UC **Safety Spotlight**

A UC Systemwide Publication of the Environment, Health & Safety Leadership Council

August 2016

Lab Safety

YOU SHARED, WE LISTENED!

In August, the systemwide Laboratory Hazard Assessment Tool (known to many as LHAT) will have new user interface and improved email communications in regards to recertification of the assessment. The changes were made as a direct result of feedback UC Risk and Safety Solutions received from users, both from EH&S and from the researchers side. The changes include a more direct and intuitive interface, clearer instructions in the emails, and aggregation of reminder emails which results in less reminder emails a PI/ Delegate will receive. The changes will only apply to the campuses that are in using the systemwide LHAT. If you have any questions or have additional feedback on any of the UC Safety systems, please email erm@ucop.edu.

Are You Prepared for the Top 5 Laboratory Hazards?

Make sure workers are protected from the top hazards in the laboratory.

1. Fire/Explosions

In a laboratory, all chemicals and liquids should be treated as if they are as potent as gasoline. Vapors can travel long distances and may ignite if they reach a flame or spark. Be sure to keep a fire extinguisher on hand and ensure each individual in the laboratory knows its exact location to prevent fires from spreading. The appropriate personal protective equipment (PPE), like a flame-resistant (FR) lab coat, should also be worn.

2. Thermal and Chemical Burns

Many chemicals, both organic and inorganic, may be flammable or corrosive to the skin and eyes. It is important to exercise caution with chemicals to prevent spills and splashes. Additionally, the correct PPE always should be worn, such as lab coats that offer both FR properties and chemical-splash protection (CP).

3. Skin Absorption of Chemicals

Keeping chemicals away from direct contact with the skin is fundamental in laboratory safety. Even if chemicals are not corrosive, exposure can cause allergic reactions or other problems if absorbed by the skin.

Remember that gloves may be permeable to certain chemical reagents – even without visible deterioration – so trade out any gloves that have come into contact with such chemicals for a new pair immediately. Never touch your face or eyes until your hands are clean of all chemicals or solvents. As an extra precaution, wear a CP lab coat to prevent chemicals from wicking through fabric to the wearer.

4. Inhalation of Toxic Fumes

Many common solvents are extremely toxic if inhaled, and inhalation of certain chemicals can severely irritate membranes in the eyes, nose, throat and lungs. In order to reduce the potential for inhalation exposure in the laboratory, researchers should always work in a properly functioning laboratory fume hood and use good techniques. These techniques include keeping the hood free of excess storage and clutter, working at least 6" inside the hood, and keeping the fume hood sash at or below the safe operating level.

5. Cuts to the Skin

Cuts to the skin are one of the most common types of laboratory accidents. In severe cases, nerves and tendons may be severed. Often, these injuries occur as a result of attempting to force a cork or rubber stopper into a piece of glass tubing, thermometer or distilling flask.

To prevent this accident from occurring, workers should make a proper-sized hole, lubricate the cork or stopper, and use gentle pressure with rotation on the glass portion.

Smith, Sandy. "Are You Prepared for the Top 5 Laboratory Hazards?" EHS Today, 12 July 2016. Contributing edits by Brent Cooley.

HEALTHY WORKPLACES THROUGH GREEN LAB PROGRAMS

By Katie Maynard, LabRATS Co-Director, UCSB and Allen Doyle, Sustainability Manager UCD

Six UC Campuses (UCR, UCSB, UCSC, UCB, UCSF and UCD) have established green lab assessment programs in the past decade gaining the UC global recognition.

Campuses in six other states, as well as in Canada and Australia, have modeled their programs after our innovative best practices. These programs work with individual laboratories and researchers to reduce their impact on the environment while also improving safety and worker health, encouraging good laboratory management practices and promoting communication and resource sharing. Some examples of partnerships between green lab programs and environmental health and safety offices include:

- Fume Hood Sash Management
- Better Inventory Practices and Surplus Chemical Sharing Programs
- Reduced Toxicity and Micro-chemistry in Research and Teaching Labs
- Eliminating Risks in the Waste Stream through Sharps Collection
- Raising awareness of ergonomics
- Flood Reduction Efforts
- Predictive Failure Monitoring for Research Freezers
- Reliable, Low Energy and Water Sterilizers

Green laboratory assessment programs collect best practices, share information, and assess areas of improvement for the environment, sustainability and safety. By creating opportunities for recognition and friendly competition (to get the highest level of certification), these programs can bring new attention and excitement to safety policies and best practices. Search for "Green Labs Planning Google Group" to join the Green Labs Listserve!

UC LOTO app - A Research Tool to Develop Energy Safety SOPs

By Jim Gilson, PE, CPCC, OWSI, Senior Safety Engineer, UC Berkeley / Center of Excellence, Safety Engineering, UCOP EH&S

Did you know that more than 200 people a year die from an unexpected energy release by machinery, or a piece of equipment that unexpectedly moves or releases stored energy while they're working on it? All equipment operates on one or more kinds of energy. The most common are electrical, compressed air, water and steam. But often there are other energy sources such as extreme heat or cold, stored energy, counter-weights, hydraulics, moving parts, convective air or equipment that can roll on a slope. Uncontrolled energy hazards can cause equipment to move or behave in some unsafe manner if the energy sources are not controlled or removed. The process of controlling energy to make a machine "safe" to work on is called "Lock out Tag out" or LOTO. And, when applied to facility utilities and the equipment they supply energy to, physical locks must be applied to switches, valves and other energy-isolation devices by workers to ensure their safety when working on the equipment.

CalOSHA requires that every employer identify equipment that operates on, or stores, more than one kind of energy source. The employer must then provide a "standard operating procedure" (SOP) for each piece of equipment that describes what the energy sources are on the equipment, and where they need to be "locked out" in order to prevent the energy from unexpectedly starting the equipment when it's being worked on. This procedure is called a "LOTO Procedure" and it contains equipment-specific information guiding someone to quickly find and control energy, install locks if necessary, and ensure all energy hazards are at "zero" and will stay at "zero" while they work on the equipment.

In the past, developing a LOTO procedure was a cumbersome paper process. But now, the UC LOTO app is available to develop LOTO procedures in real-time in the field, or retrieve procedures that have already been developed, on any iOS (or soon Android) smart-phone or mobile device.

But, UC LOTO app has a second and very important function in research. We all know that research equipment often runs on many different kinds of energy. In addition, research equipment is often designed, built "in house", changed, improved and altered as the research and experiments are undertaken. As knowledge is learned, equipment is modified based upon new experimental need. The UC LOTO app provides a quick and easy tool for researchers to document their research equipment's piping, electrical systems, and other energy hazards using drop-down menus, photos and templates. The resulting procedures are available online to lab users and emergency responders. And, as the equipment is changed or modified, it's quick and easy to modify the procedure using a mobile device to keep it current to the real-world research equipment.

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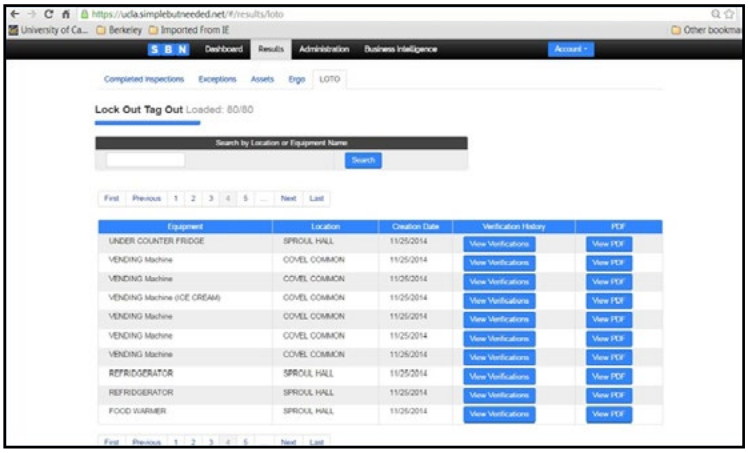

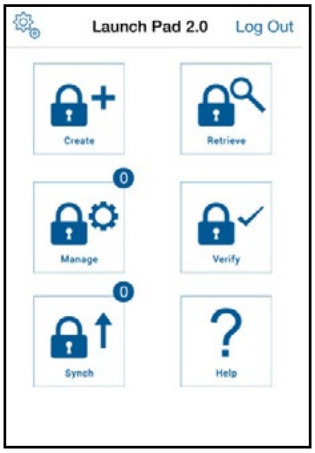

CONNECT

Know where to turn on your UC campus for the information you need to keep yourself, your workplace and your environment safe and secure. Click on the campus links below to connect to local program, educational and informational resources.

UC Berkeley	UC Merced	UC Santa Barbara
UC Davis	UC Riverside	UC Santa Cruz
UC Irvine	UC San Diego	UCOP
UCLA	UC San Francisco	UC ANR

Risk Summit 2016 Presents Spotlight Awards

As part of promoting our strategic objective of mitigating and managing risk to protect the University's resources, the Chief Risk Officer has established a recognition program to spotlight the achievements of our risk and safety professionals systemwide for exceptional projects and engagements that contribute to advancing our core mission.

Excellence is recognized in each of the following categories:

Innovation
Awarded to risk and safety professional(s) that developed successful and lasting strategies for minimizing the impact of risk to the University.

Collaboration
Awarded to risk and safety professional(s) for achievements that exemplify campus or system-wide collaboration.

Annually, awards for innovation and collaboration will be presented in five program areas.

- EH&S
- Employment Practices Liability
- General Liability/Auto
- Professional Liability
- Workers' Compensation

In addition to the Spotlight awards, there were 3 additional awards presented at Risk Summit:

- **Excellence in Emergency Management** - this is a peer award with the winner selected by the Emergency Managers.
  - Recipient: UC Riverside

- **EHS President's Award** - one for campus, one for med centers. These awards are presented to the locations with the lowest injury rate in the prior FY (2014-2015). Through 2014 this was a single award however due to the significant difference in operations (hospital versus campus), starting in 2015 campus compete only against other campuses and medical centers only against each other. UCI 1.1 recordable injuries/illnesses per 100 FTEs. UCSF injury rate 3.3 per 100 FTE's.
  - Recipient: (Campus) - UC Irvine
  - Recipient: (Health System) - UC San Francisco

2016 Spotlight Award Winners

LAB SAFETY RESOURCES:

Laboratory Safety Ergonomics for the Prevention of Musculo-skeletal Disorders

UCLA Laboratory Ergonomics

Risk Services Spotlight Awards

Risk & Safety Solutions - UC Safety Suite

UC Laboratory Safety Training Policy

UC Center for Laboratory Safety

AUGUST POSTER

Laboratory Ergonomics

UPCOMING EDITIONS

September: Safety Training
October: Fire Prevention
November: Preparedness
December/January: Family Safety & Security

FEEDBACK, PLEASE

Send an email to EHS@ucop.edu to submit your comments on the August issue or to suggest content ideas for future issues. We look forward to hearing from you!

Safety Spotlight is published at the beginning of each month except January and July. To subscribe and automatically receive editions upon publication, please email: sympa@ucdavis.edu and type in a body of the email: "SUBSCRIBE safetyspot". UC Safety Spotlight is published by UC Office of the President. To submit an article for consideration, please send it to ehs@ucop.edu. This publication is produced and maintained by the Communications Team at Risk & Safety Solutions.