In this issue of the Environmental Health and Safety (EHS) Listserv – March 6, 2024

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1. The CUSC Invites You

The Chancellor's University Safety Committee (CUSC) is a UNL committee established to assist the Chancellor by making recommendations of methods to reduce safety hazards at UNL. The CUSC charter, as well as links to the list of members, upcoming agenda, meeting dates/locations, previous meeting minutes, current year's goal and more are available online.

Twice a year the CUSC holds an Open Forum meeting to which the campus community is invited. The spring **Open Forum** meeting will be held in the Environmental Health and Safety Training room on East Campus and by Zoom. The meeting is from 3:00 – 4:00 p.m. on Tuesday, March 26, 2024. The campus community is invited to share concerns or just observe the workings of the CUSC. To attend, contact Chair, Michael Livingston mlivingston1@unl.edu, for the Zoom meeting ID and password.

While the CUSC is a university-level organization, there are a number of department-level safety committees across campus. If your department does not have a safety committee and you would like to explore possibilities, contact ehowe2@unl.edu for assistance.

Resources

- Chancellor's University Safety Committee http://ehs.unl.edu/chancellors-university-safety-committee-cusc#cusc

2. Grain Bin Safety

National Stand Up for Grain Safety Week is March 25-29, 2024. Since 2014, industry leaders and agricultural professionals have collaborated to raise awareness about grain bin dangers, provide education and share best safety practices for working in and around grain bins. Between 1962

and 2019, 60% of documented grain entrapment cases were fatal. There was a 45% increase in grain entrapments in 2022 compared to 2021. Working around grain bins presents unique and serious hazards about which farm workers must be constantly vigilant.

Following are some major hazards and mitigation strategies:

- **Hazardous atmosphere (oxygen deficiency, toxic gases, allergens).** Store only adequately dried grain to reduce spoilage. Keep insect/animal infestations to a minimum. Regularly clean bin. Observe all restricted entry requirements, including testing of the atmosphere prior to entry.

- **Fire/Explosion.** Accumulations of grain dust can create flammable/explosive atmospheres, so make sure ventilation systems are in good working order. Ensure grain dust accumulations are kept to a minimum with regular cleaning, especially near ignition sources. Ensure electrical connections meet code requirements.

- **Falls.** Working at heights in and around a grain bin poses a fall hazard. When performing tasks at elevated heights, fall protection is required.

- **Electrocution.** This hazard is often overlooked. An auger might come into contact with overhead wires while being moved unless locational awareness is maintained. Poles to dislodge crusted grain might contact overhead lines unless care is taken.

- **Entanglement.** Unguarded augers, PTOs, and other moving parts present an entanglement hazard, as does the sweep auger inside the bin. Ensure all equipment is properly guarded, avoid loose-fitting clothes, and do not operate the sweep auger while inside the bin.

- **Engulfment/Entrapment.** While loading/unloading operations present an obvious engulfment/entrapment hazard, stored grain itself is also dangerous. Air pockets can shift and cause stored grain to flow as if it were liquid. Do not enter grain bins during active loading/unloading. When possible, entry in the presence of grain should be conducted only when there is no alternative and then only while observing the following:

    - Grain is less than waist deep and applicable lockout/tagout procedures have been implemented to prevent grain addition, removal, or other movement.

- The atmosphere in the bin is not hazardous, adequate ventilation has been established, and no work to be conducted in the bin has the potential to create a hazardous atmosphere.

- A co-worker is present outside of the bin, verbal communication is maintained, and the co-worker has a readily available means of summoning emergency help.

Review EHS **Confined Space Awareness** and **Lockout/Tagout (LO/TO) for Machines & Equipment** web-based training, as well as **Lockout/Tagout for Machines & Equipment** Safe Operating Procedure to develop your safety plan.

Grain bin accidents tragically impact individuals, families and entire communities. According to AgriSafe, 60% of documented grain entrapments between 1962 and 2019 were fatal. Watch out for yourself and those you are working with to prevent injury or death while working with grain handling and storage.

Resources

- Stand Up 4 Grain Safety. (2024, February 15). *Stand Up 4 Grain Safety - Stand Up 4 Grain Safety*. Stand up 4 Grain Safety -. https://standup4grainsafety.org/
- EHS SOP **Grain Bin Safety** https://ehs.unl.edu/sop/s-grain_bin_safety.pdf
- *Think Grain bin Safety – My nsight online*. (n.d.). https://www.mynsightonline.com/grain-bin-safety/thinkgrainbinsafety
- "Grain Bin Safety Week." *AgriSafe Network*, 19 July 2021, https://www.agrisafe.org/event/grain-bin-safety-week/
- *Safety training » National Education Center for Agricultural Safety*. (n.d.). https://www.necasag.org/safetytraining/
- *Don't become a statistic: Grain bin safety tips | Integrated Crop Management*. (n.d.). https://crops.extension.iastate.edu/blog/kristina-tebockhorst/don%E2%80%99t-become-statistic-grain-bin-safety-tips
- NFU (National Farmers Union) Farm Safety video series https://www.youtube.com/playlist?list=PL0B_GIRKHw4tDAy8-Pn_w-8_7g8okjCA-

3. Ladder & Step Stool Safety

The American Ladder Institute (ALI) sponsors National Ladder Safety Month every March. ALI is the American National Standards Institute (ANSI) approved developer of safety standards for the ladder industry. Standards are technical specifications that prescribe rules governing the safe construction, design, testing, care, and use of various types of ladders.

According to the National Institute for Occupational Safety and Health (NIOSH) annually in the United States 500,000 people are treated, thousands suffer disabling injuries, and more than 300 people die from ladder-related injuries. Most ladder deaths are due to falls from 10 feet or less. Ladder/step stool fall injuries, a persistent hazard in the workplace and at home, are due to five major causes:

- Incorrect extension ladder setup angle. Approximately 40% of incidents result from a ladder sliding out at the base due to incorrect angle setup or unstable surface. The optimal angle is 75 degrees from the horizontal.

- Inappropriate ladder selection. Select a ladder with the proper duty-rating (maximum safe load) to avoid structural failure. The ladder should be the appropriate type and be made of the appropriate material for the task.

- Insufficient ladder inspection. Ladder integrity should be evaluated prior to each use. Defective ladders or step stools should be removed from use.

- Improper ladder use. Overreaching, carrying objects, applying excessive force, slips, and missteps. Maintain awareness of position on the ladder/step stool when nearing the ground to avoid stepping off before being at ground level, a frequent causes of ladder/step stool fall injuries.

- Lack of access to ladder safety tools and information. Take training on safe use of portable ladders and step stools.

Training/information to decrease the likelihood of injury from all the items noted above is available through the EHS web-based training portal or through the American Ladder Institute. To assist workers using ladders,

NIOSH (National Institute for Occupational Safety and Health) has developed a free mobile application designed to improve extension and step ladder safety.

Finally, here a few general tips:

- Stay off a ladder if feeling tired or dizzy.
- Don't use ladders during storms or high winds.
- Wear slip-resistant shoes to climb a ladder.

If you use a ladder or a step stool, review the resources provided to ensure that you do not become a "statistic."

Resources

- *Falls in the Workplace: Ladder Safety Mobile App | NIOSH | CDC*. (n.d.). https://www.cdc.gov/niosh/topics/falls/mobileapp.html
- *Ladder safety: The basics*. (2021, February 26). 2021-02-21 | Safety+Health. https://www.safetyandhealthmagazine.com/articles/20871-ladder-safety-the-basics?utm_source=march1st
- American Ladder Safety Institute http://www.americanladderinstitute.org/
- National Ladder Safety Month https://www.laddersafetymonth.com/
- EHS **Ladder Safety** SOP https://ehs.unl.edu/sop/s-ladder.pdf
- EHS **Portable Ladder Safety** Web-Based Training https://ehs.unl.edu/web-based-training#PortableLadder
- Ladder & Step Stool Safety for Everyone (October 2018 colloquium) https://ehs.unl.edu/training/Colloquium
- **Ladder and Step Stool Safety** (Keenan solutions video, 3.05 minutes) https://www.youtube.com/watch?v=XYNkLA3qhyY

4. Safety Spotlight – Compressed Gas Cylinder Restraint

EHS is shining a "spotlight" on the top 10 safety and compliance deficiencies in 2023. Review the November 2023 – January 2024 listserv issues If you missed earlier Spotlight articles or wish to review. In this issue the spotlight shines on compressed gas cylinders.

Compressed gas cylinders can weigh a considerable amount and the release of their contents poses significant risks. The University of Nebraska-Lincoln's Environmental Health and Safety (UNL EHS) has

developed a Safe Operating Procedure to mitigate dangers and risks related to compressed gas cylinders, including use and storage.

Appropriately restraining a compressed gas cylinder prevents accidental cylinder falls, tips, or rolls. Proper restraint also maintains the organized storage of cylinders in designated areas, ensuring accessibility while minimizing potential risks. Following are best practices for restraining compressed gas cylinders:

Selection of Appropriate Restraints: Choose a restraint material that is strong, durable, and appropriate for the size and weight of the cylinder. All UNL areas with compressed gas cylinders should use suitable restraints like chains, straps, or specialized cylinder brackets designed for specific cylinder sizes and types. Avoid using zip ties and Velcro.

Securing to Fixed Structures: Attach the restraint to a fixed and immovable structure in the laboratory or workspace. This can include sturdy walls, benches, or dedicated cylinder racks designed for secure attachment. These points should be carefully chosen to prevent cylinders from tipping.

Optimal Restraint Placement: It is essential to properly secure cylinders at or slightly above the cylinder midpoint. This strategic placement mitigates the risk of cylinders tipping over or sliding out from the bottom.

Resources

- EHS SOP **Gases Under Pressure Risks and Minimization** https://ehs.unl.edu/sop/s-gases_under_pressure_haz_risk_min.pdf
- *10 Tips for cylinder Safety - Compressed Gas Association*. (n.d.). Compressed Gas Association. https://www.cganet.com/10-tips-for-cylinder-safety/

5. Seat Belts Make a Difference

The National Highway Traffic Safety Administration (NHSTA) is dedicated to eliminating risky behaviors on our nation's roads. Research and data have shown that seat belts really do make the difference between life and death. According to the NHTSA, among drivers and front-seat passengers, seat belts reduce the risk of death by 45% and cut the risk of serious injury by 50%. In 2021, nearly 60% of back seat passengers who were killed in a

crash were unbuckled (based on known seat belt use) so seat belts should be used wherever you are sitting within the vehicle.

The consequences of not wearing, or improperly wearing, a seat belt:

- Not buckling up can result in being partially or totally ejected from the vehicle in a crash which is almost always deadly. Buckling up is the single most effective thing you can do to protect yourself from ejection in a vehicle crash.
- A crash can throw front seat vehicle occupants into a rapidly opening frontal air bag. Such force can seriously injure or even kill if the occupant is not buckled up. Air bags are not designed to replace seat belts.
- Improperly wearing a seat belt puts the wearer at risk in a crash.

Take the two quizzes on the NHTSA website, https://www.nhtsa.gov/vehicle-safety/seat-belts, "Myth vs. the Real Deal" and "What's Your Seat Belt IQ?" to test your knowledge on seat belt safety.

Wear seat belts wherever in the vehicle you are sitting and when using any form of road transportation, including for-hire rides such as taxis and rideshares. Buckling up is the single most effective way to protect yourself in a crash, whether the trip is long or short.

Resources

- *Seat Belts | NHTSA*. (n.d.). NHTSA. https://www.nhtsa.gov/vehicle-safety/seat-belts
- *Seat belts - Injury Facts*. (2023, April 28). Injury Facts. https://injuryfacts.nsc.org/motor-vehicle/occupant-protection/seat-belts/
- *Seat belts: Get the facts | Transportation Safety | Injury Center | CDC*. (n.d.). https://www.cdc.gov/transportationsafety/seatbelts/facts.html

6. Revised Safe Operating Procedures (SOPs)

The following SOPs have been updated:

- **Packaging and Shipping Hazardous Materials/Dangerous Goods** https://ehs.unl.edu/sop/s-ship_hazmat_dangerousgoods.pdf
  The list of Other Regulatory Considerations has been updated.

- **Gases Under Pressure Hazards and Risk Minimization**
  https://ehs.unl.edu/sop/s-gases_under_pressure_haz_risk_min.pdf
  Removed a reference that is no longer relevant.

ADOPT SAFETY AS YOUR ATTITUDE – DON'T LEARN BY ACCIDENT!

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