COLLEGE of CHARLESTON
1770

SAFETY AND HAZARDOUS WASTE

SURVEY RESULTS

QUESTIONS AND RESPONSES

13 total responses

1. Designated Safety Officer

10 Yes

3 No

2. Safety Officer formal training

9 Yes

2 No

3. Safety Officer training update?

1	Yes	once a year
9	Yes	as needed
1	No	

COLLEGE of CHARLESTON

1770

4. 2014 Chemical Labeling, SDS

12 Yes

1 Not applicable

5. Frequency of Safety Training

6. Safety Training Provided to Students for…

Laboratories	11	Yes	2	No
Field Trips	7	Yes	4	No
Ind. Research	9	Yes	4	No

7. Safety and Emergency Mgt. procedures in laboratory manuals

5 Yes

4 No

8. Review and Approval of protocols for biohazardous material use

10 Yes

2 No

9. Protocols for destroying/disposing of non-indigenous species in disaster

5 Yes

7 No

10. How is hazardous waste stored

7 Central area

5 Labs in designated areas

11. How often are internal lab safety inspections done

4 Monthly

8 Annually

1 No inspections

12. Outside safety audit conducted

6 Yes

7 No

13. Written safety plan

13 Yes

14. Safety info on website

7 Yes

15. Biological inventory online

1 Yes

10 No

2 Not applicable

16. Chemical Inventory online

4 Yes

9 No

2 URL provided

17. Emergency responders walkthrough

13 Yes

18. Mass communication capabilities

12 Yes

1 No

WHAT TO DO WITH THIS INFORMATION

- Tomorrow's presentation and discussion will review some safety and training methods we use for initial staff and student safety training and refresher training. In addition we will review some hazardous waste issues, both chemical and biological.
- For tomorrow: How would you rate your lab safety culture and compliance (1-excellent, 10-poor)?

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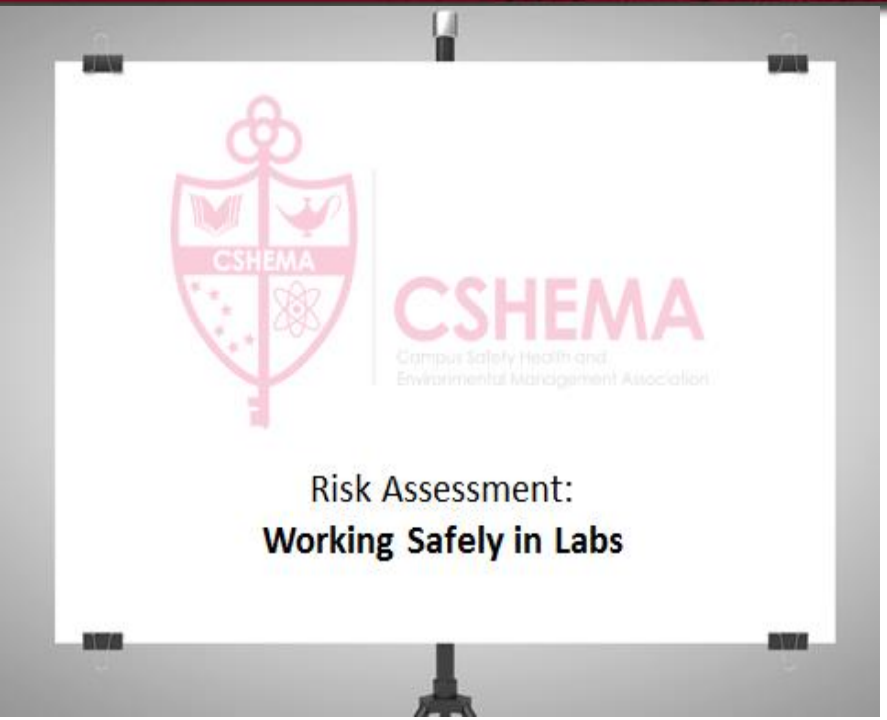
SAFETY AND HAZARDOUS WASTE

DISCUSSION



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3. Safety Officer training update?

1	**Yes**	**once a year**
9	**Yes**	**as needed**
1	**No**	

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4. **2014 Chemical Labeling, SDS**

12 **Yes**

1 **Not applicable**

SIGMA-ALDRICH sigma-aldrich.com

Material Safety Data Sheet

Version 5.0
Revision Date 04/27/2012
Print Date 11/24/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Benzene

Product Number : 270709
Brand : Sigma-Aldrich
Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada, Ltd
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

Telephone : +1 9058299500
Fax : +1 9058299292
Emergency Phone # (For both supplier and manufacturer) : 1-800-424-9300
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Blood, Eyes, Female reproductive system., Bone marrow

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D2A	Very Toxic Material Causing Other Toxic Effects	Carcinogen
D2B	Toxic Material Causing Other Toxic Effects	Moderate skin irritant
		Moderate eye irritant
		Mutagen

GHS Classification
Flammable liquids (Category 2)
Acute toxicity, Oral (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Germ cell mutagenicity (Category 1B)
Carcinogenicity (Category 1A)
Aspiration hazard (Category 1)
Acute aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H303 May be harmful if swallowed.
H304 May be fatal if swallowed and enters airways.

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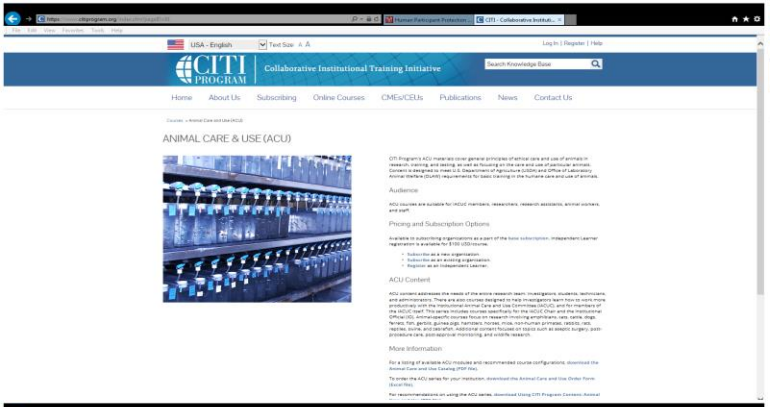
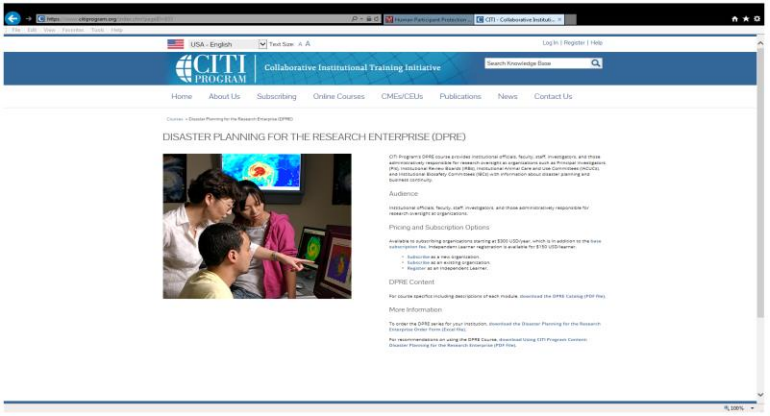
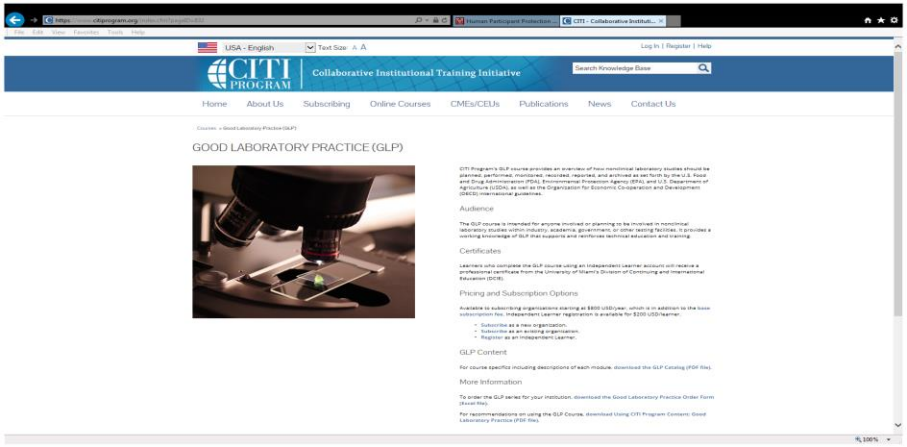
5. Frequency of Safety Training







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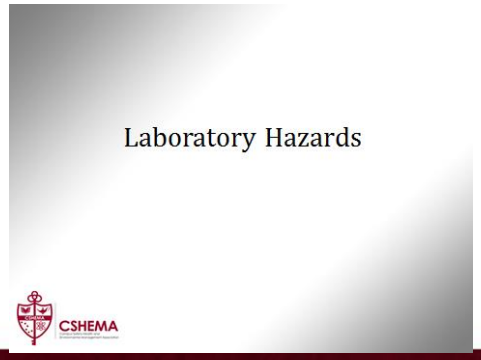
6. Safety Training Provided to Students for…

Laboratories	**11**	**Yes**	**2**	**No**
Field Trips	**7**	**Yes**	**4**	**No**
Ind. Research	**9**	**Yes**	**4**	**No**



Summer Research Training

9:00 Welcome, overview of lab safety check lists, inventory assignment, other, Pam Riggs-Gelasco
10:00 Chemical Hygiene Plan requirements, Randy Beavers
11:00 Overview of ChemSW live and inventory control, Meredith Jenkinson
11:30 Departmental safety Presentation, part 1, Neal Tonks for May 5th
12:30 Lunch- provided by the department
1:30 Fire extinguisher safety behind building, coordinated by Jeff Tomlinson
2:30 Departmental Safety Presentation, part 2, and overview of safety and operations checklist process, Neal Tonks

This is a very full day but we should be able to complete all of this by 3:30. Please let me know which session you will attend, so that we can arrange for food.

COLLEGE of CHARLESTON

SCHOOL OF SCIENCES AND MATHEMATICS

SAFETY POLICY AND PROCEDURES

The School of Sciences and Mathematics of the College of Charleston understands that the safety of our students, staff and faculty is of paramount importance. Engendering a safety culture is an important part of our mission in teaching and doing science. Each department, course of instruction, or research lab may require higher standards or procedures. The policies and procedures set forth below are understood to be minimum requirements across our departments.

In this document, the term "laboratory" is meant for a work space/facility where chemicals, biological agents, or equipment is used for research and/or instruction.

No one (student, staff, faculty, or visitor) will be allowed in a laboratory (teaching or research) to perform experiments or where experiments may be in progress unless these regulations are followed.

Students dismissed from a teaching lab due to violations of the safety procedures will not be allowed to re-enter the laboratory until authorized to do so by their supervisor (instructor) and, in the case of research laboratories, by the department chair or designee. Any course work missed because of a violation of these guidelines cannot be made up at another time (or by an extension of the lab period) and will be treated as an unexcused absence.

1. You are responsible for knowing the biological, chemical, electrical, ergonomic, mechanical, and physical hazards associated with the equipment and materials that are being utilized in the laboratory. Listen to all instructions and ask questions about that which you do not understand.

2. Know the location of safety equipment: telephones, emergency shower, eyewash, fire extinguisher, fire alarm pull.

3. Know the appropriate emergency response procedures. If there is an injury or emergency, call 953-5611.

4. Do not work alone in the laboratory if you are working with hazardous materials or equipment.

5. Use hazardous chemicals, equipment, and biological agents only as directed and for their intended purpose.

6. Do not engage in horseplay, pranks or other acts of mischief while in lab.

7. Drinking, eating, and application of cosmetics is forbidden in laboratories where chemicals or biohazards are present. Smoking is forbidden in all College buildings.

8. Appropriate personal protective equipment shall be worn. The dress code for laboratory work when using chemicals, biological or physical hazards, or when instructed to do so by the laboratory supervisor is as follows:
a) Wear safety glasses or goggles at all times.
b) No exposed skin on arms, legs or torso.
c) Wear lab coats or other approved protective garments.
d) Wear gloves or other personal protective equipment (PPE) as directed by the instructor or mandated by prudent practices based on the chemicals being handled. If in doubt, wear appropriate gloves. Latex is not permitted. Avoid cross-contamination.

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7. Safety and Emergency Mgt. procedures in laboratory manuals

5 Yes

4 No

CougarAlert

The College of Charleston has an agreement with the Blackboard Connect Inc. [formerly The NTI Group, Inc. (NTI)] to use its Connect-ED communication software to provide an emergency notification system that is capable of reaching students, faculty, staff and parents within minutes of a campus crisis. This system is called **CougarAlert**.

Information for Students

The CougarAlert emergency notification system will contact up to six phone numbers for the student. Students may include family member numbers in their address and phone number information.

All students should log onto MyCharleston to review their address and telephone information and update as needed.

To access the address and telephone information, follow these steps:
1.Log on to MyCharleston
2.Click on the Academic Services tab
3.Click on the Banner Self-Service link in the third column
4.Click on the Personal Information link
5.Click on the Update Address and Phones and Cougar Alert link

The CougarAlert system will pull the phone number in the following order – cell phone with text messaging option, cell phone without text messaging option, residence hall room phone number, mailing phone number, home phone number, parent phone number and parent 2 phone number.
If you do not have one of these numbers in your student record, the system will select the next number on the list. To avoid issues related to timely communication of emergency messages to the proper places, every student must update his or her contact information in MyCharleston with current accurate information.

CougarAlert Display Information

When you receive an emergency message from the College of Charleston's CougarAlert System, the return e-mail address will be displayed as cougaralert@cofc.edu, and Caller ID will be displayed as 843.725.7246 (this is the College's Emergency Information Hotline).

Testing and Implementation

Testing will be conducted each semester to verify all systems are operating properly. The campus community will be notified via e-mail and web page postings when testing of the system will be conducted.

Blackboard Connect Software

Blackboard Connect is an emergency communication software that sends notification before, during and after an emergency. With this new system, the College will be able to communicate in many modes, including voice messages to home, work and cell phones; text messages to cell phones, PDAs and other devices; written messages to e-mail accounts; and messages to teletypewriters and telecommunication devices (TTY/TDD) for the hearing impaired. In combination with our existing communications methods and emergency response plans, this new notification system will significantly enhance the College of Charleston's ability to maintain a learning environment in which students are safe, secure and comfortable.

In an emergency, communications to the campus will be issued in the following priority order:
1.Message to the Blackboard Connect Emergency Notification System (phone and e-mail).
2.Recorded message to the College's Emergency Information Hotline, 843.725.7246.
3.Update to the Website.
4.Printed update sheets to be distributed and posted on campus (if necessary).

The CougarAlert system will only be used to notify you in the event of a campus crisis or emergency.

EMERGENCY RESPONSE

- Plan in advance for an emergency.
- What are the possible emergencies which could occur during your work, e.g., fire, spill, high level chemical exposure?
- Are systems available to alert you to an emergency situation, e.g., chemical exposure monitoring systems?
- What supplies and equipment should you maintain in your area to assist you or emergency response personnel in the event of an emergency, e.g., eyewash and safety shower, spill control materials, personal protective clothing?
- What training do you need to handle an emergency in your area, e.g., emergency first aid or respirator use training?
- Is it safe for you to work alone?

BASIC STEPS FOR EMERGENCY RESPONSE

Determine the nature of the emergency.

- **High hazard emergency.** If the emergency is immediately dangerous to life and health, involves a large area, major injury to personnel, is a threat to personnel, the public and the environment involves radioactive material, involves an infectious agent, or involves a highly toxic, corrosive, or reactive hazardous material, then proceed with **Plan A** below.
- **Low hazard emergency.** If the emergency is small, there is no fire hazard, involves low to moderately toxic materials in small amounts, or involves a readily treatable injury, proceed with **Plan B** below.
- **Fire and fire-related emergencies.** If the emergency involves a fire or fire-related situation such as abnormal heating of material, hazardous gas leaks, flammable liquid spill, smoke, or odor of burning, proceed with steps in the **"FIRE AND FIRE-RELATED EMERGENCIES"** section below.
- If the emergency involves a mercury spill, see section headed **"MERCURY SPILLS."**
- **Unknown.** If you do not know the nature of the emergency or are in any way uncertain as to how to handle the emergency, proceed with **Plan A** below.

From CHP

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18. Mass communication capabilities

12 Yes

1 No

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8. Review and Approval of protocols for biohazardous material use

10 Yes

2 No

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ENVIRONMENTAL HEALTH AND SAFETY

Training Acknowledgement Form

Name of person trained _____

Please Print

Classification

[ ] _____*student*

[ ] student employee

[ ] graduate student _____department

[ ] postdoctoral researcher/associate/fellow

[ ] part time or temporary A/P or technical staff member

[ ] other (explain) _____

[ ] _____ student

[ ] visiting researcher

[ ] visiting faculty

[ ] full time regular A/P or technical staff member

Facility/Department Name _____

Please Print

Laboratory Supervisor/PI/Instructor Name _____

Please Print

Laboratory Room(s) # _____

By signing below, I confirm and acknowledge that I

- ***participated in the mandatory laboratory training in the Standard Operating Procedures titled*** *(list ALL applicable; write on back if more space is needed)*

  _____

  _____

- ***understood the information contained in the Standard Operating Procedures and my obligations for the privilege to work in a laboratory at the College of Charleston Campus and/or its affiliated facilities,***
- ***read and understood the College of Charleston Chemical Hygiene Plan and the "Working Alone and Working After Hours in _____Laboratory" Policy***
- ***have been provided the opportunity to ask questions about these Standard Operating Procedures, College of Charleston Chemical Hygiene Plan and "Working Alone and Working After Hours in _____Laboratory" Policy***
- ***have been provided instructions on how to and whom to contact if at <u>any</u> time I have questions or concerns about these Standard Operating Procedures, the College of Charleston Chemical Hygiene Plan and "Working Alone and Working After Hours in _____Laboratory" Policy***

Training Date _____ **Training Duration** _____

COLLEGE of CHARLESTON
ENVIRONMENTAL HEALTH AND SAFETY

Standard Operating Procedures

Print out the completed form and keep a readily accessible hard copy in the lab (also keeping an electronic copy is highly recommended).

Date: _____

SOP Title: _____

Supervisor/Principal Investigator/Instructor: _____

Department/Bldg/Room#: _____

Lab Phone Number: _____

Section 1 – Process/Experiment

Describe (briefly) the process/experiment, including its purpose, frequency (e.g. daily, monthly) and anticipated end date of process/experiment. Was a scaled-down experiment considered? Check database for green alternatives: http://ehs.mit.edu/greenchem/
If section not applicable, write "N/A"

Section 2 – Hazardous Chemicals

Provide hazardous chemical names and list references used for the safe and effective design of process/experiment (safety literature, peer-reviewed journal articles, MSDS – as attachment). Check Cameo chemicals info at: http://cameochemicals.noaa.gov/
Is a less hazardous chemical(s) available for substitution and considered? Check database for green alternatives: http://ehs.mit.edu/greenchem/

Section 3 – Potential Hazards

Describe chemical hazards, instruments hazards. List all physical and health hazards associated with the materials and procedures used (e. g. toxicity, reactivity, flammability, corrosivity, pressure, etc.). List environmental hazards.

Section 4 – Approvals Required

Insert all approval(s) required before staff is starting work and working alone requirements.

Section 5 – Designated Area

Describe designated areas of use for hazardous chemicals and for equipment used in the process /experiment (e.g. chemical fume hood B, glove box, whole laboratory, etc.)

PI Name:

Danger

Safety Protocol for working with Cholera Toxin

Hazard Communication Statement

Biological toxins are toxic substances that can be produced by bacteria, fungi, protozoa, insects, animals or plants and are classified separately from chemical toxins. They are nonreplicative, noninfectious materials but can be extremely hazardous, even in minute quantities. The toxicity and health hazard of biological toxins vary greatly and toxins may be cytotoxic, neurotoxic, hemolytic or cause necrosis. Of primary concerns are acute biological toxins.

Cholera toxin is the virulent factor from Vibrio cholerae that leads to severe diarrhea followed by dehydration in humans. The LD_{50} for humans is estimated to be 250 µg/kg.

In the laboratory setting, typical routes of exposure are through inhalation, mucous membrane contact (eyes, nose and mouth) and/or to open sores on skin, sharps injuries with contaminated materials, and ingestion of trace amounts of the material if hands are not washed prior to eating or smoking.

All personnel working with a biotoxin or accessing a toxin laboratory should be familiar with the signs and symptoms of toxin exposure.

Hazard statement(s)

- Cholera toxin is highly toxic by ingestion and skin absorption as well as a general irritant. It can cause organ failure (bowels) and may be fatal.
- May be harmful if inhaled. Causes respiratory tract irritation.
- May be fatal if absorbed through skin. Causes skin irritation.
- Causes eye irritation.
- May be fatal if swallowed.

Symptoms may include:

- Severe diarrhea and dehydration

2. Laboratory Precautions

Standard Laboratory practices

Toxins shall be handled with appropriate precautions consisting primarily of **good microbiological laboratory techniques** as well as Biosafety Level 2 (BSL-2) containment. The following precautions should be employed:

A. Access to the laboratory is limited or restricted at the discretion of the laboratory director.
B. Placards should be placed on the entrances to the lab listing biological hazards and the PI's name and 24/7 contact information for the PI and/or laboratory personnel familiar with the biohazard.
C. In addition, when performing work with toxins, access to the room should be restricted and a sign stating the following should be placed on the door: "Toxins in Use—Authorized Personnel Only."

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https://www.orga.cofc.edu/eforms/IACUC_Protocol_eForm.plx?data=psv1&html=htt1&phead=hdr1&pfoot=ftr1&pkey=10001

Research Involving Vertebrate ... | eForms - IACUC Protocol A...

File Edit View Favorites Tools Help

College of Charleston Institutional Animal Care & Use Committee *eForms*

New Protocol Application **Last Saved: 2016-05-09 10:00:11** **Status: new_application**

IACUC Applicability:
This information will help determine what is required for this project.

Will you be the Principal Investigator for this project?

Students are not allowed to serve as Principal Investigators. A student may be designated by the PI as a Student Investigator on this protocol if the project is required for an independent research project or thesis.

○ Yes ○ No

Will you be using or observing regulated animals, using biological samples from regulated animals, or will you be working on a protocol which is subject to to approval of an external IACUC?

Regulated animals are any live non-human vertebrate animal used or intended for use in research, training, experimentation, testing, propagation, or related purpose, with the exclusion of embryos*, plankton, tissue and other biological samples.

* For embryos, the point in development at which oviparous, ovoviviparous, and viviparous species become regulated animals is specified by the Animal Welfare Act (AWA) and the Office of Laboratory Animal Welfare (OLAW). Viviparous and ovoviviparous species become regulated at parturition from the maternal animal. Oviparous species become regulated when they hatch from the egg. For fish, the College of Charleston IACUC has determined a similar stage in development as the "buttoned-up" stage - when the embryo has fully absorbed the yolk sac and must forage on its own.

○ Yes ○ No

Today is Monday, May 09, 2016

Contact System Administrator | Contact Grants Administrator | Contact Research Protections & Compliance Manager

100%

COLLEGE of CHARLESTON

urricane-preparation.php

The storm continues its approach toward the South Carolina coast. Warnings and6r watches have been issued for the Charleston region. There is a high probability that the storm will make landfall within approximately 40 hours and threaten the GML facility and personnel.

EVACUATION PLAN IN CASE OF A HURRICANE

1. **Organisms.**
    1. Bob Podolsky* will destroy all non-indigenous species held at GML which are deemed a threat of being released, as per operating protocols.
    2. The responsible individual's name should be clearly marked on all organismal holdings. These organisms should be released or otherwise disposed of. Bob Podolsky* will be responsible for overseeing disposal or release.
2. **Power.** Individual faculty or staff members should turn off all non-essential equipment excluding refrigerators or freezers.
3. **Personnel.** All personnel must leave.
4. **Doors.** Bob Podolsky* will lock all outside doors to the building.

Returning to GML After the Storm

In many cases it will be obvious when it is safe to return to the Grice Marine Laboratory. However, if you are out of the area, it may be a good idea to call ahead to find out if it is safe and possible to return.

1. You should first call the Grice Marine Laboratory (843-953-9200) to speak to someone or listen for a recorded message. If the GML phones are not operational, then go to #2.
2. Call 843-475-1869 (Bob Podolsky's cell phone*) to reach Bob or hear a recorded message. If Bob's cell phone is not operational, then go to #3.
3. Call 919-593-0121 (Allison Welch's cell phone*) to try to reach Bob or 843-737-2821 (Greg's cell phone).

EMERGENCY PHONE NUMBERS

1. Grice Marine Laboratory Director Bob Podolsky*, cell 843-475-1869, office 843-953-9186.
2. Grice Marine Laboratory Manager Greg Townsley, cell 843-737-2821, office 843-953-9174.
3. Graduate Program in Marine Biology Director Craig Plante, home 843-795-3317, office 843-953-9187.

*After August 7th 2015, Tony Harold (cell 843-460-2057) will be Acting Director and will be responsible for Bob's roles in this hurricane plan.

Print a copy of the GML Hurricane Plan (PDF). In order to view the PDF file, you need Adobe Reader. Click here to get the Adobe Acrobat Reader

ADDITIONAL RESOURCES
- Graduate Program in Marine Biology

SOCIAL MEDIA
- RSS

QUICK LINKS
- Research Experiences for

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9. Protocols for destroying/disposing of non-indigenous species in disaster

5 Yes

7 No

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10. How is hazardous waste stored

7 Central area

5 Labs in designated areas

This manual outlines proper procedures for managing chemical hazardous waste at all College of Charleston (CofC) campuses and other related facilities in Charleston, South Carolina. It is intended to serve as a "How-To" manual and establishes a formal, written program for the safe and compliant collection, storage, pick-up and disposal of chemical hazardous waste.

This manual will be revised as necessary to reflect changes in CofC policies, procedures and environmental applicable regulations.

Biohazardous and radiological wastes are only briefly discussed in this document. Please consult with the Office of Environmental Health and Safety (biohazardous waste) and Office of Radiation Safety (radiological waste) for detailed guidance and reference manuals.

CofC personnel hosted by facilities with their own Hazardous Waste Management Manual (HWMM) shall follow the more stringent of the two manuals.

1.2 Scope and Applicability

CofC's commitment to comply with all applicable environmental health and safety regulations, as well as the protection of human health and the environment could happen only when everyone takes responsibility for the hazardous waste they generate.

The contents of this HWMM shall apply to all shops, maintenance areas, laboratories or other CofC facilities that use, handle or store chemical waste. HWMM describes the proper use and handling procedures that shall be followed by all faculty, staff, students, contractor personnel employed by CofC, and other personnel working with chemical waste in all settings at CofC. All have the right to know about the potential health and physical hazards of the chemicals in their work areas and to be properly trained to safely work with these chemicals, including hazardous wastes.

The area supervisor (e.g. principal investigator, professor, instructor, shop supervisor etc.) is ultimately responsible for ensuring proper instruction and training is provided to

It is not "waste" until you are ready to get rid of it. It is materials management until then.

COLLEGE of CHARLESTON
ENVIRONMENTAL HEALTH AND SAFETY

CHEMICAL WASTE MANAGEMENT MANUAL

Biological Waste

"Conventional, biological, and hazardous waste should be removed and disposed of regularly and safely…..by waste disposal firms for regulatory compliance"
"Hazardous wastes must be rendered safe by sterilization, containment, or other appropriate means before their removal from the facility."

Chap2:"Occupational Safety and Health of Personnel" and Chap 3:"Waste Disposal";
Guide for the Care and Use of Laboratory Animals, 8th Edition

https://www.epa.gov/sites/production/files/2015-09/documents/hwid05.pdf

epa.gov

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Solid Waste and Emergency Response
(5305W)
EPA530-K-05-012

Introduction to

Hazardous Waste Identification

(40 CFR Parts 261)

September 2005

EPA
United States
Environmental Protection
Agency

https://www.epa.gov/sites/production/fil

epa.gov

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determine whether any particular material is a hazardous waste for the purposes of RCRA.

2.1 HAZARDOUS WASTE IDENTIFICATION PROCESS

Proper hazardous waste identification is essential to the success of the hazardous waste management program. The RCRA regulations at 40 CFR §262.11 require that any person who produces or generates a waste must determine if that waste is hazardous. In doing so, §262.11 presents the steps in the hazardous waste identification process:

- Is the waste a "solid waste"?
- Is the waste specifically excluded from the RCRA regulations?
- Is the waste a "listed" hazardous waste?
- Does the waste exhibit a characteristic of hazardous waste?

When faced with the question of whether or not a waste is regulated as hazardous under RCRA, turn to §262.11. This regulation will remind you of the four steps in the RCRA hazardous waste identification process.

IS THE WASTE A SOLID WASTE?

Hazardous waste identification begins with an obvious point: in order for any material to be a hazardous waste, it must first be a waste. But, deciding whether an item is or is not a waste is not always easy. For example, a material (like an aluminum can) that one person discards could seem valuable to another person who recycles that material. EPA developed a set of regulations to assist in determining whether a material is a waste. RCRA uses the term "solid waste" in place of the common term "waste." Under RCRA, the term "solid waste" means any waste, whether it is a solid, semisolid, or liquid. The first section of the RCRA hazardous waste identification

COLLEGE of CHARLESTON
ENVIRONMENTAL HEALTH AND SAFETY

Standard Operating Procedures

Print out the completed form and keep a readily accessible hard copy in the lab (also keeping an electronic copy is highly recommended).

Date: _____

SOP Title: _____

Supervisor/Principal Investigator/Instructor: _____

Department/Bldg/Room#: _____

Lab Phone Number: _____

Section 1 – Process/Experiment

Describe (briefly) the process/experiment, including its purpose, frequency (e.g. daily, monthly) and anticipated end date of process/experiment. Was a scaled-down experiment considered? Check database for green alternatives: http://ehs.mit.edu/greenchem/
If section not applicable, write "N/A"

Section 2 – Hazardous Chemicals

Provide hazardous chemical names and list references used for the safe and effective design of process/experiment (safety literature, peer-reviewed journal articles, MSDS – as attachment). Check Cameo chemicals info at: http://cameochemicals.noaa.gov/
Is a less hazardous chemical(s) available for substitution and considered? Check database for green alternatives: http://ehs.mit.edu/greenchem/

Section 3 – Potential Hazards

Describe chemical hazards, instruments hazards. List all physical and health hazards associated with the materials and procedures used (e. g. toxicity, reactivity, flammability, corrosivity, pressure, etc.). List environmental hazards.

Section 4 – Approvals Required

Insert all approval(s) required before staff is starting work and working alone requirements.

Section 5 – Designated Area

Describe designated areas of use for hazardous chemicals and for equipment used in the process /experiment (e.g. chemical fume hood B, glove box, whole laboratory, etc.)

Done

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Student Lab Safety Inspection Checklist [Read-Only] - Microsoft Word

Chemical Hygiene Plan is in designated notebook in lab				
Lab SOPs and other approval paperwork is in designated notebook				
Lab Chemical Inventory is in designated notebook and is less than 1 year old				
Prior safety check lists are signed by PI and are in designated folder				
MSDS are available in print or online for all chemicals on the lab inventory				
Recombinant DNA paperwork is on file in designated notebook				
Chemical compatibility chart is posted.				
Glove compatibility booklet is present in lab.				
Fume Hoods				
Chemical Fume hoods are closed when not in active use				
Chemical Fume hood inspection tag was dated within the past year				
Hoods are clear of clutter, not being used for storage				

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11. How often are internal lab safety inspections done

4 Monthly

8 Annually

1 No inspections

Student Lab Safety Inspection Checklist [Read-Only]

Compressed Gases				
Gas cylinders are labeled with contents and with empty/in use/full tag				
Gas cylinders are securely chained to wall				
Gas cylinders either have a regulator attached or a safety cap on				
No empty gas cylinders are present				
Cleanliness/Housekeeping				
Lab benches are clean and uncluttered				
Lab is stocked with paper towels, hand soap and countertop cleanser				
Sinks are empty of dirty glassware				
Aisles and exits are free from obstructions or trip hazards				
Tubing on faucets or water dispensers is removed after use and not left to drip				
Storage areas are uncluttered and orderly				
Security				
Where appropriate, radioactive reagents are logged and waste monitored				
Exterior lab doors are closed and not left propped open. Side door panel is not unlatched.				
When the lab is vacant, lab doors are locked				
Biohazards (if applicable)				
Infectious agents and/or rDNA paperwork from EHS or ORGA on file				
Biotoxins have approval paperwork from EHS on file				
No CDC/USDA Select Agents present				
Refrigerators/Freezers containing biohazards are orderly and organized with good labeling				
Biohazard waste is stored in red bags with proper signage in a secondary container until it is sterilized and disposed of				

Student Lab Safety Inspection Checklist [Read-Only] - Microsoft Word

Date of Inspection: _____ Inspector Name and Signature: _____

Lab #: _____ Lab PI: _____ PI Signature: _____

	Yes √	NA	No: Specify Corrective Action	Date Resolved
Personal Protection Equipment				
Lab has a supply of PPE (glasses/goggles, lab coats, gloves) for all lab personnel and visitors				
Where appropriate, Laser and/or intense light source PPE is available				
Lab coats not being used are hung on hooks				
If lab uses cryogens, then cryogenic safety equipment is available (padded gloves, cryogenic storage vials, dewars with plastic mesh or tape covering glass)				
If lab uses autoclave, autoclave gloves, autoclave tape, and secondary container are available				
Safety Equipment				
Fire extinguisher is mounted with pin in place				
Fire extinguisher tag inspection date is within one year				
Area around fire extinguisher is clear from obstruction				
Area around eyewash and safety shower is clear from obstruction				
All lighting in lab and hoods is functional				
First aid kit is in lab and contents match EHS list				
Eyewash was tested and the tag was dated				
Safety shower inspection tag date is within the past 6 months				

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13. Written safety plan

13 Yes

A written safety plan reflects the collection of policies and procedures that are followed in an effort to transfer risk from the individual employee to the institution.

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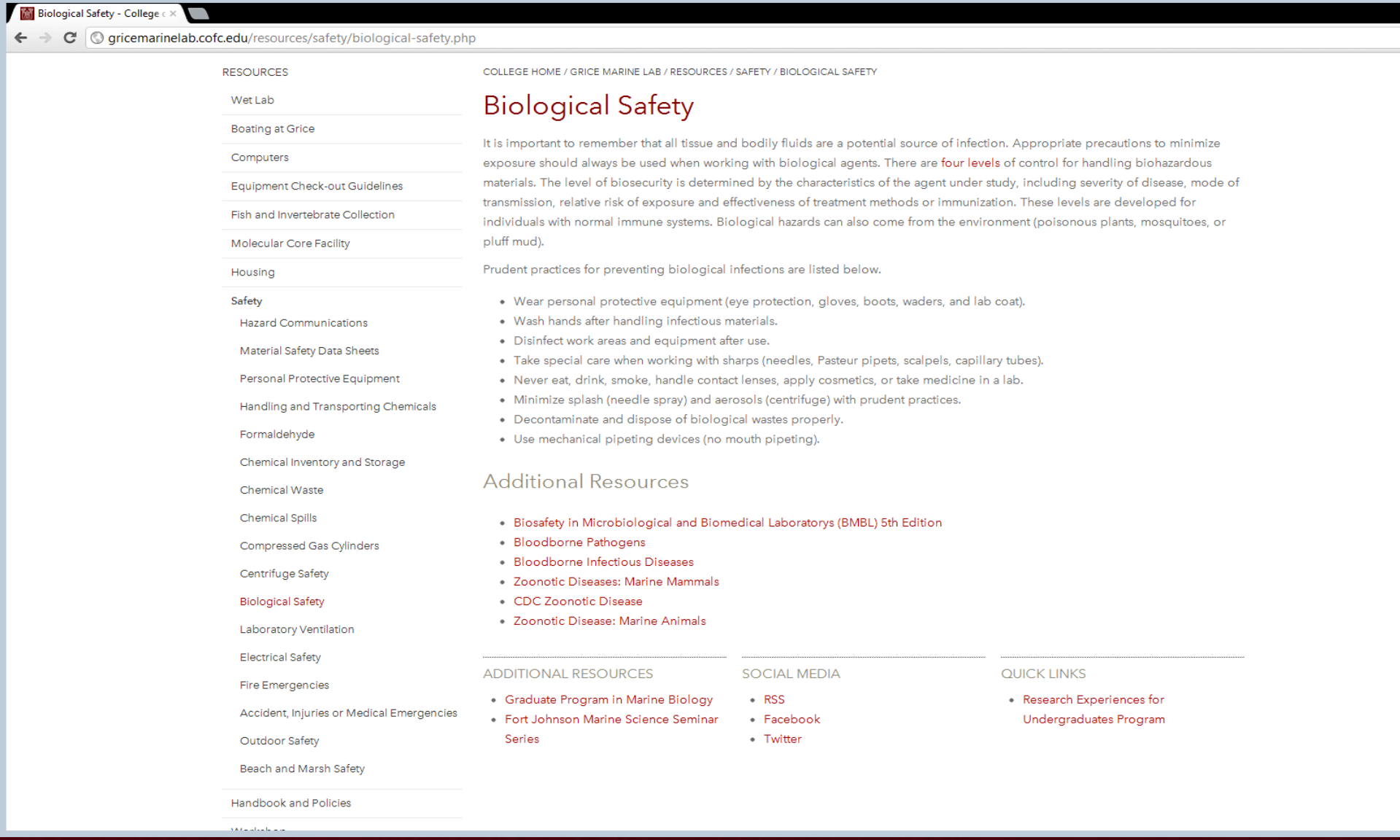
14. Safety info on website

7 Yes



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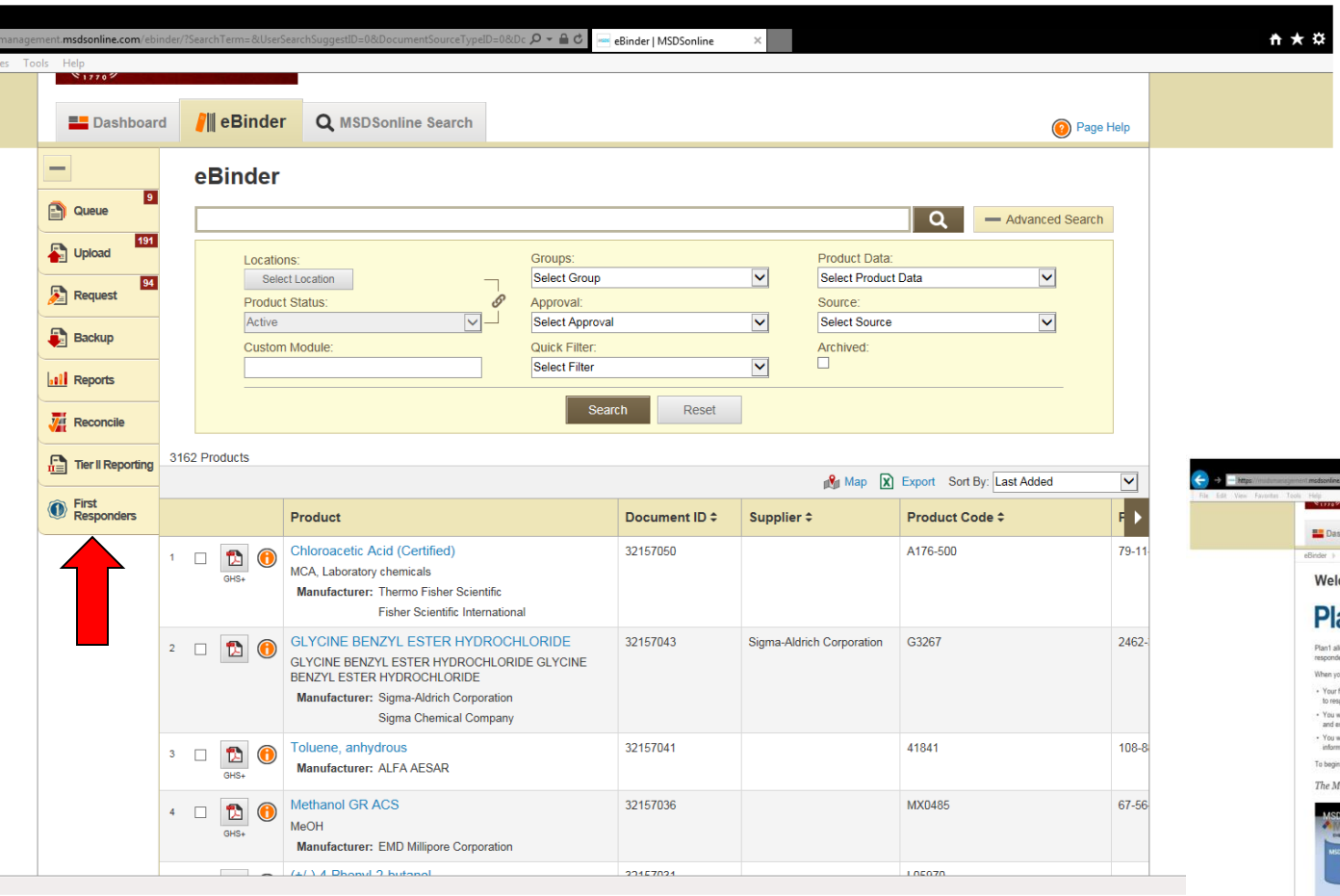

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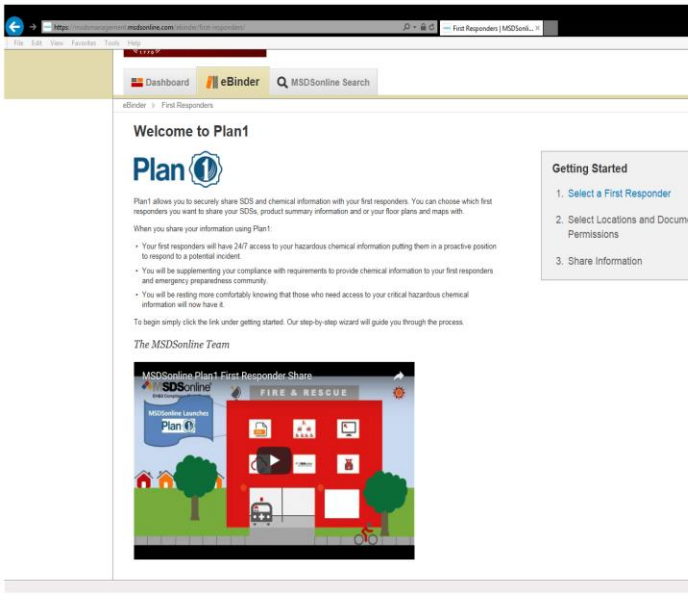
16. Chemical Inventory online

4 Yes

9 No

2 URL provided



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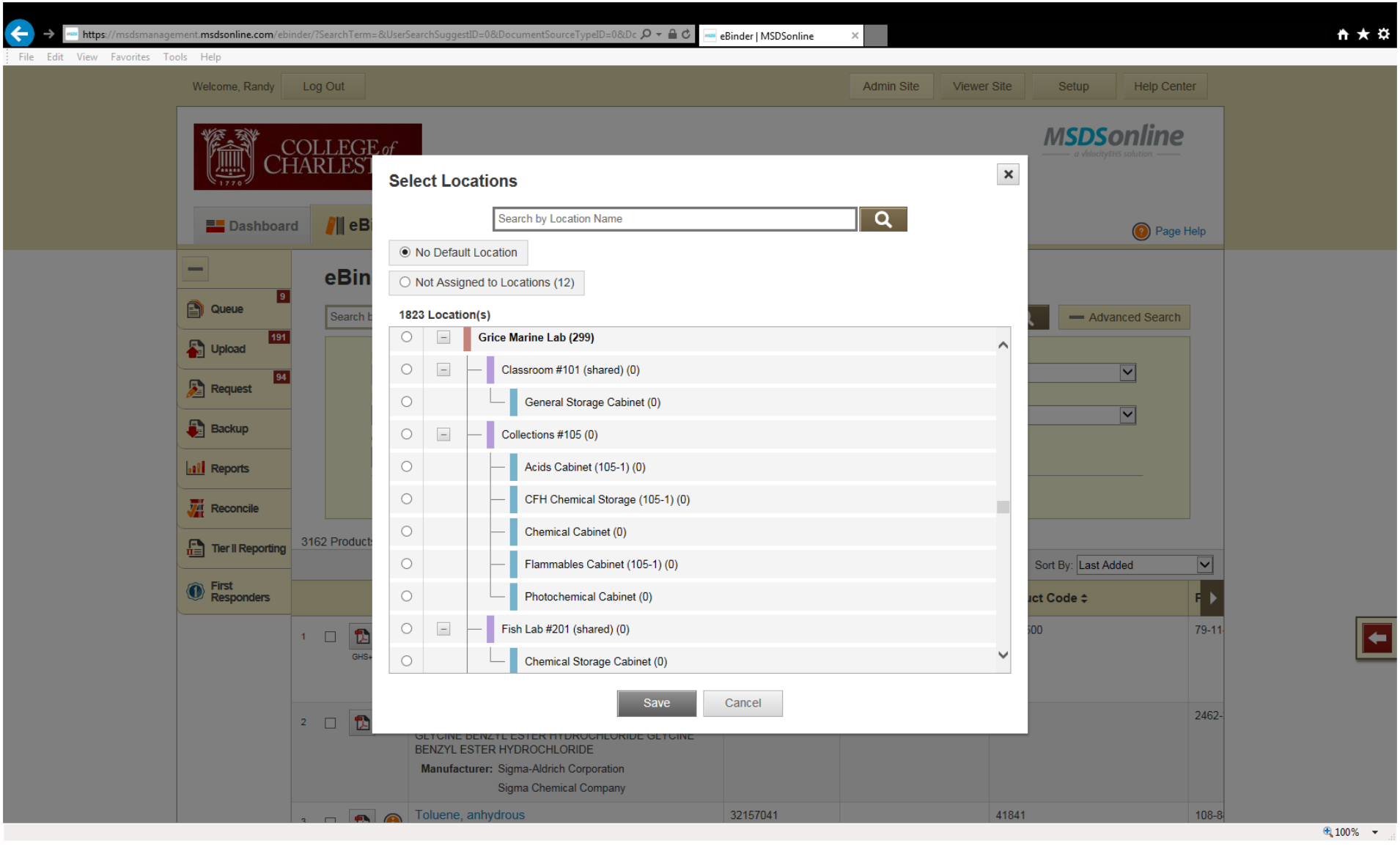
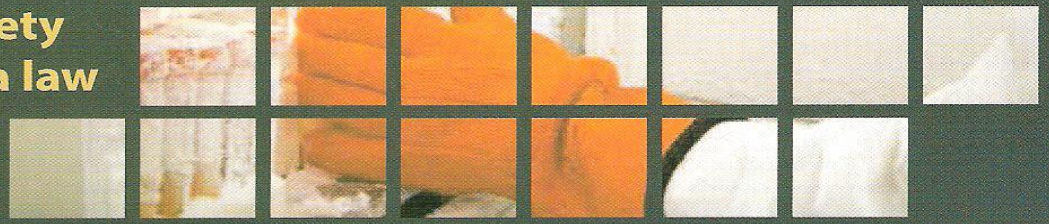


Additional Resources

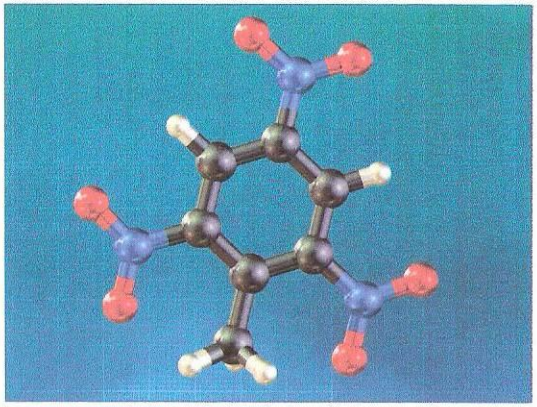
Key differences between biosafety and biosecurity concepts from a law enforcement perspective:



	Biosafety	Biosecurity
Goal	Aims to prevent the accidental exposure or release of material (protects the researcher, facility, and environment).	Aims to prevent intentional theft, loss, misuse (protects the public).
Implementers	Scientists	Scientists, security, law enforcement
Understanding of Scope	Scope widely understood and recognized by scientists.	Scope poorly understood by scientists, security, and law enforcement (often seen only as physical security and/or risk assessment).
Ability to Define	Easy to define. Focuses on measurable requirements and best practices that are based on experience.	Certain elements of biosecurity focus on behaviors that can be difficult to define and/or observe.
Existing Guidance	Several widely accepted guidance documents that address all aspects of biosafety.	Few guidance documents that address all aspects of biosecurity.

Biosafety in Microbiological and Biomedical Laboratories (BMBL)

FBI and DHS



Chemical Threats

A chemical attack is the deliberate use of chemical materials such as toxic industrial chemicals, chemical warfare agents, and improvised explosives that can be used to harm people, plants, animals, and our country's critical infrastructure. Individuals who intend to carry out attacks using a chemical or improvised explosive device need to know what you and your colleagues already know:

- how to acquire chemicals and glassware
- how to handle chemicals safely
- how to follow chemical synthesis procedures
- how to purify and disseminate the resulting chemical agent

Individuals may contact you to obtain technical chemical information through e-mail and online chat rooms, or they may approach you at conferences to ask seemingly innocent questions about your research. While most of these questions will be legitimate or innocent, there is a risk some are not and may indicate a potential threat. Other indicators of potential threats include suspicious behavior in the laboratory or missing supplies and chemicals.

What Should I Be Aware of?

- Individuals attempting to access the laboratory who generally have no reason to be there
- Missing supplies, chemicals or lost or moved laboratory equipment
- Requests to borrow chemicals or equipment from unidentified individuals
- Unsolicited requests for technical information in person or over the Internet
- Unusual employment or collaboration requests
- Chemical purchases charged to a lab purchase card or grant but are never delivered
- Unsolicited delivery of chemicals to the lab without a corresponding chemical purchase

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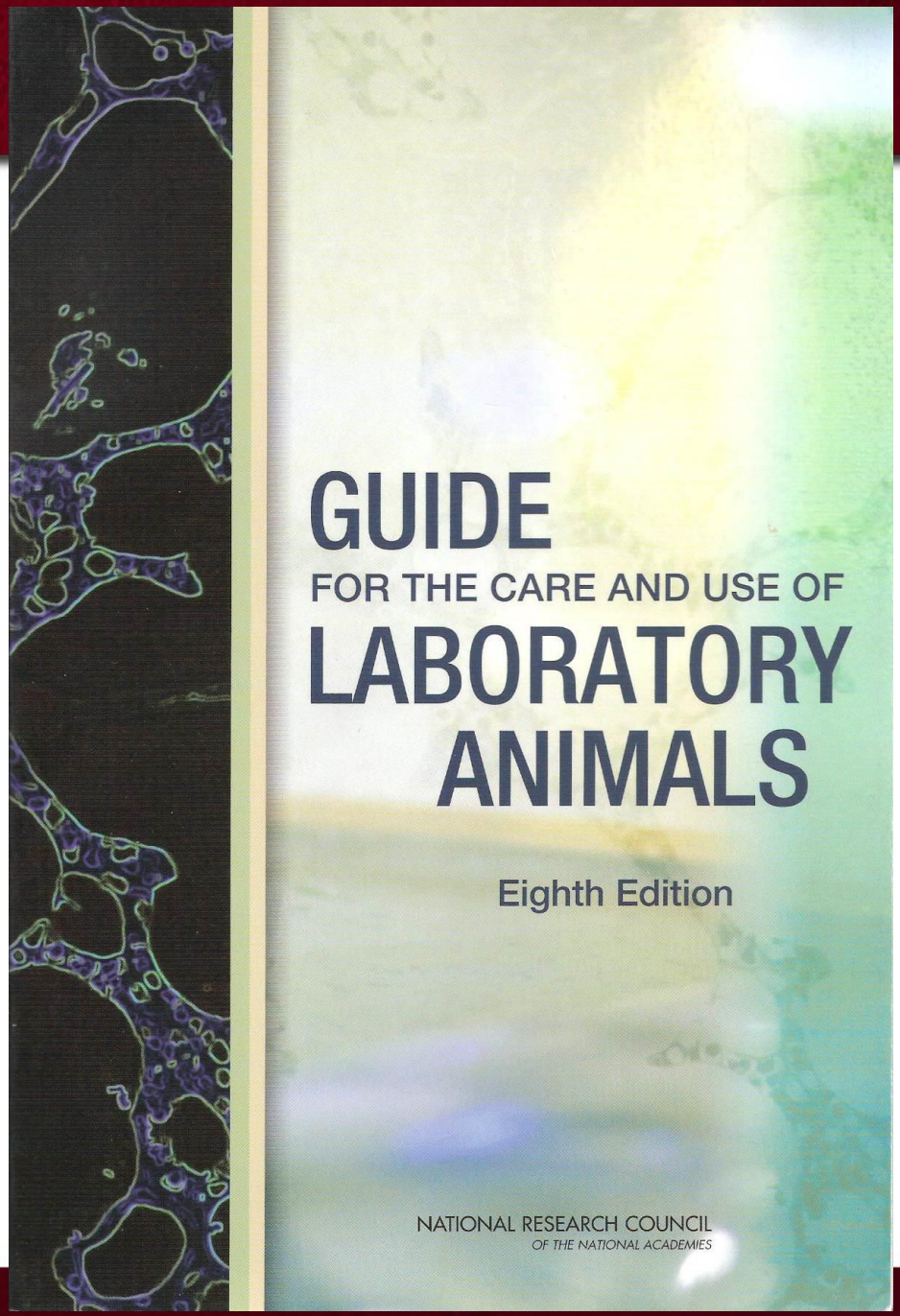

Partner Institutions

Regulatory Agencies

Vendor Publications

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Safety Culture in Laboratories.pdf - Adobe Acrobat Pro

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Core Institutional Values Foundational to a Culture of Safety

1. Safety is everyone's responsibility. Each institution should commit to providing a campus environment that supports the health and safety practices of its community (faculty, students, staff, and visitors) and empowers the community to be responsible for the safety of others. A safe campus environment is a right of employment for all categories of employees. A safe campus learning environment is a right of all involved in education and research.
2. Good science is safe science. Safety is a critical component of scholarly excellence and responsible conduct of research.
3. Safety training and safety education are essential elements of research and education. They instill a culture of safety in the next generation of researchers and future faculty, and they are important for our students' career development and employability.
4. An improved culture of safety is necessary to truly reduce risk throughout the academic enterprise.
5. It is best to recognize that diverse methods and flexible approaches will be used by each institution to develop a strong culture of safety, unique to its situation.

QUESTIONS/ DISCUSSION

Anyone willing to share their opinion and reasoning for the rating they have given their program?