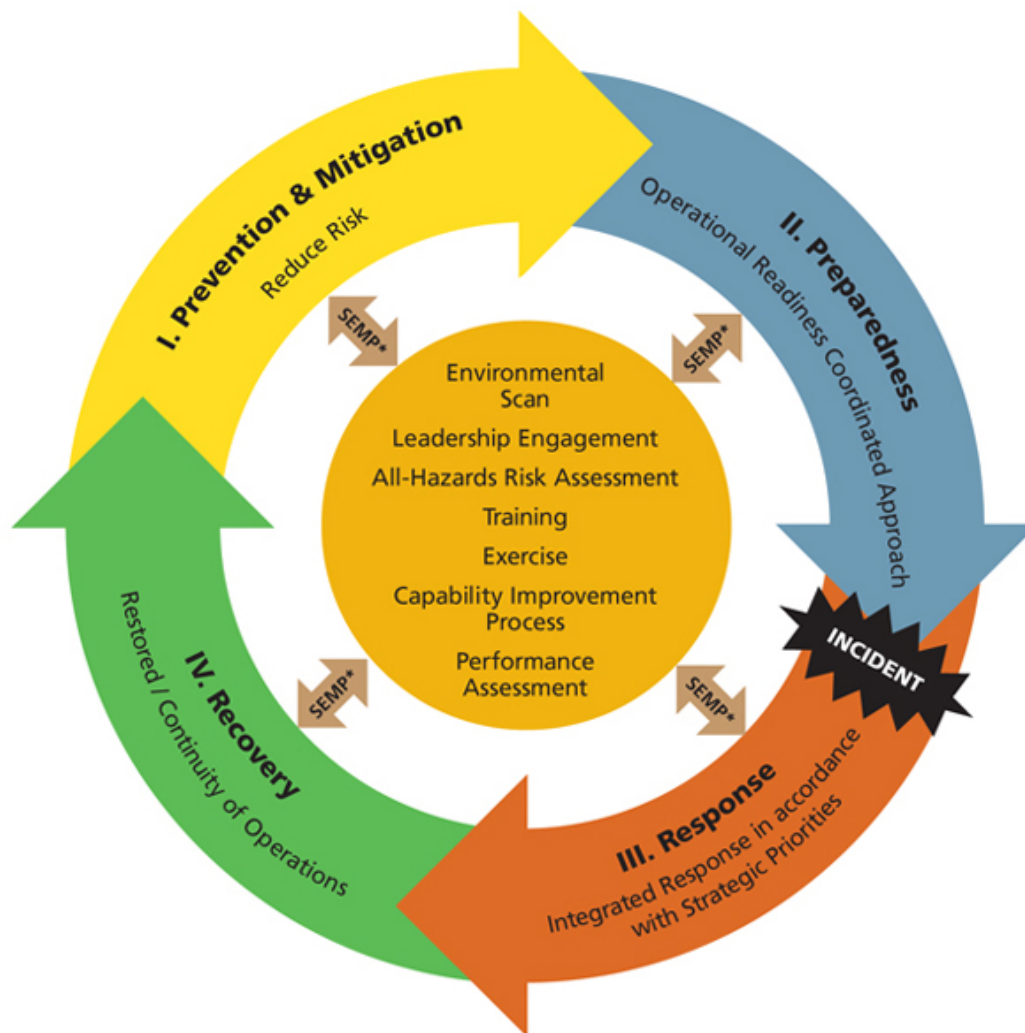


EMERGENCY ACTION PLAN

DIVISION OF CHEMISTRY AND CHEMICAL ENGINEERING



October 2023

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	Lawn east of Beckman Institute and south of the Gene Pool
Braun Lab	Lawn west of Braun near Wilson
Broad Center	Lawn west of Broad Center near Wilson
Chen Lab	On West Moore walkway south of Chen and north of the Broad Cafe
Church Lab	Lawn west of Church near Wilson
Crellin Lab and Gates Annex	Area north of Gates Annex Chemistry Library (The Iris Garden)
Jorgensen	Lawn south of Jorgensen Lab
Noyes Lab	North side parking lot of Schlinger, north of Schlinger group
Schlinger Lab	North side parking lot of Schlinger, south of Noyes group
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

Lawn east of Beckman Institute and south of the Gene Pool

Braun Lab

Lawn west of Braun near Wilson

Broad Center

Lawn west of Broad Center near Wilson

Chen Lab

On West Moore walkway south of Chen and north of the Broad Cafe

Church Lab

Lawn west of Church near Wilson

Crellin Lab and Gates Annex

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

Undergraduate Labs (Church and Crellin)

Under the oak tree just north of Church

Noyes Lab

North side parking lot of Schlinger, north of Schlinger group

Schlinger Lab

North side parking lot of Schlinger, south of Noyes group

Spalding Lab and Fairchild Library Supplement

Lawn east of Spalding Lab and north of Hameetman Center

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

Anya Janowski
Assistant to the Operations Officer
(818) 497-2663 cell
Office ext. 6099

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

EHS Command Center

Lauriane Quenee, Catherine Chistensen, Haick Issaian, Larry Martinez

CCE Division Command Center

Dennis Dougherty, Joe Drew, Anya Janowski, Kerry Gomez, Grace Liang-Franco

Building Coordinators

Beckman Institute	Braun	Church
Susan Ruffins	Allen Lee Sowmya Chandrasekar (backup)	Lauren Breeyear (co-coordinator) Katie Fisher (co-coordinator) Kenya Zeigler (co-coordinator)

Crellin	Noyes	Schlinger
Annette Luymes	Ann Mao Elisha Jung Okawa (backup)	Tomomi Kano/Schlenger Joyce Wu/Schlenger (Backup) Julianne Just/Schlenger

Spalding

Allison Kinard
Mi Kyung Kim (backup)

Floor Wardens/Safety Officers

Beckman Institute	Braun	Broad
Soonho Kwon/Goddard Vignesh Bethanabotla/Goddard Jay Winkler/Gray Natasha Reich/Lewis David Delgadillo/Nelson	Eunhy Bae/Campbell Shawn Yoshida/Chong Allen Lee/Clemons & Rees Chris Bley/Hoelz Carl Parker Allen Lee/Rees Sabrina Perez/Semlow Sowmya Chandrasekar/Shan	Monica Breckow/Mayo Ruben Bay'ori/OLAR Carina Rumaldo/OLAR

Church	Crellin
Quan Gan/Grubbs Alex Sorum/Hsieh-Wilson Channing Klein/Manthiram Jake Rothbaum/Nelson Nate Hart/Shops Skylar Osler/Robb	Chris Marotta/Dougherty Paul Oyala/EPR Alvin Torres/Fiscal Office Mona Shahgholi/MassSpec David Vender Velde/NMR Allen Lee/Rees Skylar Osler/Robb Max Robb/Robb Greg Rolette/Stockroom Rebecca Fox/Crellin 1st Floor Aracely Sustaita/Crellin 3rd Floor

Noyes	Schlinger	Spalding
Matthew Espinosa/Agapie Jesse (Jack) Beauchamp Linqing Peng/Chan Nick Heller/Cushing Jay Winkler/Gray Kaitlin (Katie) Luedecke/Hadt Dominic Covelli/Lewis Margarita Davis/Marcus Doug Ober/Okumura Chris Povinelli/See Kun Miao/Wei Jiajun Du/Wei Dan Weitekamp	Mingyi Wang/Flagan-Seinfeld Dang Tong/Fu Matt Ratanapanichkitch/Ismagilov Jin Mo Koo/Kornfield Emily Boyd/Peters Jordan Thompson/Reisman Jay Barbor/Stoltz	Mi Kyung Kim/2nd Floor Admin Sabine Brinkmann-Chen/Arnold Edwin Alfonso/Arnold John Brady Youngkyu Park/Davis Tufan Oz/Demirer Mark Legendre/Demirer Robert (Bobby) Grayson/Giapis Suresh Guptha/IT Admin Sonjong Hwang/NMR Margaret Swift/Shapiro Stephanie Breunig/Tirrell Zimu (Grace) Wang/Tirrell Michael Vici/UG Lab Sam Varner/Wang

Linde + Robinson	Jorgensen	S. Mudd
Ryan Ward/Seinfeld	Channing Klein/Manthiram	Pin Hsun (Albert) Hsieh/Blake

Last updated: 10/23/2023



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.

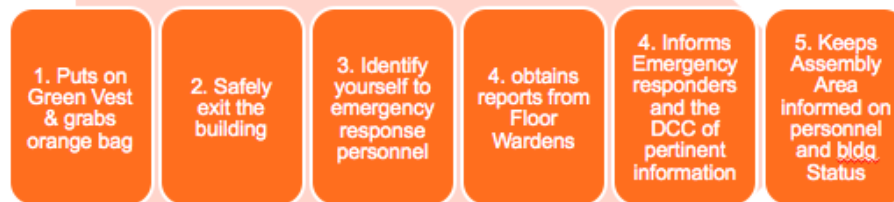
Before an Emergency

- ☐ 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

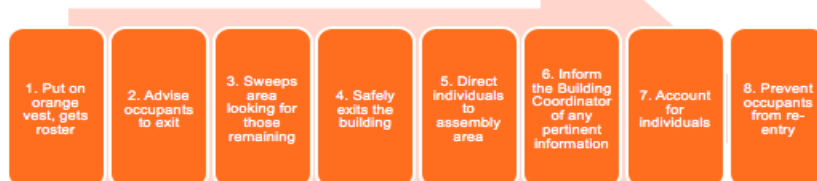
- ☐ Know location of emergency assembly areas
- ☐ Become familiar with occupants and develop a roster
- ☐ Identify those who may need additional assistance
- ☐ Know where the 'Orange bag' is kept
- ☐ Know who the other floor wardens are
- ☐ Identify yourself to others in your area as a floor warden
- ☐ 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	Shawna Silesky	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	
Braun	321	W.M. Clemons		-80 Stirling Ultracold Freezers (TWO)		
Braun	321	D.C. Rees		-80 Stirling Ultracold Freezer		
Broad	130 (soon 134)	S. Mayo				-80 Freezer
Broad	131	S. Mayo				-20 Freezer
Broad	133	S. Mayo				Small Incubator
Broad	136	S. Mayo				Large Incubator
Broad	138	S. Mayo				Beckman Floor Centrifuge
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	CMM		-80 C Ultra Freezer		
Crellin	264	D.C. Rees		-80 C Upright Freezer		
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	
Schlinger	B102	R.F. Ismagilov			PHCBI -80C Freezer	Grey Thermo -20C Freezer
Schlinger	B102F1	R.F. Ismagilov		-80C Minifreezer		
Schlinger	104	J. Kornfield		-80 Freezer		
Schlinger	108	J. Kornfield		-20 Freezer		
Schlinger	202	G.C. Fu		-20 Freezer	-20 Freezer	
Schlinger	208	J.C. Peters				Glovebox
Schlinger	212	G.C. Fu				Glovebox
Schlinger	213	J.C. Peters			Glovebox	
Schlinger	302	B.M. Stoltz		-20 Freezer	Glovebox	
Schlinger	308	B.M. Stoltz				Mass Spec
Noyes	325	H.B. Gray		4° Refrigerator		
Spalding	B132	M. Davis		-80 Freezer		
Spalding	122	M. Vivic				4° Deli Fridge
Spalding	242	F. Arnold		Eppendorf Cryo Cube Upright -80 Freezer	New Brunswick - 80C Chest Freezer	
Schlinger	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 6/22/2022

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	<input checked="" type="checkbox"/>	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