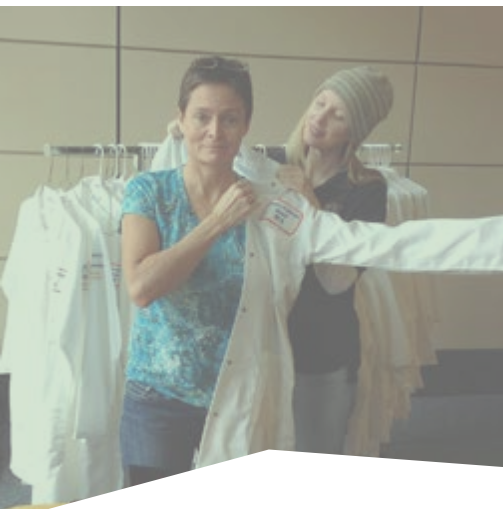


Progress Report 2015



When most people think of the UC Berkeley campus, their first thoughts are not about the 160,000 individual containers of hazardous materials in over 1,700 campus laboratories, the potential for workplace injuries in theaters and restaurants across campus, or how UC Berkeley will resume operations after a major earthquake on the Hayward Fault.

UC Berkeley's administration is charged with mitigating these and other hazards in order for the campus to achieve its mission of education, research, and community service.

The Office of Environment, Health & Safety (EH&S) and Office of Emergency Management (OEM) devote time and resources to protecting life, property, and the environment, and improving the ability of the campus to recover from a disaster.

Safety Matters

From a cost perspective, safety matters. Factoring in both direct and indirect costs, workers' compensation claims are estimated to cost the campus over **\$40 million** annually!

Although EH&S has focused special attention on laboratory safety over the last several years, work-related injury costs in laboratories only account for a small fraction of the total cost of campus work-related injuries. Historically, the majority of campus workers' compensation costs have stemmed from injuries occurring in non-lab units such as Facilities Services (FS) and Residential & Student Service Programs (RSSP).

EH&S is working closely with new leaders in FS and RSSP to assist them in controlling the frequency, severity and costs of their work-related injuries. EH&S continues the work of increasing awareness, imparting knowledge, and modifying behavior across the campus community to create a culture of safety.

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EH&S and OEM Support the Campus Community



Office of Emergency Management (OEM)

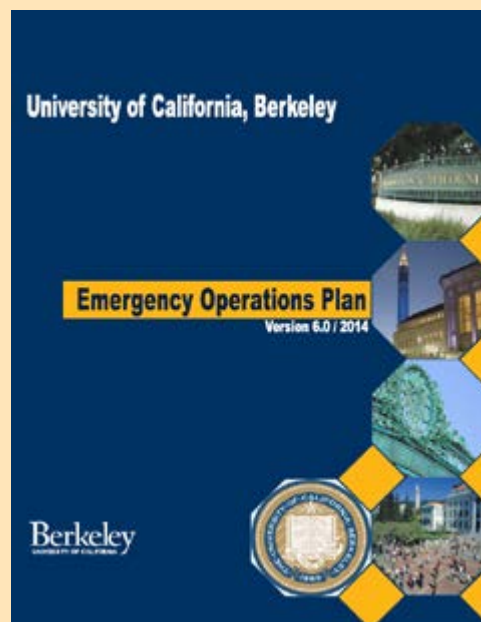
According to the *Berkeley Campus Goals, 2013-15*: “Campus security and emergency management continues to be a critical priority.” With a campus population of over 50,000, an emergency of any kind could threaten many lives. The campus location on the Hayward Fault dramatically increases the likelihood that a catastrophic disaster will occur.

Since OEM was first aligned with EH&S in July 2012, the unit has significantly raised the level of campus disaster preparedness through programs focusing on preparedness, response, recovery, mitigation, and continuity.

Disaster Planning

In 2014, the campuswide Emergency Operations Plan (EOP) was completely revised and signed by the Chancellor. This was the first time in the history of the Berkeley campus that an emergency plan has been formally endorsed at the highest level. OEM is now working with nine Emergency Support Functions (ESFs)—which include Mass Care & Shelter, Public Safety, Public Health & Medical, and others—to complete the EOP annexes that describe how specific emergency functions will be executed during a campus emergency.

2014 Emergency Operations Plan



Continuity Planning: New Readiness Tool

The purpose of continuity planning is to prevent disruption of the campus mission in the event of an emergency or disaster. The systemwide *UC Ready* tool was launched in 2006 and is used by departments to plan how they will maintain and recover essential operations. As the continuity planning program evolved, it became clear that several additional key features were needed to advance continuity planning to the next level. Last year, the Berkeley OEM manager participated in a systemwide group to develop a completely new *UC Ready* tool, which will be launched in the coming year.

The new *UC Ready* tool will include all the functionality of the current tool plus a host of important features that will better enable the campus to measure and track outcomes and control factors that determine disaster readiness. The campus will gain improved ability to coordinate across departments, align departmental efforts with campuswide strategies, and deepen the integration of emergency response and mission continuity programs.

Emergency Operations Center (EOC) Staff Training

In an emergency, the EOC is the center of campus response operations, information sharing and gathering, and communications. The campus EOC is staffed by subject matter experts from 20 different units across the campus with roles in emergency response and recovery. In FY15, 100 percent of EOC staff received at least one readiness training and over 50 percent received all three offered trainings. Following the training, 81 percent of the participants rated their level of readiness above three on a scale of one to five.



EOC DURING THE RISING BEAR DRILL



ESF-10 HAZMAT RESPONSE TEAM DURING THE RISING BEAR DRILL

Rising Bear: Campus Readiness Drill

On June 18 of this year, the EOC and seven of the nine campus ESFs participated in a campuswide drill to test communications and other essential aspects of disaster response. This was the first campuswide drill implemented by the new OEM and lessons learned from the exercise are under evaluation.



In Case of Crisis: Mobile App for Faculty and Staff

In 2014, OEM introduced the *In Case of Crisis* mobile app (recently renamed *CrisisManager*), which is customized to provide emergency information for Berkeley students (see write-up on page 20). The team is currently adding information to the mobile app for faculty and staff. This version will be launched at Caltopia 2015.

EH&S and OEM Training

EH&S and OEM deliver a broad spectrum of compliance and safety training to the campus community. Depending on the content area, the community served, and the objective, the training is delivered in person (classroom style), online, or using a combination of both.



JOHN RUIZ OF OEM DELIVERING TRAINING ON EMERGENCY RADIOS

A highlight of the past year was development of online safety training for new users of radioactive materials. It was launched systemwide in June 2015, and replaces a four-hour in-person class with a two-hour online training. Over 500 slides were developed and motion graphics were used to make this training interactive and engaging. It has been well received by the research community, and an outside firm has expressed interest in its purchase.

Many EH&S and OEM training modules have become available online over the years. There are currently 21 topics available online through the UC Learning Center, all revised and relaunched

by EH&S and OEM in the past year. Online fire safety training for residential students and refresher training for *EHS 101: Fundamentals of Lab Safety* are currently under development. Anticipated launch for both trainings is August 2015.

Safety Needs Assessment Program (SNAP)

Also under development is a safety compliance training needs assessment tool that will enable campus personnel, including students, to identify training needs based on potential hazards posed by their job, project duties, or work locations. The anticipated launch for this program is summer 2016.

Integrating SNAP with UC Learning Center will help the campus community track safety training.

- Allow supervisors, department safety coordinators, and other responsible parties to track user participation and view training completion and exception records
- Enable EH&S and other key staff to analyze training records globally and in specific units
- Facilitate reporting and provide real time data to guide improvements in training opportunities, access, and utilization

Before



After



Strawberry Creek Ecological Stabilization Project

In early 2013, a student and EH&S staff member happened to meet at the confluence of two branches of Strawberry Creek on the western side of campus. As it turned out, they both had an interest in restoring that portion of the creek, which had been in a degraded condition for many years. As the result of an effort spearheaded by students, and with assistance from EH&S staff, funding was obtained from The Green Initiative Fund (TGIF) and the Capital Renewal Committee totalling over \$150,000.

In addition to the functional restoration project goals, the group envisioned this site as:

- An outdoor classroom for hands-on learning for university students
- A publicly accessible, on-campus example of urban creek restoration visited by students and members of the public
- An inspiration for future Strawberry Creek restoration projects

Project completion was celebrated with an opening ceremony in April 2015. Soon after the installation, fish population increased, and native vegetation continues to flourish, enhancing the aesthetic, structural, and ecological functions of the creek.

This project was dedicated to Steve Maranzana, an EH&S environmental specialist and creek advocate who tragically lost his life in a December 2013 bicycle accident. In his memory, Steve's family donated an endowment—The Steve Maranzana Fund for the Environment—to fund student intern efforts to manage the campus native plant nursery and other natural areas on campus.

Steve Maranzana's wife Elisabeth Hawley and their son, Marcus, at the opening ceremony and dedication of the restoration site.



Event Permit Initiative

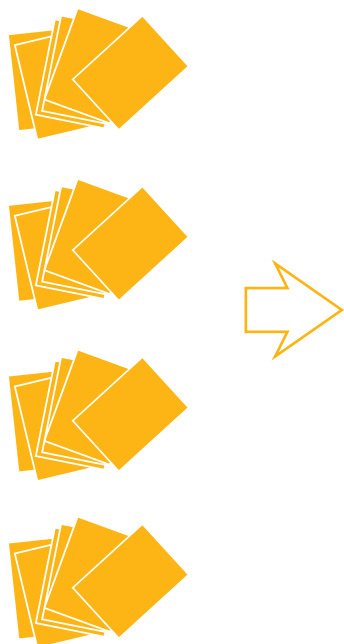
In fall 2015, EH&S will launch an electronic system for faculty, staff, and students to apply for four of the many permits that may be required to hold an event on campus:

- Alcohol Permit
- Temporary Food Permit
- Open Flame Permit (e.g., barbeque)
- Special Event Permit

This new system is the result of a collaboration between EH&S and UC Police Department (UCPD) that began over a year ago with the realization that the four existing paper processes were cumbersome and repetitive for the clients, and inefficient for the permit issuers. Further,

lack of oversight to ensure that all necessary permits were obtained created potentially hazardous conditions and exposed the campus to liability.

The new Berkeley event permit system has a single client interface from which permit applications are distributed to EH&S and UCPD based upon event information entered by the client. The system can also be used to schedule UCPD security support. Upon review of the application, the permit will either be approved, or the appropriate issuer will work with the client to address permit requirements. The approved permits can then be printed for display at the event. The number of steps clients and permit issuers go through per event will each be reduced by close to 50 percent.



Berkeley Event Permit System

Home Request Permit My Events Cindy W. ▾

Show 10 entries Search:

Event Name	Event Location	Event Date	Event Status	
Cindy's Test permit	Evans Hall	Jul 31, 2015 12:00:00 AM	Awaiting Review	Edit View
Cindy's Test permit	Evans Hall	Jul 31, 2015 12:00:00 AM	Awaiting Review	Edit View
Cindy's Test permit	Evans Hall	Jul 31, 2015 12:00:00 AM	Awaiting Review	Edit View
Cindy's Test permit	Evans Hall	Jul 31, 2015 12:00:00 AM	Awaiting Review	Edit View

Showing 1 to 4 of 4 entries First Previous 1 Next Last

Reducing the Cost of Hazardous Waste Disposal

The EH&S Hazardous Materials Management (HMM) team collects chemical and radioactive hazardous waste from laboratories and other sources. They then pack or consolidate it at the Hazardous Materials Facility where it is staged for pickup and transport to disposal sites.

Since the 1990s, chemical waste generators on campus have been recharged a substantial portion of the cost for disposal of chemical waste. As part of its ongoing efforts to reduce costs, in 2014, the HMM team adopted new, cost-saving bulk packaging procedures.

Chemicals that were previously lab packed (packed individually into 55 gallon drums) at much higher disposal rates can now be combined and disposed of at a lower bulk rate. The lower costs have been factored into recharge rates for laboratories.



Tobacco Free Campus



In 2013, EH&S led a campus initiative—in partnership with University Health Services, UC Police Department and others—to create a tobacco-free campus, which included a rigorous outreach campaign called *Breathe*. With the campus now well into the second year of being tobacco-free, officials are in agreement that the incidence of tobacco use has been dramatically reduced.

Permanent signage is currently being installed to notify visitors of UC Berkeley's Tobacco-Free Campus policy. A central mailbox has been established for staff, faculty, and students to report locations where people continue to smoke on campus. Response to these reports includes increased signage in the area and heightened police patrol presence.

UC Berkeley continues to be a resource for other colleges and universities hoping to become tobacco-free.

EH&S Supports Laboratory Research

In 2014, the campus received over **\$700 million** in research funding. Because much of the campus research activity requires the use of hazardous chemicals, biohazardous materials, radioactive materials, controlled substances, and lasers, many EH&S programs focus on safe and compliant storage, use, and disposal of these materials. The EH&S Lab Safety Culture Change Initiative directly supports approximately 500 principal investigators and over 5,000 staff and student researchers in 1,744 laboratory rooms to make safety a part of science.



UC BERKELEY'S EH&S
LAB COAT

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Lab Safety Culture Change Initiative

The legal settlement from a 2009 UCLA lab researcher fatality resulted in strict requirements for safety compliance in research laboratories across the UC System. In 2012, EH&S kicked off a campus initiative to change the way campus researchers perceive safety and incorporate it into their research. After conducting research to determine the nature of the existing lab safety culture, EH&S developed a number of programs to meet this objective; others are under development.

Existing Programs

Certification of Substantial Compliance

As part of the UC Lab Safety Settlement, EH&S is required to submit a Certification of Substantial Compliance with the settlement to the Los Angeles County District Attorney each July and January. In order to sign with confidence, EH&S inspects labs and collects signatures from all covered principal investigators (PIs) in the College of Chemistry who attest to their compliance with the settlement requirements.

Chemical Safety Inspection Program

Starting in July 2014, chemical safety lab inspections were increased from one to two per year, with follow-up inspections as necessary. In the first year, 1,732 inspections were conducted in 1,744 laboratories.

As of May 2015, **840** (90%) of the **936** chemical safety inspection findings were resolved.

Resolved issues include:

- 116** compressed gas storage deficiencies
- 30** expired potentially explosive chemicals
- 15** chemical storage incompatibilities
- 10** training record deficiencies
- 7** issues with ungrounded equipment that was flagged for repair or disposal
- 2** non-functioning biosafety cabinets

Annual reports to each dean are being produced to summarize inspection data from all PIs. These will be delivered in meetings between each dean and a member of EH&S senior management to discuss how EH&S can help facilitate solutions to any issues raised in the reports.

EHS 101: Fundamentals of Lab Safety

The UC Systemwide Lab Safety Training Policy requires all lab students, researchers and PIs to take *EHS 101: Fundamentals of Laboratory Safety*, an online training module provided by EH&S. This training must also be supplemented by a refresher course every three years. The course was launched August 2012. In FY15, 4,805 PIs and lab personnel took the training, achieving an 87 percent overall rate of compliance with UC policy. The first round of refresher training will begin August 2015.



JASON AND RACHELL, PARTICIPANTS IN THE 2014 LAB COAT DISTRIBUTION EVENT AND WINNERS OF THE IPAD RAFFLE

Personal Protective Equipment (PPE) Distribution

According to a new UC Systemwide PPE policy, all laboratory workers on UC campuses must wear properly fitting, activity-appropriate PPE (lab coats, glasses, goggles, face shields, and aprons). In February and October 2014, EH&S hosted two large events where centrally funded PPE was distributed to the vast majority of the campus research population. The ongoing program includes one-on-one fittings throughout the year and an annual centralized distribution event.

New Programs Under Development

New PI Orientation

Last year, EH&S piloted an orientation program for new PIs to introduce campus safety programs relevant to their type of research. In one-on-one meetings, specialists introduced applicable EH&S programs and provided available resources.

The new PIs universally expressed gratitude for assistance.

Lab Recognition

EH&S is developing a Lab Recognition Program to reward lab groups that have demonstrated an extraordinary commitment to safety. The program is designed to inspire competition, and to provide labs with immediate reward and meaningful acknowledgement that the recipients can use toward future endeavors.

All lab groups are eligible for participation and are grouped according to their size and hazard type for a total of eight categories. All eight winners will receive prizes. From those eight, one lab group demonstrating exceptional dedication to laboratory safety will receive a special award for excellence.

Plans include a ceremony where Chancellor Dirks will present a trophy award to the PI of the winning laboratory.



Silobusters

Sharing knowledge about lab safety hazards and conditions is essential for EH&S to provide high level service to its clients. Close examination of current practices revealed that professionals in all EH&S lab safety programs conducted inspections, training, and outreach within information silos. EH&S is taking a look at integrating and simplifying various research inspection reports.

The Silobusters initiative launched in 2014 to create a departmental culture of coordination and information sharing, especially regarding EH&S interactions with campus labs.

To meet this goal, the project team has taken a three-pronged approach:

1. Identify the labs that interact with EH&S in the most program areas.

The research of 23 PIs is covered by four lab safety program areas. Over half of the labs

on campus are covered by at least two EH&S lab safety programs.

2. Integrate inspection data.

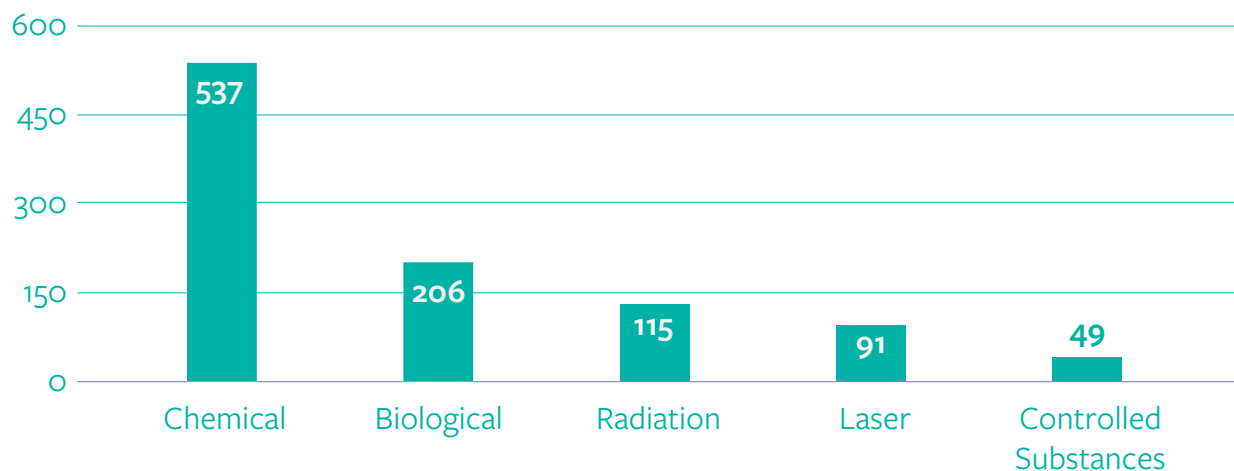
Currently, inspection findings and resolved issues are tracked separately under each program. The goal is to establish a system to integrate data about each lab that can be accessed across EH&S and by lab clients to facilitate problem-solving and increase safety.

3. Cross-train lab inspectors.

EH&S will provide lab inspectors and other EH&S staff who enter labs with training on topics in all safety areas. With an understanding of laser safety, for example, a biosafety inspector may be able to spot an egregious safety hazard and provide the client with resources to resolve the issue.

EH&S is working on coordinating inspections and integrating inspection data, and is on target to complete cross-training in January 2016.

Number of Labs Per EH&S Lab Safety Program Area



Radiation Safety Information System Upgrade

The Radiation Safety Information System (RSIS) was first developed by EH&S in 2008 for the radiation safety team (RST) to track campus radioactive materials and radiation-producing machines to satisfy federal, state, and local regulations, and keep the surrounding area safe.

Recently, with significant collaboration between EH&S IT and RST, a rebuilt RSIS was launched in Spring 2014. The new system has an improved user interface and features that are integral to managing these highly regulated materials.

RUA Access On Demand for Clients

Campus clients can easily pull up their radioactive use authorization (RUA) to print or review. They can purchase materials from the system, which automatically checks to see if the purchase might exceed the amount of that radioisotope allowed by their RUA. They can also request materials disposal and print labels for waste containers.

Instant Updates to Campus Radioactive Material Limits

The RST can instantly access campus limits for any radioactive material, review the results of past lab inspections, or determine whether users listed on an RUA have completed their mandatory training. Should a fire or other emergency occur in a building, they can immediately pull up a room-by-room report of the radioactive materials and machines to provide to first responders.

New Features for Campus Researchers

- On-demand access to RUA for review or print
- Get authorization for materials purchase
- Request waste pickup
- Print waste labels



New Features for EH&S Radiation Safety Team

- Instant access to current levels of radioactivity on campus
- Review results of lab inspections
- Verify user training

EH&S Supports Shops and Trades

A blue-tinted photograph of a large satellite dish antenna and an aerial lift bucket against a cloudy sky. The aerial lift is on the left, extending upwards. The satellite dish is in the center, mounted on a tall structure. The background is a bright, cloudy sky.

‘Shops and trades’ is a broad category used by EH&S to refer to a variety of campus locations, activities, and staff populations requiring worker safety programs. Employees work with a wide array of powered and non-powered equipment, and under potentially hazardous conditions in a spectrum of occupations such as food service, maintenance, groundskeeping, garbage collection, custodial work, and theater and dance.

Recently aerial lifts, such as the unit shown here at Space Sciences Laboratory, have been the subject of special emphasis due to a 2014 worker fatality involving an aerial lift at International House. EH&S is conducting a focused review to confirm that aerial lifts are properly maintained, and that operators are properly trained.

For each type of hazard, EH&S develops a program that includes guidelines, training, and inspections to meet Cal/OSHA requirements and promote safety for all campus workers.

Maps of Confined Spaces

In collaboration with the Berkeley and Richmond fire departments, EH&S is updating the campus inventory of confined spaces (e.g., sanitary sewers, underground electrical vaults, steam tunnels). The goal is to provide maps and background information for responders in the event of an emergency at a specific location. Onsite visits by fire department personnel will help EH&S teams and partners plan and coordinate emergency services.



EH&S SAFETY ENGINEERING SPECIALIST ALAYNA PARKER EXAMINING A CAMPUS STEAM TUNNEL.

Stricter California Regulations Impact Outdoor Workers

Early this year, Cal/OSHA announced stricter requirements (effective May 1, 2015) to prevent heat illness among outdoor workers. Requirements include training on the signs and symptoms of heat illness and written emergency procedures. At temperatures at or above 80 degrees Fahrenheit, requirements include increased supervision, provision of water and shade, and time for recovery breaks.

Many groups on campus are affected by the heat illness standard: grounds crews, UCPD, Athletics and others who staff outside events, greenhouse and UC Botanical Garden staff, Recreational Sports (particularly Cal Adventures staff), and researchers conducting field studies in hot, often remote locations.

In the span of a few short months, EH&S developed new procedures and resource materials, trained supervisors of affected groups, and hosted a field safety forum that attracted field researchers, faculty, and trip leaders from multiple departments on campus. Development of systemwide online heat exposure safety training is underway.

Lockout/Tagout Mobile App

Lockout/Tagout (LOTO) is the industry term used for stopping energy flow or motion in equipment when performing maintenance, repair, or other work, and alerting others of equipment energy hazards to prevent an accidental restart. Cal/OSHA requires that there be a customized written procedure for each piece of equipment with attributes specified in the code.

Although this is one of the top ten most cited OSHA violations nationally, it is a difficult program to manage. There are thousands of pieces of equipment on campus used in food preparation, laboratories, shops, theaters and elsewhere; each that need LOTO procedures written and available to personnel.

In January 2015, the EH&S senior safety engineer launched *LOTO*, a systemwide mobile app. *LOTO* makes it easy for campus personnel to create lockout tagout procedures for equipment. The user enters information about the equipment and the app creates a document that's added to the campus library, and can be accessed with a mobile device by UC employees.

Through the online management dashboard developed with the application, EH&S is better able to monitor compliance with LOTO regulations, and thus increase the safety of campus workers. The app has been copyrighted and a licensing process is underway for future sale.



The *LOTO* mobile app makes compliance simpler for campus users:

- Take photos of equipment and energy sources to include in the procedures
- Print, email, or retrieve any procedure instantly
- Clone and customize existing procedures to speed creation of new ones
- Access procedures based on global positioning, equipment name, or campus location



EH&S and OEM Support Residential Students

In fall of 2014, there were over 27,000 graduate and undergraduate students enrolled at UC Berkeley. Every year, over 7,000 undergraduate students are housed in residence halls with even more living in campus co-operatives and fraternity or sorority houses. The safety and security of these students is clearly of the highest priority to the campus, and responsibility is shared among many departments. EH&S contributes to residential student safety in areas of fire and life safety, and emergency preparedness.

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UNIT 2 RESIDENTIAL COMPLEX

Fire & Life Safety

The EH&S Fire Prevention Division (FPD) conducts annual fire evacuation drills for over 8,000 students in all residence halls. FPD is currently developing online fire and life safety training for students in residential halls to supplement the evacuation drills and document the education EH&S provides on residential fire hazards and precautions.

To expand its outreach, FPD participated in Caltopia 2014. At the FPD booth, approximately 1,400 students reviewed fire safety information boards and took a four-question quiz.

Emergency Preparedness

In 2015, the Office of Emergency Management (OEM) received a UC Risk Services Spotlight Award, which highlights the achievements of risk and safety professionals systemwide for exceptional projects and engagements that contribute to advancing their mission. OEM received this award for the *In Case of Crisis* mobile app.

***In Case of Crisis* Mobile App**

In the effort to strengthen student emergency preparedness, OEM used a mobile app solution, *In Case of Crisis*, to create the first-ever mobile student emergency plan. Content for the app is customized to contain Berkeley-specific emergency preparedness guidance and resources. The app is available for download by all Berkeley students, and is designed to be just-in-time training for students to use when an emergency hits.

The app content is not contingent on operational wifi or cell service. It is available even if the internet goes down. *In Case of Crisis* was introduced to students at Caltopia 2014 where it was downloaded by nearly 2,000 students over a two-day period.



The *In Case of Crisis* mobile app puts crucial emergency information at students' fingertips.

- Procedures for earthquake, power outages, hazardous spills, evacuation, shelter-in-place, active shooter, fires, and more
- Important resource information for sexual violence victims
- Actionable links to emergency phone numbers and websites
- An emergency beacon and flashlight

be fully prepared for an emergency.

- In addition to the Red Cross training, the *In Case of Crisis* app provides just-in-time training at their fingertips.
- OEM has also established a Twitter account (@CalSurvivor) that will provide emergency preparedness tips and guidance to students.

Emergency Preparedness Training

"Make a Plan, Have a Kit, Be Informed"

These are the three basic elements of emergency preparedness training the Cal Red Cross Club conducts for students. OEM is coordinating with the club to deliver this training to all residential students, including those in co-ops, fraternities, and sororities. Discussions are still underway as to the best way to provide this training to residence halls.

OEM also facilitates student action for each element of this training.

- During the 2015 move-in, each residential student will be provided with a go-bag stocked with some basic supplies and a list of additional emergency supplies they will need to



EH&S Supports Construction and Capital Renewal

EH&S collaborates with Construction & Design, Inspection Services, Physical & Environmental Planning, and the Capital Renewal Program to help ensure that all campus construction complies with the California Fire Code and California Building Code, as well as the myriad of applicable environmental, health, and safety regulations. In the past year, EH&S participated in development of new Campus Design Standards and assisted with the Capital Renewal Program '90-in-90' effort. Through these projects and regular plan review and inspection activities, EH&S helps to ensure that buildings are built to code and safe for the campus community.



Construction Inspection Coordination

At the request of Vice Chancellor Lalanne, EH&S led and successfully completed a collaborative project to improve the efficiency of construction site inspections performed by designated campus fire marshals and the building official and inspectors of record.

As a state entity, the university is regulated for fire and life safety issues by the Office of the State Fire Marshal (OSFM). Through a memorandum of understanding (MOU) with OSFM, the university's designated campus fire marshals are authorized to perform construction inspections on behalf of OSFM. These inspections are required by OSFM to include many building components that are not typically inspected by fire marshals in municipalities.

In support of this effort, the Office of Legal Affairs assisted with identifying the specific requirements of the UC/OSFM MOU where technical expertise is available in both the campus fire marshal's office and the building official's unit. A unified *Division of Real Estate Construction Inspection Checklist* was developed to inform contractors of various building components and systems that must be inspected. This checklist also clarifies which campus official (fire marshal or building official) typically conducts each inspection and provides contact information.

In addition, EH&S established an interdepartmental procedure recognizing several building components that can, in some cases, be observed in the field by the building official's staff on behalf of the campus fire marshal. This arrangement will be documented using the new *Project Inspection Coordination Agreement Form*—which will be completed prior to each project pre-construction meeting.

EH&S recently granted occupancy to four projects.

- Dwight Childcare Center (July 2014)
- Campbell Hall (August 2014)
- Julia Morgan Hall (relocation of the former Girton Hall to UC Botanical Gardens, November 2014)
- Maxwell Parking Garage (April 2015)

There are three major projects currently under way.

- MLK Student Union and Eshleman Hall (temporary fire clearance expected August 2015)
- Jacobs Hall (temporary fire clearance expected August 2015)
- BAM/PFA (temporary fire clearance expected September 2015)

Campus Design Standards Review

The Campus Design Standards are used to set the legal framework that construction contractors must follow for all campus projects. They contain requirements for both construction activities and the completed structure. Included are requirements based on environmental, health, and safety regulations pertaining to stormwater runoff, sanitary sewers, soil and earthwork, sanitation, and the fire code. In laboratory buildings, requirements are more extensive covering chemical safety, biosafety, radiation safety, laser safety, fume hood emissions, and so on.

In July 2014, Construction & Design circulated the standards to a number of campus departments for review and update. EH&S provided legal justification for each environmental, health and safety requirement. Because the standards include requirements for most EH&S programs, they required coordinated review and update by over ten EH&S specialists over several weeks.

Decontamination and Decommissioning Historic Radiation Use Sites

In the 1950s, research utilizing radioactive materials was widespread and safety precautions were few. UC Berkeley laboratories were key to this research. Small amounts of radioactive materials were sometimes left behind in a building and require removal once remodeling or demolition is planned.

The EH&S Radiation Safety Team (RST) is responsible for coordination and oversight of these activities, and is at various stages of the process at a number of sites:

Calvin Hall

Full decontamination of the Calvin Lab was completed in 2013 and the final report was approved by the California Department of Public Health in 2014. Since this building was managed by Lawrence Berkeley National Laboratory (LBNL) when it was used for lab research, the costs for the cleanup are being reimbursed to the campus.

Gilman Hall

This is a major project that so far has been decontaminated incrementally as remodeling is required. In 2014, due to a leaking roof, the dormers and roof had to be decontaminated and a

complete cleanup of Room 121 was needed before turning it into a counseling center. To date, the campus has spent approximately \$500,000 on decontamination efforts and it is anticipated that an additional several million dollars is needed to complete the building cleanup. EH&S is working with UCOP to seek funding through LBNL for reimbursement of funds spent to date and additional funds to complete the work.



DECONTAMINATION PROJECT AT GILMAN HALL

ment of Energy (DOE) was notified of this discovery, they agreed to take on long term management of the site and the associated costs.

Donner Lab

Donner Lab, currently occupied by LBNL, has a long history of radioactive material use. The building is being considered for transfer to the campus and possible demolition to construct a new building for Chemistry and Engineering. Cost estimates for the remediation have been obtained for planning purposes.

Burris Park

In 2014, RST completed an investigation into the potential spread of Strontium 90 in a plot of land located in Burris Park, Kings County, California. The material is from an experiment conducted in 1956 and funded by the Atomic Energy Commission. The investigation revealed that the trees on the land were contaminated. When the Depart-



EH&S and OEM Support Campus Operating Principles

We include and excel, together.

We imagine and innovate.

We simplify.

We are accountable to each other.

We focus on service.

Strategic Initiatives

EH&S and OEM together set strategic objectives in the areas of client service, resources, processes, and staff.

For each objective listed below there is at least one initiative underway to meet the goal. Several of the client service initiatives—Lab Safety Culture Change, *In Case of Crisis* mobile app, Silobusters, event permitting—were mentioned earlier in this report. In this section we are highlighting four of the 57 EH&S and OEM initiatives that demonstrate our commitment to continuous improvement through augmenting funding, reducing costs, and applying the UC Berkeley Operating Principles.

Our Objectives

- Transform clients into partners and advocates
- Attain informed customer base
- Provide integrated services and customized data
- Prevent and minimize campus mission interruption
- Create opportunities to generate revenue
- Wisely manage our resources and assets
- Improve workflow efficiency and reduce costs
- Strengthen strategic partnerships
- Attract, develop, retain and inspire staff, and share knowledge within the department
- Attain employee advocacy

Increasing Revenue Generation

We imagine and innovate.

EH&S is developing innovative ways to increase revenue, partially offsetting the increased costs of unfunded mandates and new compliance requirements.

Generating Funds from Outside Campus

UC Risk Services

EH&S has been awarded *Be Smart About Safety* funding for projects (proposed or renewed annually) in support of campus safety. EH&S raised its overall award amount from \$808,000 (FY13) to \$956,000 (FY14 & FY15) by justifying its program effectiveness in renewal proposals.

LBNL Cost Recovery per MOU

EH&S provides services to LBNL affiliates on campus (approximately 770 staff and 120 PIs). Through an MOU, LBNL reimburses EH&S for this support. EH&S leaders recently re-negotiated the reimbursement formulas to more accurately reflect program costs. Cost recovery for FY13 was \$536,000 and for FY14 it was \$624,000.

Grants and Sales

- Green and sustainability grants augment environmental protection programs: **~\$25,000 per year**

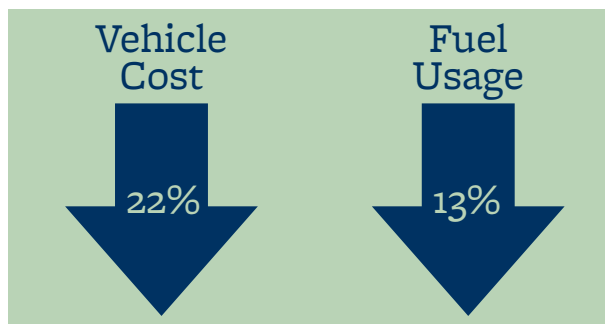
- Annual recharge surcharges from non-UC clients for fire prevention and sanitation services: **~\$30,000 per year**
- Full cost recovery plus surcharge from non-UC higher education institutions for consultation with EH&S subject matter experts
- Possible sale of new radiation safety online training program to non-UC entities: potential revenue yet to be determined
- Possible sale of the *LOTO* mobile app: potential revenue yet to be determined

Vehicle Use

*We imagine and innovate.
We include and excel, together.*

EH&S maintains a fleet of vehicles for field work and hazardous waste collection. In April 2014, the department sustainability committee set a goal to reduce the EH&S carbon footprint as well as lower costs by 10 percent for the two general use vehicles.

They found that parking, maintenance, and fuel for these two vehicles cost nearly \$18,500 per year. Since the vehicles were approaching 20 years old, replacing even one would reduce maintenance and fuel costs. After examining several options, the department purchased a hybrid Ford C-Max, which was in use by August 2015.



In the meantime, through an awareness campaign encouraging staff to walk and use campus transportation, EH&S exceeded its goals by reducing costs by 22 percent and fuel usage by 13 percent.

Paper Reduction

*We include and excel, together.
We are accountable to each other.*



This initiative was started in April 2014 to explore ways EH&S and OEM staff could reduce costs and contribute to environmental sustainability by reducing the use of paper. A team of volunteers from across the department convened and analyzed the acquisition and usage of paper. The motivational finding was that in a given month, 18,000 to 20,000 pieces of new paper were used by staff (80 people averaging 260 pieces per individual).

Ctrl your P was launched in October 2014. The team created this awareness campaign to educate staff about the environmental impact of paper usage and associated costs, and recommended specific actions people could take to reduce new paper consumption and avoid unnecessary printing. The set goal was to reduce use by at least 10 percent in one year. In May 2015, this reduction was already at 25 percent.

Electronic Documents Management (EDM)

We simplify.

We imagine and innovate.

EH&S is the office of record for the many compliance programs we manage. It is critical that searchable and auditable records be maintained for due diligence, discovery, and other purposes—particularly in response to regulatory inquiry and public information requests. Maintaining volumes of paper documents consumes valuable office space and is environmentally unfriendly. Electronic document storage on servers has proven to be unmanageable.

In recent years, the department engaged in concerted efforts to review stored documentation and purge unnecessary paper. Over 150 file drawers, equivalent to 60 file cabinets, were emptied.



In 2014, the Electronic Document Management (EDM) initiative was established to develop a single document retention system that would accommodate the breadth of technical, scientific, and regulatory subject areas and terminology. Over the past nine months, the department has been working with a consultant and the IS&T Imagine team to customize the campus enterprise software, ImageNow, to meet our needs.

Specifications have been written and the system will be ready for testing soon. The goal is full implementation by June 2016.

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