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- Shop Safety Self-Inspection CheckList (IIPP Form 3\_shop)
- Hazard Correction Report (IIPP Form 4)
- Occupational Accident, Injury or Illness Investigation Report (IIPP Form 5)
- Safety Training Attendance Record (IIPP Form 6)
- New Employee Safety Training Record (IIPP Form 7)

# 1. INTRODUCTION TO THE OLAC SAFETY MANUAL

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## Introduction

The Office of Laboratory Animal Care (OLAC) of the University of California, Berkeley is responsible for overseeing the centralized animal care and use program on the Berkeley campus. OLAC provides health care, research, teaching assistance, and housing facilities for all animals that are used for research and teaching on this campus. This Manual has been developed by OLAC in conjunction with the departments of Environment, Health and Safety (EH&S) and Occupational Health Services (OHS). It represents a continued effort to provide a safe work environment for OLAC employees. Everyone at OLAC is responsible for their own and each other's safety, and compliance with safety procedures which is a part of every employee's job description.

There are several State and Federal regulations that affect the University, and OLAC is subject to additional required and voluntary guidelines. For example, state law requires that the University have an "Illness and Injury Prevention Program" (IIPP) developed by each department as well as a "Hazardous Materials Management Program". The requirements of these programs are covered in this manual. Federal regulations from the United States Department of Agriculture (USDA) dictate most of the conditions followed to house the many types of animals used at Berkeley. Species not commonly used for research and either endangered or exotic may have housing and care guidelines dictated by the State Department of Fish and Game, U.S. Fish and Wildlife Service, or other authorities. Finally, OLAC animal care and personnel policies follow guidelines provided by the Association for the Assessment and Accreditation of Laboratory Animal Care International (AAALAC). The requirements or guidelines dictated by these additional regulations that involve human health and safety are also covered in this manual.

There are numerous training opportunities available as employees of OLAC. One of the most important is to read this manual and understand its contents. **You must sign the training form in the "IIPP FORMS" section indicating that you have read and do understand the contents of this manual, and then give that form to your supervisor, who will keep it on file.** If you have questions about anything written here, check with your supervisor so that you understand. You are responsible for following these rules at all times while you are at work.

A number of personnel within OLAC are responsible for ensuring that the department operates safely, and they are listed in the next section. Keeping records of safety activities is also important, and the locations where these records are kept are also listed there.

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## OLAC GUIDE TO IMPORTANT INFORMATION

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### EMERGENCY PHONE NUMBERS

#### POLICE---FIRE---AMBULANCE

- From any campus telephone .....**911**
- From any pay phone, no coins needed .....**911**
- Cell Phone users .....**642-3333**

#### MEDICAL URGENT CARE

- University Health Service .....**2-3188**  
Tang Center, 222 Bancroft Way

#### HAZARDOUS SUBSTANCE SPILLS

- Chemical or biological hazards, contact Environment  
Health and Safety (8am-5pm).....**2-3073**
- Radioactive materials, contact Environment Health and Safety  
(8am-5pm).....**2-3073**
- For 24 - hour service, contact UCPD .....**2-6760**

#### ELECTRICITY, PLUMBING, VENTILATION OR ELEVATOR FAILURE

- Physical Plant - Campus Services .....**2-1032**
- Physical Plant - After Hours Emergencies .....**2-1032**

### KEY SAFETY PERSONNEL

#### NAF / MINOR HALL BUILDING COORDINATOR

- Joan Wallace.....102 NAF.....**2-6603**
- Linda Schmidt.....381 Minor.....**3-2689**

#### IIPP COORDINATOR

- Quig Driver .....203A NAF..... **2-4598**
- Robin Baca (Alternate).....203 NAF..... **2-4624**

## **NAF LABORATORY SAFETY OFFICER (LSO)**

- Sara Souza .....317 University Hall.....3-5809

## **LOCATION OF SAFETY MATERIALS AND INFORMATION**

**IIPP RECORDS** .....203A NAF

**SAFETY BULLETIN BOARDS**.....NAF, Main Corridor  
LSA, North Elevator Corridor  
FSBR Building 9 and OLAC office

**SAFETY LIBRARY** .....NAF Conference Room  
649 LSA and OLAC office  
FSBR Building 9, main office

**MATERIAL SAFETY DATA SHEETS**....203A NAF  
649 LSA and OLAC office  
FSBR Building 9, main office  
<http://ucmsds.chemwatchna.com>

## **2. OLAC SAFETY PERSONNEL AND SAFETY COMMITTEE ROSTERS**

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The OLAC Departmental Safety Committee meets quarterly, with the purpose of reviewing safety concerns that affect OLAC. Each building (NAF/Minor Hall, LSA and FSBR) has its own safety committee, which also meets semi-annually, prior to the departmental committee meetings. Two employees from each animal facility are representatives on both the departmental and building safety committees. The departmental committee reviews inspection reports, illness and injury reports, and notifications of unsafe conditions, directs the correction of safety and health problems, and establishes priorities when necessary. The building safety committees address site-specific safety issues and coordinate with all building occupants and users.

The Campus Injury and Illness Prevention Program (IIPP) specifies that employees must be able to report working conditions they believe to be unsafe or unhealthy, to their departmental management without fear of reprisal for the report. OLAC has established a reporting method where personnel may report conditions to any member of the departmental safety committee, their supervisor, or anonymously by completing the “Report of Unsafe Condition” form found in Section 12 of this manual (IIPP FORMS). **If the problem requires urgent action, reporting directly to a supervisor or committee member is required.** The rosters of the departmental and building safety committees are listed on the following pages. Both the department and building management keep records of their safety activities, as appropriate. The locations of the records are listed with the committee rosters.

## **OLAC DEPARTMENTAL SAFETY COMMITTEE ROSTER**

<u>NAME</u>	<u>LOCATION</u>	<u>ROOM #</u>	<u>PHONE #</u>
Quig Driver, chair	NAF	203A NAF	2-4598
Robin Baca, chair alt.	NAF	203 NAF	3-9666
Nina Hahn	NAF	203 NAF	3-9667
Walter Brown	NAF/Minor Hall	102 NAF	2-6603
Joan Wallace	NAF/Minor Hall	102 NAF	2-6603
Annette Webb	LSA-6	649 LSA	3-4032
Lindsey Jennings	LSA-6	647A LSA	3-5255
Steve Friet	LSA-B	38 LSA	2-7719
Bob Murray	LSA-B	38 LSA	2-7719
Kathy Moorhouse	FSBR	Bldg. 9	3-7247
Bryan Lowe	FSBR	Bldg. 9	3-7247
Sara Souza EH&S	U. Hall	317 Univ. Hall	3-5809
Ailene Basila	LSA-6	649 LSA	3-5259
Allister Reyes	LSA-6	649 LSA	3-5259
Safety Records for OLAC:	203 NAF		
Safety Records for NAF:	203 NAF		

## NAF BUILDING SAFETY COMMITTEE AND PERSONNEL ROSTER

<u>NAME</u>	<u>DEPARTMENT</u>	<u>ROOM #</u>	<u>PHONE #</u>
<b>LABORATORY SAFETY OFFICER</b>			
Sara Souza	EH&S	317 Univ. Hall	3-5809
<b>LOWER LEVEL REPRESENTATIVE</b>			
Joan Wallace	OLAC	102 NAF	2-6603
Walter Brown (alternate)	OLAC	102 NAF	2-6603
<b>UPPER LEVEL REPRESENTATIVE</b>			
Quig Driver	OLAC	203 NAF	2-4598
Robin Baca (alternate)	OLAC	203 NAF	3-9666
<b>BUILDING COORDINATOR</b>			
Quig Driver	OLAC	203 NAF	2-4598
Robin Baca (alternate)	OLAC	203 NAF	3-9666
<b>NAF BUILDING SAFETY COMMITTEE</b>			
Nina Hahn	OLAC (Director)	203 NAF	3-9667
Quig Driver	OLAC (MSO)	203 NAF	2-4598
Sara Souza	EH&S	317 Univ. Hall	3-5809
Prof. Robert Lane (Chair)	Entomology	411 Wellman	2-4385
Marcy Brown	ACUC	210 NAF	2-8855
Chris Tuthill	Psychology	3210 Tolman	2-7136

## LSA BUILDING SAFETY COMMITTEE REPRESENTATIVES

<u>NAME</u>	<u>DEPARTMENT</u>	<u>ROOM</u>	<u>PHONE #</u>
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### **BUILDING COORDINATOR**

Barbara Duncan	MCB	165 LSA	3-8121
Heidi Hoffman (alternate)	MCB	497 LSA	3-5909

### **OLAC REPRESENTATIVES TO THE LSA SAFETY COMMITTEE**

Annette Webb	OLAC	649 LSA	3-4032
Lindsey Jennings (alternate)	OLAC	647A LSA	3-5255

## **FSBR “BUILDING” SAFETY COMMITTEE ROSTER**

<u>NAME</u>	<u>DEPARTMENT</u>	<u>ROOM #</u>	<u>PHONE #</u>
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### **BUILDING COORDINATOR**

Kathy Moorhouse	OLAC	Bldg. 9	3-7247
Quig Driver (alternate)	OLAC	203 NAF	2-4598

### **FSBR SAFETY COMMITTEE**

Kathy Moorhouse, chair	OLAC	Bldg. 9	3-7247
Bryan Lowe	OLAC	Bldg. 9	3-7247
Steve Glickman	Psychology	Bldg. 9	3-5154
Mary Weldele (alternate)	Psychology	Bldg. 9	3-5154
Anna Chung	OLAC	Bldg. 9	3-7247
Marshall Gardner	OLAC	Bldg. 9	3-7247

## **MINOR HALL "BUILDING" SAFETY COMMITTEE REPRESENTATIVES**

<u>NAME</u>	<u>DEPARTMENT</u>	<u>ROOM #</u>	<u>PHONE #</u>
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### **BUILDING COORDINATOR**

Linda Schmidt	Optometry	381 Minor	3-2689
Aaron Sullivan (Alternate)	Optometry	592 Minor	2-7917

### **OLAC REPRESENTATIVES TO THE MINOR HALL SAFETY COMMITTEE**

Joan Wallace	OLAC	102 NAF	2-6603
Walter Brown (Alternate)	OLAC	102 NAF	2-6603

### 3. GENERAL PROVISIONS OF THE OLAC SAFETY PLAN AND IIPP COMPLIANCE

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#### **General Provisions of the OLAC Safety Plan**

The University of California, Berkeley is responsible for maintaining a safe and healthy environment for its faculty, staff, students, visitors, and surrounding community members. To meet this responsibility, the University has set guidelines for an Injury and Illness Prevention Program (IIPP) which focus on:

- campus training and prevention programs;
- hazard recognition, evaluation, and corrective actions;
- analysis of injury and illness data to assess preventive measures

In order to implement the campus IIPP, each campus department or unit must establish its own procedures, activities and records. This document constitutes the written text of the Injury and Illness Prevention Program for the Office of Laboratory Animal Care (OLAC).

For your own personal safety it is essential that:

- you are aware of the potential hazards in your work area
- you know who to contact in the event of an emergency
- you know the correct procedures to follow in case of an emergency

To ensure that you receive this information, the following training program has been established for OLAC:

- required reading of this OLAC Safety Manual
- initial general safety training for each new employee, conducted by the appropriate facility safety officer.
- annual review of general safety procedures, conducted by the IIPP coordinator or the NAF Laboratory Safety Officer
- annual building evacuation drill (participation required)
- annual fire extinguisher training (participation optional but strongly recommended)

The OLAC Safety Manual is intended as a training tool and a reference for departmental employees. It presents a summary of emergency procedures and guidelines for some of the most commonly encountered safety problems. It is not intended to supersede university, state, or federal safety regulations.

Each OLAC facility has a reference copy of this Safety Manual in a 3-ring binder, which is available to all employees during working hours. Facility Safety Officers are responsible for maintaining the reference copy of the Safety Manual for their facility. Supplemental safety materials relevant to the

individual facility may be added to the binder.

Under the provision of the Injury and Illness Prevention Program, each department has an IIPP Coordinator who is responsible for initiating and administering injury and illness prevention activities. The IIPP Coordinator maintains written documentation for the program. The implementation of policy and procedures in individual work units is the responsibility of principal investigators and faculty and staff supervisors. Each laboratory is also required to post a “Chemical Hygiene Plan” which provides specific guidelines for that work area. The Facility Safety Officer maintains the Chemical Hygiene Plan. If there are any problems or questions regarding safety, the following sources of information and assistance are available:

IIPP Coordinator .....Quig Driver, 203A NAF, 2-4598  
LSA Building Representative .....Annette Webb, 649 LSA, 3-4032  
Office of Environment, Health & Safety .....Sara Souza, 317 U-Hall, 3-5809  
Safety Officer for your Facility .....See section 2  
OLAC Safety Committee Members.....See section 2

**NOTE:** Employees and students are expected to observe safe work practices at all times. Supervisors and Principal Investigators are responsible for ensuring that members of their units observe such practices. If an employee or student refuses to do so, the Supervisor/PI is required to use appropriate disciplinary measures to ensure compliance.

**Campus Organization and Structure**

Program Responsibility.....The Chancellor  
Operational Responsibility .....Deans, Directors, Departmental Chairs,  
Principal Administrative Officers  
Building Responsibility .....Building Coordinators  
Departmental Responsibility.....Department IIPP Coordinator and Departmental  
Safety Committee  
Direct Responsibility .....Faculty, Principal Investigators, and Supervisors

Campus Support Units:

- Office of Environment, Health and Safety (EH&S)
- Office of Emergency Preparedness (OEP)
- University Health Clinic, Occupational Health Program
- Office of Risk Management
- University of California Police Department (UCPD)
- Office of Laboratory Animal Care (OLAC)
- Laboratory Operations and Safety Committee (LO&SC)

## Specific Elements of the OLAC Safety Plan

### I. EMPLOYEE TRAINING AND TRAINING DOCUMENTATION

*ALL EMPLOYEES AND STUDENTS MUST BE TRAINED IN REGARD TO GENERAL HEALTH AND SAFETY PRACTICES AND ANY SPECIFIC HAZARDS THAT MAY BE UNIQUE TO THEIR WORK OR CLASS ASSIGNMENTS.*

*Initial* training shall be conducted at the beginning of employment or assignment, and *refresher* training shall be provided periodically as appropriate. Furthermore, *additional* training is required whenever a new procedure, equipment, or substance, which represents a new hazard, is introduced into the work area.

#### ITEM #1: OLAC SAFETY MANUAL

- General emergency response procedures and basic safety information for all personnel are contained in this OLAC Safety Manual. Copies of the OLAC Safety Manual are available from the web at ([www.OLAC.berkeley.edu](http://www.OLAC.berkeley.edu)).
- The department form, “Record of Employee Training and Personal Emergency Information” (a copy is at the back of this manual), is used to document the required reading of the manual and to document the employee or student has received initial safety training from his/her *Laboratory Safety Office*. A checklist of items to be covered in the initial training is printed on the certification form. The items include:
  - location of emergency meeting site for lab/office;
  - location of emergency exits and nearest fire extinguisher and fire alarm;
  - whom to call in an emergency;
  - location of reference copy of OLAC safety manual;
  - location of hazardous materials;
  - location of Material Safety Data Sheets;
  - location of spill clean-up supplies and training in clean-up procedures;
  - location of emergency eye-wash and/or shower;
  - information regarding drain disposal policy and training in proper disposal procedures for animals, chemicals, radioactive materials, glass, etc.;
  - information regarding availability of protective equipment (e.g. lab coats, gloves) and safety equipment (e.g. fume hoods, etc.)
  - demonstration of safe procedures as required for assigned duties.

## **ITEM #2: UPDATING THE SAFETY MANUAL**

The OLAC Safety Manual is generally updated by the IIPP Coordinator and reviewed by the Safety Committee. Revised copies are available on our web site ([www.OLAC.berkeley.edu](http://www.OLAC.berkeley.edu)). Safety officers are instructed to ask members of their unit to read the updated manual as part of refresher training.

## **ITEM #3: ADDITIONAL EMPLOYEE TRAINING**

Employees and students must receive additional appropriate training whenever a new procedure, equipment, or substance, which represents a new hazard, is introduced into the work area. The additional or specialized training shall be recorded on a training documentation form (copy attached). Facility Safety Officers keep copies of the records of additional training in their units and forward the originals to the Department IIPP Coordinator at 203 NAF.

## **ITEM #4 BUILDING-WIDE TRAINING ACTIVITIES**

A building evacuation drill is conducted annually at all sites. All building occupants are required to participate in the drill. OLAC schedules periodic training on the proper use of fire extinguishers and how to clean up hazardous spills; these workshops are open to any interested personnel. All training is documented on training log sheets.

## **II. HAZARD COMMUNICATION AND CORRECTION**

### **ITEM #5: EMERGENCY RESPONSE PLAN**

OLAC HAS AN EMERGENCY RESPONSE PLAN TO COVER ALL TYPES OF GENERAL EMERGENCIES.

Details of the emergency response plan can be found in the OLAC Safety Manual. General evacuation procedures are included, as well as information about what to do in the event of fire, bomb threats, earthquakes, injuries, power failures, elevator failures, gas leaks, flooding, and hazardous spills. Names and phone numbers of emergency contracts are also listed.

### **ITEM #6: CHEMICAL INVENTORY**

ALL LABORATORIES AND ANY FACILITY IN OLAC THAT HAVE CHEMICALS MUST FILE A CHEMICAL INVENTORY REPORT.

The chemical inventory must be prepared and submitted to EH&S, using a computer application made available by that office for inclusion in a campus database. Contact the NAF Laboratory Safety Officer (NAF-LSO) for details. Inventory updates are requested annually by EH&S. Any significant changes should be reported by the facility whenever they occur (i.e., change of location or responsible persons; significant change in quantity of stored chemical(s)). A copy of the

departmental database is maintained by the NAF-LSO.

#### **ITEM #7: CHEMICAL HYGIENE PLAN**

A WRITTEN CHEMICAL HYGIENE PLAN, WHICH CONTAINS SPECIFIC PROCEDURES AND CONTROL MEASURES FOR HANDLING CHEMICALS SAFELY, MUST BE POSTED IN EACH LABORATORY.

A template for the Chemical Hygiene Plan, printed in flip-chart form and containing standardized information concerning laboratory safety, is available from the NAF-LSO. Facility Safety Officers are responsible for completing the Chemical Hygiene Plan template by filling in specific information about the particular hazards, procedures, and names of responsible persons in their unit. The completed Chemical Hygiene Plan must be posted so that it is accessible to all facility staff. Compliance is verified in the annual self-inspection report—i.e., facility safety officers must respond as to whether or not the plans have been completed and posted. Facility Safety Officers are also responsible for *updating* their Chemical Hygiene Plan whenever necessary.

#### **ITEM #8: MATERIAL SAFETY DATA SHEETS (MSDS)**

<http://ucmsds.chemwatchna.com>

ALL CONTAINERS OF HAZARDOUS MATERIALS (INCLUDING SECONDARY CONTAINERS) MUST BE PROPERLY LABELED. LABELS ON ORIGINAL CONTAINERS SHOULD CONTAIN THE FULL NAME OF THE SUBSTANCE AND APPROPRIATE WARNINGS. SECONDARY CONTAINERS SHOULD BE LABELED IN INDELIBLE INK WITH THE SUBSTANCE NAME, A HAZARD WARNING, OR SOME OTHER SPECIFIC IDENTIFIER.

This requirement is cited elsewhere in the OLAC Safety Manual and in the Chemical Hygiene Plan posted in each facility. Proper labeling is also one of the items that must be reviewed in an annual self-inspection to be conducted in every department laboratory and office. Inspection results are reported to the **IIPP** Coordinator, and compliance can be verified from the report. Periodic site inspections by the **IIPP** Coordinator and/or the NAF-LSO are also scheduled.

#### **ITEM #9: WARNING SIGNAGE**

\*WARNING SIGNS MUST BE POSTED ON DOORS TO ROOMS WHICH CONTAIN MAJOR HAZARDS (E.G., REGULATED RADIOACTIVE MATERIALS, BIOHAZARDS, AND CARCINOGENS).

Proper signing is also one of the items that must be reviewed in an annual self-inspection to be conducted in every department laboratory and office. Inspection results are reported to the **IIPP** Coordinator and compliance can be verified from the report. Periodic site inspections by the **IIPP** Coordinator and/or NAF-LSO are also scheduled.

### **ITEM #10: HAZARD COMMUNICATON**

OLAC HAS A DEPARTMENT SAFETY COMMITTEE, AS WELL AS OTHER MECHANISMS, TO CONVEY HEALTH AND SAFETY INFORMATION TO EMPLOYEES AND STUDENTS.

\* The OLAC Safety Committee has representatives from all areas of the department and meets quarterly. Employees are encouraged to communicate with members of the Safety Committee concerning matters of safety. Specific problems are open for discussion in Committee meetings. Minutes of the committee meetings are written, and copies of the minutes are sent to all Safety Officers in OLAC to keep them informed on current safety issues.

\* Safety Bulletin Boards are established in key locations in each facility.

### **ITEM#11: ACCIDENT AND INJURY REPORTING**

Procedures for responding to workplace injuries are cited in Section 5 of the OLAC Safety Manual. All injuries must be reported to the OLAC Departmental Safety Officer where it will be determined if an OSHA report must be filed (i.e., *Employer's Report of Occupational Injury or Illness Investigation Report*) should also be completed as a local record of the incident. Department report forms are available from the OLAC website. The reports are reviewed by the Department **IIPP** Coordinator, who prepares a follow-up report citing any necessary corrective actions. Copies of the report and the follow-up are sent to both the supervisor/and the NAF-LSO. When appropriate, the Department Safety Committee may be asked to review incidents. When correction of unsafe conditions is required, supervisors are asked to respond within 10 days.

### **ITEM #12: SPECIAL PRECAUTIONS**

SPECIAL PRECAUTIONS MUST BE TAKEN WHEN WORKING WITH PARTICULARLY HAZARDOUS SUBSTANCES. THESE ARE LISTED BELOW.

- All persons working with biohazards are subject to the special regulations of the Campus Biohazard Safety Program.
- All persons working with radioactive materials or radiation-producing equipment must be included on a valid Radiation Use Authorization and are subject to the special regulations of the Campus Radiation Safety Program.
- The delivery of radioactive supplies in OLAC must be documented: anyone who accepts delivery of a radioactive order is required to sign a receiving form, which is also signed and dated by the person making the delivery.
- Special procedures must be followed in the disposal of anything that is defined as medical waste (Section 6).
- The OLAC Safety Manual, which includes an informational section on "Special Hazards" (Section 7), is required reading for all personnel; there is a reference copy of the manual at every facility. The Chemical Hygiene Plan that includes a section on "Controlling Exposures" must be posted in every facility.

### III. RECORDKEEPING

#### *ITEM #13 RECORDKEEPING*

Records of all departmental health and safety activities are maintained for a minimum of three years and are available for inspection as prescribed by law. The IIPP Coordinator is the custodian of department safety plan records. Facility Safety Officers are responsible for maintaining training records for members of their unit and sending copies to the department IIPP Coordinator. Information on specific types of records is listed below.

Type of Record	Location
Initial Employee Training	Current employees: 203 NAF Separated employees: 203 NAF personnel files
Additional Employee Training	Originals: 203 NAF Copy: Facility Safety Officer files
Copy of Dept. Emergency Response Plan	203 NAF, and each facility
Copy of Dept. IIPP Safety Plan	203 NAF
Dept. Chemical Inventory	203 NAF
MSDS	NAF Conference Room and each facility
Minutes of Safety Comm. Mtgs.	203 NAF
Required postings: <ul style="list-style-type: none"> <li>● OSHA Poster “Safety and Health Protection on the Job”</li> <li>● Summary of Occupational Injuries Illnesses</li> <li>● Radiation Safety Poster</li> </ul>	Both the posters and the summary of injuries are posted in each facility: NAF            Entry Level Corridor LSA            Safety Bulletin Board, Basement and 6 <sup>th</sup> Floor FSBR          Bldg. 9, Room 7 Minor Hall    Room 360
Incident Reports of Occupational Injuries/Accidents	203 NAF
Corrective Action Reports	203 NAF
Safety Self-Inspection Reports	203 NAF

## **4. OCCUPATIONAL HEALTH AND TRAINING PROGRAMS**

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### **Overview of the UC Berkeley Campus Health and Safety Program**

A number of UC Berkeley programs and service organizations have been established to address injury and illness prevention and to mitigate specific concerns relating to maintaining and promoting a safe and healthy environment for the campus community. These include, but are not limited to:

- Office of Environment, Health and Safety (EH&S)
- University Health Service (UHS): Faculty and Staff Services – Occupational Health
- Office of Emergency Preparedness (OEP)
- Campus Personnel Office
- University of California Police Department (UCPD)
- School of Optometry (Vision Care Services)

The two primary health and safety organizations on campus are EH&S and UHS. EH&S is responsible for tracking developments in environmental health and safety laws and regulations, and determining requirements that apply to the campus. Requirements are met through the development of programs by EH&S and relevant faculty committees for implementation by campus departments, as well as through direct services, consultation, and compliance assistance provided by EH&S. EH&S is also responsible for providing information to the campus community on programs, services, regulatory impact and compliance requirements.

The UHS Occupational Health Program (OHP) is responsible for protecting and improving the health of faculty and staff and developing a healthy work environment. OHP provides consultations on campus health concerns to the campus administration and departments. It also directs treatment and preventive services to employees through the occupational health clinic, employee assistance program, and campus wellness program for faculty and staff.

In addition to the programs and service organizations on campus there are a series of committees, which provide oversight for the implementation of health and safety requirements on campus. The committees include, but are not limited to:

- Research Compliance Advisory Committee (RCAC)
- Animal Care and Use Committee
- Committee for the Protection of Human Subjects
- Committee on Laboratory and Environmental Biosafety
- Laboratory Operations and Safety Committee
- Radiation Safety Committee

The Research Compliance Advisory Committee performs the following functions:

- advises the Chancellor on issues concerning campus programs, policies, and management pertaining to environmental, health and safety matters;
- makes recommendations on the overall direction of campus efforts and program priorities;
- ensures an effective structure in identified, created and maintained to disseminate environmental, health and safety information to campus;
- facilitates dissemination of such information;
- reviews, evaluates and recommends environmental, health and safety programs and policies;
- reviews major issues related to campus fiscal policy, budgets and other financial matters that affect environmental, health, and safety policies and programs for the Chancellors final approval and action.

Each of the other committees has specific charges relative to the subject matter. The chairs of the subject matter committees are members of the Research Compliance Advisory Committee.

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## **Hazardous Agent Use**

The program for monitoring exposure to potentially hazardous biological, chemical and physical agents is administered by the Office of Environment, Health and Safety (EH&S). The radiation-monitoring program is mandatory for those working with radioactive materials or using X-ray equipment. Personnel are required to wear either finger or badge dosimeters which are monitored by EH&S on a periodic basis. Other types of monitoring programs sample for and measure exposure to irritants, organic solvents, metals, and biological agents. These programs are instituted at the request of individual laboratories. Additionally, Cal/OSHA requires that each department have Material Safety Data Sheets (MSDS) for all hazardous materials used by personnel. These documents are to be kept in centrally located, easily accessible locations, or can be obtained electronically via the EH&S web-site: [www.ehs.berkeley.edu](http://www.ehs.berkeley.edu).

## **Experimentation Using Hazardous Agents**

EH&S oversees campus compliance with applicable federal, state and local rules and regulations. EH&S facilitates compliance through the implementation of specific programs in the areas of Hazardous Material Management, Industrial Hygiene, Respiratory Protection, Fire Safety, Sanitation, radioactive materials, and X-Ray and laser safety programs.

## **Personal Hygiene for Animal Care workers**

### **Protective Clothing**

Animal care personnel are provided with work shirts, pants, and lab coats worn only while working in the animal facilities. The clothing is laundered by a commercial laundry service. Additional protective clothing provided as needed include nonskid waterproof boots, eye goggles, face shields, work/exam gloves, disposable coveralls, face masks, head covers, and foot covers. The EH&S Respiratory Protection Program provides respirators, test fitting and training in their proper use, when deemed necessary by OHC, the Director of OLAC, or upon request by employees or researchers.

All outer protective clothing worn into the Biohazard Containment Facility (BCF) in the Northwest Animal Facility is disposable and autoclaved prior to disposal.

There are sinks either in animal rooms or in corridors adjacent to animal rooms. Employees remove gloves and wash their hands as they leave an animal room or suite. Locker rooms are provided. Employees change into street clothes before leaving the facility.

Efforts to prevent and reduce employee injury are ongoing. Nonskid and steel-toed boots, eye, hearing, and respiratory protection are provided to employees as necessary. Classes reviewing proper lifting, ergonomics and general safety procedures are provided to all employees by OLAC staff and representatives from the Occupational Health Clinic. Changing stations for rodent caging have electronic lift capabilities to alter the height of the work surface for different height employees. Cushioned mats are provided for employees who must stand for long periods of time in the same location.

### **Shower and Change Facilities**

The NAF has a coed shower/change facility located on the lower level of the building in room 101. This facility has four private showers, four individual change rooms, and numerous lockers. Adjacent to this are five individual toilets. The BCF in the NAF has a coed shower/change area. In LSA, separate men and women's shower and change facilities are located on the sixth and basement floors. Each has at least two showers, numerous clothes lockers, as well as toilets. There are additional toilets on LSA-6 near the surgery suite. Minor Hall contains a shower; toilet, sink and lockers for animal care personnel within the animal facility. At the FSBR, separate men and women's shower/change rooms are located in Building 9A, each has a shower, toilet, and clothes lockers.

## **Eating, Drinking and Smoking Policies**

OLAC policy prohibits eating, drinking, or smoking in any of the animal facilities or support areas unless designated (clean spaces). Dedicated lunch rooms are located in the facilities as follows: LSA-6, room 649; LSA-B, room 39; NAF, room 202; and FSBR, Building 9.

UC Berkeley policy prohibits smoking inside buildings on campus. Smoking is allowed only in a designated area in the parking lot at FSBR.

## **THE OLAC Training Program for Faculty, Students and Researchers**

Faculty, graduate students and research staff who use live vertebrate animals in research or instruction are required to attend a mandatory training program offered by OLAC. The program consists of the following:

### The Core Program (Tier One)

All faculty animal users and selected graduate students and research staff are required to complete the core training program. This involves attending a seminar at which the campus' *Animal Care and Use Training Handbook* is distributed and reviewed (Appendix M). The handbook includes information on the following topics:

- animal welfare regulations, policies and guidelines;
- OLAC and the ACUC; the occupational health program; surgery, anesthesia and analgesia;
- ethical and humane considerations; and methods for reporting animal welfare concerns.

Every five years, users are required to recertify using OLAC's on-line training course ([dtsetrain.berkeley.edu](http://dtsetrain.berkeley.edu)).

User-Specific Training The second tier of the training program consists of seminars, workshops and wet labs on specific topics such as rodent handling and procedures, antibody production, and potential health hazards in the field. Individuals who use certain species or perform particular procedures are required to complete this tier of the training program.

### Individualized Certification

Individuals who perform invasive procedures on higher mammals are required to demonstrate their proficiency to OLAC veterinary or technical staff. Procedures that require proficiency demonstrations are specified by ACUC or OLAC on an individual basis, usually in conjunction with review of animal use protocols.

## 5. EMERGENCY RESPONSE PLAN

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### EVACUATION PROCEDURES

1. ALL BUILDING OCCUPANTS MUST EVACUATE IN RESPONSE TO A FIRE ALARM OR WHEN DIRECTED TO DO SO BY EMERGENCY PERSONNEL (e.g., in the case of a bomb threat). Do not assume it is a false alarm. Evacuate first, and give emergency officials an opportunity to assess the situation.
2. EXIT BUILDING VIA THE STAIRWAYS. DO NOT USE ELEVATORS. Take time to familiarize yourself with evacuation routes in advance. Maps showing location of emergency exits, fire alarms, and extinguishers are posted by all elevator doors.
3. ASSIST THE INJURED AND HANDICAPPED WHEN POSSIBLE. Do not move the seriously injured unless there is danger of further injury. Ask disabled persons in wheelchairs how best to assist them. If deaf or hearing-impaired persons are nearby, be sure they are aware there is an emergency. If it is necessary to leave someone in the building, have him stay in a relatively secure place (e.g., in a fire, the stairwell is one of the safer places to be). Upon exiting the building, find the proper officials and report the location and condition of persons who need assistance.
4. FACILITY SAFETY OFFICERS AT INDIVIDUAL FACILITIES ARE RESPONSIBLE FOR CLEARING ALL ROOMS IN THEIR FACILITY. If the safety officer is not in the area at the time of the emergency, another member of the lab/office must assume responsibility for clearing the unit before leaving the building. Efforts to clear rooms should be limited to five minutes. As rooms are cleared, all doors should be closed. Safety Officers must then report to an emergency coordinator to verify that their unit has been fully evacuated or to report any problems. An emergency coordinator will be at the facility's Emergency Assembly Area (EAA). *See Facility Evacuation Maps in each facility's section for EAA locations.* OLAC maintains emergency radios at each facility in order to coordinate emergency medical and/or Veterinary response.
5. EVACUEES: ONCE OUTSIDE THE BUILDING, GO DIRECTLY TO THE MEETING SITE DESIGNATED BY YOUR FACILITY. Keep a safe distance away from the building to avoid danger from falling glass, etc. *(Be sure you know where your meeting site is before an emergency occurs. If you do not know, ask your Facility Safety Officer.)*
6. DO NOT RE-ENTER THE FACILITY UNTIL EMERGENCY OFFICIALS HAVE DETERMINED THAT IT IS SAFE.

## FIRES

1. IF THE FIRE ALARM SOUNDS, TURN OFF ANY ELECTRICAL EQUIPMENT YOU ARE OPERATING AND EVACUATE BUILDING IMMEDIATELY. FOLLOW EVACUATION PROCEDURES CITED ABOVE. Close all doors to help prevent fires from spreading and exit via stairwells. Do not use elevators.
2. TO REPORT A FIRE: PULL NEAREST FIRE ALARM, and CALL **911** FROM A SAFE LOCATION TO GIVE LOCATION AND EXTENT OF FIRE. State if there are any special circumstances, such as the presence of animals or dangerous chemicals. Fire alarms are located on each stairwell landing and in hallways of each floor (look for red signs protruding from wall which mark location of each alarm in hall).
3. WHEN FEASIBLE AND IF YOU HAVE BEEN TRAINED TO DO SO, YOU CAN ATTEMPT TO PUT OUT FIRE WITH FIRE EXTINGUISHER. There are extinguishers located in the corridors of each facility (look for red signs protruding from wall which mark location of each extinguisher in hall). When fighting a fire, always position yourself between the exit and the fire to ensure an escape route. IF THE FIRE CANNOT BE CONTAINED, GET OUT QUICKLY!

### Fighting Small Fires:

- Always pull the fire alarm first (or send someone to do this), before attempting to fight a fire. **Do not try to fight a fire unless you feel it can be done safely and there is a clear escape route.**
- Know where the closest fire extinguisher is located. Also, be sure you are using the proper type of extinguisher. All extinguishers at OLAC except for a few at the FSBR are multi-purpose type “ABC” which can be used for ordinary combustibles, flammable liquids and electrical equipment (Locations are marked by red signs protruding from the wall.)
- Before opening any doors to investigate a possible fire, feel the top of the door with the back of your hand. If it is hot, do *not* open the door. If door is cool, open it a crack to see if the fire is still confined and small; if not, close door and leave immediately.
- If the fire is small, enter the room and try to extinguish the flames. Direct the extinguisher at the *base* of the fire. Be careful to keep yourself between the fire and the door. *Do not allow the fire to block your exit from the room.*
- If you are able to put out a fire successfully, remain at the site to make a report to the Fire Department or UCPD.

*NOTE:* Fire extinguisher training is offered to OLAC employees. Announcements will be sent to facilities when a demonstration has been scheduled. Extinguishers are scheduled

automatically for an annual inspection by PP-CS and will be refilled when necessary.

## **BOMB THREATS**

1. REPORT ANY BOMB THREAT TO THE BUILDING COORDINATOR OR CAMPUS POLICE (911 or 2-3333).
2. EVACUATE IMMEDIATELY IF DIRECTED TO DO SO BY EMERGENCY PERSONNEL. FOLLOW EVACUATION PROCEDURES CITED ABOVE. TAKE PERSONAL BELONGINGS WITH YOU.  
*NOTE: In accordance with standard campus procedures, building fire alarms will not be sounded in the event of a bomb threat. Door-to-door notification will be carried out by OLAC staff. Facilities must assume responsibility for clearing their own rooms once the alert reaches them.*
3. CHECK WORK AREA FOR UNFAMILIAR ITEMS AS YOU LEAVE.  
Do not touch suspicious items; report them to campus authorities.

## **CIVIL DISTURBANCES**

Most campus demonstrations will be peaceful, and people not involved should carry on business as usual. Should a disturbance occur, call UC Police: from campus or pay phones by dialing **911**. If there is to be a demonstration that involves an OLAC facility, you may want to suspend operations during that period of time. If you are present in the building during a demonstration, use the following directions as a guide.

1. MOVE AWAY FROM ALL WINDOWS AND CLOSE BLINDS IF POSSIBLE.
2. AVOID PROVOKING OR OBSTRUCTING DEMONSTRATORS IN ANY WAY.
3. DO NOT OPEN DOORS OR ATTEMPT TO LEAVE THE BUILDING WITHOUT CONSULTING WITH EITHER CAMPUS POLICE OR THE BUILDING COORDINATOR. It may not be advisable to leave at that time.
4. IF DEMONSTRATORS GAIN ENTRY INTO THE BUILDING, DO NOT CONFRONT OR INTERFERE WITH THEM UNLESS YOU ARE AT IMMEDIATE RISK. Lock yourself in an office if possible until campus police can assist you in leaving the building safely.
5. IF THE BUILDING YOU ARE WORKING IN IS ENTERED BY DEMONSTRATORS, SHUT DOWN ANY HAZARDOUS OPERATIONS AT ONCE AND LOCK YOUR DOORS.

## EARTHQUAKES

1. **SEEK SHELTER UNDER A DESK, TABLE, COUNTER, OR DOOR FRAME.** If possible, move away from experimental setups, tall bookcases, and glass windows. If outside, move into open areas away from overhead power lines. Hold onto your shelter if it not securely attached to a wall or floor (**DUCK, COVER, & HOLD**).
2. **DO NOT ATTEMPT TO LEAVE BUILDING WHILE THE TREMOR IS OCCURRING.** (If outside, remain outside.)
3. **WHEN THE TREMOR STOPS, LEAVE BUILDING IMMEDIATELY. FOLLOW EVACUATION PROCEDURES CITED ABOVE.** In case of possible gas leaks, do *not* light matches and do *not* operate electrical switches or appliances.
4. **DO NOT USE PHONE LINES EXCEPT TO REPORT EXTREME EMERGENCIES.** Help keep phone lines from being overloaded by replacing any receivers that have been knocked off their hook. OLAC maintains emergency radios at each facility in order to coordinate emergency medical and/or veterinary response. Contact the Facility Safety Officer who should have the radio for your facility and report and emergency information to them. See the radio use procedures included at the end of this section.

## OTHER EMERGENCIES

1. **Injuries.** For life-threatening emergencies, CALL **911** (Cellular Phones Dial: 642-3333) for medical aid and for transportation to hospital. For less serious injuries or illness, first-aid can be obtained at University Health Service at the Tang Center (2222 Bancroft Way, 2-2000). *Report all injuries to 203 NAF, your home department and complete an injury report form.*
2. **Power Failures.** In the event of a building-wide power failure, contact one of the following for information and further instructions:

Building Coordinator (see section 2)  
Campus Police           2-6760  
Physical Plant            2-1032

During the outage, turn off any computers and other equipment that may be in use to avoid damage caused by power surges when power is restored. **LABS:** stabilize any experiments in process; cap all open containers of chemicals and close the sash in fume hoods (there may be no exhaust in fume hoods when the power goes out). Evacuation procedures will be initiated by the Building Coordinator if the shutdown affects ventilation and causes a serious deterioration of air quality. The NAF, LSA, FSB, and Minor Hall are equipped with emergency power

generators. In the event of a power failure, these generators are designed to maintain heating, ventilation, and limited lighting and power to building outlets.

3. **Elevator Failures.** Report elevator problems to PP-CS (2-1032) or the Building Coordinator. During non-business hours, report emergencies directly to Physical Plant, 2-6556. If there are people trapped inside the elevator, try to communicate to them that help is on the way. If *you* are trapped inside, call for help by pressing the alarm or using the emergency phone in the elevator.

4. **Gas Leaks and Other Utility Failures.** Report immediately to one of the following:

PP-CS 2-1032  
Building Coordinator (see section 2)  
*after-hours:* 2-1032 (Physical Plant)

If necessary, evacuate building by pulling fire alarm and notify Police by calling 911 or 2-6760. In the event of gas leaks, do not operate any electrical switches as this may produce sparks.

5. **Flooding/Plumbing Failure.** Call for help immediately:

PP-CS 2-1032  
Building Coordinator (see section 2)  
*after-hrs.:* 2-1032 (Physical Plant)

If flooding occurs on an upper floor, ***IMMEDIATELY NOTIFY THE OCCUPANTS BELOW.*** OLAC supervisors should post the phone number of the occupants below them next to their own telephone. The floors in some buildings are not sealed, and even small amounts of liquid may leak through very quickly. If flooding occurs around energized electrical devices, do not touch equipment.

6. **Hazardous and Toxic Spills.** Call EH&S (2-3073) for help with spills involving any of the following:

- carcinogens and mutagenic materials
- radioisotopes
- biohazardous materials
- highly toxic chemicals such as Osmium Tetroxide and Nickel Tetracarbonyl
- concentrated acids and bases

If the spill occurs on an upper floor, ***IMMEDIATELY NOTIFY THE OCCUPANTS BELOW.*** If the spill presents an *extreme* hazard, evacuate the building. Pull the fire alarm, dial 911 and give exact location and nature of spill. If you are unfamiliar with the toxicity of the substance you are working with, contact your supervisor. Minor spills should be cleaned up promptly. Chemical spill carts equipped with clean-up supplies are available in the corridor outside room 301 (LSA), and in room 114 (NAF).

## 6. LABORATORY AND CHEMICAL SAFETY

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### PERSONAL SAFETY

1. Smoking is not allowed in any indoor areas on campus.
2. Wear safety glasses or face shields when working with hazardous materials and/or equipment.
3. Wear gloves when using any hazardous or toxic agent. *These should be removed before leaving the lab, using phones, opening refrigerators, or entering common areas.*
4. Use of chemical and fire resistant laboratory coats is recommended. Shorts and sandals should *not* be worn in the laboratory.
5. Do not use any equipment unless you are trained and approved as a user by your supervisor.
6. Pregnant women should take special care with exposure to radiation and certain chemicals which can be harmful to fetal development. Call EH&S at 2-3073 for further information or contact your physician.
7. Wash hands before leaving the lab and before eating.
8. Tie back medium-length and long hair when working near flames or entangling equipment.
9. If leaving a lab unattended, turn off all burners and lock the doors.
10. Working alone in laboratories is not recommended. If you must work alone, notify someone of your location.
11. Never mouth pipette.

### GENERAL LABORATORY SAFETY

1. Maintain aisles at least 28" wide and keep them clear.
1. Maintain unobstructed access to all exits, fire extinguishers, electrical panels, emergency showers, and eye-washes.
3. Do not use corridors for storage or work areas.
4. Make sure all cabinets, bookcases, etc., taller than 42" are anchored.
5. Shelves 48" or higher and all shelves with chemicals should have restraining straps or lips.
6. All highly toxic materials *must* be stored in secondary containers to avoid hazardous leaks (when purchasing new supplies of toxic materials, request safety containers whenever possible.)
7. Do not store heavy items above table height. Any overhead storage of supplies on top of cabinets should be limited to lightweight items only. *Also, remember that a 36" diameter area around all fire sprinkler heads must be kept clear at all times.*
8. Spills should be cleaned up immediately. A cart equipped with clean-up supplies is located in the corridor outside 301 LSA and in 114 NAF.
9. Areas containing biohazards, radioisotopes, and carcinogens should be posted accordingly. However, do not post areas unnecessarily and be sure that signs are removed when hazards are

- no longer present.
10. Post shut-down instructions next to any piece of equipment that may run unattended. List clear instructions and name and phone numbers of person to contact regarding that piece of equipment in an emergency.
  11. Make sure all chemical reagents are clearly and currently labeled with substance name, concentration, date, and name of responsible individual.
  12. *When leaving a research group, review all solutions you have made and either dispose of them or assign them to another member of the laboratory. The name on the label should reflect this change.*
  13. Tag all electrical outlets with breaker box number and switch number.
  14. Avoid using extension cords whenever possible. If you must use one, get a heavy-duty one that is electrically grounded, preferably with its own fuse, and install it safely. Extension cords should not go under doors, across aisles, or be hung from the ceiling. Extension cords should not be used for permanent (greater than 30 days) wiring.
  15. Use volatile and flammable compounds only in a fume hood. Procedures that produce aerosols should be performed in a hood to prevent inhalation of hazardous materials.
  16. To avoid hazardous spills, use plastic carriers when transporting bottles of dangerous chemicals (such as acids) through corridors. Plastic carriers are available from the LSA Storeroom.
  17. Gas burners and hot plates should never be left unattended when in use.
  18. For safety reasons, waste containers should be emptied on a daily basis. If this is not done, notify the Building Coordinator.

## STORAGE

**NOTE: NAF storage rules are more restrictive; see the NAF safety manual for details**

1. **Arrange storage by chemical compatibility.** (Do not use traditional A-B-C method.) Store strong acids and bases away from organic compounds, and segregate incompatible chemicals. Useful information on chemical compatibility can be found in Dangerous Properties of Industrial Materials, by N.I. Sax (copy available in 203 NAF), the Merck Index, the Aldrich Chemical Catalog, and the EH&S publication "Safe Storage of Hazardous Chemicals".
2. Secure all pressurized containers (e.g., CO<sub>2</sub> tanks) using two chains; one at 12" above the floor, and one just below the shoulder of the cylinder. Install restraining lips on shelves.
3. **Date chemicals at time of purchase, and make sure all containers are properly labeled.**
4. Maintain up-to-date inventory records for radioisotopes, carcinogens, chemicals, and any biohazardous substances. State law requires that the University maintain a complete chemical inventory as part of a Hazardous Materials Management Program. **All facilities must submit a chemical inventory to EH&S and update it annually.**

5. Do not store food in laboratories, or in refrigerators or cold-rooms containing dangerous substances such as radioactive compounds, etc.
6. In areas where combustibles are used and stored, remove all open flame devices and use grounded electrical devices in good service condition.
7. Use only metal or approved containers to store combustible waste. A list of containers approved by the State Fire Marshal is available from EH&S (2-3073).
8. The campus has restrictions on the amounts of flammable liquids you may store in laboratories or shops. A maximum of 10 gallons of flammable liquids may be stored outside of a flammable storage cabinet in any one location, provided the following rules are observed:
  - containers are no larger than 1-gallon (*safety* containers may be up to 2-gals.);
  - no more than ten 1-gallon non-safety containers may be kept outside storage cabinets;
  - (the number of 2-gallon safety cans shall not exceed five).

Quantities exceeding the above totals shall be stored in approved metal flammable liquid storage cabinets. The total amount of flammable liquids stored in approved cabinets within labs or classrooms shall not exceed 60 gallons. The responsibility for following these requirements rests with the faculty investigator or project manager.

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## WASTE DISPOSAL

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Recent laws now regulate the disposal of many kinds of waste, and there are new restrictions on what may be put in public landfill or poured down the drain. Be aware of the various policies cited below and THINK before you dispose of anything.

### Medical Waste Disposal

Everything defined as "medical waste" must be taken to the "cold-room", 638 LSA, or 205E NAF for disposal. These cold rooms have been designated as medical waste accumulation sites. The following is considered medical waste:

- any waste containing "INFECTIOUS AGENTS" with evidence of human pathogenicity e.g., arthropods, bacteria, fungi, helminthes, prions, protozoa and viruses);
- all SHARPS WASTE (i.e., all scalpels, razor blades, syringes and syringe needles, AND any glass or sharp devices which are contaminated with infectious or biohazardous waste);
- any fluid HUMAN BLOOD and blood products; all human anatomical remains.
- all animal carcasses and tissues.

Medical waste must be packaged in red "BIOHAZARD" bags, autoclaved if appropriate, and taken

to 161 LSA, 638 LSA or 205E NAF. For more information, see the EH&S help Sheet “Managing and Disposing of Medical Waste”.

## Drain Disposal

CAMPUS POLICY PROHIBITS THE DRAIN DISPOSAL OF HAZARDOUS WASTES OR ANY MATERIAL CAUSING VIOLATION OF EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD) WASTEWATER DISCHARGE PERMIT LIMITATIONS. All hazardous and chemical wastes must be packaged for pickup and disposal by EH&S. **Absolutely no carcinogenic, hazardous, or biohazardous waste is to go down the drain.** Waste is considered hazardous if it is flammable, corrosive, reactive, toxic, or contains heavy metals. Failure to comply with EBMUD requirements for campus drain disposal can lead to substantial fines or restrictions on laboratory water use. See the EH&S web-site’s “Interim Guidelines for Drain Disposal of Chemicals”.

(For more details: <http://www.ehs.berkeley.edu/pubs/guidelines/draindispgls.html>)

### EXAMPLES OF:

What CANNOT Go Down the Drain :	What CAN Go Down the Drain :
<ul style="list-style-type: none"> <li>-- solutions containing any heavy metals</li> <li>-- poisons</li> <li>-- organic solvents</li> <li>-- strong acids and bases</li> <li>-- photographic fixer*</li> <li>-- chromic acid/sulfuric acid glass washing solutions.</li> <li>-- waste paint and paint thinner</li> <li>-- motor oil</li> <li>-- methanol</li> <li>-- radioactive waste</li> </ul> <p><i>(Exception: some low-level liquid radioactive waste may be disposed of by drain if specifically allowed on the lab's RUA.)</i></p>	<ul style="list-style-type: none"> <li>-- sugar and non-hazardous protein solutions</li> <li>-- liquid detergents</li> <li>-- SOME DILUTE ACIDS AND BASES, (pH&lt;10 or pH&gt;5.5)</li> <li>-- liquid <u>nonmedical</u> waste which has been neutralized/decontaminated with bleach to a final concentration of 1%</li> </ul>
<p><i>*NOTE: Photo fixer is not allowed down the drain because it contains silver; however, photo developer <u>can</u> go down the drain if the pH is not too basic (i.e., pH must be less than 10).</i></p>	

## BUILDING TRASH

Only non-hazardous materials are allowed in building trash containers. Disposal of hazardous chemicals or medical waste in the building trash is strictly prohibited. Absolutely no bags or containers which are labeled MEDICAL WASTE, BIOHAZARD, INFECTIOUS, or SHARPS WASTE may be put in the regular building trash.

Also, many laboratory chemicals which you may consider non-hazardous are in fact regulated by the EPA or the California Department of Health Services and are considered hazardous by them. Therefore, unless you are absolutely sure that a chemical is not classified as hazardous, do not put it into the building trash. Package it for pickup and hazard determination by EH&S, or consult EH&S before putting it into the trash.

What CAN go into Building Trash	What must be Packaged for EH&S Pickup
<ul style="list-style-type: none"> <li>-- SUGARS AND SOME SALTS</li> <li>-- POWDERED DETERGENT</li> <li>-- NON-HAZARDOUS PROTEINS</li> <li>-- SAND AND CLAY</li> <li>-- BROKEN OR WASTE GLASSWARE (put in cardboard box, tape box closed, label it "Broken Glassware", and leave for pickup by custodians)</li> <li>-- UNCONTAMINATED PLASTIC PIPETTES (seal in separate box or put in same box with broken glass; do NOT leave loose in trash)</li> <li>-- AUTOCLAVED, <u>NON-MEDICAL</u> WASTE (<i>must be packaged in white bags labeled "Non-Medical" and taken directly by labs to building dumpster</i>)</li> </ul>	<ul style="list-style-type: none"> <li>-- all hazardous lab chemicals</li> <li>-- copy machine toner</li> <li>-- photographic chemicals</li> <li>-- pesticides</li> <li>-- paint and paint thinners</li> <li>-- waste solvents</li> <li>-- waste oil</li> <li>-- liquid paper white-out</li> <li>-- batteries</li> <li>-- empty containers with chemical residues</li> <li>-- hazardous household chemicals</li> <li>-- Computer monitors (CRTs)</li> </ul>

## DISPOSAL PROCEDURES

How to Request EH&S Pickups for Waste: Complete a Materials Packing List (MPL) form and mail to EH&S or, fill out the MPL online at <http://mpl.ehs.berkeley.edu> (Telephone requests are *not*

accepted for chemical waste pickup).

Biotechnology/Biological Waste: Solid biotechnical waste which is not defined as "medical" must be put in white bags specifically labeled "NON-MEDICAL". These should be autoclaved to kill any biological organisms and taken directly by the lab to the building dumpster. (Custodians will not pick up these bags.)

Animal Waste: Animal waste must be bagged to prevent leakage and discarded in the medical waste barrels in cold rooms listed in the EH&S "Managing and Disposing of Medical Waste" regarding medical waste disposal at the end of this section.

Radioactive Waste: Contact EH&S (2-3073) for pick-up of radioactive waste in your lab. You may also take radioactive waste to room 155 LSA or 205A NAF, where there are central collection receptacles. For more information on packaging radioactive waste, see Section 7.

Guidelines for Disposal of Chemical Waste (Non-Radioactive): Separate chemical waste by compatibility. Only compatible chemicals should be packaged together. **Extremely hazardous chemicals, such as potential explosives, should not be packaged with other chemical waste.** (Some of the most common explosive compounds are peroxides and peroxide formers, such as old ethers.) To dispose of these, make special arrangements with EH&S.

- Chemicals should be packaged in a sturdy box with a top that can be closed and sealed. Several small boxes are preferable to one large, unwieldy box. Drums and cans are acceptable if they are properly sealed and in good condition.
- All contents must be cushioned thoroughly so that breakage does not occur. For this reason, plastic bottles are preferable to glass bottles. If glass bottles must be disposed of, cushion them with plenty of newspaper, packing material or corrugated separators.
- Do NOT use bottles with glass, rubber, or cork stoppers. There is too much risk of leakage in transit. Transfer all liquids to screw-top bottles and make sure the top is tightly closed.
- Dry chemical waste must be thoroughly contained: first, in a primary container (such as a plastic bag or its original can or box), and secondly, inside a larger box or drum in which it will be transported.
- No broken or leaking bottles, cans, or packages are acceptable.
- Each box or container of waste must be labeled with a "Waste Materials List," listing the contents and their approximate quantities. Additional notes concerning age or unusual condition of contents are also helpful.
- When disposing of unknown or unlabelled compounds, be careful of potential dangers. Separate unidentified waste, and consult with the waste pickup person.

Glass Disposal: All glass (e.g., broken glass, unwanted glassware, empty bottles) must be collected in a separate container, sealed securely, and labeled "GLASS ONLY". Empty chemical bottles should be triple rinsed with labels defaced and caps removed before putting in glass disposal boxes.

(Don't forget to save any generated rinsate which may be considered hazardous waste, and dispose of it appropriately.)

Hypodermic and Syringe Needles: Hypodermic or syringe needles must be collected in an approved sharps container. Leave needles intact; do not clip. Do not re-cap needles. Dispose entire container as medical waste in the appropriate location.

Gaseous Waste: Be cautious with gaseous wastes. If not noxious or hazardous, release them in an operating fume hood; if waste is hazardous, contact EH&S (2-3073). Do not deliberately dispose of liquid chemical waste by evaporating in a fume hood unless you are sure it is not hazardous (Chemical waste can be more safely disposed of by EH&S through the use of special incinerators.)

## 7. SPECIAL HAZARDS

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This section covers materials which require special precautions when handling and storing:

1. Radioactive Materials
2. Biohazardous Agents (Recombinant DNA, Oncogenic Viruses, Etiologic Agents)
3. Tissue Culture
4. Teratogens
5. UV Light
6. Aerosols
7. Exceptionally Hazardous Chemicals

### RADIOACTIVE MATERIALS

Radioactive isotopes commonly used are  $^3\text{H}$ ,  $^{32}\text{P}$ ,  $^{14}\text{C}$ ,  $^{35}\text{S}$ ,  $^{125}\text{I}$ . To order, receive, possess, and use radioactive materials, a valid Radiation Use Authorization (RUA) must be on file with the Office of EH&S. Following is a summary of guidelines for working with radioactive materials. (For further information, refer to the UCB Radiation Safety Manual, available from EH&S).

1. Do NOT mouth-pipette radioactive solutions. Use disposable pipettes and propipettes.
2. Wear a lab coat, safety glasses, and disposable gloves when handling anything radioactive. **Most inadvertent contamination of laboratory surfaces is caused by contact with contaminated work gloves.** Nearly all isotope work will involve some direct handling of open isotope containers. Whenever this occurs, assume that your gloves are contaminated. Change them immediately if a "clean" item is to be handled. Never wear the gloves away from the immediate work area after direct handling and check them frequently with a survey meter. A dry run will show when gloves should be changed, and preliminary assembly of all equipment will cut down on movement away from the work area to open drawers, refrigerators, etc.
3. Label all potentially contaminated equipment or materials. Contaminated, unlabelled material can lead to spread of surface and personnel contamination.
4. Cover bench areas with absorbent paper, and define radioactive work area with radiation label tape.

5. Keep radioactive material in secondary containers (e.g., plastic beakers, trays, rubber dish pans) to prevent contamination caused by spills and breakage. Label these secondary containers with radiation tape.
6. Wear a film badge and ring, and work with plastic shields while handling high energy beta radioactive materials such as  $^{32}\text{P}$ . Use lead shielding for  $^{125}\text{I}$ .
7. Minor Spill (i.e., spill involves no immediate health hazard)
  - a. Contain spread of activity if possible.
  - b. Delineate contaminated area at once, cover shoes, and keep all persons away.
  - c. Call EH&S immediately (2-3073). Stay in the area until EH&S arrives. (After 5:00 p.m., call Campus Police, 2-6760).
  - d. Do not attempt decontamination except as expressly directed by EH&S.
8. Major Contamination (i.e., spill involves potential health hazard)
  - a. Vacate the immediate area, leaving behind clothing and other articles which may be contaminated, and remain in the vicinity.
  - b. Turn off all ventilation systems.
  - c. Keep all persons out of the area, except monitoring and rescue teams.
  - d. Call EH&S immediately (2-3073) or Campus Police (2-6760) if after 5:00 p.m. Stay in adjacent area until EH&S arrives.
  - e. Do not attempt decontamination except as expressly directed by EH&S.
9. Radioactive Waste Disposal -- Refer to the Radiation Safety Manual for more complete information.
  - a. Liquid waste must be contained in 1-gallon narrow-necked, screw top glass containers. It should be placed in a plastic bag and stored in a spillover container. The label must include isotope type, activity, date, building, and room number. In the remarks you must designate all chemical components percentage by volume. No chemical formulas. Contact EH&S for pick-up, 2-3073. (NOTE: Some low-level liquid radioactive waste may also be disposed of by drain, but only if permission is specifically given on the lab's RUA.)
  - b. Scintillation vials must have all caps secured tightly and be removed from flats, double bagged and labeled. Gently place them in the appropriate drum in 155 LSA or 205A NAF, and log onto drum card. These steps are necessary to avoid contamination and to keep solvent levels at a minimum in the drums and in the accumulation rooms.
  - c. Dry waste should be contained in plastic bags, labeled and placed in dry waste drums in the accumulation rooms, and recorded in log.

- d. Sort waste by isotope as indicated in 155 LSA.
10. Radioactive liquids (with the exception of liquid scintillation vials) must be kept in spillover containers when being transported through hallways and other public spaces.
11. Any radioactive materials put in core rooms (e.g. cold rooms, warm rooms) or in core equipment (e.g. centrifuges, freezers), must be recorded on room log or equipment log sheet. Never leave unidentified samples in core areas.

## **BIOHAZARDOUS AGENTS**

Biohazardous agents which require special precautions fall into three categories:

- 1) Recombinant DNA: Molecules resulting from the recombination in cell-free systems of segments of DNA from two or more species. Experiments with these molecules are assigned, on the basis of potential hazard and level of required biological containment. Biological containment levels are assigned based on the ability of the host organism to survive outside the laboratory.
- 2) Oncogenic Viruses: Viruses that are known to induce cancer after infecting susceptible animals. These are classed as low, moderate, or high risk on the basis of their potential hazard.
- 3) Etiologic Agents: Organisms (bacteria, viruses, fungi, etc.) known to cause disease in humans, other animals, or plants. These are classified as Risk Groups 1-4 on the basis of their potential hazard. Biological containment levels are assigned based on both the degree of infectiveness of the agent and the severity of the disease caused.

For guidelines on handling biohazardous agents, refer to the UCB Biohazard Safety Manual. This manual incorporates regulations, standards, and recommendations from federal and state agencies. All work involving the handling of Recombinant DNA or agents designated Risk Group 2 or higher requires a currently valid Biohazard Use Authorization.

If you have questions regarding possible hazards or appropriate containment requirements, contact the campus biosafety officer at EH&S (2-3073).

## **TISSUE CULTURE**

Before undertaking the in vitro culture of eucaryotic, especially mammalian, cells and deciding on containment restrictions, consider the following points:

1. What was the original source of the tissue or cell line and did the tissue exhibit diseased or other abnormal properties? What was the etiology of the disease?

2. Is the culture known to harbor or be particularly susceptible to any viruses? Are they oncogenic in nature? Are they infectious to humans or any other cultures in your lab? Are they able to recombine with other viruses and are they inducible with physical or chemical mutagens?
3. If you are culturing viruses, have you considered antibody tests for your laboratory personnel? Are any of your techniques likely to cause aerosols of culture material? How will the personnel and environment be protected?
4. How do you plan to dispose of liquid/solid waste material?
5. Are you taking immuno-suppressive drugs such as anti-allergy pills?
6. Are any pregnant women going to be in the working area?
7. Never work with cell cultures originating from your own body tissues.

## **TERATOGENS**

A wide spectrum of reagents commonly encountered in laboratories has been shown to have teratogenic properties (substances that cause birth defects). Women who are pregnant or attempting to conceive should take particularly strong precautions to avoid contact with these agents.

## **UV LIGHT**

Eyes should be protected by UV safety glasses with side shields. Remember that UV light is reflected from light surfaces such as filter paper. In prolonged exposure of high intensity, the additional protection of UV face shields, gloves, and long sleeves is necessary. UV blocking covers are also available (e.g. from Fotodyne Inc.) for most models of transilluminators.

## **AEROSOLS**

Aerosols are particularly dangerous because toxic chemicals in this form can be inhaled and ingested with alarming ease and rapidity. Avoid aerosols whenever possible, or use only in a hood. Procedures that produce aerosols include pipetting, homogenizing, and, in some cases, centrifuging. Aerosol generating procedures with biohazardous agents should be confined to biological safety cabinets.

## **EXCEPTIONALLY HAZARDOUS CHEMICALS**

The following list, although not exhaustive, cites some chemicals which are especially hazardous. Read bottle labels and research the hazards and proper handling procedures of the compounds that you use. Material Safety Data Sheets (MSDS) for most substances are available from the NAF Conference room and from EH&S's website:<http://www.ehs.berkeley.edu>

1. Ether: Extremely flammable. Forms highly explosive peroxides on contact with air (especially true of anhydrous ether). Date Ether container when received and when opened. Be very careful when handling old ether containers as peroxides may decompose explosively.
2. Nitric Acid and Nitrogen Oxides (except nitrous): Gases are given off by heating  $\text{HNO}_3$  or whenever  $\text{HNO}_3$  reacts with organic compounds (also some present at room temperature). Inhalation can cause fatal pulmonary edema which may show up within 6-24 hours. Since the bases are not so water-soluble as to be immediately irritating in the upper respiratory tract, a considerable amount may be inhaled before it is noticed. Anyone exposed should remain under observation for 48 hours.
3. Trichloroacetic Acid: Acute local effects: burns skin, mucous membrane, etc. No chronic effects described. When heated, gives off toxic chloride fumes.
4. Benzene: Worst effects are chronic in nature. In low concentrations, destroys blood-forming tissues.
5. Mercury: Spills can be a hazard because Hg is very difficult to clean up completely. It clings to many kinds of surfaces. EH&S will monitor Hg level before and after clean-up. Fumes are toxic. Heat can produce enough vapor to give symptoms in a few hours.
6. Perchloric Acid and Perchlorates: Potentially explosive, especially at high temperature (greater than  $60^\circ\text{C}$ ) when  $\text{HClO}_4$  becomes a potent oxidizing and dehydrating agent. Concentrations above 72% are dangerous. Anhydrous perchloric acid is particularly dangerous because it is unstable at room temperature and can decompose spontaneously with violent explosions when triggered by contact with oxidizable material (reducing agents). Combustible material and organic compounds are dangerous when contaminated with perchloric acid. They are a fire hazard and explosive, especially simple alkyl esters. Therefore, alcohol extractions following  $\text{HClO}_4$  treatment are to be avoided.
7. Acrylamide: Acrylamide and bisacrylamide monomers are neurotoxins. Care should be taken to avoid skin contact with the monomer. Mouth pipetting of solutions is forbidden. If any is spilled on the skin, immediately wash the area with soap and water. The disease syndrome is characterized by loss of coordination (seen as unsteadiness and stumbling), ataxia (irregularity of muscular action), and weakness in the extremities (particularly the legs). Initially the complaints are drowsiness, fatigue and tingling in the fingers. The effects of these compounds are *cumulative* and

can be produced by all routes of entry: oral, skin contact, and inhalation. Polymerized gels probably retain large quantities of unpolymerized monomer, and should be handled carefully. Further, it is thought that a noxious, volatile component reported to cause severe headaches is liberated from the gels while they sit in the destaining acetic acid bath. All staining and destaining should, therefore, be done in a hood and the solutions should be discarded (or stored for future use) in the hood. People who use staining mixtures employing methanol, should be aware of its toxicity, and perform all operations in the hood.

## 8. THE SAFETY PLAN FOR THE NORTHWEST ANIMAL FACILITY

The Northwest Animal Facility is the central animal housing and research facility for the Berkeley campus. It is a two-story building, with the housing, surgery, X-ray, recovery, pharmacy and clinical laboratories located in the lower, underground, level. A number of Berkeley faculty have laboratory space on this level also. Rodents, rabbits, cats, fowl and primates are housed in this building. The upper, ground level is occupied by the general administrative offices for OLAC, the veterinarians, ordering and receiving services, and separately, the office for the Animal Care and Use Committee (ACUC).

The safety plan for the NAF is contained in a separate binder, available from the NAF Laboratory Safety Officer, whose office is in 203 NAF, 3-8740. All safety provisions that are specific to that location are included there. Below is a roster of the safety personnel and records locations for the NAF.

### **LIST OF KEY NAF SAFETY PERSONNEL**

#### **BUILDING COORDINATOR**

- Quig Driver.....203A NAF..... **2-4598**
- Robin Baca (alternate).....203 NAF..... **2-4624**

#### **IIPP COORDINATOR (OLAC)**

- Quig Driver.....203A NAF..... **2-4598**
- Robin Baca .....203 NAF..... **2-4624**

#### **NAF LABORATORY SAFETY OFFICER (LSO)**

- Sara Souza .....317 U-Hall ..... **3-5809**

### **LOCATION OF SAFETY MATERIALS AND INFORMATION**

**IIPP RECORDS** ..... 203A NAF (Quig Driver's office)

**SAFETY BULLETIN BOARDS**..... NAF Main Corridor

**SAFETY LIBRARY** ..... NAF Conference Room  
203 NAF

**MATERIAL SAFETY DATA SHEETS** ..... 203A NAF (Quig Driver's office)

#### **NAF SAFETY COMMITTEE AND PERSONNEL ROSTER**

NAME                      DEPARTMENT .....ROOM #.....PHONE #

LABORATORY SAFETY OFFICER

Sara Souza..... EH&S .....317 U-Hall .....3-5809  
Krystyna Kozakiewicz (alternate) .....EH&S.317 U. Hall.....3-1397

LOWER LEVEL REPRESENTATIVE

Joan Wallace ..... OLAC .....102 NAF.....2-6603  
Walter Brown (alternate) ..... OLAC .....102 NAF.....2-6603

UPPER LEVEL REPRESENTATIVE

Quig Driver ..... OLAC .....203 NAF.....3-9666  
Robin Baca (alternate) ..... OLAC .....203 NAF.....2-4624

BUILDING COORDINATOR

Quig Driver ..... OLAC .....203 NAF.....2-4598  
Robin Baca (alternate) ..... OLAC .....203 NAF.....3-9666

NAF BUILDING SAFETY COMMITTEE:

Nina Hahn ..... OLAC (Director) .....203 NAF.....2-9232  
Quig Driver ..... OLAC (MSO).....203 NAF.....2-4598  
Sara Souza..... EH&S .....317 U-Hall .....3-5809  
Prof. Robert Lane (Chair) ..... Entomology .....411 Wellman.....2-4385  
Joan Wallace ..... OLAC .....102 NAF.....2-6603  
Marcy Brown ..... ACUC .....201 NAF.....2-8855  
Chris Tuthill..... Psychology .....3210 Tolman .....3-5819

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**9. THE SAFETY PLAN FOR THE LIFE SCIENCES ADDITION**

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Life Sciences Addition (LSA) is a multistory research and teaching facility located on West

Circle, adjacent and connecting to Valley Life Sciences Building (VLSB, the old LSB). OLAC occupies the basement and top (sixth) floor of the building. The basement contains housing facilities for fish, amphibians and reptiles, some of which are venomous. Please refer to the safety plan for the FSBR (section 10) for specific information regarding snakebite care. The sixth floor houses rodents, many of which are immunocompromised or require extra clean housing conditions. The sixth floor is also the location of the local OLAC administrative offices, surgery and X-ray facility, clinical laboratory, and cage washing facility. Medical and radioactive waste disposal sites are also located there.

The safety plan for LSA is contained in a separate binder, available from the LSA Safety Officer, whose office is in 497 LSA, 3-9987. All safety provisions that are specific to LSA are included there. Below is a roster of the safety personnel and records locations for LSA.

**LIST OF KEY LSA SAFETY PERSONNEL**

**BUILDING COORDINATOR**

- Barbara Duncan .....165 LSA .....**3-8121**
- Heidi Hoffman (alternate) .....497 LSA .....**3-5909**

**IIPP COORDINATOR (OLAC)**

- Quig Driver .....203 NAF.....**2-4598**
- Robin Baca .....203 NAF.....**2-4624**

**NAF LABORATORY SAFETY OFFICER (LSO)**

- Sara Souza .....317 U-Hall .....**3-5809**

**OLAC REPRESENTATIVES TO THE LSA BUILDING SAFETY COMMITTEE**

- Annette Webb .....649 LSA .....**3-4032**
- Lindsey Jennings (alternate).....647 LSA .....**3-5255**

**LOCATION OF SAFETY MATERIALS AND INFORMATION**

**IIPP RECORDS** ..... 649 LSA (Annette Webb’s office)

**SAFETY BULLETIN BOARDS**..... LSA North Elevator Corridor

**SAFETY LIBRARY** ..... 649 LSA (Annette Webb’s office)  
203 NAF

**MATERIAL SAFETY DATA SHEETS** ..... 649 LSA (Annette Webb’s office)  
203 NAF

**10. THE SAFETY PLAN FOR THE FIELD STATION FOR BEHAVIORAL RESEARCH**

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The Field Station for Behavioral Research (FSBR) (also sometimes referred to as Animal Behavior Research Station (ABR)) is a remotely located natural site accessible via Grizzly Peak

Boulevard in North Eastern Berkeley. It is a collection of small buildings and housing areas. A hyena breeding and research colony is maintained there. Other animals housed include fish, birds and rodents. Building 9 contains the administrative and research offices and Building 1 houses the maintenance shop. The environment is isolated, rustic and rugged, and work is largely done outdoors. Because of the several special hazards that FSBR presents to workers, the additional safety information is presented here.

**LIST OF KEY FSBR SAFETY PERSONNEL**

**BUILDING COORDINATOR**

- Kathy Moorhouse .....Rm. 7, Bldg. 9 FSBR ..... 3-7247
- Quig Driver (alternate) .....203 NAF..... 2-4598

**IIPP COORDINATOR (OLAC)**

- Quig Driver.....203 NAF..... 2-4598
- Robin Baca .....203 NAF..... 2-4624

**NAF LABORATORY SAFETY OFFICER (LSO)**

- Sara Souza .....317 U-Hall ..... 3-5809

**LOCATION OF SAFETY MATERIALS AND INFORMATION**

**IIPP RECORDS** ..... Rm. 7, Bldg. 9 FSBR

**SAFETY BULLETIN BOARDS**..... Bldg. 9 Break Room

**SAFETY LIBRARY** ..... Rm. 7, Bldg. 9 FSBR  
203 NAF

**MATERIAL SAFETY DATA SHEETS**..... Rm. 7, Bldg. 9 FSBR  
203 NAF

## **FSBR SAFETY COMMITTEE ROSTER**

<u>NAME</u>	<u>DEPARTMENT</u>	<u>ROOM #</u>	<u>PHONE #</u>
<b>BUILDING COORDINATOR</b>			
Kathy Moorhouse	OLAC	Bldg. 9	3-7247
Quig Driver (alternate)	OLAC	203A NAF	2-4598
<b>FSBR SAFETY COMMITTEE</b>			
Kathy Moorhouse, chair	OLAC	Bldg. 9	3-7247
Mary Weldele, alt.	Psychology	Bldg. 9	3-5154
Prof. Steve Glickman	Psychology	Bldg. 9	3-5154
Bryan Lowe	OLAC	Bldg. 9	3-7247
Anna Chung	OLAC	Bldg. 9	3-7247
Marshall Gardner	OLAC	Bldg. 9	3-7247

## **SAFETY CONSIDERATIONS FOR WORKERS AT THE FSBR**

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### **GENERAL**

The remote location, the types of animals housed, and the rugged nature of the FSBR combine to make it one of the most extraordinary places on the Berkeley campus to work. Its unspoiled natural beauty and the remoteness from the central campus combine to make it one of the most peaceful as well. It is important not to let the peacefulness lead to a false sense of security. The most common hazards are described in the following text. Make certain that you read and understand everything here, and that you contact the safety personnel listed on the previous page with any questions you may have. In addition, EH&S distributes a booklet entitled “Safety Guidelines for Field Researchers” which gives additional information on topics not covered here. Copies are from the NAF LSO, or from EH&S.

### **FIRE**

One of the most sudden dangers between the months of April and December is wildfire. The FSBR is located on a west-facing steeply sloped hillside just below the top of a ridge. The facility’s buildings are widely separated by Eucalyptus forest and extensive underbrush. As evidenced by the 1991 Oakland Hills fire, which came within a mile of the FSBR, fire fighting is a very difficult task in this type of area. Fires generally burn uphill, and depending on the wind conditions at the time, the flame front can move at several miles per hour. It is of the utmost importance that you understand how to avoid doing anything that might create uncontrolled spark or flame.

Should a fire start where you are, you should attempt to put it out if possible. Fire hoses and extinguishers are located in each building, and along the roadway in red fireboxes. **NOTE: the Campus Fire Marshall does NOT allow campus personnel to use fire hoses.** To use one properly requires both physical strength and special training. They are there because of a previous different policy and for use by professional firefighters. If you cannot extinguish the fire, or if you see smoke from a fire outside the property, you must notify all FSBR personnel immediately of the potential danger. There are no fire alarms anywhere at the FSBR, so you must also telephone 911 from a safe location and alert the community to the problem. Many buildings have a working telephone, even if the building is not being used, and you should familiarize yourself with their locations before an emergency occurs. Fire fighting response will first be by Lawrence Berkeley Laboratory (LBL, they maintain their own fire department), and both Oakland and Berkeley city fire departments will respond as well. If safe to do so, wait for the firefighters to arrive, and assist them with whatever information you can provide. If it is safe, also notify OLAC (2-9232) so that animal evacuation procedures can begin if necessary. However, **human safety takes precedence over animal safety AT ALL TIMES.**

## EVACUATION OF HUMAN OCCUPANTS

There are three gates in the fence surrounding the FSBR: the main gate, accessible from Grizzly Peak Blvd.; the north gate, near building 1 (leads to the Math Research parking lot and from there to Lawrence Hall of Science), and the west gate behind building 6. It will be up to the judgment of the FSBR staff present to decide if the FSBR must be evacuated if firefighters have not yet arrived. Use whichever gate is thought to be safest - the main gate is better generally because you will be visible to emergency personnel arriving to help. Either wait on the driveway by the gate, or drive to the Lawrence Hall parking lot. Make sure as you can that everyone gets out before you go. If you cannot get to the main gate, use the north gate. They are separated by enough distance that at least one should be accessible. **Only as a last resort use the west gate, because that gate is downhill, which likely will require that you move toward the fire.** The fire road leads to the north gate if you go northwards (straight).

OLAC maintains emergency radios at the NAF, LSA and the FSBR in order to continue to communicate with the facilities in the event of a major emergency when telephone communication may not be possible. While human safety is the primary concern, the veterinary staff will also use these radios to direct facility staff regarding actions needed to treat or evacuate animals until a veterinarian can get to the facility.

## EARTHQUAKE

Because all of the structures at the FSBR are small, one-story wood frame buildings, the likelihood of building collapse is not large, but should a tremor begin, take normal precautions as described earlier. Once the shaking stops leave the building or cage and gather at the Building Nine parking lot. One of the most probable results from an earthquake is fire, so you must be especially aware of that possibility. Remember also that the FSBR is less than a mile from the Hayward Fault, so that a quake originating from that fault could be severe. If directed to do so, or if personal safety requires it, evacuate to Grizzly Peak Boulevard or the Math Research parking lot after gathering at Building Nine. It is very unlikely that any of the hyena enclosures would fail even given a severe earthquake. The contingency plan for containing an escaped hyena is covered in the Hyena Safety section.

## BOMB THREAT OR DEMONSTRATION

Contact the building coordinator at the NAF for instructions. Read Section 5 for general provisions.

## NATURAL HAZARDS

There are three types of venomous animals that inhabit the hillside where the FSBR is located. The two most common and easily seen types are bees and yellowjackets. An allergic reaction to a bee or yellowjacket sting/bite is not uncommon, and in some people who are especially sensitive the sting can be fatal if not treated immediately. If you either know or suspect that you are sensitive to insect stings, you must inform OLAC prior to working at the FSBR. You can be evaluated either by your own physician or at the Tang Center, and special medicine that stops the allergic reaction can be prescribed. Stings are not uncommon at the FSBR so you must protect yourself as much as possible. Since a bee sting is fatal to the bee, they are much less likely to sting unless directly provoked. Yellowjackets are wasps, and have no reluctance to sting repeatedly if necessary, so caution near them is advised. Yellowjackets often nest in the ground, so digging or brush clearing activities must be done with care.

The third, less common type is the rattlesnake. These animals are shy and do not attack unless directly threatened. The most likely ways to encounter a rattlesnake are while clearing brush around buildings or by moving piles or bales of hay. Read the page entitled “Rattlesnake Safety Procedures” at the end of this section. Their bite is rarely fatal but is usually extremely painful, and some people are extremely sensitive to the venom and may have an allergic reaction as described above in bee stings. All rattlesnake bites are treated as requiring urgent care, and the victim needs to be transported to a medical facility at once. If the victim is known to be allergic to the venom, call an ambulance immediately. Do not try to kill or capture the snake that bit the victim. More people are bitten trying to kill rattlesnakes than by all other types of encounters combined. Keep the victim as quiet as possible. Placing an ice pack on the bite area may ease the pain and slow the spread of the venom. **IF YOU ARE BITTEN WHILE WORKING ALONE, CALL 911 (Cellular Phones: 642-3333). DO NOT TRY TO DRIVE TO A MEDICAL FACILITY.**

Another natural hazard is Poison Oak. See the insert at the end of the chapter for ways to identify this plant. All parts of the plant contain the “poison” (it’s actually an irritant / allergen) at all times of the year. The toxin is not destroyed by burning, and is spread by the smoke of burning plants. Some people can become extremely sensitive to this toxin, but it is possible in most cases to be desensitized by using an extract of the toxin. This must be done under the direction of a physician. Contact Occupational Health at Tang Center if you think you should receive this treatment.

## HYENAS

FSBR is unique in that it houses the only captive research colony of spotted hyenas in the world. Obviously, given the size and power of their teeth and jaws, these animals are capable of delivering bite wounds that far surpass the risks of those of more common laboratory animals such as rodents, cats and even monkeys. For this reason, special care must be taken while feeding these animals and performing other husbandry duties related to their care. This includes

the avoidance of hand feeding and the use of utensils and hand protection in the rare instances when hand feeding is unavoidable (certain instances of pilling which are carried out by research personnel only); and preventive measures to insure that hyenas and people do not come into contact in the process of moving the animals from one area to another for the purposes of cleaning, sedating and animal introductions (See Hyena Safety SOP).

## **POWER TOOLS**

Maintenance and food preparation sometimes require the use of power tools including, but not limited to, weed whackers, mower, chain saw, meat saw, water pump, pressure washer, and drills. Carefully following instructions as provided in training sessions and SOPs (see Preparation of Hyena Pork Neck Bones, FSBR Ground Equipment, Water Pump) and always use recommended safety equipment.

## **ROUGH REMOTE TERRAIN**

The FSBR is located on a steep hillside, with narrow paths or paved walkways to the buildings. Walking surfaces may be wet and slippery due to hosing or to natural exposure to the elements, and footing can be unstable due to unevenness of the natural terrain. A fall can leave you with a broken bone or a sprain, so watch carefully where you are going, move cautiously under hazardous conditions and do not carry more than you can work with safely.

Probably the biggest problem is the remoteness of the location, which makes communication very difficult. People work during evenings and weekends, when even normal campus support is not available. The following is the recommended procedure for communicating problems within the FSBR.

Most buildings are equipped with a telephone. Each telephone has a directory of the other FSBR phones and campus emergency numbers. When working alone, take the cellular phone with you in the holster provided. Should you become incapacitated or trapped, you can call one of the other FSBR numbers or an emergency number if needed. Check periodically that the cell phone is working by calling an OLAC number you know someone will answer, and have a test conversation to make sure its handset is sending and receiving clearly. The wrong time to discover a problem is during an actual emergency. In addition, if telephone service is disrupted, the emergency radio in the Building Nine office can be used to contact the central campus.

## **RATTLESNAKE SAFETY PROCEDURES**

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### **Avoiding Close Encounters with Rattlesnakes**

- If possible, walk on open trails and roads.
- Wear protective footwear at all times.
- Look before you step or reach.
- Never place hands in holes, bushes, or anywhere that you are unable to clearly see that no snake is present

### **What to do if you do see a Rattlesnake**

- Back away from the snake, giving it plenty of room.
- **DO NOT** try to kill or move the snake
- If the snake is in an area that is open and not frequently used, then leave the snake alone, inform all people present at FSBR of the location of the snake, and have everyone avoid that area for at least two hours. Return to the area with caution; the snake will probably have moved on.
- If the snake is in a heavily traveled area, in a confined space (e.g. a storage shed or animal housing), and is reluctant to move after several hours, or is repeatedly seen over several days, then it should be removed by a fully trained technician who is authorized to handle venomous snakes (Bryan Lowe or Steve Friet of OLAC may be reached at 3-7247 or 2-7719) and ask them to come remove the snake. Again, **DO NOT** attempt to remove, capture or kill the snake; this is when most bites occur.

### **What to do if someone is bitten by a Rattlesnake**

- Remain calm, immobilize and elevate the bitten area above the level of the victim's heart, if possible.
- If you are bitten, notify any co-worker or other person at the FSBR. If you are alone, dial 911 and request medical help. **DO NOT TRY TO DRIVE YOURSELF TO A MEDICAL FACILITY.**
- Notify Tang Center (2-3188), and follow their directions as to what to do next. The victim will need to receive medical attention immediately.
- Co-workers should try to carefully locate the snake and call either of the experts listed above to confirm that the snake is venomous.

## 11. THE SAFETY PLAN FOR MINOR HALL

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Minor Hall (MHA) is a multistory research and teaching facility for the School of Optometry located on the east end of campus, adjacent to Haas School of Business. OLAC occupies the top two floors of the building. This floor house rodents, rabbits and cats, and has a full surgical suite and X-ray facility for research use, as well as the cage washing facility. Medical and radioactive waste disposal sites are also located there.

The safety plan for Minor Hall is contained in a separate binder, available from the MHA Safety Officer whose office is in 360 MHA 3-9466. All safety provisions that are specific to Minor Hall are included there. Below is a roster of the safety personnel and records locations for MHA.

### LIST OF KEY MINOR HALL SAFETY PERSONNEL

#### BUILDING COORDINATOR

- Linda Schmidt.....381 MHA .....**3-2689**
- Aaron Sullivan (alternate) .....592 MHA .....**2-7917**

#### IIPP COORDINATOR (OLAC)

- Quig Driver.....203A NAF.....**2-4598**
- Robin Baca .....203 NAF.....**2-4624**

#### NAF LABORATORY SAFETY OFFICER (LSO)

- Sara Souza .....317 U-Hall .....**3-5809**

#### OLAC REPRESENTATIVES TO THE MHA BUILDING SAFETY COMMITTEE

- Joan Wallace.....102 NAF..... **2-6603**
- Walter Brown .....102 NAF..... **2-6603**

### LOCATION OF SAFETY MATERIALS AND INFORMATION

**IIPP RECORDS** ..... 203 NAF

**SAFETY BULLETIN BOARDS**..... MHA Main Corridor

**SAFETY LIBRARY** ..... 102 NAF (Joan Wallace's office)  
203 NAF

**MATERIAL SAFETY DATA SHEETS**..... 203 NAF (Quig Driver's office)  
203 NAF

# **Disaster Recovery Plan**

## **Office of Laboratory Animal Care**

*Disaster = any event that threatens the health, safety, and/or security of animals and personnel.*

The Office of Laboratory Animal Care (OLAC) is responsible for the husbandry and care of all animals used in research and teaching on the Berkeley campus. There is a combined total of 72,000 square feet of indoor animal housing space with an additional 23-acre field station located on the edge of campus on Grizzly Peak.

The department maintains a comprehensive Emergency Plan, in collaboration with the UCB Office of Emergency Preparedness (OEP). Campus-wide practice exercises take place annually. In the event of a disaster, OLAC has a direct reporting line to the Environment Health and Safety (EH&S) Departmental Operations Center (DOC) which, in turn, directly communicates any requests for assistance, supplies, or equipment to the central campus Emergency Operations Center (EOC). OLAC has been identified as an essential care provider for the Berkeley campus and will, therefore, receive the highest priority in the event of a disaster. Each facility maintains an evacuation /disaster Standard Operating Procedure (SOP) specific to the facility. Each facility also maintains a 4-5 day supply of food and a 2-3 day supply of water for all animals on site.

Under the heading Initial Assessment, below, provisions are made for OLAC personnel actions if a disaster occurs either during working hours or after hours. In either case, however, after certain initial differences, the plan calls for OLAC managers and veterinary staff to meet in the NAF to begin assessing the situation together. Specific actions are enumerated below. Resumption of animal research activities will always depend upon the severity of the disaster and the timing of campus business and utilities resumption.

### **I. Initial Assessment**

#### **A. Regular Working Hours**

If the disaster occurs during regular working hours, OLAC staff will sweep their facilities of all personnel, leave the building, and report to their Emergency Assembly Area (EAA). Upon release from the EAA, OLAC managers and veterinary staff will meet in the NAF conference room (room 203F) to begin an *Initial Assessment* of the situation. The Director or her/his designee may release OLAC staff to go home.

#### **B. After Hours**

1. If the disaster occurs outside of regular work hours, the following items must be assessed:
  - ✓ Access of OLAC personnel to the campus
  - ✓ Number of animal care staff available for duty
  - ✓ Mobility of personnel around the campus and between facilities

**C. Structural Conditions**

1. Are all OLAC animal facilities cleared for access? (If no, go to #3)
2. The OLAC Director, or designee, must be allowed access to facilities for public relations/media statements.
3. If the facilities are not structurally sound and cannot be cleared for OLAC staff access, arrangements to move animals may be initiated by the OLAC Director. Animals can be moved to the closest structurally sound animal facility or holding unit that is available. This may be somewhere else on campus or if necessary off campus. These potential facilities with contact persons are listed in the OLAC Safety Manual. Animals will be moved according to accessibility, health risks to the animals, safety risks to the humans, and space availability.

**D. Facility Assessments**

Animal care staff will be deployed as teams to facilities from a central location, e.g., the Northwest Animal Facility room 203F. Each team should include at least one member of the veterinary staff. Each team will carry one of OLAC's hand-held two-way radios. Team members will wear protective equipment that will include at a minimum, eye protection, gloves, and N95 respirators. Teams will document the parameters listed below.

1. Are there injured personnel who need to be assisted or transported?  
*Continually monitor the emotional and health status of all team members.*
2. The condition of each facility (Use OLAC Facility Assessment Form):
  - ✓ Structural damage
  - ✓ Electricity, lighting,
  - ✓ Heating, Ventilation, Air Conditioning (HVAC)
  - ✓ Water, availability and leaks
  - ✓ Steam leaks
  - ✓ Unusual odors, gas leaks
  - ✓ Unusual sounds
  - ✓ Procedure areas and laboratory rooms. Are they empty of personnel?
3. The status of the animals:
  - ✓ General condition of the animals
  - ✓ Number of animals alive
  - ✓ Estimate number of dead animals (note room locations)
  - ✓ Estimate number of injured animals (note room locations)
4. The condition of the animal enclosures:
  - ✓ Cages are upright and closed

- ✓ Rooms are secure, doors are closed
- ✓ Estimate number of animals out of cages but in closed animal rooms (note species)
- ✓ Estimate number of animals out of cages and on floor/in hallways (note species)

## **II. Action Plan**

Staff will reconvene at the determined meeting site and time to review material gathered during the *Initial Assessment*. As necessary, the *Action Plan* may include some of the following items/considerations.

### **A. Secure Enclosures**

In general, any animal displaced during a disaster will be returned to its cage and secured. If animals cannot be returned to their enclosures a veterinary staff member should be notified immediately. Animals from the Biosafety Level 3 facility (BL3) should NOT be handled if they are loose from their cages. No attempt should be made to catch or capture these animals. If animals in the BL3 are loose, everyone should be instructed to leave the area, the area should be secured, doors labeled: **Do Not Enter**, and the Veterinary staff should be contacted.

If primates or hyenas are out of their enclosures the area should NOT be entered. No attempt should be made to restrain these animals. The NAF and FSBR SOPs, respectively, for these situations should be followed. Everyone should be instructed to leave the area immediately, the area should be secured, and the veterinary staff notified. If a Veterinary staff member is not immediately available the UC Berkeley police should be called.

### **B. Stabilize Animals**

Room locations of injured animals should be documented. The most obvious health problem should be recorded. This information should be communicated to the Veterinary staff as soon as possible. Animals that cannot be treated will be euthanized for humane reasons.

### **C. Check Animal Food and Water Supply**

If necessary, food supplies will be used sparingly from the facility emergency stock.

Facility supplies should be sufficient for 4-5 days. Uneaten food will not be discarded in case it is needed later. Water that is stored in the facility for emergency human use can be used for animal water if necessary.

### **D. Removal of Animal Carcasses**

Containers with lids should be used or double thick bags [double-bagged] sealed securely. Facility Rubbermaid® food and garbage containers can be emptied and

used for this purpose. Freezer function and space availability must be assessed. Concerns regarding the threat of human hazard must be assessed.

**E. Removal of Excess Waste and Soiled Bedding from the Animal Cages/Enclosures**

This is not an immediate priority unless the conditions become dangerous for the animals or pose a human health hazard. All solid animal waste should be securely contained as in #4 above.

**III. Tertiary Concerns**

**A. Cage/Enclosure Washing/Sanitation Capabilities**

- ✓ Are the facility cagewashers functional?
- ✓ Is sewer drainage intact?
- ✓ Is potable water available?
- ✓ Is carcass storage and/or disposal available?

**B. Funding Availability**

- ✓ Off-site animal housing and care
- ✓ Off-site research space for investigators and their staff
- ✓ Off-site animal transportation, availability of vehicles and gasoline

**OLAC Facility Initial Assessment Form**  
OLAC Answering Service – 643-8387 (3-VETS) or 510-895-2222

DATE: \_\_\_\_\_ TIME: \_\_\_\_\_

TEAM MEMBERS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Are there injured personnel who must be removed from the building?**

[If yes, convey this information immediately.]

Ambulatory? Non-ambulatory?  
Note their condition and location.

**The condition of the facilities:**

Structural damage  
Electricity  
Lighting  
Heating  
Ventilation  
Air Conditioning  
Water, availability  
Water, leaks  
Steams leaks  
Unusual odors  
Gas leaks  
Unusual sounds

**The condition of the animal enclosures by room numbers:**

General health status of animals  
Animal feed availability  
Cages are upright and closed  
Rooms are secure, doors are closed  
Estimate number of animals, by species, out of cages but in closed animal rooms  
Estimate number of animals, by species, out of cages and in hallways

\*\*\*\*\*

**NOTE:** All team members must return to the NAF together at the designated time.  
Continually monitor the emotional and health status of all team members.  
**DO NOT leave a team member in a building alone.**