/liquid nitrogen delivery personnel carry rescue masks for their own use in the event of an inadvertent release from a cylinder. Anyone choosing to use the elevator when compressed gases/liquid nitrogen delivery is in progress put themselves at risk.

If you see a delivery person on an elevator with compressed gas cylinders or liquid nitrogen tanks, please do **NOT** get on the elevator with them. Politely tell the delivery person you will wait for the next elevator. They will greatly appreciate it and this small step can potentially save you from harm.

-issue identified and shared by the FIC (Food Industry Complex) Safety Committee

Resources

- EHS **Gases under pressure Hazards & Risk Minimization** Safe Operating Procedure (SOP) http://ehs.unl.edu/sop/s-gases_under_pressure_haz_risk_min.pdf

6. Satisfaction Survey

Environmental Health and Safety is committed to excellent customer service and offers a *Customer Satisfaction Survey* as an easy method for the campus community to provide feedback on our services and staff. By taking a few moments to complete the survey (<http://ehs.unl.edu/survey>), you will be helping us to identify areas where we might need to focus our attention. We greatly appreciate your participation.

Please feel free to contact Brenda Osthus, EHS Director, at 402-472-4927 or bosthus1@unl.edu if you would rather communicate outside the parameters of this survey.

7. Revised Safe Operating Procedure

- **Safety Protocol: Sealed Sources** SOP http://ehs.unl.edu/sop/s-sealed_sources.pdf
Referred users to applicable EHS Safe Operating Procedures for generally licensed radioactive material-containing devices and gauges. Made radionuclide info more generic.

Remember...SAFETY IS AN ATTITUDE!

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