



Campus Power Outage – September 30, 2013

After Action Report

UC Berkeley

Office of Emergency Management

Issued: February 6, 2014

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This After Action Report is divided into five sections. **Section I** provides an overview of the incident. **Sections II-IV** list Strengths and Areas for Improvement identified during the debrief process* in three key areas: Roles and Responsibilities; Communication; and Buildings. **Section V** lists corrective actions identified to address Areas for Improvement and enhance campus readiness. Each corrective action is assigned a responsible campus unit and lists that unit's anticipated completion date.

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* The Office of Emergency Management (OEM) facilitated and/or coordinated seven campus debriefs and an additional five internal departmental debriefs were conducted by University Communications & Public Affairs, EH&S, UCPD, OLAC, and Student Affairs.

I. INCIDENT OVERVIEW

At approximately 1645 on Monday, September 30, 2013, UC Berkeley experienced a campuswide power outage that affected all buildings served by the campus electrical system. In response to the emergency, the University of California Police Department (UCPD) established an Incident Command Post (ICP) at the base of the Campanile to coordinate response efforts. Physical Plant – Campus Services (PP-CS) responded with high voltage crews to identify the cause and restore power. The City of Berkeley Fire Department responded to several incidents triggered by the loss of power, including multiple campus fire alarms and people trapped in elevators. Members of the Crisis Management Team (CMT) who were available gathered in California Hall to assess the situation.

Given the campuswide impact of the power outage, UCPD activated the WarnMe mass notification system at 1747. A message was sent to the entire campus informing them of the widespread outage and stating that more information will be provided as it became available. At 1800, the decision to cancel all classes and suspend lab activity was communicated through a second WarnMe message.

Upon learning the extent of the outage, around 1730 the Office of Emergency Management (OEM) began activating the campus Emergency Operations Center (EOC) at Level 2 (partial activation). At 1840, an explosion occurred in an underground electrical vault near California Hall. Three students were injured; one was transported to the hospital with non-life-threatening injuries. A third WarnMe message was sent at 1847 immediately following the explosion instructing people to evacuate the main campus.

Sunset on Sept 30th occurred at 1853 which emphasized the lack of lighting campuswide.

The Warren Hall EOC was operational and staffed by 1900. Displaced from California Hall due to the vault explosion, members of the Crisis Management Team (CMT) relocated to a Warren Hall conference room near the EOC.

A final WarnMe message was sent at 1923 stating “Power outage and explosion on campus. All are asked to leave the main campus area immediately”.

PP-CS electricians were able to restore power to portions of the campus at approximately 2045. By midnight, power was restored to all campus buildings except for 11 that were fed by the damaged power equipment.

Three of the 11 buildings had classes scheduled for the day following the outage, Tuesday, Oct 1st. The decision to cancel classes in those buildings was communicated to campus via the campus homepage at 0500 on October 1st, but a planned CalMessage email was not able to be issued until 0756. The Office of the Register worked to reschedule classes in the affected building and by October 2nd, either affected classroom buildings were on generator power or scheduled classes were held in alternate locations. The Chancellor’s Cabinet, scheduled to meet at 9 am on October 1st, gathered in an alternative location to share information, make policy decisions, and plan campus communications.

PP-CS contracted with vendors to bring large generators on campus to power several of the 11 affected facilities.

The campus EOC deactivated on Wednesday, October 2nd at 1200.

Over the next eight days, PP-CS worked to repair the damaged power system and was able to restore grid power to all remaining buildings by the morning of October 10th.

Complete Text of WarnMe Messages

WarnMe #1 (Issued at 1757): URGENT: The campus is experiencing a widespread power outage. More information will be provided as it becomes available.

WarnMe#2 (Issued at 1803): UPDATE: Classes are cancelled for the rest of today. Lab operations should be shut down. Check www.berkeley.edu OR 800-705-9998 for updates.

WarnMe #3 (Issued at 1847): EMERGENCY: There is a campus emergency. Please evacuate and return to your residences. Updates at www.berkeley.edu or 800-705-9998.

WarnMe #4 (Issued at 1923): EMERGENCY: Power outage and explosion on campus. All are asked to leave the main campus area immediately. Updates at berkeley.edu or 800-705-9998.

II. ROLES AND RESPONSIBILITIES

A. EOC Activation and Operations

The campus Emergency Operations Center (EOC) activated at 1900 on 9/30/2013 to coordinate response efforts to the power outage. Four campus Emergency Support Functions (ESFs) liaisons reported to the EOC: Utilities (PP-CS), Hazardous Materials (EH&S), Public Safety (UCPD), and Mass Care and Shelter (RSSP). Communication was established with the head of UHS, but a need for a liaison from the Public Health and Medical ESF was not identified. The EOC was deactivated at 1200 on 10/2/2013.

Strengths

- **Warren Hall location:** The new Warren Hall location functioned well as the campus EOC. The recently installed emergency power was especially useful. The additional space allowed the Crisis Management Team (CMT) to occupy the second EOC room since California Hall was without power.
- **EOC staffing:** Twelve EOC positions were activated and staffed. The first EOC shift (overnight on 9/30) executed a smooth transition to the second shift including a formal shift change briefing.
- **Support from IS&T:** IS&T staff provided solid support to the EOC during the activation including ordering food and water on the second day and securing a printer for the EOC. IS&T staff frequently checked in with EOC personnel to ensure all needs were being met.
- **Situation reports:** Written reports were issued every four hours while the EOC was activated; these reports provided summary information to both internal and external stakeholders.
- **ESF liaisons in the EOC:** Each activated ESF staffed the EOC with knowledgeable and helpful liaisons.
- **EOC Briefings to CMT:** During the period the CMT met in Warren Hall, the EOC Director provided periodic oral situation reports to the CMT.

Areas for Improvement

- **EOC activation notification:** There was not an official EOC activation notification sent out to internal and external partners informing them of the EOC activation and the Emergency Support Functions that were present.
- **Building liaison position:** No specific position was activated within the EOC to communicate with Building Coordinators and address building concerns.
- **EOC staff training and position checklists:** As the campus is in the process of identifying the appropriate people to staff the EOC, few individuals had been formally trained in their role or EOC procedures before the activation.
- **Overhead lighting:** The Warren Hall emergency generator power did not power much of the overhead lighting. UCPD brought in portable standing lights for the EOC.
- **EOC infrastructure enhancements:** Several key enhancements to the EOC had yet to be completed. These enhancements were slotted for implementation in October through December. The following is a partial list: provide building access to all EOC staff; install back-up Wi-Fi, purchase EOC laptops, and install televisions and radios.

- **Information flow between Incident Command Post (ICP) and EOC:** Some key information from the ICP was either not communicated to the EOC or bypassed the EOC and was communicated directly to the Crisis Management Team.

B. Crisis Management Team Activation and Operations

Some members of the Crisis Management Team (CMT), led by the Executive Vice Chancellor & Provost (EVCP), were assembled in California Hall shortly following the power outage. CMT members were still in California Hall when the vault explosion occurred two hours later. At that time, they relocated from California Hall to the Warren Hall EOC. The CMT ended its initial shift around 2300 on 9/30/13, and then reconvened by conference call around 0530 the following morning.

Strengths

- **Quick activation:** Several members of the team assembled quickly in California Hall to address the impact of the power outage. A conference call was quickly established to include the EVCP, Associate Vice Chancellor of University Communications & Public Affairs, Assistant Vice Chancellor Physical Plant – Campus Services, Assistant Vice Chancellor Human Resources and others.
- **Quick decision-making:** The decision to cancel Sept 30th evening classes was made quickly, even with limited information.
- **Located in proximity to EOC:** The CMT was forced to relocate to the EOC due to the vault explosion. The close proximity to EOC staff helped facilitate information flow. However, during a larger activation, that space will not always be available.

Areas for Improvement

- **No formal CMT activation:** CMT members did not receive notification of the CMT activation or briefing of the incident.
- **CMT training:** CMT members had not received training on roles and responsibilities identified in the Crisis Management Plan.
- **Emergency supplies:** The CMT did not have extra power cords for phones or computers. Water and other basic supplies were not available.

C. Departmental Operations Center (DOCs)

No Departmental Operations Centers (DOC) self-activated or were directed by the EOC to activate during the incident. Based on incident details, the activation of several DOCs – particularly the Facilities Services DOC – would have been appropriate.

Areas for Improvement

- **Clear activation protocols:** The campus Emergency Operations Plan (EOP) allows for both self-activation and activation at the direction of the EOC. DOCs need to be aware of this important distinction and align their activation procedures to include self-activation.

D. Building Coordinators

Building Coordinators (BCs) are an important component of the campus emergency response structure. The first BC message was sent Tuesday morning, approximately 12 hours after the campus lost power. Additionally, although the majority of campus had regained power within five hours of the outage, 11 facilities remained without grid power for between 8-11 days.

Strengths

- **Support to 11 affected buildings:** BCs in the 11 long-term affected facilities effectively prepared their buildings as they returned to grid power in the days following the campuswide outage.
- **Situation Reports to BCs:** Update emails from PP-CS on power restoration progress were forwarded to BCs to ensure they were up to date on recovery operations.

Areas for Improvement

- **Timely communication:** BCs needed incident information sooner and with increased frequency, especially regarding building closures. Information did not reach them in sufficient time to make important decisions related to building re-occupancy.
- **Information flow:** Not all BCs forwarded information to their building occupants.
- **BC training:** BCs need additional and ongoing training that focuses on preparedness and response roles.
- **Safety issues in buildings:** There was a need to have a stronger EH&S field presence to address building safety issues (especially in buildings containing labs).
- **BC hotline number:** This hotline was not utilized during the outage.
- **Information dissemination:** The way in which information was provided to BCs (email, WarnMe, campus website, etc.) was insufficient to their specific Building Coordinator role.

III. Crisis Communications & Public Information

A. Notifications and Warnings

The campus mass notification system (WarnMe – operated by UCPD) was utilized four times during the incident. UCPD also utilized the campus Alert and Warning System (loudspeakers) to notify people to evacuate the campus.

Strengths

- **WarnMe messages:** Most WarnMe messages were issued as quickly as information could be confirmed and was available for distribution. In particular, the evacuation message went out within 7 minutes of the vault explosion.

Areas for Improvement

- **Delay in PA notification:** The outage occurred at 16:45 and the Public Affairs office was notified at 17:20, significantly delaying the communications to the campus and community.
- **Message content too general:** The expected action from certain WarnMe messages was not completely clear. For example, the third WarnMe message said “Please evacuate and return to your residences.” The meaning of this message to “evacuate” but also “return” to residences was confusing and unclear to many residential students.
- **People reported not being able to hear Public Address (PA) system:** Building Coordinators reported the PA system was difficult to hear near the perimeter of campus.
- **People didn’t receive the WarnMe messages:** Many people did not get the WarnMe message either through text or email, or they received the WarnMe emails between 2-4 hours after being issued.
- **Number of WarnMe users:** There are over 81K users in the WarnMe system. This represents everyone with a Berkeley.edu email. However, approximately 25K of these users are not “active” Berkeley faculty, students, and staff. These additional non-active users may be slowing down the system.
- **“All Clear” message:** An “all clear” message should have been issued using WarnMe to close out the emergent phase of the incident.
- **KALX radio station:** The campus radio station was not utilized to push out messaging and updates during the incident.

B. Communication

Communications refers to messaging directed to the public at large and campus community during the outage. This communication is primarily managed by the University Communications & Public Affairs (PA).

Strengths

- **Media updates:** Updates were conducted throughout the evening from the PA liaison at the Incident Command Post. The liaison provided information and updates to the community at large via the news media since the berkeley.edu web site was impacted by the power outage. Three evening briefings were conducted, followed by an early morning update to news outlets covering the story the following day.
- **Social media:** Facebook and Twitter were important sources of information during the incident, and the main Berkeley properties added more than 3,000 followers during the incident. These tools were updated throughout the evening as well.
- **Website received 100K hits:** The campus community utilized the website as a source of information.
- **Situation Reports:** Written reports were issued every four hours while the EOC was activated, providing information to both internal and external stakeholders.

Areas for Improvement

- **Berkeley.edu website:** The updates to the website were infrequent throughout the night of 9/30 partly due to lack of confirmed information. The first update on 10/1 did not occur until approximately 0530.
- **Berkeley.edu versus emergency.berkeley.edu:** There is confusion on campus regarding which website to use during an emergency. Many in the campus community have the understanding that emergency information will be posted on the emergency.berkeley.edu webpage. However, this is incorrect, as emergency.berkeley.edu would *only* be utilized by Public Affairs if the main website went down.
- **Class cancellation came too late:** The notification on 10/1 that certain classes were cancelled came too late in the morning for many faculty and students, partly due to a decision to wait until a 0500 status report before issuing any messaging.
- **Conflicting messages:** Although the WarnMe message said “evacuate,” individuals on the exterior of campus reported hearing from UCPD officers to shelter-in-place, and that the evacuation message was only for central campus. The messages were also unclear for research labs, and created confusion for faculty, staff, and students working in labs.
- **Staff unclear regarding reporting to work:** Several staff reported being unclear about whether to come to work on Tuesday, October 1st. Depending on how each department structured its internal emergency phone tree, some staff were informed and others were not.
- **PP-CS phone lines overwhelmed:** Following the outage, PP-CS phone lines were overwhelmed and could not handle the call volume from campus.
- **Cal Messages:** While Cal Messages can be issued from any location via the web, only a limited number of staff (mostly administrative assistants) are authorized and trained to issue such messages. None of these staff were available to the EOC in the early morning of October 1.
- **First situational report issued late:** The first written situation report was issued 4.5 hours into the activation. Given the scope and impact of the outage, it should have been issued sooner.
- **PIO at the Incident Command Post:** Information from the ICP was being released to the media without appropriate confirmation and vetting.

IV. Buildings

A. Back-up Power

Because the installation of back-up (emergency) generators is driven primarily by modern fire code safety systems applicable to high-hazard (e.g. laboratory) occupancies, the majority of campus buildings do not have such generators. For buildings that have them, these generators typically power only certain systems and/or outlets in the buildings.

Strengths

- **Buildings with generators:** All but one of the 30 stationary emergency generators worked well through the outage.
- **Campuswide Electrical System Evaluation:** The campus Capital Renewal Program had initiated a review of the current condition of campus utilities, including an external consultant's assessment of the electrical power system. (Unfortunately, the assessment was still in progress when this outage occurred.)

Areas for Improvement

- **Generator power:** Key building occupants (i.e., Building Managers and Coordinators) are not certain which building circuits and outlets are connected to their building emergency generator.
- **Emergency lights:** Some emergency lights did not come on as expected, making it difficult for people to evacuate buildings and underground parking structures in the dark.
- **Data Center ventilation:** Although the ventilation system serving the Data Center in Warren Hall was properly connected to the building's emergency generator, a "force off" signal from the campus building management system overrode the front panel controls of the units. This caused the Center to become extremely hot and risked equipment failure.

B. Building Evacuation

A power outage does not automatically trigger a building evacuation. However, during a prolonged outage, building safety can become an issue and necessitate an evacuation. During the outage, some buildings did choose to immediately evacuate. However, the majority of buildings were evacuated two hours after the outage, immediately following the vault explosion.

Areas for Improvement

- **Fire doors closed:** When power was lost, the fire doors closed automatically and some were very difficult to open manually.
- **Students in wheelchairs:** Without elevators, people in wheelchairs cannot evacuate on their own. Several disabled individuals were trapped on upper floors of buildings awaiting evacuation assistance that didn't come or was delayed by an hour or longer.

- **Re-occupancy:** Once buildings had regained power, the process for reoccupying a building was unclear. There is uncertainty regarding who can officially clear a building for re-occupancy.

V. ACTION ITEMS

The following action items have been identified as correction actions to take to address the Areas for Improvement identified in this After Action Report. The Office of Emergency Management will track and report progress and completion of action items on a quarterly basis.

#	Action Item	Lead Responsible Unit	Supporting Unit(s)	Anticipated Completion Date
Roles and Responsibilities				
1	Restructure EOC organizational chart to reclassify "Damage Assessment" position into "Building Liaison" position. Determine the appropriate staffing for that position.	OEM	N/A	COMPLETED
2	Develop an EOC activation procedure that includes pre-scripted activation and deactivation messages, as well as ESF activation guidance.	OEM	N/A	COMPLETED
3	Continue EOC enhancements to build out EOC infrastructure and operational capability and capacity.	OEM	IST; PP-CS	COMPLETED
4	Develop comprehensive training and exercise plan that includes training, drills, and exercises for EOC/ESF staff, the Crisis Management Team, and Building Coordinators, and others.	OEM	N/A	March 2014
5	Complete a comprehensive and systematic update of the BC database.	OEM	N/A	April 2014
6	Develop ESF annexes that address guidelines for self-activation.	Each ESF	OEM	July 2014
7	Develop CMT activation procedures that include key notification and activation tasks.	VCAF	OEM	March 2014
8	Reconsider Stanley Hall as the secondary location for the CMT; consider a location in closer proximity to the Warren Hall EOC; secure CMT members access to all back-up locations	OEM	VCAF	May 2014
9	Develop policy language that identifies the appropriate staff or campus departments to potentially serve in the Recovery Manager position	OEM	Risk Services	June 2014

#	Action Item	Lead Responsible Unit	Supporting Unit(s)	Anticipated Completion Date
Communication				
10	Explore the concept of a secure website or other mechanism for BCs to receive information during an emergency.	OEM	IST	March 2014
11	Explore options to reduce the number of WarnMe users to only active faculty, students, and staff and resolve email delay issue.	IST	UCPD; OEM; HR	May 2014
12	Revisit Crisis Communications Plan to make most effective use of the variety of communication resources available, including social media, radio, etc.	PA	Student Affairs; other campus communicators	April 2014
13	Evaluate the role of Cal Messages in providing urgent information to the campus community, and modify procedures and staff training accordingly.	Chancellor's Office	EVCP; PA	April 2014
14	Clarify the roles and expectations of the Public Affairs positions in the EOC and expand its staffing depth.	PA	OEM	COMPLETED
15	Develop internal guidelines for using a stripped down website during a campus emergency.	PA	IST	COMPLETED
16	Develop policy language that outlines the expected response of campus community members when WarnMe messages are issued	UCPD	OEM; PA	June 2014
17	Reinvigorate WarnMe marketing campaign that encourages campus to sign-up for SMS text alerts as their first message priority.	OEM	PA; UCPD	April 2014
18	Explore options for more effectively managing call volume surge on both PP-CS and UCPD phone lines.	PP-CS; UCPD	IST	May 2014
19	Distribute communication messages regarding available psychological support resources to Public Affairs and EOC management for use in future emergencies.	UHS	PA	COMPLETED
Buildings				
20	Remove the "force off" connection between the building management system and the Warren Hall Data Center ventilation system.	IST	PP-CS	COMPLETED

#	Action Item	Lead Responsible Unit	Supporting Unit(s)	Anticipated Completion Date
21	Develop and begin implementing a research continuity proposal that addresses laboratory vulnerabilities and their continuity readiness.	OEM	VCR	March 2014
22	Develop ESF-10 Hazardous Materials plan that describes EH&S field operations and support to campus.	EH&S	OEM	September 2014
23	Clarify and communicate the roles and responsibilities for ensuring safe building re-occupancy following an extended power outage or other evacuation event.	EH&S	PP-CS; UCPD	April 2014
24	Conduct an assessment of campus generators to determine which building circuits and outlets are connected to each building emergency generator.	PP-CS	Building Managers	September 2014
25	Develop campus protocols that address class cancellation procedures in the event of an emergency.	EVCP	Academic Senate; Registrar; VPTLAPF	June 2014
26	Evaluate the emergency lighting systems in campus parking lots.	P&T	PP-CS	June 2014
27	Determine and address the causes of the power outage and explosion.	PP-CS	Risk Services	Determination by May 2014
28	Designate a position within Facilities Services responsible for providing regular updates to the campus community during recovery activities.	Facilities Services	OEM	June 2014
29	Complete the external review of the campus electrical system.	Capital Projects	PP-CS	April 2014