Spring Laboratory Safety Coordinator Meeting

March 2015

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Agenda for Spring 2015 LSC Meeting

- Agenda for the Meeting
- Risk-based Inspections and Lab Tiers
- EHS Social Media
- Incident Review: Flooding and other issues
- Lab and Equipment Decontamination
- Weekly Eyewash Flushing
- Update on Shipping Biologicals
- Highly Hazard Chemical Program and SOPs
- IACUC PAM
- Emergency Response Planning
- Hazardous Waste
- Break-out Sessions

Risk-based Lab Inspection Program

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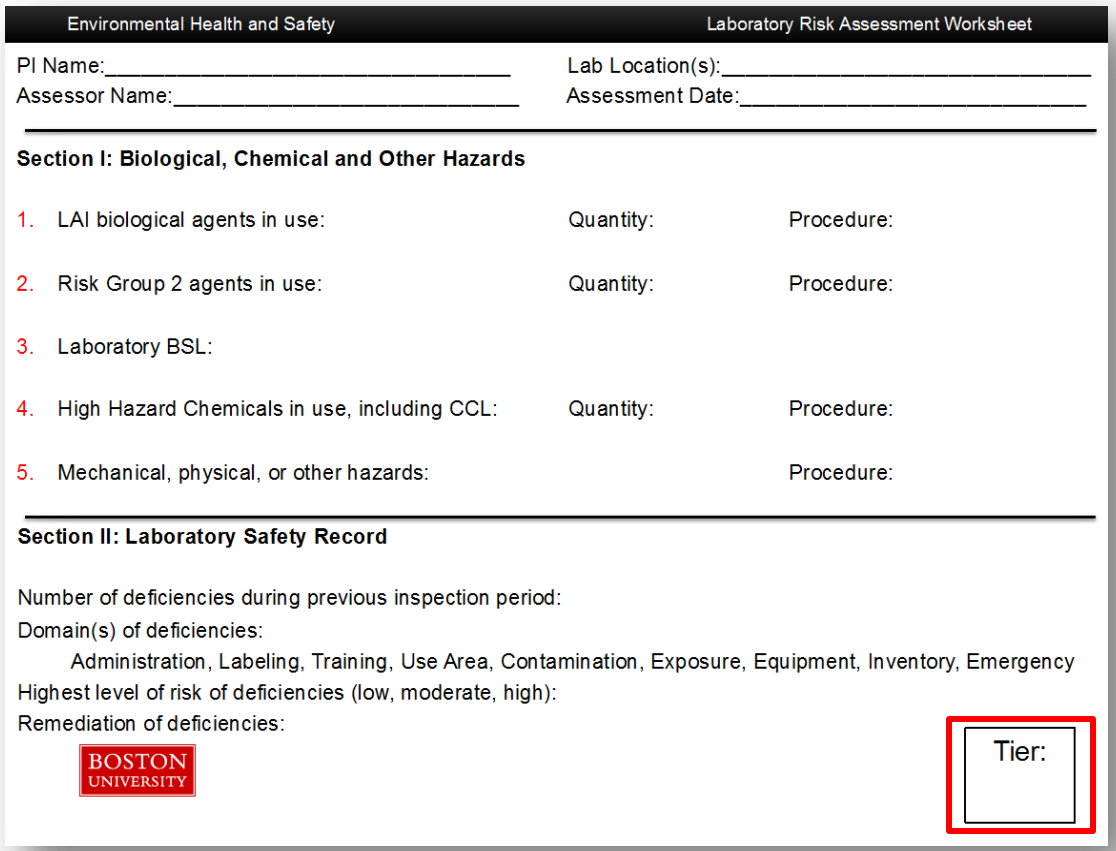
Risk-based Inspection Program

- Research Safety will perform and document a risk assessment for every laboratory
- This will lead to assignment to a tier



Environmental Health and Safety — Laboratory Risk Assessment Worksheet

PI Name:_____ Lab Location(s):_____

Assessor Name:_____ Assessment Date:_____

Section I: Biological, Chemical and Other Hazards

1. LAI biological agents in use: Quantity: Procedure:
2. Risk Group 2 agents in use: Quantity: Procedure:
3. Laboratory BSL:
4. High Hazard Chemicals in use, including CCL: Quantity: Procedure:
5. Mechanical, physical, or other hazards: Procedure:

Section II: Laboratory Safety Record

Number of deficiencies during previous inspection period:

Domain(s) of deficiencies:

Administration, Labeling, Training, Use Area, Contamination, Exposure, Equipment, Inventory, Emergency

Highest level of risk of deficiencies (low, moderate, high):

Remediation of deficiencies:

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Tier:

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Risk-based Inspection Program

- Tier 1 – Annual inspection
- Tier 2 – Semi-annual inspection (every 6 months)
- Tier 3 – Quarterly inspection

- Tier determinations may be modified in two ways. A laboratory may be designated as a higher tier by changes to research procedures concurrent with IBC approval, update of chemical inventory to include qualifying chemicals, or observation of deficiencies and compliance issues as noted by OEHS. A laboratory may be designated as a lower tier by changes to research procedures concurrent with IBC approval, update of chemical inventory to remove qualifying chemicals, or by two consecutive inspection cycles during which observed deficiencies and compliance issues are resolved and do not recur.

EHS Social Media

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EHS Facebook Page

Please Like us on Facebook

Incident Review and Decontamination Procedure

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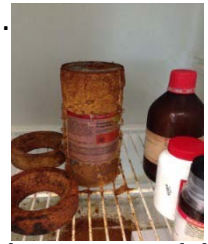
Incidents

- Flooding has occurred on the both campuses this winter.
  - A broken coil in an air handler leaked water and damaged several floors. In another incident a hot water pipe failed and flooded several floors.

  - Prior to being away from the laboratory due to expected severe weather use the Extended Leave Handout, http://www.bu.edu/orc/files/2013/04/Extended-Leave-Laboratories.pdf as a guide. When returning from school closures and extended leaves be sure to walk your laboratory space, including dark rooms.
- Improper storage of chemicals
  - Please do not store chemicals in original shipping packaging in refrigerators or cold rooms. Metal cans will rust and cardboard/Styrofoam attract mold.



- We had some incidents of minor lacerations. Many of these would have been ameliorated by the adherence to SOPs and hands-on training by more senior researchers.

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Lab and Equipment Decontamination

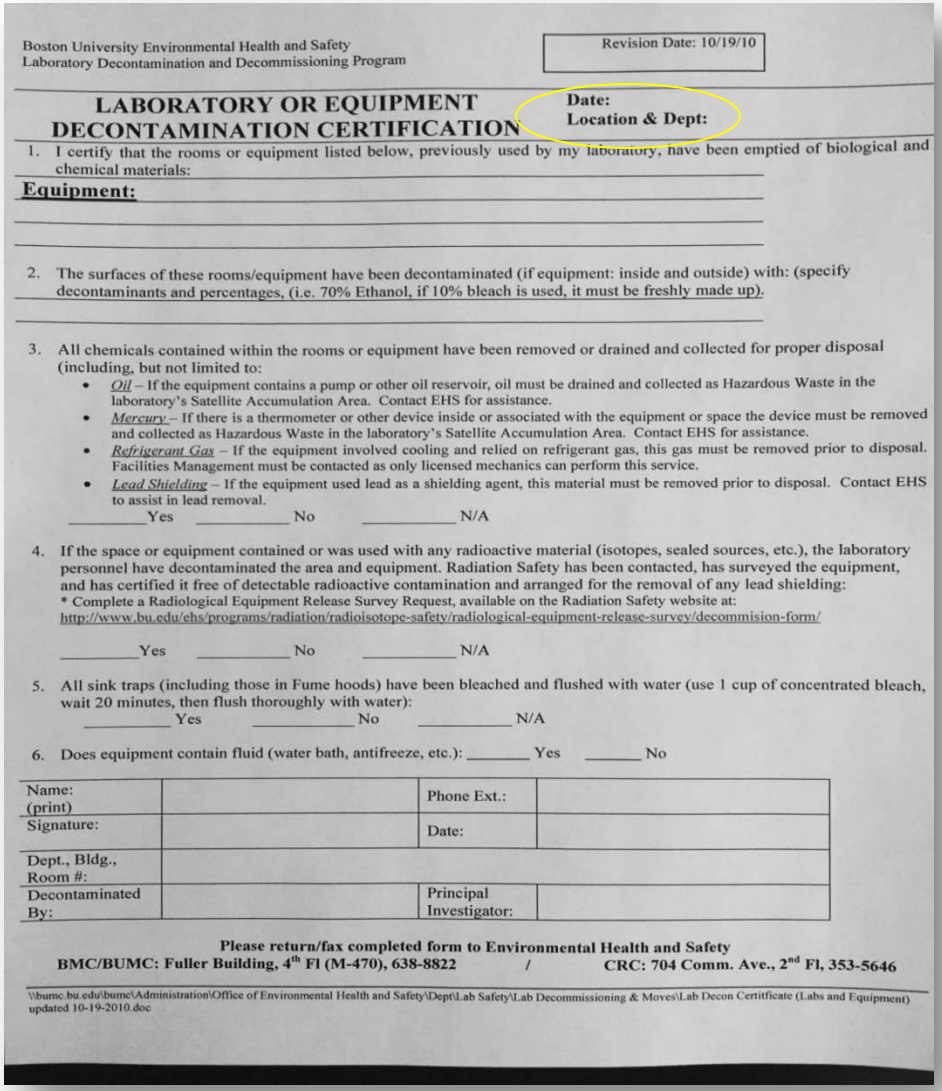
- www.bu.edu/ehs - Decontamination and Decommissioning of a Laboratory
- Fax, email the completed form, or call your Research Safety Specialist/Departmental Safety Advisor
- Submit a work order for discard via your department administrator including 15 day deadline for removal

Lab and Equipment Decontamination

- Find the form at:

http://www.bu.edu/orc/files/2013/06/EHS-Lab-Decon-Certitficate-Labs-and-Equipment-updated-10-19-2010.pdf

- Please fill out thoroughly, including the section circled which is often overlooked.
- List multiple items on one form if discarding several items.



Boston University Environmental Health and Safety
Laboratory Decontamination and Decommissioning Program

Revision Date: 10/19/10

LABORATORY OR EQUIPMENT DECONTAMINATION CERTIFICATION

Date:
Location & Dept:

1. I certify that the rooms or equipment listed below, previously used by my laboratory, have been emptied of biological and chemical materials:

Equipment:

2. The surfaces of these rooms/equipment have been decontaminated (if equipment: inside and outside) with: (specify decontaminants and percentages, (i.e. 70% Ethanol, if 10% bleach is used, it must be freshly made up).

3. All chemicals contained within the rooms or equipment have been removed or drained and collected for proper disposal (including, but not limited to:
   - *Oil* – If the equipment contains a pump or other oil reservoir, oil must be drained and collected as Hazardous Waste in the laboratory's Satellite Accumulation Area. Contact EHS for assistance.
   - *Mercury* – If there is a thermometer or other device inside or associated with the equipment or space the device must be removed and collected as Hazardous Waste in the laboratory's Satellite Accumulation Area. Contact EHS for assistance.
   - *Refrigerant Gas* – If the equipment involved cooling and relied on refrigerant gas, this gas must be removed prior to disposal. Facilities Management must be contacted as only licensed mechanics can perform this service.
   - *Lead Shielding* – If the equipment used lead as a shielding agent, this material must be removed prior to disposal. Contact EHS to assist in lead removal.

_____Yes _____No _____N/A

4. If the space or equipment contained or was used with any radioactive material (isotopes, sealed sources, etc.), the laboratory personnel have decontaminated the area and equipment. Radiation Safety has been contacted, has surveyed the equipment, and has certified it free of detectable radioactive contamination and arranged for the removal of any lead shielding:
   * Complete a Radiological Equipment Release Survey Request, available on the Radiation Safety website at:
   http://www.bu.edu/ehs/programs/radiation/radioisotope-safety/radiological-equipment-release-survey/decommision-form/

_____Yes _____No _____N/A

5. All sink traps (including those in Fume hoods) have been bleached and flushed with water (use 1 cup of concentrated bleach, wait 20 minutes, then flush thoroughly with water):
_____Yes _____No _____N/A

6. Does equipment contain fluid (water bath, antifreeze, etc.): _____ Yes _____ No

Name: (print)		Phone Ext.:	
Signature:		Date:	
Dept., Bldg., Room #:			
Decontaminated By:		Principal Investigator:	

Please return/fax completed form to Environmental Health and Safety
BMC/BUMC: Fuller Building, 4th Fl (M-470), 638-8822 / CRC: 704 Comm. Ave., 2nd Fl, 353-5646

\\bumc.bu.edu\bumc\Administration\Office of Environmental Health and Safety\Dept\Lab Safety\Lab Decommissioning & Moves\Lab Decon Certitficate (Labs and Equipment) updated 10-19-2010.doc

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Lab and Equipment Decontamination

Remember: Once EHS has placed the green sticker on a item for removal you only have 15 days for Facilities to remove based on the Record Date(red arrow). Please contact your departmental administrator and have the work order submitted on the same day as the item is stickered.

BU / BMC DECONTAMINATION RECORD

(Expires 15 days after record date)

Principal Investigator: _____ **Department:** _____

Location: _____ **Phone#** _____ **Record Date:** _____

Name of Equipment: _____ **Decontaminated by:** _____

This piece of equipment was used with the following:

_ No hazardous materials

_ Biologicals: Decontaminated with: _____ **By:** _____

_ Chemicals: Decontaminated with: _____ **By:** _____

_ Radioactivity: Released by RPO: Name _____ **Date:** _____

All hazardous components of the equipment have been removed Yes: _ No: _

Is equipment safe for removal: Yes: _ No: _ EHS: _____

Weekly Eyewash Flushing

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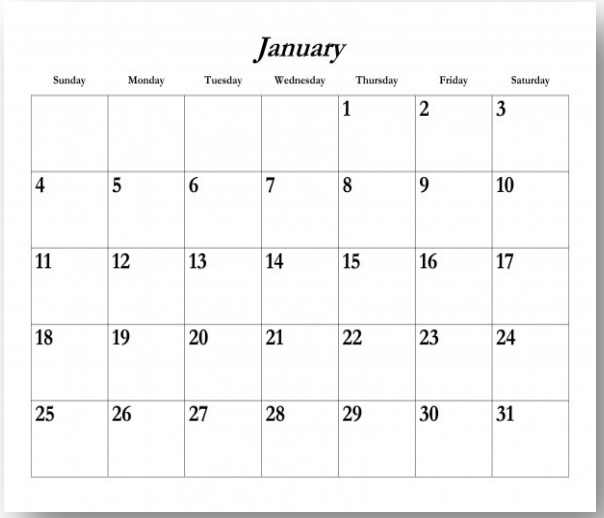
Eyewash Flushing

- To ensure a properly functioning station with clean water in the event of an emergency.
- Easily identifiable and unobstructed.
- Allow the eyewash station to run for 1-3 minutes to flush stagnant water.
- Report malfunctioning unit to Facilities Management.
- Tools: bucket, towels, calendar



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Eyewash Flushing

- 1200 stations
- 3 types of eyewashes
  - Eye/face washes or safety stations
  - Eyewash/drench hose units
  - Wall mounted pull stations
- ANSI/ISEA Z358.1
  - Activate eyewash weekly (section 5.5.2)
  - Inspect annually for compliance with standard (section 5.5.5)

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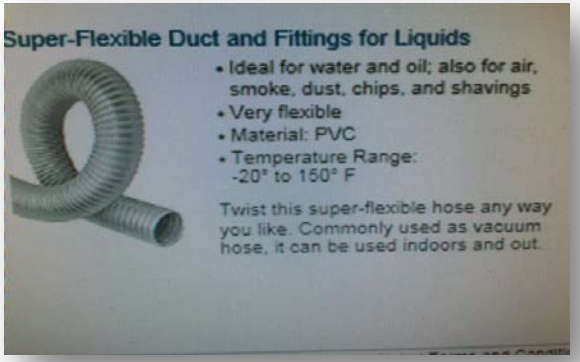
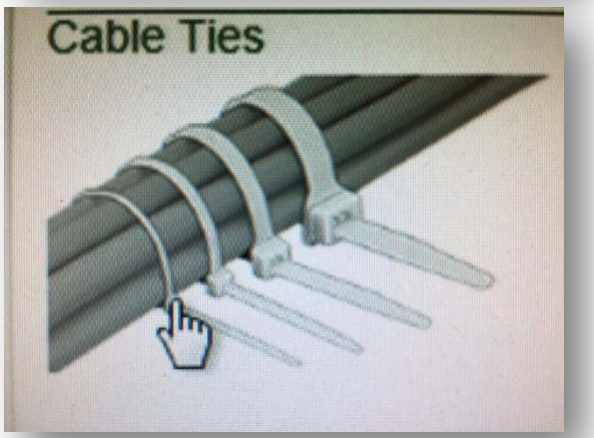
Eyewash Flushing

- Hoses: http://www.mcmaster.com
  - 5500K33, $3.86 per foot
- Zip ties: http://www.mcmaster.com
  - 7130K103, $3.40 per 50 pack





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Update on Shipping Biological Materials

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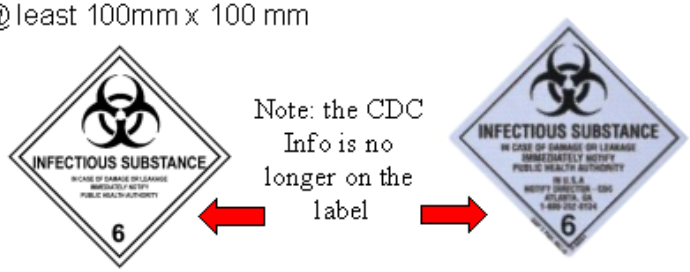
Shipping Updates

New Labels

Category A Label

@least 100mm x 100 mm



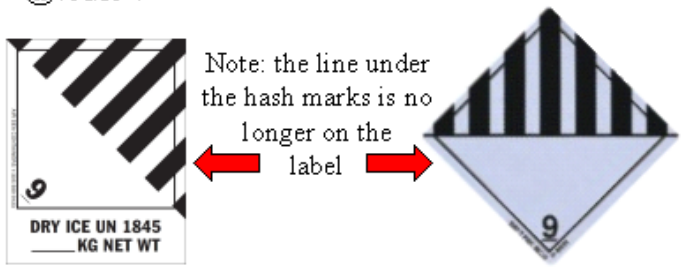
Must used now or after October 1, 2014

Only allowed until October 1, 2014!

Label can be halved for smaller packages

Class 9 Label for Dry Ice

@least 4"



Must used now or after October 1, 2014

Only allowed until October 1, 2014!

Available through EHS!

Highly Hazardous Chemical Program and SOPs

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Highly Hazardous Chemicals Program

- EHS in conjunction with the Laboratory Safety Committees have identified certain chemicals as high hazard chemicals (HHC). http://www.bu.edu/orc/policies-procedures/environmental-health-safety/high-hazard-chemicals/
- Explosives, flammable gases, self-reactive substances, pyrophoric liquids and solids, acute toxicity, carcinogens, reproductive toxicants
- EHS and Laboratory Safety Committees will develop institutional SOPs with specific procedures to handle and store the Highly Hazardous Chemicals

HHC - Standard Operating Procedure

- SOP template includes information for general safety precautions for handling and storage, disposal and emergency procedure.
- Lab personnel should review the SOP, include the lab specific information and deviation from recommended practices in SOP template
- Submit the completed lab-specific SOP to EHS and Laboratory Safety Committees for review and approval
- Keep the approved lab-specific SOP in lab, use it as training tools for lab personnel, review and update when necessary

Standard Operating Procedure Example

Standard Operating Procedure for Highly Hazardous Chemicals: Pyrophoric and Water Reactive Reagents

1. Purpose and Scope

1.1. The purpose of this SOP is to identify general safety precautions for dealing with pyrophoric and water reactive reagents, and these should be reviewed and adopted or enhanced as necessary by BU laboratories using these reagents.

1.2. This SOP applies to Principal Investigator (Enter name of PI)'s laboratory for pyrophoric and water reactive chemicals.

Principal Investigator:	Click here to enter text
Department:	Click here to enter text
Lab Safety Coordinator/Lab Manager:	Click here to enter text
Lab Phone:	Click here to enter text
Office Phone:	Click here to enter text
24-hour Emergency Contact:	Click here to enter text *(Name and Phone Number)*
Date SOP was written and approved by PI/lab supervisor:	Click here to enter a date
Date of last SOP revision by PI/lab supervisor:	Click here to enter a date

4. Procedures and Instructions

4.1. **Instructions to complete the SOP**

4.1.1. Include the lab-specific information in section 1.2.
4.1.2. Include the lab-specific protocol/procedures in section 4.
4.1.3. Review the SOP and approved by PI.
4.1.4. Attach Safety Data Sheet(s) for the chemical(s)
4.1.5. Submit the SOP to EHS/Lab Safety Committee for review and approval
4.1.6. Print a copy and insert into your Chemical Safety Logbook

4.2. **Laboratory-specific protocol and procedures**

Procedures:	Enter brief description of laboratory procedures
Quantity used:	Enter amount of chemical usage for typical procedures
Deviation from SOP:	Describe any deviation from the recommended practices in the SOP

Documentation of Training

Print this page (multiple copies as needed) and insert into your Chemical Safety Logbook, under the Personnel and User Certification section.

The laboratory personnel should attend the trainings, review this SOP and SDS, and sign in the training form. Signature of all users is required.

I have read and understand the content of the referenced SOP:

Name (please print)	Signature	Date

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IACUC PAM

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Post-Approval Monitoring (PAM)

- "Continuing IACUC oversight of animal activities is required by federal laws, regulations, and policies," according to the *Guide for the Care and Use of Laboratory Animals* (2011).
  - Continuing review of protocols.
  - Facility inspections.
  - Visits with the IACUC staff or members.
- The goal of PAM is to ensure that the high standards of animal welfare set at BU are maintained.
- This is a cooperative, collegial effort aimed to benefit the research.

Non-Compliance

- Non-compliance is when a protocol is:
  - Not kept active.
  - Not accurate.
  - Not followed.
- Failure to adhere to a protocol can result in suspension of activities, as mandated by federal regulations.
- Suspension of activity may result in suspension of funding or fines to the institution.

Semi-Annual Inspections

- The IACUC is required to perform inspections of all animal-use areas at least once every six months.
- Common problems to look for yourself:
  - Expired or unlabeled substances
  - Rust, chipped paint, unsealed surfaces
  - Incomplete or inaccurate records
- Institute regular self-inspections
- (IACUC HANDOUTS WILL BE AVAILABLE ON TOOL KIT)

Emergency Response Planning
Rhett Ready!

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Managing Emergencies Online Training

- An efficient emergency response relies on everyone to do their part. Everyone in the BU community should be familiar with basic emergency response, initial actions to take, and who to notify.

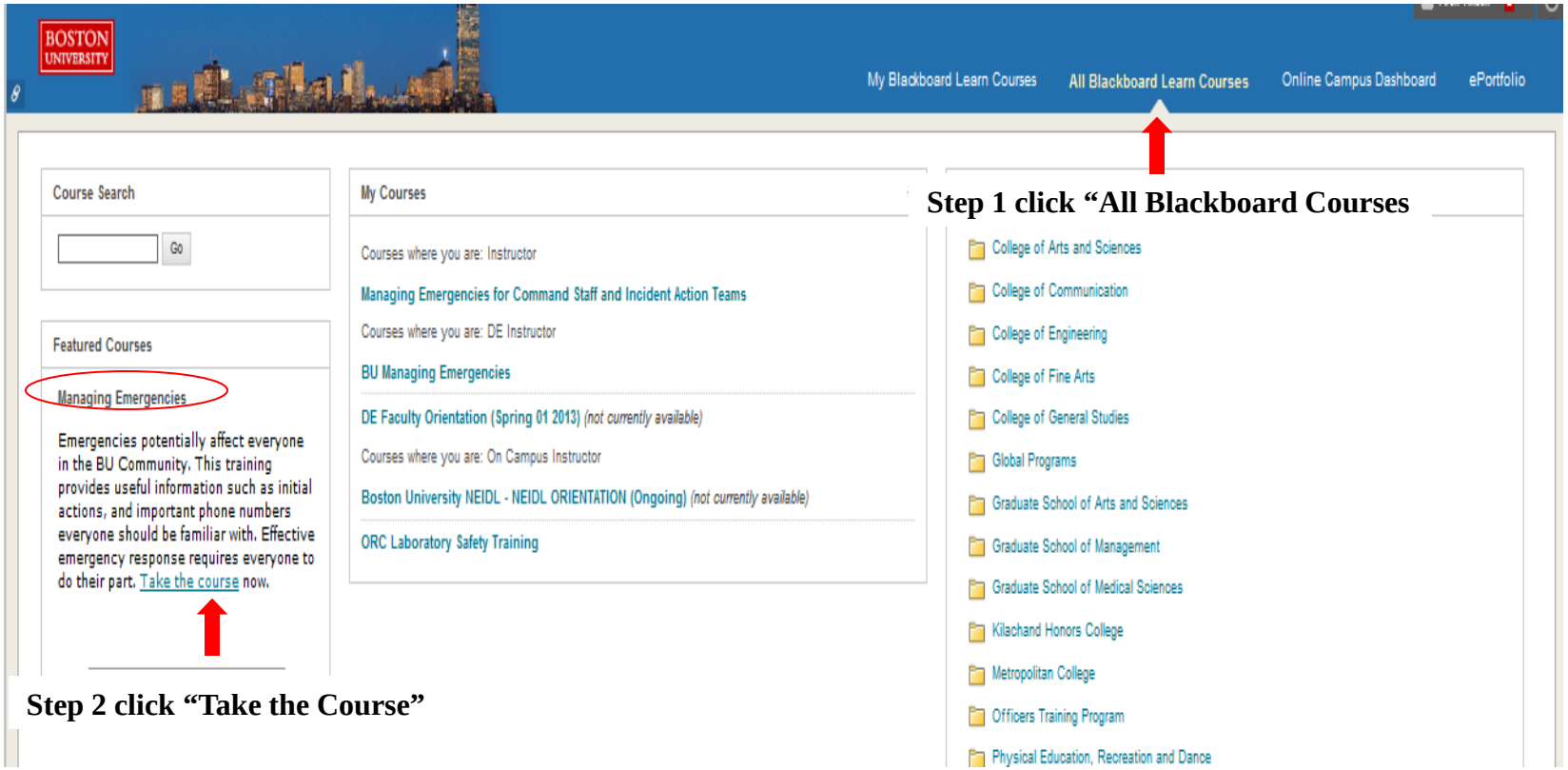
- Pertains to everyone in the BU community. Discusses each type of emergency you may encounter, initial actions, proper notifications, and other useful tools.

- Basic emergency response phases and actions are also outlined. There is a quiz at the end of the course that is required at the discretion of your supervisor

Accessing Training

- If you have access to any courses in Blackboard Learn you already have access to this course.
- Log in and click the "All Blackboard Courses" tab. Managing Emergencies is the featured course you will see in a box in the left upper corner of the screen.
- If you do not have a Blackboard Learn account please email ithelp@bu.edu to be enrolled.
  - See handout for more detailed instructions.
    - *http://www.bu.edu/orc/files/2013/04/Managing-Emergencies-Online-Training1.pdf*

Accessing The Training



Step 1 click "All Blackboard Courses

Step 2 click "Take the Course"

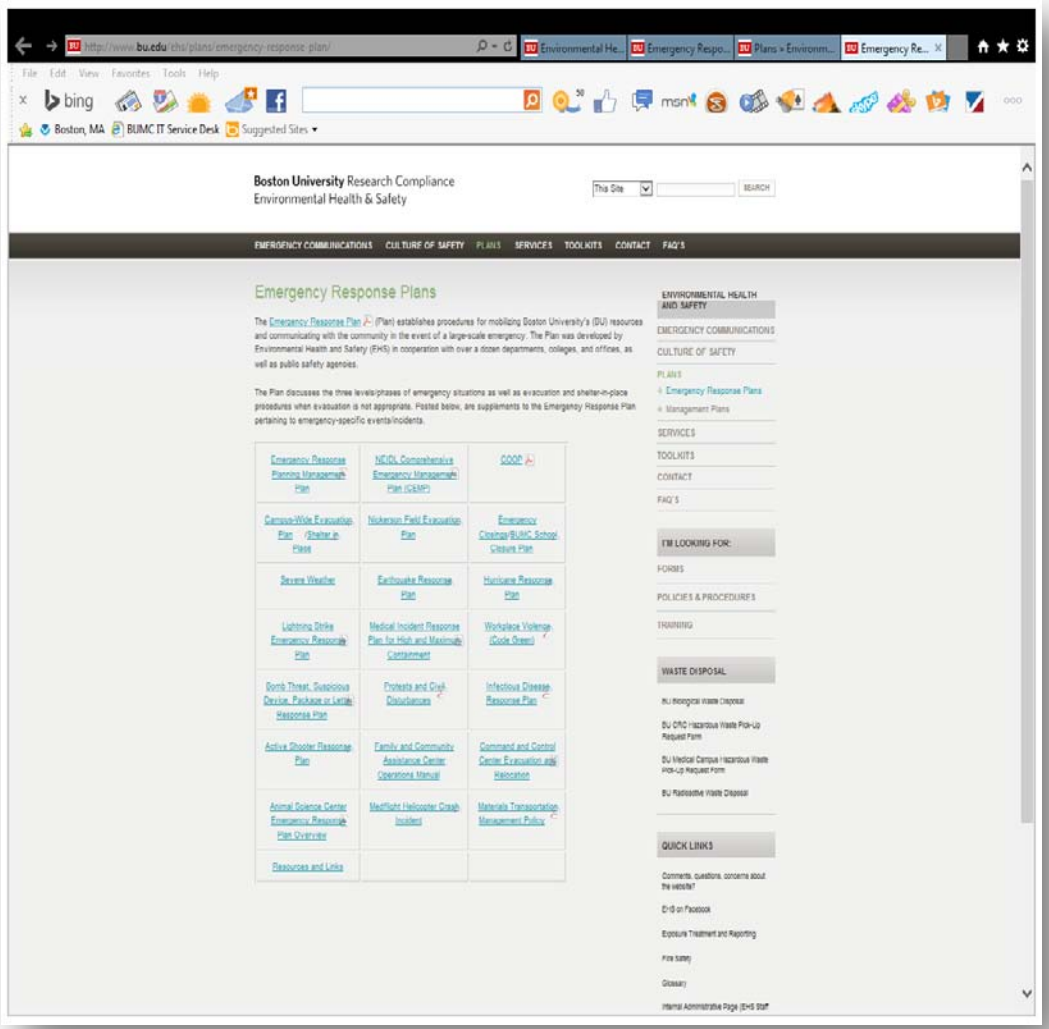
Emergency Response Plans

Examples

Emergency Response Plan

- Evacuation
- Shelter in Place
- Severe Weather
- Hurricane Response
- Workplace Violence
- Earthquake
- Emergency Closing

- http://www.bu.edu/ehs/plans/emergency-response-plan



Emergency Communications

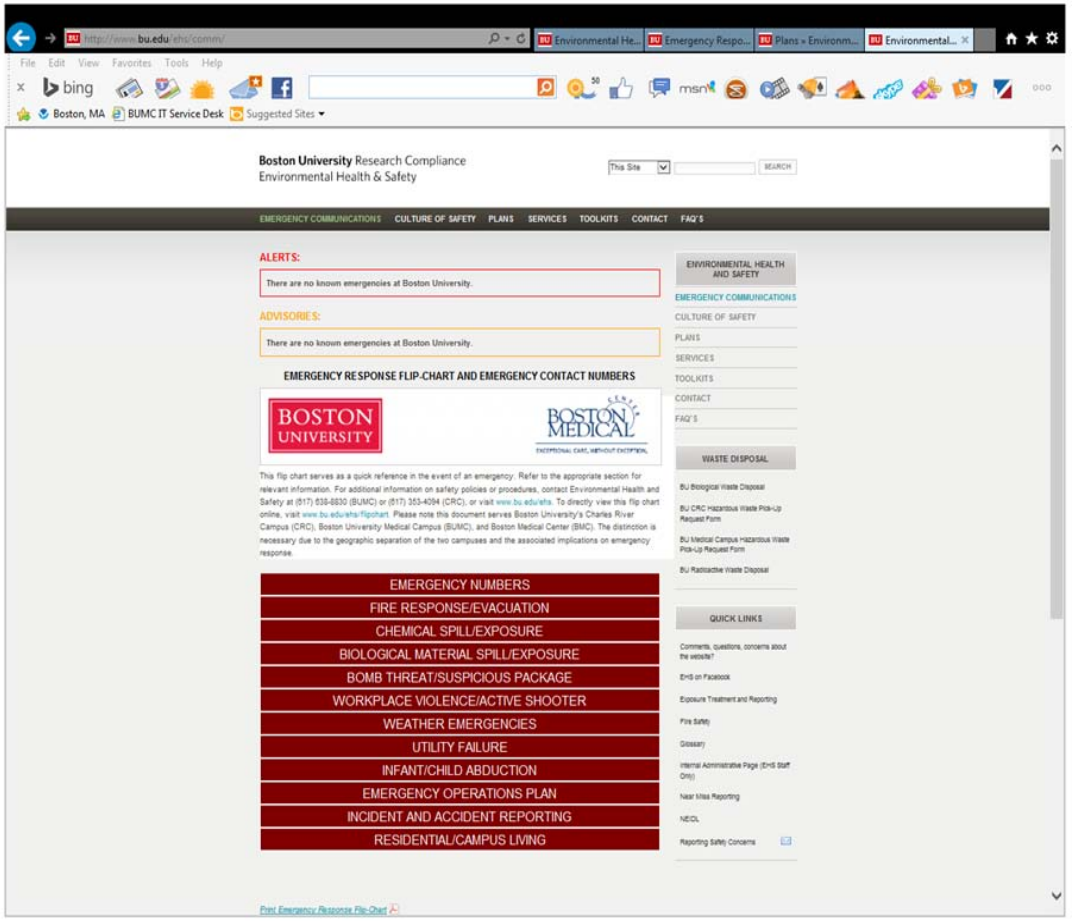
http://www.bu.edu/ehs/comm/

Alerts

Important alerts affecting the BU community. An example would be Emergency Closing

Advisories

Pending emergencies such as potential severe weather



Interactive Flip Chart for emergency contacts and information

Hazardous Waste

Lab Safety Coordinators Presentation

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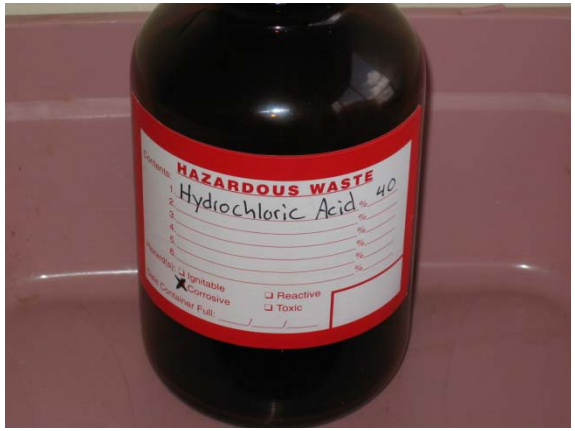
What are we talking about?

Chemical wastes: any chemical you have already used or will not use.



NOT:

- Useful chemicals
- Biologicals (unless mixed with chemicals)
- Radioactive materials (unless mixed with a chemical)

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Why do we care?

Because we care about the environment.

The picture to the left is the Cuyahoga River in Cleveland. The river used to catch on fire due to the enormous amount of chemical waste that was being dumped into it.

Today our environment is generally much cleaner than it was in the 1960s; largely thanks to **environmental regulation**:

Because the penalties are enormous.

Trivia Question: When the EPA inspected BU the initial penalty they issued was:

A) $256,000
B) $19,000
C) $870,000
D) $34,000,000

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What Do We Do?

Waste Determination:

Chemical wastes will fall into 1 of 3 categories:

- **Unregulated, non-hazardous wastes** can go in the trash or sink.
- Hazardous Wastes have to be collected and carefully managed according to strict rules.
- Non-hazardous Wastes That we Collect Anyway have to be collected but not all the rules apply to them.

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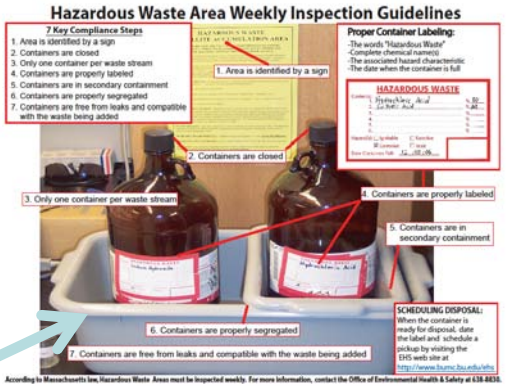
What Do We Do?

Understand which chemicals are hazardous wastes:

- Ignitability – flash point < 140 degrees F
- Corrosivity - pH is < 2.0 or > 12.5
- Reactivity – reacts with water, can form potentially toxic gases (any cyanide or sulfide), is unstable or explosive.
- Toxicity – is on EPA's list of "toxic" chemicals, and is present in waste at a concentration greater than the EPA threshold. Trace metals, halogenated compounds mostly.

What Do We Do?

Satellite Accumulation Areas



- This is the designated location where you'll collect your hazardous waste chemicals
- The area must be identified by a sign (available from EHS)
- The area must have secondary containers under the chemical waste storage bottles
- SAA must be located at the site where the chemical waste is generated
- SAAs must be visually inspected weekly

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What Do We Do?

Labeling!

- The words ‘Hazardous Waste’ (already printed on the labels EHS supplies)
- The name of the chemical(s) in the container:
  - No abbreviations
  - Must be full, English words
- A statement of the hazard; just check one (or more if appropriate) of the boxes on the label.
- The date the container is FULL (i.e. the date you stop putting waste into it)

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What Do We Do?

Manage containers so that they are:

- Tightly closed at all times
  - This almost always means a screw-on cap
  - The cap must be on and securely closed
- Segregated from incompatible wastes in the same SAA via different secondary containment (use two secondary containment trays to keep them apart)
- Not be duplicated in the same SAA; only one container of each chemical waste can be active in an SAA (fill one, then start the second one)

Request a pickup of chemical waste immediately upon a container becoming full.

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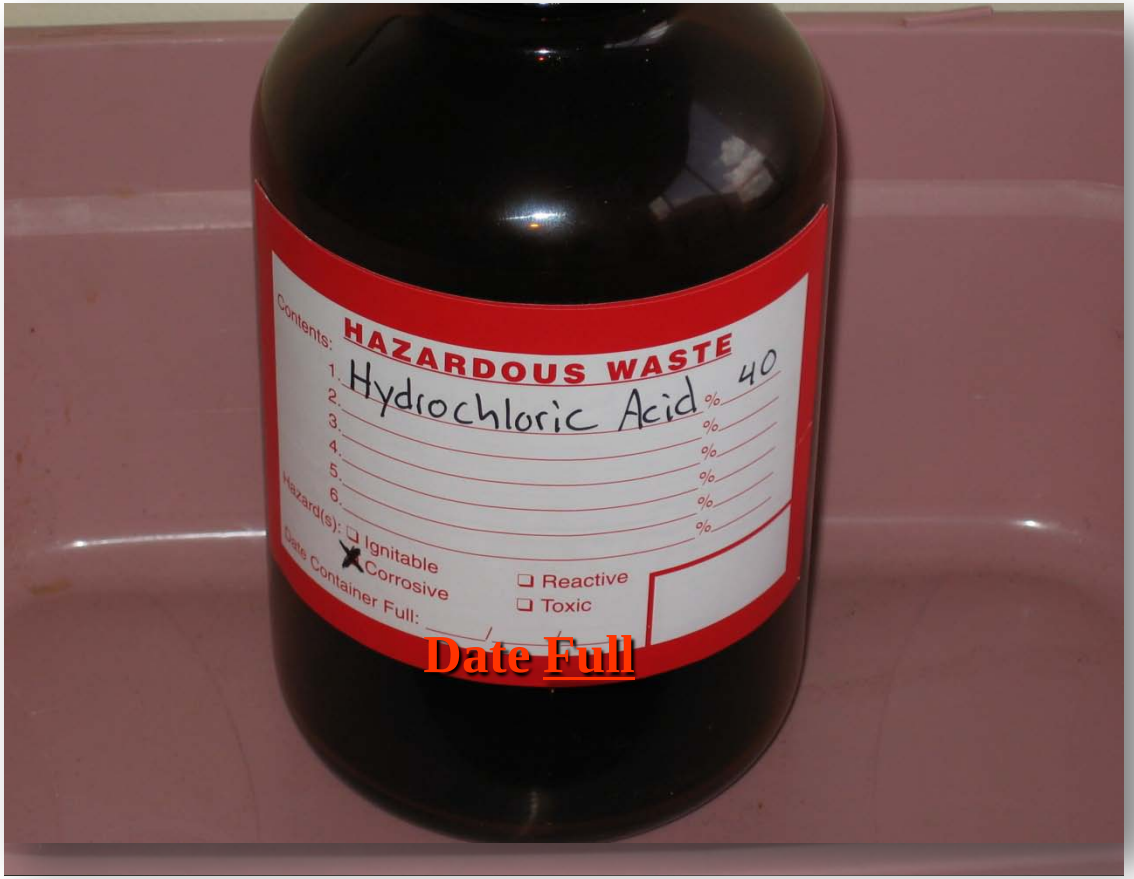
Satellite Accumulation

What's Wrong With This Picture?



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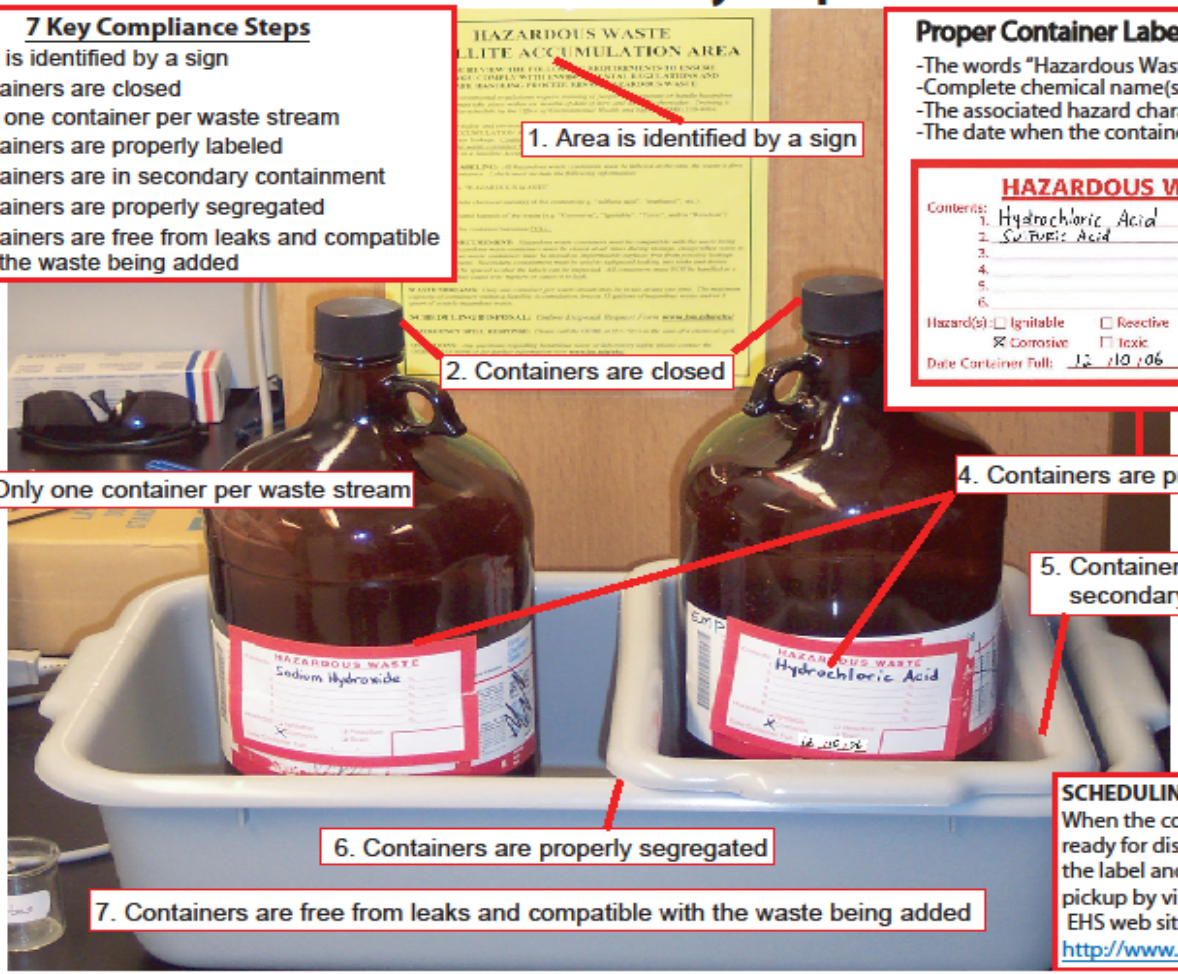
Hazardous Waste Area Weekly Inspection Guidelines

7 Key Compliance Steps

1. Area is identified by a sign
2. Containers are closed
3. Only one container per waste stream
4. Containers are properly labeled
5. Containers are in secondary containment
6. Containers are properly segregated
7. Containers are free from leaks and compatible with the waste being added



Proper Container Labeling:

-The words "Hazardous Waste"
-Complete chemical name(s)
-The associated hazard characteristic
-The date when the container is full

HAZARDOUS WASTE

Contents:
1. Hydrochloric Acid % 80
2. Sulfuric Acid % 20
3. %
4. %
5. %
6. %

Hazard(s): ☐ Ignitable ☐ Reactive ☒ Corrosive ☐ Toxic

Date Container Full: 12 /10 /06

SCHEDULING DISPOSAL:
When the container is ready for disposal, date the label and schedule a pickup by visiting the EHS web site at http://www.bumc.bu.edu/ehs

According to Massachusetts law, Hazardous Waste Areas must be inspected weekly. For more information, contact the Office of Environmental Health & Safety at 638-8830.

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Questions or Comments?

THANK YOU!

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