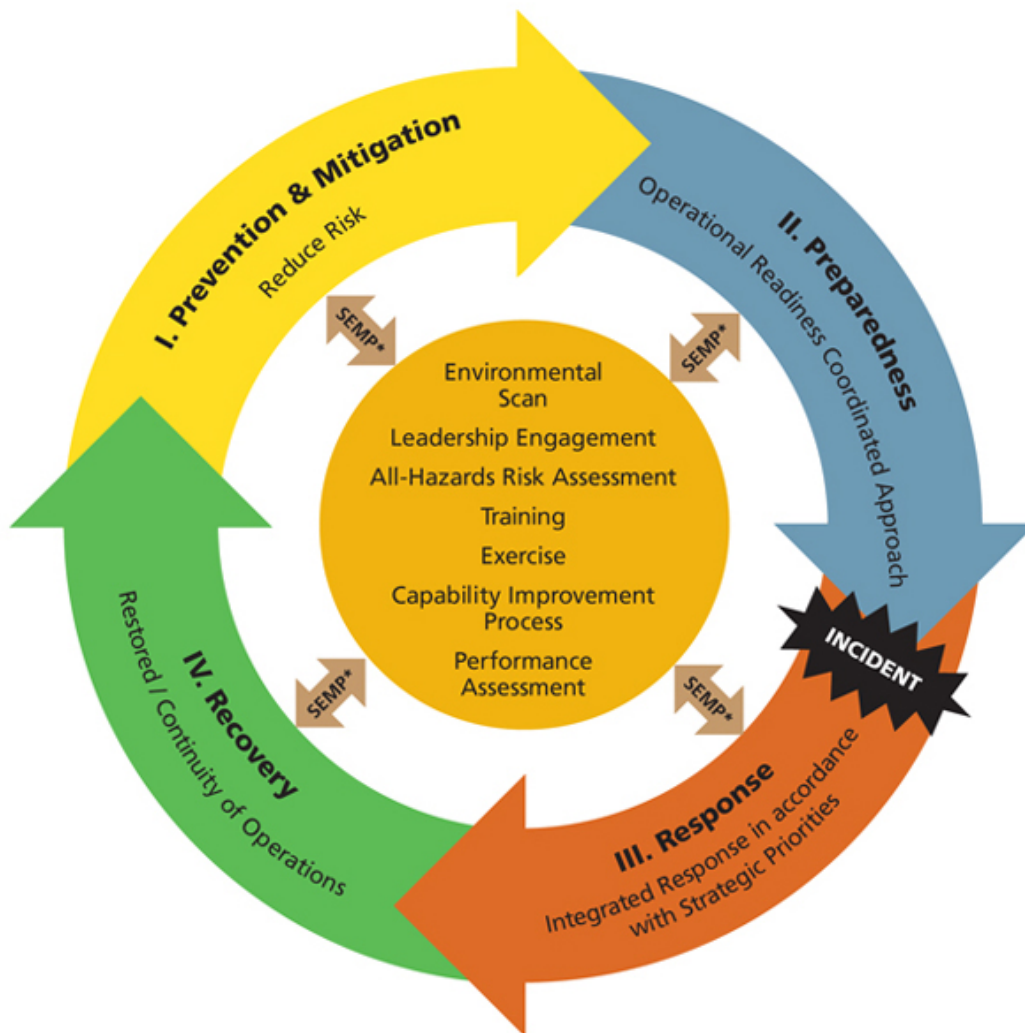


EMERGENCY ACTION PLAN

DIVISION OF CHEMISTRY AND
CHEMICAL ENGINEERING



October 2021

TABLE OF CONTENTS

Emergency Assembly Areas	3
Evacuation Map	4
Division Response Coordinators	5
Building Coordinators	7
Floor Wardens/Safety Coordinators	8
Safety Coordinator Guide.....	9
CCE Division Essential Functions	14
Appendix A - Definitions	16
Emergency Report - Safety Coordinator.....	18
Emergency Report - Building Coordinator.....	19
Emergency Report - Division Command Center.....	20

EMERGENCY ASSEMBLY AREAS

Building Assembly Area (Assigned by the Division for Buildings)

The Division Command Center is located in the Iris Garden north of Gates Annex, along San Pasqual walkway

<u>Building</u>	<u>Assembly Location</u>
Beckman Institute	Beckman Institute lawn in the middle
Braun Lab	Grass area west of building near Wilson
Broad Center	North half of Beckman Institute lawn near Broad Center
Church Lab	On San Pasqual walkway north of Church and south of the flag stone patio
Crellin Lab and Gates Annex	Area north of Gates Annex Chemistry Library (The Iris Garden)
Mead Lab	South half of Beckman Institute lawn across from Mead Lab
Noyes Lab	Flagstone courtyard east of Braun Lab and south of Noyes
Schlenger Lab	North side parking lot of Schlenger
Spalding Lab and Fairchild Library Subbasement	Lawn east of Spalding Lab and north of Hameetman Center

Campus Assembly Area (Assigned for Campus wide evacuations)

Braun Athletic Center – Baseball Field; Alternate Site – Track Field

EVACUATION MAP



Beckman Institute

Beckman Institute Lawn in the middle

Braun Lab

Grass area north of building near Wilson

Broad Center

North half of Beckman Institute Lawn near Broad Center

Church Lab

On San Pasqual walkway north of Church and south of the flag stone patio

Crellin Lab and

Area north of Gates Annex Chemistry Library (The Iris Garden)

Gates Annex

Mead Lab

South half of Beckman Institute Lawn across from Mead Lab

Noyes Lab

Flagstone Courtyard east of Braun Lab and south of Noyes

Schlinger Lab

North side parking lot of Schlinger

Spalding Lab and

Lawn east of Spalding Lab and north of Hameetman Center

Fairchild Library Supplement

Jorgensen Lab

Lawn south of Jorgensen Lab

DIVISION RESPONSE COORDINATORS

Division Command Center

Grace Liang-Franco
CCE Operations Officer
(626) 241-5990 cell
Office ext. 3030

Dennis Dougherty
CCE Division Chair
(626) 799-3497 home
Chair office ext. 3646

Joe Drew
CCE EH&S Liaison
(626) 812-8700 home
(626) 327-6129 cell
Office ext. 2745

Rebecca Fox
Assistant to the Operations Officer
(626) 485-9400 cell
Office ext. 6043

Kerry Gomez
Assistant to the Division Chair
(626) 502-5339 cell
Office ext. 3904

EHS Command Center		
Caz Scislowicz, Catherine Chistensen, Haick Issaian, Larry Martinez, Art Seiden		
CCE Division Command Center		
Dennis Dougherty, Joe Drew, Rebecca Fox, Kerry Gomez, Grace Liang-Franco		
Building Coordinators		
Beckman Institute	Braun	Broad
Susan Ruffins	Shannon Park (BBE) Sowmya Chandrasekar	Allen Lee
Church	Crellin	Noyes
Ricardo Zarazua	Courtney Oaida	Margarita Davis
Schlenger	Spalding	
Julianne Just	Allison Kinard	
Floor Wardens/Safety Officers		
Beckman Institute	Braun	Broad
Soonho Kwon/Goddard	Eunny Bae/Campbell	Allen Lee/Clemons & Rees
Jay Winkler/Gray	Tori Walling/Chong	Monica Breckow/Mayo
Jake Evans/Lewis	Chris Bley/Hoelz	Ruben Bay'on/OLAR
	Carl Parker	Carina Rumaldo/OLAR
	Sowmya Chandrasekar/Shan	
Church	Crellin	
Tori Walling/Chong	Hailey Knox/Dougherty	
Quan Gan/Grubbs	Paul Oyala/EPR	
Alex Sorum/Hsieh-Wilson	Alvin Torres/Fiscal Office	
Yu Shiu Chen/Ondrus	Mona Shahgholi/MassSpec	
Ricardo Zarazua/Shops	Sepand Nistanaki/Nelson	
Ross Barber/Robb	David Vender Velde/NMR	
	Ailiena Maggiolo/Rees	
	Ross Barber/Robb	
	Armando Villaseñor/Stockrm	
	Annette Luymes/Crellin 3rd Floor	
Noyes	Schlenger	Spalding
Angela Shiao/Agapie	Scott Virgil/Catalysis Center	Allison Kinard/2nd Floor Admin
Kausar Raza/Barton	Mingyi Wang/Flagan & Seinfeld	Sabine Brinkmann-Chen/Arnold
Jesse "Jack" Beauchamp	Xiaoyu (Dan) Tong/Fu	Nathaniel Goldberg/Arnold
Linqing Peng/Chan	Emily Savela/Ismagilov	Alec Glisman/Brady
Wonseok Lee/Cushing	Sarah Simon/Ismagilov	Faisal Alshafei/Davis
Jay Winkler/Gray	Matt Cooper/Ismagilov	Robert (Bobby) Grayson/Giapis
Ryan Ribson/Hadt	Andy Ylitalo/Kornfield	Suresh Guptha/IT Admin
Sean Byrne/Lewis	Emily Boyd/Peters	Sonjong Hwang/NMR
Margarita Davis/Marcus	Sara Dibrell/Reisman	Margaret Swift/Shapiro
Jorge Rosa/Miller	Alexia Kim/Stoltz	Stephanie Breunig/Tirrell
Vignesh Bhethanabotla/Miller		Zimu (Grace) Wang/Tirrell
Doug Ober/Okumura		Michael Vici/UG Lab
Steve Kim/See		Sam Varner/Wang
Kun Miao/Wei		
Linde + Robinson	Jorgensen	S. Mudd
Ryan Ward/Seinfeld	Zachary Ifkovits/Lewis	Haw Wei Lin/Blake
Chris Kenseth/Seinfeld		

Last updated: 10/13/2021



BUILDING COORDINATORS

Building Coordinators are responsible for implementation of evacuation plans for their respective buildings, communicating with floor wardens, and conducting visual inspections of the building for evacuation hazards.

Building Coordinators conduct periodic safety walk-throughs of the building and participates in an annual evacuation drill. Building Coordinators should maintain a list of individuals trained in First Aid/CPR who are willing to administer care during an emergency.

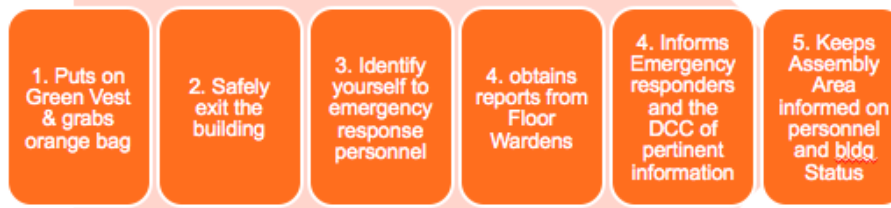
Before an Emergency

- Know location of emergency assembly areas
- Become familiar with occupants and develop a roster
- Identify those who may need additional assistance
- Know who the floor wardens are
- Identify yourself to Bldg. occupants as the Bldg. Coordinator
- Keep the Orange Trauma Bag current
- Notify FWs when you will be on vacation
- Be familiar with the location of the following emergency equipment:
 - Fire alarm pull stations
 - Fire Extinguishers
 - Emergency Exits
 - Evacuation Routes
 - First aid supplies
 - Emergency supplies
 - Emergency shower and eye wash stations
- Determine how you will communicate with floor wardens, bldg. occupants, and the Division Control Center



During an Emergency

Each building has a Building Coordinator
In the absence, a FW should step in.



Never compromise your own safety

Caltech

FLOOR WARDENS/SAFETY COORDINATORS

Safety Coordinators are assigned to each lab group or floor within a building to provide assistance to occupants and visitors during evacuations and other emergency situations. Safety Coordinators direct the evacuations of their lab to the nearest emergency exit; prevent individuals from using the elevators, provide pertinent information about individuals remaining inside the building or about hazardous conditions to the Building Coordinator, direct individuals to the assembly area and discourage individuals from re-entering the building until it has been cleared by Campus Security or the Pasadena Fire Department.

Before an Emergency

- Know location of emergency assembly areas
- Become familiar with occupants and develop a roster
- Identify those who may need additional assistance
- Know where the 'Orange bag' is kept
- Know who the other floor wardens are
- Identify yourself to others in your area as a floor warden
- Be familiar with the location of the following emergency equipment:

- Fire alarm pull stations
- Fire Extinguishers
- Emergency Exits
- Evacuation Routes
- First aid supplies
- Emergency supplies
- Emergency shower and eye wash stations
- Let people in your area know they will need to check in with you before leaving the assembly area
- Determine how you will communicate emergency information to the Bldg. Coordinator

During an Emergency

One Safety Officer Per Lab (minimum)



Never compromise your own safety

Caltech

SAFETY COORDINATOR GUIDE



SCOPE

The scope of the Laboratory's Safety Program includes:

- General Laboratory Safety
- Fire Prevention
- Earthquake Preparedness
- Hazardous Materials Safety
- Hazardous Waste Management

LABORATORY RESPONSIBILITY

The lab's faculty member has the overall responsibility for all the lab activities, which include:

- Injury and Illness Prevention
- The OSHA Laboratory Standard

Day-to-day details have been delegated to the group's Safety Coordinator.

GROUP SAFETY COORDINATOR RESPONSIBILITIES SAFETY INFORMATION

The Group Safety Coordinator is expected to obtain safety information for the lab

- Safety Data Sheets
- Chemical Hygiene Plan
- Biosafety Manual
- Emergency Response information
- Recipient of new information and guidelines

DIVISION SAFETY COMMITTEE

The Safety Coordinator interacts with the Division Safety Committee as well as the Environment, Health, and Safety Office by:

- Investigating incidents and taking appropriate corrective action
- Acting as the group contact for the semi-annual Safety Survey
- Arranging for corrective action for any identified safety issues
- Acting as hazardous waste coordinator for the group
- Acting as a Safety resource for the group

SAFETY ORIENTATION

The Safety Coordinator provides orientation and safety training to any new lab member. See [Appendix A](#). New members may include:

- Researchers
- Visitors
- SURF/MURF, Summer Hires
- Caltech Undergraduates
- Volunteers

TECHNICAL RESOURCE

The Safety Coordinator provides technical guidance to any group member for proposed experimental work where hazardous materials are being used.

EVACUATION COORDINATOR

The Safety Coordinator acts as Evacuation Coordinator/Floor Warden in emergencies such as fire or earthquake by:

- Developing a plan for shutting down experiments when evacuating the lab
- Evacuating the lab
- Providing new members of the group with specific safety and emergency response training unique to the group

EXAMPLE WORKPLACE SPECIFIC SAFETY ORIENTATION CHECKLIST

WORKPLACE SPECIFIC SAFETY ORIENTATION CHECKLIST FOR INCOMING RESEARCHERS

The Caltech Academic Divisions are concerned that all researchers know, understand, and observe good safety practices and procedures. For your benefit and safety, we require that you complete this safety checklist together with the Safety Coordinator in your laboratory. *This must be done immediately!*

INSTRUCTIONS:

Please discuss the items on this sheet with the Safety Coordinator in your laboratory or with your mentor. Check off the items or mark N/A if they do not apply to your research environment. (Note: The Emergency Procedures section applies to all researchers).

Any researcher must receive work area specific safety training before starting a project in a laboratory. Safety Training should:

- Discuss Emergency procedures.
- Discuss available safety related resources including www.safety.caltech.edu.
- Discuss lab specific hazards which may include processes, equipment, chemicals, and/or contact with animals.

The researcher must provide the name of the group's Safety Coordinator or mentor, sign the form, and return the completed form to the appropriate Division Office.

PERSONAL INFORMATION

Researcher's First Name:	Researcher's Last Name:
Phone:	Email:
Position:	Lab Group
Coordinator Last Name	Coordinator First Name

Emergency Procedures

- ☐ For Campus Emergencies, dial 5000
- ☐ Location of the nearest emergency exit and alternate route
- ☐ Emergency assembly point for the building: _____
- ☐ Location of fire extinguishers
- ☐ Locations of pull stations
- ☐ Locations of eyewash and shower stations
- ☐ Locations of first aid kits
- ☐ Contents of the Caltech Emergency Response Guide
- ☐ Notify Safety Officer or supervisor of any injury/illness at work
 - ☐ Campus Hot Line 1- (626) 395-3291 and 1- (888) 427-7465
- ☐ Safety Data Sheets locations (<https://safety.caltech.edu/sds>)

HAZARD SPECIFIC TRAINING

For a list of current trainings available through the Environment, Health, and Safety Office go to www.safety.caltech.edu/training.

Check Applicable Hazards	Topic	Training by (Safety Office, Safety Coordinator, other)	Date Trained
--------------------------	-------	--	--------------

- ☐ New Researcher Orientation
- ☐ Biological Safety
- ☐ Blood Borne Pathogens (working with human cells, blood, tissue and fluids)
- ☐ Chemical Handling Procedures
- ☐ Chemotherapy/cytotoxic drugs
- ☐ Controlled Substances
- ☐ Cryogenics
- ☐ Euthanasia/anesthetic agents
- ☐ Hazardous Waste Handling
- ☐ High pressure applications
- ☐ High vacuum applications
- ☐ High voltage applications
- ☐ Hydrofluoric acid handling
- ☐ Non-innocuous euthanasia/anesthesia agents
- ☐ Personal Protective Equipment
- ☐ Radiation (i.e. laser, UV, etc.)
- ☐ Radiation (i.e. X-ray)
- ☐ Radioactive isotopes
- ☐ Standard wet chemistry
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

I reviewed and understand the above-mentioned Safety Orientation items.

Researcher _____

Date: _____

Safety Officer _____




Date: _____

Division	Division Administrator	Mail Code
Biology and Biological Engineering	David Warren	156-29
Chemistry and Chemical Engineering	Grace Liang-Franco	164-30
Engineering and Applied Sciences	See Building Administrator	See Building Administrator
Geology	Aleen Boladian	170-25
Physics, Math, and Astronomy	Shruthi Arachya	103-33

CCE DIVISION ESSENTIAL FUNCTIONS

Identify department critical operations and resources that need to be protected; e.g. research, freezers, animals, equipment, data/confidential records; individuals responsible for protecting and salvaging departmental resources; and plans in place to ensure continuation of critical operations (data back-up, off-site storage, etc.)

THE FOLLOWING FUNCTIONS WILL REQUIRE EMERGENCY POWER EXCEPT AS NOTED.

	Red = Primary power need
	Yellow= Secondary power need
	Green = Tertiary power need

Building	Room	PI	N/A	Red	Yellow	Green
BI	B209	H.B. Gray				Cold Room
BI	B204	H.B. Gray		-70 Freezer	-20 Freezer	
Braun	118	C.S. Parker		-70 Freezer	-20 Freezer	
Braun	118	A. Hoelz	X	On back up Generator		
Braun	118	S. Shan		-80 Freezer	-30 Freezer	-80 Freezer
Braun	134	J.L. Campbell				-20 Freezer
Braun	118	J.L. Campbell		-80 Freezer	-80 Freezer	
Broad	B140	W.M. Clemons		-80 Freezer left in aisle	-80 Freezer right in aisle	
Broad	B140	W.M. Clemons				-20 Freezer
Broad	B110C	D.C. Rees		-80 C Ultra Freezer	-80 Freezer	
Church	B106G	A. Ondrus		CryoTank	-80C Freezer B	-20C Freezer B
Church	105	L. Hsieh-Wilson		-80 Freezer	-20 Freezer	-20 Freezer
Church	202	R.H. Grubbs				-20 Freezer
Church	217	R.H. Grubbs		Glovebox 1	Glovebox 2	
Church	320	M. Robb		Refrigerator	Glovebox	Freezer
Crellin	157	Stockroom		-20 Freezer	-20 Freezer	-20 Freezer
Crellin	247	D.A. Dougherty		-80 Freezer		
Crellin	255	D.A. Dougherty			-20 Freezer	-20 Freezer
Crellin	262	CMCM		-80 C Ultra Freezer		
Crellin	264	D.C. Rees		Anacrobic Tents		

Linde Robinson	G16	Flagan/ Seinfeld		Freezer / fridge		
Noyes	B101	L. Wei		-80 C Ultra Freezer		-20 C Flammable Refrigerator
Noyes	B109B	L. Wei			CO2 Incubator for Cell Culture	
Noyes	B156	R.G. Hadt		Glovebox	-80 Freezer	-20 Freezer
Noyes	129B	J.K. Barton				Coldroom
Noyes	129D	J.K. Barton		-80 Freezer	-80 Freezer	
Noyes	227	N.S. Lewis		Glovebox		
Noyes	301/303	T. Agapie		Glovebox 2&3	Glovebox 1&4	
Noyes	309	T. Agapie				Glovebox 5&6
Noyes	321	H.B. Gray			Glovebox	
Noyes	329	K.A. See				Glovebox
Noyes	329B	K.A. See		UPS power	UPS power	
Schlenger	202	G.C. Fu		-20 Freezer	-20 Freezer	
Schlenger	208	J.C. Peters				Glovebox
Schlenger	212	G.C. Fu				Glovebox
Schlenger	213	J.C. Peters			Glovebox	
Schlenger	302	B.M. Stoltz		-20 Freezer	Glovebox	
Schlenger	308	B.M. Stoltz				Mass Spec
Noyes	325	H.B. Gray		4° Refrigerator		
Spalding	B132	M. Davis		-80 Freezer	Freezer/Fridge Combo	Ultra Low Freezer
Spalding	122	M. Vicic		-70 Freezer	4° Deli Fridge	
Spalding	242	F. Arnold		Eppendorf Cryo Cube Upright -80 Freezer	New Brunswick - 80 Chest Freezer	
Schlenger	312	S. Virgil				Glovebox
Spalding	312	D. Tirrell			-80 Freezer	
Spalding	332	D. Tirrell		-80 Freezer		
Spalding	332	D. Tirrell				-20 Freezer
Spalding	348	F. Arnold				Flammable Fridge

Updated 10/22/2020

APPENDIX A

DEFINITIONS:

Alternates: individuals assigned as back-ups to specific emergency response positions.

Building Coordinator: designated by the department/division as the primary emergency contact for the building; responsible for implementation of the emergency action plan; assists with the safe evacuation of the work area (with assistance of floor wardens); assesses injuries and damage to the work area personnel/property and reports status to the DCC.

Department/Division Control Center (DCC): Departments and Divisions should establish an area where individuals can convene to identify and manage Dept/Div specific issues during or following an emergency. The DCC communicates either by runner, radio, telephone or fax to the Emergency Operations Center. Status updates, resource requests and information is shared to help determine our response priorities.

Emergency Action Plan (EAP): prepared by each campus department/division, the EAP is specific to each work area and outlines various emergency responsibilities of staff, evacuation routes and evacuation assembly areas, emergency supplies, and emergency notification plans.

Emergency Hotline: an emergency information hotline for the campus community. Following a major emergency situation, updates on the status of the campus and instructions will be recorded on the hotline.

Staff Information: (888) 427-7465

Student Information: (888) 427-7512

Emergency Operations Center (EOC): the EOC is where crisis management committee members gather to coordinate the response to an emergency impacting the campus community, deploy emergency response teams, and communicate with outside support services. The primary EOC location is in the Physical Plant Conference Room.

Evacuation Assembly Areas (EAA): areas designated by each department where occupants of evacuated buildings assemble to await further instruction and “all clear” notifications.

Floor Wardens: designated employees that assist the building coordinator in building evacuations. Floor Wardens direct other employees out of the work area, make observations of injured/damage, and assist individuals with special needs. Floor Wardens are equipped with an orange vest and yellow bump-caps.

SAFETY COORDINATOR REPORT

Reports should be sent to your Building Coordinator

GROUP NAME:				Date:	Report #
				Time:	
Safety Coordinator Name:					
CRITICAL ISSUES/CONCERNS:					
Has the lab and offices been evacuated? YES / NO					
PEOPLE – How many are accounted for?					
Is Headcount Complete?	# Trapped	# Missing	# Injured	Additional Comments/Names of Missing	
Yes / No					
LABORATORY – Was the lab cleared?					
Can Lab Be Occupied?	Damage			Hazards e.g. Hazmat Spills, Flood	
Yes / No / Unsure	Major	Mod	Minor	None	
ADDITIONAL COMMENTS:					

BUILDING COORDINATOR REPORT

Reports should be sent to your Division Control Center

BUILDING NAME:				Date:	Report #
				Time:	
Building Coordinator Name:					
CRITICAL ISSUES/CONCERNS:					
Has Building Been Evacuated? YES / NO					
PEOPLE – How many accounted for?					
Is Headcount Complete?	# Trapped	# Missing	# Injured	Additional Comments	
Yes / No					
BUILDING					
Can Building Be Occupied?	Building Damage			Hazards e.g. Hazmat Spills, Flood	
Yes / No / Unsure	Major	Mod	Minor	None	
ADDITIONAL COMMENTS:					

DIVISION CONTROL CENTER (DCC) BUILDING STATUS REPORT

Reports can be sent to the EOC via Runner, Radio, Phone or Fax

Division / Department Name: Chemistry and Chemical Engineering			Date:		Event Report #	
			Time:		Releaser Initials:	
DCC Leader: Joe Drew	✓	Please provide contact numbers below and indicate preference				
DCC Location: Iris Garden on San Pasqual Walk between Crellin and Parsons Gates		VHF Radio Freq:				
		DCC Phone #:				
		DCC Fax #:				
		Other (e.g. sat phone, cell phone)				
CRITICAL ISSUES/CONCERNS:						
Building Name		Evacuated	Can bldg. be occupied?	# of Injuries		Notes
List building names		Yes/No	Yes/No	Major	Minor	Information/Observations/Comments