	Environmental Analysis Teaching and Research Laboratory	Date: 8/1/2018	Number: 01.v03
	Standard Operating Procedure	Title: General Laboratory Safety Plan	
	Approved By: Los Huertos	Revision Date: September 14, 2018	

## 1. Scope and Application

**1.1** The objective of a lab safety manual is to create a safe operating space for students.

**1.2** This Laboratory Safety Plan is a draft and requires on-going updating, editing, and expansion as incidents occur and lessons learned.

## 2. Summary of Method

**2.1** Researchers working in the lab have been working since the fall of 2015 to develop this document from a range of resources.

**2.2** Many of the contributions have been researched by students but require additional information, editing and professional insight.

**2.3** The [template](#) available on UC Davis' web site will be used to improve the document in each year.

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## 3. Acknowledgements

### Student Contributions

- 3.1** EA030-Fall 2015: Benjamin Schmidt, Kay Garlick-Ott, Marc Los Huertos, Grace Hruska, Juan Jaramillo, Thomas Kelleher, RaSia Khepra, Alexander Landau, Peter Mellinger, Emelia von Saltza, Alexandra Tchaoucheva, Ki'Amber Thompson, Malone Mischke.

## 4. Definitions

## 5. Health and Safety

- 5.1** Developing a safe and productive environment is key to sustaining a strong scientific ethic; please reflect on how you and your colleagues can work to promote safe conditions in the lab.
- 5.2** All personnel must always employ a buddy system whether working within or outside traditional work hours (8am-5pm), and on weekends. You must obtain written permission to work in the lab outside of the traditional hours.

- 5.3** No work is allowed in the laboratory without expressed permission from the laboratory director.

## **6. Personnel & Training Responsibilities**

### **Lab Equipment Training**

- 6.1** A researcher (student, staff person, or professor) is not permitted to use the lab equipment until he or she has been appropriately trained to use the equipment.
- 6.2** All laboratory users must be trained in handling foreign soils even if they will not be using these soils, SOP05.
- 6.3** All users must read the Handbook on Sexual Harasment for the college.
- 6.4** The purpose of requiring all students to be properly trained is so that experiments and tests can be performed safely and effectively.
- 6.5** Training for all of the equipment will be provided before anyone is permitted to use it. After being trained, students will sign a document that assures they understand exactly how the equipment works and how it will be used.
- 6.6** Training, while limited to the SOP in question, is completely only after the Training Documentation Form has been completed.
- 6.7** As research progresses, training information for the equipment we use will be added to this section, along with the documents that the researchers must be trained.

## **7. Required Materials**

- 7.1** Personal Protective Equipment (PPE) refers to protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection.
- 7.2** Personal Protective Equipment includes: Laboratory Coats, Goggles, and gloves. Depending on the tasks, there may be additional items required.

## **8. Estimated Time**

- 8.1** This training generally requires 45 minutes.

Office	Phone Number	Hours
Campus Safety	(909)607-2000 (from a campus phone, dial x72000)	Open 24/7

## 9. Procedure

### General Emergency Response

**9.1** The general emergency response procedures for earthquakes, fires and evacuations, medical emergencies, crimes, bomb threats, utility failures, and hazardous spills are described in the Pomona Emergency Brochure hanging in each laboratory (usually located near exits). You can also find the brochure online: . Each individual within the lab is required to review the Emergency Brochure and certify that they have understand the information before starting a lab activity.

**9.2** Below is a brief summary of the most important information inside the Emergency Brochure:

**9.3** Upon answering be ready to provide the following information:

- Your name
- Location of emergency
- Contact phone number(s)

**9.4** Campus Safety will assess the situation and call any necessary services (e.g. ambulance, fire department, etc.)

**9.5** Pomona College On-Call Deans and the Monsour On-Call Counselor are reachable via Campus Safety's emergency number.

**9.6** For non-emergency numbers where information is needed, call

- CUC Student Health Services: 909-621-8222
- CUC Environmental Health & Safety: 909-621-8538

**9.7** Lab Contract list is posted in SGM 133. Please note it's location.

### Earthquakes Procedure

**9.8** Earthquakes are common to southern California. Developing an effective strategy before an earthquake strikes is key to laboratory safety.

**Indoor Reponse** Move away from windows, filing cabinets, shelves, chemicals and other heavy objects which may fall. "Duck, Cover, and Hold" until shaking stops. If you are not near a table or sturdy desk, crouch against an interior wall or between seating rows in an auditoriums, and cover your neck and head. If youre standing in a doorway, brace yourself against the frame, with your back to the door.

Once shaking stops, leave the building. Take any necessary items with you (e.g. phone, wallet, medication) and go to the nearest Pomona College evacuation site and wait for further instructions. If possible, put on shoes as there could be broken debris.

**DO NOT USE ELEVATORS!**

**Outdoor Reponse** Move away from buildings, trees, signs, electrical poles and wires. Protect your head and neck (in case of falling debris). After shaking stops, go to the nearest Pomona College evacuation site and wait for further instructions (please see Campus Emergency Evacuation Sites map below).

**9.9 \*AFTERSHOCKS MAY OCCUR.\*** Be Prepared! And if they do, follow the appropriate evaluation plans for your area.

## **Fires & Evacuation Procedures**

Please see "Fires" below under "Lab Emergency Response"

## **Medical Emergencies**

**9.10** Call Campus Safety. Let Campus Safety know the victim's condition.

**9.11** Provide necessary first aid until Campus Safety and/or emergency services arrive.

**9.12** See Campus Emergency Evacuation Sites Map for AED locations (Figure 9.12).

## **Crime on Campus**

**9.13** Report all crimes and suspicious activity on or near campus to Campus Safety.


**Active Shooter** If shooter is in a building, exit the building if it is safe to do so. Close laboratory door and make sure it is locked. Only allow others in if they can be let in safely. Call Campus Safety.

**Campus Lockdown** If leaving a building is not possible or if a campus lockdown is enacted:

- Go to the nearest room.
- Close and lock door (if theres no lock, barricade the door with heavy objects).
- Turn off lights. Pull down window shades.
- Keep quiet. Silence phones.

## CAMPUS EMERGENCY EVACUATION SITES

## EVACUATION SITES

- |   |                            |  |                                     |
|---|----------------------------|--|-------------------------------------|
|  1 | MUDO-BLAISDELL PARKING     |  7  | NE CORNER COLLEGE & 7 <sup>TH</sup> |
|  2 | WIG BEACH                  |  8  | NW CORNER COLLEGE & 7 <sup>TH</sup> |
|  3 | OPEN AREA BEHIND OLDENBORG |  9  | ACADEMIC QUAD                       |
|  4 | MARSTON QUAD (WEST END)    |  10 | WALKER BEACH                        |
|  5 | MARSTON QUAD (EAST END)    |  11 | ATHEARN FIELD                       |
|  6 | MERRITT FIELD              |  12 | METRO PARKING LOT                   |

Building Legend			
Building Name	Stories	Room/Location	Count
Alexander Hall	4	Housekeeping	12
Andrew Science Building	7	Hadden Pool	9
Baldwin House	2	Harvard Court	6
Bracket Observatory	3	Karyon House	1
Bridges Auditorium	5	Lantry Court Dorm	11
Bridges Hall of Music	5	Lebus Court	4
Carnegie Building	9	Lincoln Building	9
Clark I	10	Lyon Court Dorm	2
Clark II/Worton	10	Mason Hall	9
Clark V	10	McCarthy Building	9
Cook House	2	Millikan Lab	7
Cottages	2	Moel-Blossfeld	1
Cowart II Building	7	Museum of Art	4
Crookshank Hall	9	Oldenberg 3	
Dane's House	8	Organic Farms	3
Decus Field	3	Praley Tennis Complex	6
Draper Center	10	Pearsons Hall	9
Edmunds Dormitory	10	Pharmaceutical Business	10
Frank Drining Hall	3	Piedmont Palace	1
Frank Drining Hall	11	Pomona Hall	11
Gibson	1	President's Center	4
Grounds	12	Rains Center	6
		Rennbush Hall	4
		Rennick House	2
		Rogers Tennis Complex	1
		Seaver House	4
		Seaver Biology Building	8
		Seaver North Lab	1
		Seaver South Lab	8
		Seaver Theatre	3
		Seelye G. Mudd Building	7
		Smiley Dorm	5
		Smith Campus Center	5
		Soccer Field	6
		Sontag Greek Theatre	3
		Sontag Parking/Field	11
		Strehle Inack	6
		Studio Art Center (2014)	3
		Summer Guest House	2
		Summer Hall	5
		Tennis/Tenck Offices	6
		Thatcher Music Building	10
		Walker Hall	1
		Wolton Commons	11
		Wig Hall	4
		156 W. 7th St.	2



## EVACUATION MAP

- Call Campus Safety.

**Bomb Threat & Utilities Failure** (please review the Emergency Brochure for more information)

## Hazardous Materials Spills

**9.14** Refer to "Chemical Spills" in SOP02 Handling of Hazardous Materials"and the Emergency Brochure for detailed information on the procedures for Minor and Major Chemical Spills.

## Campus Emergency Evacuation Sites

See Figure 9.12 and (<http://www.pomona.edu/sites/default/files/emergency-instructions.pdf>)

## Emergency Procedures - Lab

**9.15** At minimum these are the responses you should know. Look at the SDS (Safety Data Sheets) for more detailed instructions on how to respond for the particular chemicals.

**9.16** In the case of a small fire, you may attempt to use a fire extinguisher to douse the flames (Make sure to know the location of the fire extinguisher within your laboratory). When dealing with a fire, remember:

- Remove people from the area
- Activate the closest fire alarm
- Call Campus Safety
- Extinguish the fire, if safe
  1. When using a fire extinguisher, place yourself between the fire and the exit;
  2. Pull the pin
  3. Aim the nozzle towards the base of the fire
  4. Squeeze the handle to release the extinguishing agent
  5. Sweep the base of the fire from side to side
- Only use one fire extinguisher; if the fire cannot be put after discharging one fire extinguisher, do not attempt to find another. Instead, leave the room, close the door behind you, and go to the nearest Pomona College evacuation site and wait for instructions.

**9.17** If trapped in a building:

- Call Campus Safety
- Close all windows and doors
- Wet and place cloth material around and under door to prevent smoke from entering

**9.18** If there is a hazardous chemical spill in the laboratory do not attempt to clean it up. Appropriate attire and methods are required in order to prevent injury. Contact lab instructor or supervisor for further instruction. If chemicals get in your eye, flush eye for 15 minutes at the eyewash station. Additionally, if toxic materials are spilled on your body, remove all clothing and stand beneath the lab shower for 15 minutes. In the event of inhalation, move to fresh air, and find further information on the chemical inhaled.

**9.19** If someone is at risk protect yourself first, only provide assistance if you can do so safely. Alert your supervisor of the situation so that proper actions can be taken.

## 10. References

**10.1** [Earthquake Preparedness](#)

**10.2** [UC Davis Lab Safety Template](#)

**10.3** [Dartmouth College Safety Resources](#)

**10.4** [TTU Lab Explosion Case Study](#)

**10.5** [Pomona College Lessons Learned](#)

**10.6** [Stony Brook Lab Safety Information](#)

**10.7** APHA, AWWA. WEF. (2012) Standard Methods for examination of water and wastewater. 22nd American Public Health Association (Eds.). Washington. 1360 pp. (2014).