

# Laboratory Safety Coordinator Spring Meeting 2011

Boston University  
Research Safety Group



# Outline

- Assigned Department Safety Advisors
- Incident Review
- Inspection Findings – 2 common concerns
- Spring Cleaning Guide
- New Personnel
- LSC Toolkit

# Laboratories at BUMC and Assigned Research Safety Specialists

- **Sonya Butler (srrahim@bu.edu)**
  - E- Evans Building
  - K- Conte Building
  - J- Building (609 Albany)
  - DOB (Doctor's Office Building)
- **Amanda Bush (ambush@bu.edu)**
  - S – Gilmore Vines
  - W - CABR
  - M – Fuller
  - Sargent College (CRC)
- **Aron Vinson (avinson@bu.edu)**
  - L – School of Medicine
  - R – Houseman Research
- **Adam Hartnett (ahartnet@bu.edu)**
  - 670 Albany Street
  - X – EBRC
  - 5 Cummington Street (CRC)

# Laboratories at CRC and Assigned Research Safety Specialists

- **Jenna Feldman (jrfeldma@bu.edu)**
  - 590 Commonwealth Ave.
  - 24 Cummington - LSEB
  - 2 Cummington St. Biology Labs
  - 3 Cummington St. (PRB)
  - 36 Cummington St.
- **Bill Kallinch (wkallin@bu.edu)**
  - 44 Cummington St
  - 48 Cummington St
  - 110 Cummington St
  - 730-750 Commonwealth Ave.
  - Photonics Building
  - 675-725 Commonwealth Ave.
  - 2 Cummington St. Psych Labs
- **Amanda Bush (ambush@bu.edu)**
  - Sargent College (635 Comm Ave)
  - 648 Beacon St
  - 605 Commonwealth Ave -SED
- **Adam Hartnett (ahartnet@bu.edu)**
  - 5 Cummington St

# LAB INCIDENT REVIEW

# Laboratory Incidents since 11/2010



- **Acetic acid spill-(900mL)**

*Root Cause-* not aware of surroundings

*Prevention-*Preplanning, **be aware of your surroundings**, paths, and potential for incident.

- **UV light to the eyes- Handheld UV light-**

*Root Cause* -Device was left on and reflected into the eyes of the lab member currently occupying the bench. This was not realized until later...much like a sun burn.

*Prevention-* Work practice change, **check UV Protection of Safety Glasses!**

- **Paracetic acid smell-**

*Root Cause-*This was the result of broken equipment causing the disinfectant to leak from the container.

*Result-* EHS cleaned with full PPE protection, update Inventory to prevent expired items from rupturing container!

*Prevention-* **Maintain your chemical inventory, regular inspection of containers.**

# Incidents Continued



- **Allergic Reaction**

*Root cause-* Personal Protective Equipment not correctly worn

*Result -* severe swelling, emergency room treatment

*Prevention -* modify handling methods during certain higher risk procedures requiring personal protective equipment

- **Eye Splash- acid**

*Root Cause-* Removal of PPE, not proper PPE for the task

*Result-* Small burn to the cornea resulted, user flushed eyes with eye wash. Was assisted to medical treatment. *Results-* Change of procedures to ensure glasses are on at all time, evaluated PPE and found PPE to fit the user...While PPE may serve the same function, its function is limited by the user.

*Prevention-* Proper PPE use, proper procedures.

*All incidents that involved user injury were reported to ROHP*

As we can see the diversity of these incidents are as diverse as the groups we have, all have different actions towards prevention. Lets look at our steps involved with each process! And let us know if we need to conduct a hazard analysis.

# Steps Taken Since Our Last Meeting

- Compiled our **most common inspection findings**
  - Created hand outs, updated the lab safe news letter to assist us with our communication of these issues.
- Increased **hands on trainings** for laboratories
  - Biological Safety Cabinet, Glo Germ, Fume Hood, Centrifuge!
  - See us after if you are interested for your laboratory!
- Lab safety training **refresher** has gone **online**
- Lab Safety Coordinator **tool kit!**
- Increased **communications** to the laboratories!



Eyewash Flushing and Hazardous Waste Management

# **YOUR TWO MOST COMMON INSPECTION FINDINGS**

# Inspections



- Over 300 inspections for Biological Safety completed
- Completing this round of inspections on Controlled Substances
- Common trends
  - Eye washes obstructed, not being flushed
  - Hazardous waste labels not checked for hazards or improperly labeled

# Eye Washes

- Eye washes should be flushed *weekly*
- This ensures
  - Proper function
  - Not obstructed
  - Fresh water!!!
- There may be circumstances which limit you from checking these weekly
  - Not plumbed
  - Difficult to catch water



We'd like to hear from you...do you flush your eyewash?  
Why or why not?

# Eye Washes

- Make sure you know where the water drains!
- A large tray may be needed to collect the water.
  - Let us know if you have these types
- Set a reoccurring reminder!
  - Outlook, cell phones, calendars.
- We will be conducting annual testing on the Charles River Campus
- Inform you Department Safety Advisor if any are not tagged, or not tested.

# What is a Hazardous Waste?

*Is a chemical waste that is;*

*“that is dangerous or potentially harmful to our health or the environment. Hazardous wastes can be liquids, solids, gases, or sludges. They can be discarded commercial products, like cleaning fluids or pesticides, or the by-products of manufacturing processes.”*

- Environmental Protection Agency



# Hazardous Waste Determination

- Hazardous waste determination is crucial in the hazardous waste management system.
- Correctly determining whether a waste meets the Resource Conservation and Recovery Act (RCRA) definition of hazardous waste is essential to determining how the waste must be managed.
- The waste generator has responsibility for determining if a waste is a RCRA hazardous waste.



# IGNITABLE



- A waste is ***ignitable*** if it is a liquid and its flash point is less than 140o F (60o C).
- A waste also may be defined as ignitable if it is
  - an oxidizer
  - an ignitable compressed gas as defined by the U.S. Department of Transportation (DOT)
  - if it has the potential to ignite under standard temperature and pressure and burn persistently and vigorously once ignited
- Examples: Alcohols, solvents, stains and mixtures containing these materials.

# CORROSIVE



- Corrosive wastes are acids or bases (pH less than or equal to 2, or greater than or equal to 12.5) that are liquid and corrode steel at a rate of more than 0.25 inches per year under conditions specified in EPA Test Method 1110.
- Examples of corrosive wastes include hydrochloric acid, and sodium hydroxide solutions.



# REACTIVE



- Wastes that exhibit reactivity are those which explode, produce fumes, gases, and vapors when mixed with water or under other conditions such as heat or pressure. "normal" conditions.
- Examples of reactive wastes include certain cyanide or sulfide-bearing wastes, alkali metals, silanes, azide compounds

# Toxic



- The most common 8 toxic compounds are referred to as the RCRA (Resource Conservation and Recovery Act) 8.
  - Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver;
  - as well as multiple organic substances and halogenated organics
  - P List: The P-list is for 'acutely hazardous' chemical wastes. It is important because if a chemical is on the
    - P-list both the waste chemical AND the empty container must be collected as hazardous waste.
    - Some common examples of P-listed wastes are: sodium azide, acrolein, oxides of arsenic, benzyl chloride,
  - Oil, vacuum pump oil
  - Check your MSDS if you are unsure.

# Hazardous Waste Labeling

Proper Hazardous waste Management is important to protect the environment and avoid costly penalties

- **When** should you Label?
  - Any and all containers in the **Satellite Accumulation Area**
  - Empty Containers should be moved to another location (such as virgin chemicals and working solutions)
- **Which** Label should you use?
  - EHS will supply labels: Either **call** us or request labels and other waste supplies (such as Ethidium Bromide buckets) on the **Hazardous Waste Pickup Request** website
- **Where** should the labels be applied?
  - Labels should be on the **side** of the container
  - Labels should be **visible** without having to move bottles around

**HAZARDOUS WASTE**  
Contents: **Hydrochloric Acid**  
1. \_\_\_\_\_ %  
2. \_\_\_\_\_ %  
3. \_\_\_\_\_ %  
4. \_\_\_\_\_ %  
5. \_\_\_\_\_ %  
6. \_\_\_\_\_ %  
Hazard(s):  Ignitable  Reactive  
 Corrosive  Toxic  
Date Container Full: **12/12/04**



# Hazardous Waste Labeling

- Filling out the Label: 4 things to do

*With Penalties up to \$27,500 per violation, it makes sense to get this done exactly how the letter of the law states!*

- **The words “Hazardous Waste”**

- Already on the label – This one’s easy!!

- **Contents**

- The chemicals inside the container must be listed.
- Use complete chemical names -> Do not abbreviate or use formulas
- Consults MSDS if chemical is referred to by trade name

- **Statement of Hazard**

- The hazard classes) of the chemical (s) you are collecting must be indicated by checking or x-ing the appropriate box

- **Date the container becomes FULL:**

- When the container will not safely hold any more waste, or if you will not be generating any more waste, write the date on the label.

**HAZARDOUS WASTE**

Contents:

1.	_____	%	_____
2.	_____	%	_____
3.	_____	%	_____
4.	_____	%	_____
5.	_____	%	_____
6.	_____	%	_____

Hazard(s):  Ignitable     Reactive  
 Corrosive     Toxic

Bldg — Rm#	

Date Container Full: \_\_\_\_/\_\_\_\_/\_\_\_\_

# Hazardous Waste Labeling (Example 1)

- Waste Stream of Sodium Cyanide Solution

<b>HAZARDOUS WASTE</b>	
Contents:	
1. Sodium Cyanide	% _____
2. _____	% _____
3. _____	% _____
4. _____	% _____
5. _____	% _____
6. _____	% _____
Hazard(s):	
<input type="checkbox"/> Ignitable	<input checked="" type="checkbox"/> Reactive
<input type="checkbox"/> Corrosive	<input checked="" type="checkbox"/> Toxic
Date Container Full: _____/_____/_____	Bldg — Rm#

# Hazardous Waste Labeling (Example 2)

- Waste Stream containing Methanol and Potassium Permanganate

HAZARDOUS WASTE	
Contents:	
1. Methanol	% _____
2. Potassium Permanganate	% _____
3. _____	% _____
4. _____	% _____
5. _____	% _____
6. _____	% _____
Hazard(s):	<input checked="" type="checkbox"/> Ignitable <input type="checkbox"/> Reactive
	<input type="checkbox"/> Corrosive <input checked="" type="checkbox"/> Toxic
Date Container Full: _____/_____/_____	Bldg — Rm#

- What's wrong?

**Make sure to request waste pickup online once container is dated!**



# Empty Containers

- What should be done with an empty container of ethanol?
  - Containers can be reused if they are compatible with the contents of the waste
  - Deface the bottle and mark “EMPTY”
  - Some lab areas have systems in place for removal of there glass ware
- What should be done with an empty container of Sodium Azide?
  - Kept as hazardous waste, it is highly toxic, if there are questions to the disposal of containers always contact EHS.

# SPRING CLEANING GUIDE



# Spring Cleaning!



- The shift in personnel, change in work may lead to some items left in the laboratory.
- Improper storage of equipment can become a safety hazard
- Improper cleaning of equipment can contaminate your work, and you, and anyone else that may come in contact with it.
- That computer you took parts out of...is it still in the corner?
- That project that someone was working on at some time for some reason, still set up?...contain chemicals?



# Spring Cleaning!- Electronic Waste

- **Electronic Waste-** such as computer monitors, CPUs, fax machines and printers, can be recycled. Some components of these materials are toxic to the environment, and many others are valuable and can be reclaimed.
- **Medical Campus-** Ask a member of our custodial staff to remove these for you.
- **Boston Medical Center-** The Information Technology Department collects all old computer equipment for recycling. Non-computer-related electronics should be through your area custodian.
- **Charles River Campus-** For individual items, email the trucking department at [rotoole@bu.edu](mailto:rotoole@bu.edu). If multiple pieces are to be picked up, accumulate it all in an area and go through your department to fill out a requisition with Facilities Management, Care Of the Trucking Department. Furniture can be managed the same way.



# Spring Cleaning – Lab Equipment



- Contact EHS prior to inform that you will be doing this
- This allows us time to prepare as well!
- Information regarding equipment decon can be found in your previous LSC Folder.
- Some equipment may be able to be donated to City Lab or to EHS for training purpose
- Follow our Decontamination and Decommissioning Plan
  - <http://www.bu.edu/ehs/programs/laboratory-safety/laboratory-decontamination-and-decomissioning/>

# Spring Cleaning- General Items



- Laboratories should not be storage areas.
- No bikes in hallways, labs, or stairways
- Combustible materials - books, journals, boxes
- Sprinkler heads need 18 inches of clearance
- 36" of egress through the lab
- Remember to recycle when possible. For recycling information and bike storage maps visit <http://www.bu.edu/sustainability/>

# Spring Cleaning- Chemicals



- Your most recent inventory can be found in your Chemical Safety Log Book and in your laborator
- Evaluate your stock
- Organize your stock
  - Chemical Segregation Chart
- Talk to your neighbors
- This can be updated electronically on [www.bu.edu/rims](http://www.bu.edu/rims).
- Requests for removals can be made on [www.bu.edu/ehs](http://www.bu.edu/ehs)
- **Will be a focus of the next inspection!**

# NEW PERSONNEL



# Seasons Change and so do Lab Staff!

*All information in this section will be available in the **LSC Toolkit** as a checklist with enabled links!*

# Seasons Change and so do Lab Staff!

- New Lab Members
  - Could be arriving between now and September.
  - Either you or your PI should add them to **RIMS** personnel list.
  - They should be added to any applicable **protocols/permits** as well
    - (IBC, IACUC, Solvent Dispensing, High Hazard Chemicals, etc)



# Seasons Change and so do Lab Staff!

- New Lab Members
  - Make sure they attend required **trainings**
    - Lab Safety Training, LASC Orientation, Radiation/Laser Safety Training etc.
    - Some of these may be organized (i.e. annual GMS training)
  - Make sure that they have filled out the Initial Health Questionnaire through **ROHP**.

# New Lab Personnel

- We have made guides for personnel entering and exiting the lab
- Share these with your P.I.!

## New Lab Personnel

### Getting Started

This section will provide the Lab Safety Coordinator with tools and information to help onboard and train new laboratory personnel.

- [Administrative Items](#)
- [ORC and EHS Classes](#)
- [Lab-Specific Training](#)
- [Return to LSC Toolkit Home](#)

Need to take some notes? The [New Lab Personnel Guide](#)  is a PDF version of the information below.



# Seasons Change and so do Lab Staff!

- New Lab Members – **Lab Specific Training**
- New members need to know the “lay of the land”
  - Locations of safety equipment
    - Showers
    - Eyewashes
    - Fire Extinguishers
    - Spill Containment (Lab Safety Kit)
  - Locations of Standard Operating Procedures
    - Biological Log Book
    - Chemical Safety Logbook

# Seasons Change and so do Lab Staff!

- New Lab Members – Summer Students
  - Many laboratories have students that work in the lab through out the summer. Some summer students may receive lab safety training through their program. Check with your students or EHS
    - UROP
    - Summer Challenge
    - SURF
  - Though their work may not be hazardous – they still need to attend trainings and be added to applicable protocols.
  - If high school students under 18 are to work in your lab contact EHS for the application
    - Includes parental consent form.
    - BMC-HR also needs to be informed if applicable.

# Seasons Change and so do Lab Staff!

- Will members of your lab be leaving due to graduation?
  - Members that are leaving should be removed from applicable protocols such as IBC and IACUC
  - Members should be removed from **RIMS** lab roster as well.



# Passing the L.S.C Torch

- First, EHS would like to thank those who have served in the role for their respective laboratories.
- Talk with your Principal Investigator and lab group to find a replacement.
  - Choose someone responsible
  - Choose someone eager to learn more about safety
  - Choose someone who is planning on staying for at least a year
  - Get feedback from other lab members.

# Passing the LSC Torch

- Introduce your new LSC to your Department Safety Advisor!
  - Tell them we can assist in getting them up to speed as well.
- EHS information- will be needed for door placards and emergency contact information, etc.
- Show the new Lab Safety Coordinator: RIMS, ROHP, Lab Inspection Forms, Various Safety Logbooks, Lab Safety Toolkit etc.

# LSC TOOLKIT



# LSC –Tool Kit Website

- Why was this created?
- Streamline information
- One place to find all the documents that LSCs need
- These were questions or suggestions from our previous meeting.
- EHS compiled these suggestions and created the Lab Safety Coordinator Tool Kit
- Release target: **Summer 2011**

# Tool Kit

- Quick Navigation
- Access to:
  - Posters
  - Check lists
  - Hand outs
  - Other website pages
  - Important updates
  - Logbook Management Guide
  - Training Ideas
  - LSC Suggestion Box
  - Other items are in the works!



## Laboratory Safety Coordinator Toolkit – Test

### Welcome

The Boston University Laboratory Safety Coordinator (LSC) Program was initiated in Fall 2010. The primary goals of the program are to increase awareness, communication, and collaboration between the research community and the research safety team, and to ultimately promote a culture of safety and trust at Boston University. View the [Laboratory Safety Coordinator Power Point](#) given in Fall 2010.



This toolkit is meant to provide quick access to information, guidance, and helpful tips for Laboratory Safety Coordinators (LSCs). As the LSC program evolves, more content will be placed on this site.

### Quick Navigation:

- [Role & Responsibilities](#)
- [Log Book Management](#)
- [New Lab Personnel](#)
- [Lab Training Resources](#)
- [Learning from the Past](#)
- [Featured Lab](#)
- [Updates](#)
- [Directory](#)
- [LSC Suggestion Box](#)
- [Return to EHS Homepage](#)

# In Summary

- Review of Incidents – most accidents are preventable.
- Common Inspection Findings – let us know how we can help.
  - Eye washes
  - Waste determination & labeling
- Spring Cleaning- The Where, What and How – let's make this happen!
- New Members/Leaving Members/Passing the Torch – let us know what else you need to make this easier.
- Coming Soon
  - Lab Safety Coordinator Tool Kit
  - Online training

# Questions, Comments, Suggestions, Discussion?

- We hope you will find these initiatives helpful
- Please know that we will continue to build our programs around what you tell us you need
- Keep up the communication