



University of California, Merced

Interim Procedure on Assurance of Laboratory Safety Compliance

Responsible Officials:	Vice Chancellor for Physical Operations, Planning, and Development Vice Chancellor for Research and Economic Development
Responsible Office:	Environmental Health and Safety Office of Research and Economic Development School of Natural Sciences Dean's Office School of Engineering Dean's Office
Issuance Date:	June 15, 2022
Effective Date:	June 15, 2022
Summary:	In order to ensure a healthy and safe working environment in campus laboratories, this procedure establishes procedural requirements for preventing and correcting deficiencies including issues of non-compliance.
Scope:	All Principal Investigators (PIs) and anyone working in a UC Merced laboratory.

Contact:	Marjorie Zatz, Interim Vice Chancellor for Research
Email:	ored@ucmerced.edu
Phone:	(209) 228-4371

I. REFERENCES AND RESOURCES

Laws and Regulations:

[Occupational Exposure to Hazardous Chemicals in Laboratories](#)

UC Merced Guidelines:

[Lab Safety Information & UC Merced Laboratory Safety Plan](#)

II. PROCEDURE SUMMARY & SCOPE

The University of California Merced is committed to a laboratory safety program that is based on making safety an integral part of research and instructional activities.

The purpose of this procedure is to assure a healthy and safe working environment in UC Merced laboratories for all members of the campus community by outlining minimum safety procedural requirements. This procedure also establishes procedural requirements for preventing and correcting deficiencies including issues of non-compliance. All individuals directly involved in, or in support of, instructional and research laboratory activities are responsible and accountable for procedural implementation and for ensuring personnel compliance with this procedure.

III. DEFINITIONS

Laboratory: A facility or location where there is laboratory use of hazardous chemicals in teaching or research and includes inert materials and laboratory equipment. A laboratory is also a space or facility where the physical, biological, or chemical use occurs including the use and storage of hazardous chemicals, inert materials or laboratory equipment may present a potential hazard to lab personnel or visitors to the laboratory. A laboratory space includes, but is not limited to: research laboratories, teaching laboratories, remote field stations, waste accumulation areas/locations including solid waste, hazardous waste, universal waste, Toxic Substance Control Act (TSCA) regulated waste or special waste storage areas where testing, consolidation and storage management occurs, cold rooms, machine shops and other workshops, vivarium, storage rooms, stock rooms, as well as QA/QC analytical laboratories.

Personal Protective Equipment (PPE): PPE is assigned to employees by supervisors to be used in order to minimize personal exposure to physical, chemical, and biological hazards. Examples of common PPE worn at UC Merced include lab coats, gloves, foot protection (steel-toed shoes), eye protection (safety glasses or goggles), protective hearing devices (earplugs, muffs), hard hats, respirators (both voluntary use and required use), and fall protection harnesses to name a few.

Supervisor: The principal investigator (PI) or instructional laboratory professor or their delegated lab facility designee, who has operational responsibility for a UC Merced lab. This includes UC Merced employees who may have authority to hire personnel, evaluate performance, direct work assignments, apply progressive discipline, and direct resources to correct identified safety issues. Unless specified in writing, the default "supervisor" in laboratories is the Principal Investigator (PI) or instructional lab professor.

Personnel: For purposes of this policy, any individual who actively performs work functions involving hazardous chemicals or equipment in a laboratory. Personnel may include faculty, staff, students, postdoctoral scholars, visitors, volunteers, or anyone else assisting or performing an experiment, research, or any process in a laboratory.

Laboratory Shutdown: A laboratory shut down, under normal circumstances, is pre-planned and, for the purpose of containing and controlling hazards, includes biological, chemical, and physical hazards, for the purpose of decommissioning a laboratory.

Laboratory Closure: A laboratory shut down under extraordinary conditions is an action related to an imminent or uncontrolled hazard that represents an immediate danger to life or health (IDLH). In the event of an IDLH situation, anyone has the authority to shut down laboratory operations until the hazardous condition is abated.

Imminent Danger: Any unsafe actions or conditions which could reasonably be expected to cause death or serious physical harm immediately or before the imminence of such danger can be eliminated. (29 CFR Part 1903.13, *Imminent Danger*)

Major Laboratory Finding: A finding of non-compliance involving laboratory workplace safety that requires immediate corrective action due the nature of the finding and the immediate risk to human health and the environment. **Supervisors must correct any major laboratory findings as soon as possible but not later than 48 hours after notification.**

Minor Laboratory Finding: A finding of non-compliance with Title 8, CCR, Section 5191, *Occupational Exposure to Hazardous Chemicals in Laboratories*, regulatory requirements that are not IDLH, the UC Merced Laboratory Safety Plan or Laboratory Safety Plan Supplement(s) that does not present an immediate risk to human health or the environment. An example might include the need to update a laboratory standard operating procedure when working with a particularly hazardous substance (PHS). It should be noted that repeated minor laboratory findings become systemic issues that can be considered major laboratory findings. **Supervisors must correct any minor laboratory findings within 30 days after notification.**

IV. PROCEDURES

The following procedures will be followed to ensure proper monitoring, assessment and assurance of laboratory safety compliance.

A. MONITORING AND LABORATORY INSPECTIONS

EH&S will audit laboratory safety compliance and report findings of non-compliance. The frequency of safety inspections will be determined by the risks associated with the operations, research and practices of the laboratory, and past inspections, but not less than every 3 years.

PIs/Chairs (Supervisors) are responsible to monitor laboratory safety of their research staff for adherence to safe work practices on an ongoing basis in the lab. PIs, professors, and supervisors must take appropriate and effective corrective action(s) to obviate unsafe acts and/or unsafe conditions in a timely manner. **PIs and professors are required to conduct a laboratory safety self-inspection on an annual basis.**

B. RECOGNITION OF SAFE PRACTICES

Positive reinforcement of consistent safe work practices by lab personnel is essential for fostering a laboratory safety culture. The special recognition of exemplary safe laboratory procedures and best management practices is likewise an effective means to demonstrate the University's commitment to safety and to show that safety is an integral part of research excellence. The following incentives and positive reinforcement for safe lab practices may be considered:

1. Recognition in employee performance evaluations and student progress reports.
2. Creation and issuance of an annual Lab Safety Award to a research group demonstrating exemplary lab safety practices.
3. 'Safe Lab Certification' program shall certify those labs, which demonstrate timely correction of hazards, training of employees, and consistent safe lab practices.
4. Vice Chancellor for Research sponsored recognition activities.

C. ASSURANCE OF COMPLIANCE (ESCALATION PROCEDURE)

The following administrative and personnel action procedures shall be employed to address cases of serious laboratory safety observations and/or chronic unsafe or noncompliant laboratory safety practices by PIs/supervisors or lab personnel. Procedures shall be applied in a progressive manner commensurate with the risk posed by the unsafe practices, recognizing that truly egregious, serious unsafe acts require immediate and effective intervention.

Resolution of issues shall be addressed at the local level as expeditiously and expediently as possible.

- PIs/Supervisors shall monitor their laboratory and research staff to ensure adherence to safe work practices and laboratory safety conditions on an ongoing basis and correct any observed deficiencies in a timely manner commensurate with the degree of hazard associated with the observation.
 - PIs/Supervisors shall regularly review lab inspection reports along with observations by laboratory personnel to ensure timely correction of deficiencies observed to prevent accidents or injuries.
 - PIs/Supervisors must take appropriate and effective corrective action as indicated within the report.
 - Department Chairs will receive notices of escalation for uncorrected laboratory safety findings that have exceeded the report's deadline from EH&S.
 - Deans will receive laboratory non-compliance reports from Chairs. Deans are responsible for reaching out to EH&S, PIs, Chairs and coordinating meetings as needed to ensure the concerns are clear and the pathway to compliance is understood and taken.
 - The dean will escalate any unresolved findings to the Provost and Vice Chancellor for Research.
1. Communication of Unsafe Actions and Noncompliant Situations to Responsible Parties:
 - a. Everyone has the right and the responsibility to report hazards in the workplace. Laboratory personnel shall communicate the presence of these hazards to their immediate supervisor or PI who may consult with EH&S, as appropriate. Laboratory safety hazards may also be reported to EH&S via their website: <https://ehs.ucmerced.edu/form/report-incident-or-concern> or by calling (209) 228-4234. Hazards that pose an immediate threat to life and property shall be reported to Police Dispatch at 209-228-2677 immediately.
 - b. For hazards identified during routine lab inspections, EH&S shall communicate the hazard to the responsible PI/supervisor in a timely manner. In response to serious, imminent hazards that pose an immediate and unacceptable risk to lab occupants, EH&S shall direct laboratory personnel to cease the unsafe activity or remove themselves from unsafe conditions as warranted. EH&S will then

immediately notify the PI/supervisor and UC Merced Police Dispatch as necessary.

- c. If unsafe practices or situations of noncompliance persist, despite EH&S having made communication of such situations known to the responsible PI/supervisor, EH&S will then notify the respective Department Chair and, where appropriate, also notify the school Dean and the Vice Chancellor for Research as necessary.

2. Handling of Unsafe Practices:

- a. The PI/supervisor shall communicate to their lab personnel the nature of unsafe work practices and/or unsafe conditions in a timely manner.
- b. The communication may be oral and/or written and **must be documented**. It must be specific in terms of the unacceptable, unsafe acts or unsafe conditions. The PI or lab supervisor must act to address the unsafe acts or unsafe conditions immediately.
- c. If a PI, professor, or laboratory supervisor determines that repeated communication to a given laboratory staff member or student regarding repeated violations of safe laboratory practices is ineffective in influencing a change in behavior, then the supervisor must pursue effective consequences, including discipline per the procedures below.

3. Consequences for Egregious or Persistent Unsafe Lab Safety Procedures:

The University is required by Cal OSHA regulations to ensure that employees adhere to safe work practices and, thus, must impose effective consequences for unsafe behavior. The options below may be used either singularly, or in combination, to ensure employee compliance:

- a. Refresher training as warranted
- b. Oral directive
- c. Written warning or directive as appropriate
- d. Written notation on annual performance review
- e. Restricted/prohibited lab access
- f. Restriction of funds
- g. Laboratory shutdown
- h. Suspension
- i. Termination

Disciplinary actions, including written warnings, notation on performance evaluations, suspension and termination will be taken in accordance with the applicable personnel policies and collective bargaining agreements in the case of

represented employees. Corrective personnel actions resulting from audit findings of laboratory safety non-compliance, are actions which must be initiated by the supervisor. Human Resources and/or Academic Personnel can provide the necessary consultation in these cases.

4. Documentation of Assurance of Compliance:

It is critical that documentation be generated and maintained in order to demonstrate both compliance with regulatory requirements and risk reduction efforts. A supervisor must be able to produce documentation indicating an escalating chain of actions in a case of chronic unsafe behavior or noncompliance. This documentation includes, but is not limited to:

- a. Training records for all required lab safety training
- b. Laboratory safety inspection reports and other documentation of hazard identification
- c. Documentation of the correction and prevention of hazards
- d. Supervisor's written records of actions taken, administrative or disciplinary, against an employee for failure to adhere to safe work practices
- e. A performance evaluation wherein recognition of good work practices, as well as negligence with respect to following safe work practices, is addressed.

V. ROLES AND RESPONSIBILITIES

A. COMPLIANCE/MANAGEMENT ROLES AND RESPONSIBILITIES

1. Environmental Health and Safety (EH&S)
 - a. EH&S provides compliance support to laboratory PIs, professors and supervisors in the management of personnel safety and environmental compliance. EH&S conducts safety compliance inspections, makes preliminary determinations as to the severity of identified safety deficiencies, and determines when to escalate uncorrected laboratory safety deficiencies to the department chair, the school Dean, and the Provost for reconciliation.
 - b. In addition, EH&S offers compliance support to the Deans and the Vice Chancellor for Research in their efforts to effectively address issues of chronic negligence as exhibited by persistent unsafe behavior and/or unsafe conditions associated with non-compliance.
 - c. EH&S, the UC Merced VC Chancellor for Research, and the School Dean have the authority to shut down a laboratory if there is an imminent danger to human health or the environment. In order to re-open a laboratory that has been shut down, the VC for Research, the Dean's Office, and the Director of Environmental Health and Safety must all agree that corrective and preventive actions have been successfully implemented and laboratory

conditions & work practices are such that re-opening laboratory operations can be accomplished safely.

2. Compliance Committees

Compliance committees shall have the duty and authority, as outlined in their charter, to review and approve research protocols under their auspices and, as need be, take effective steps to impose restrictions including revocation of authorized uses in response to chronic issues of noncompliance and/or safety infractions. These compliance committees have the duty and authority to revoke for cause, as warranted, any special use authorization.

Compliance committees include but are not limited to:

- a. Chemical Safety Committee
- b. Laboratory Safety Committee
- c. Institutional Review Board
- d. Institutional Biosafety Committee
- e. Institutional Animal Care and Use Committee

3. Department Chairs

Department Chairs are responsible for ensuring all laboratory supervisors establish and maintain effective laboratory safety programs in their laboratories and hold laboratory supervisors accountable for ensuring a safe and hazard free laboratory work environment. This includes safe work practices and safe conditions for their laboratory personnel, completion of requisite safety training and other requirements, and timely correction of non-compliance with laboratory safety issues.

4. Deans

- a. Deans are responsible for ensuring that all Department Chairs, laboratory supervisors establish and maintain effective lab safety programs. Deans must hold Department Chairs and laboratory supervisors accountable for their safety and health responsibilities to ensure a safe laboratory work environment. Inclusive in this responsibility are safe work practices and conditions in the laboratories, documented completion of requisite safety training and other regulatory compliance requirements, and timely correction of identified laboratory safety issues. Deans may appoint a delegate but are ultimately responsible.
- b. The school deans, in collaboration with the Vice Chancellor for Research and the Director of Environmental Health and Safety, shall provide recognition to specific faculty and their respective research groups for exemplary lab safety practices.

5. Provost and Vice Chancellor for Research

- a. The Provost and Vice Chancellor for Research shall ensure that school deans support effective lab safety programs and hold individuals within their respective schools accountable for preventing and correcting unsafe behavior and/or conditions in the laboratories. The Vice Chancellor for Research and the Provost, working with the deans, shall work to resolve the EH&S escalated issues of laboratory safety non-compliance as well as to support effective means to recognize exemplary safety performance by specific faculty and their respective laboratory teams.
- b. Restriction/revocation of laboratory access, restriction of chemical purchases, laboratory shutdown, as well as all administrative actions shall be considered in addressing non-compliance in accordance with Section IV, Procedures.

B. LABORATORY ROLES AND RESPONSIBILITIES

1. Faculty/PIs and Other Supervisors

Laboratory supervisors are responsible for complying with this procedure, ensuring the safety of personnel performing the work which they assign and ensuring their personnel receive the required training and personal protective equipment (PPE) prior to the performance of their work, and ensuring lab personnel are familiar with the standard operating procedures (SOPs) to safely perform assigned work. They must also ensure lab personnel comply with the UC Merced Laboratory Safety Plan.

- a. Prior to commencing work in a laboratory, the following preparatory steps must be completed:
 - i. Ensure that all laboratory supervisors and personnel working in the laboratory successfully complete laboratory safety training commensurate with the identified hazards present in the laboratory including general laboratory safety training.
 1. Campus required trainings.
 2. Conduct a laboratory safety training needs assessment to determine which safety trainings are required, commensurate with the hazards present in the lab, beyond those listed below.
 3. All laboratory specific safety training must also be completed by the PI, professor or supervisor who assigns the laboratory work. Laboratory personnel must complete all laboratory specific safety training as well as laboratory general safety training PRIOR TO working in the laboratory.
 4. Laboratory safety training records must be managed and maintained in UC Merced database record keeping including the UC Lab Hazard Assessment Tool (LHAT) database; laboratory personnel records must be true, accurate and complete for all laboratory members.

Laboratory safety training records shall be available at all times for review and pursuant to request.

- ii. For each individual working in the laboratory, the PI, professor or supervisor shall perform a "Laboratory Hazard Assessment in LHAT to determine if hazards are present that require the use of hazard controls; starting with engineering controls (e.g., fume hoods), work practices, administrative controls (e.g., policies and procedures) and PPE and assign the required training, commensurate with the identified laboratory hazard, to lab personnel to successfully complete prior to working in the laboratory.
 - iii. Based upon the laboratory hazard assessment, the PI, professor, or supervisor shall ensure that the proper controls, including engineering controls, work practices, administrative controls, and PPE have been identified and that each of their personnel have been properly fitted for PPE and trained in its use.
 - iv. Laboratory PIs, professors or supervisors shall conduct laboratory safety orientation prior to any personnel starting any work in the laboratory.
- b. On an ongoing basis, the following must be maintained:
- i. Certain hazardous chemicals, including PHSs, require standard operating procedures (SOPs) to be developed, submitted to EH&S and reviewed/approved prior to their use in the lab. It is the PI/supervisor's responsibility to determine if an SOP is required for a hazardous chemical. EH&S can provide compliance support with the hazard determination; however, responsibility for creating an SOP before work may commence, resides with the supervisor.

Laboratory SOPs must be:

1. Completed in UC Chemicals
2. Signed and approved by the creator of the SOP
3. Reviewed and signed by the laboratory PI
4. Reviewed and signed by everyone in the laboratory prior to working with the particular chemical as part of a procedure covered in the SOP

Note: An SOP can be written for a "Process" covering all chemicals used in that process or for a "Control Band" which is a family or group of chemicals having similar characteristics or hazards, e.g., organic solvents.

- ii. Maintain up to date Laboratory Safety Plan Supplements
- iii. Maintain an up-to-date laboratory chemical inventory in UC Chemicals

- iv. Ensure the timely correction of laboratory safety hazards including, unsafe conditions or work practices, or non-compliance with laboratory safety regulations, plans or procedures identified in an audit or observed by the laboratory supervisor or any laboratory personnel.

2. Laboratory Personnel

Laboratory personnel are responsible for compliance with completing and implementing the requirements of their laboratory safety training, applying lab hazard engineering controls, e.g., working with hazardous chemicals within a fume hood, following instructions in laboratory SOPs, and wearing assigned in carrying out all laboratory operations in a safe manner. They are responsible for informing others in these requirements if they observe other individuals in the laboratory not following laboratory safety controls including, but not limited to, working within a fume hood with hazardous chemicals or wearing assigned PPE in the lab, e.g., lab coat, safety glasses or goggles, gloves, hearing protection, etc., and notifying their supervisor of observed unsafe acts or unsafe conditions in the laboratory.

Specific responsibilities include, but are not limited to the following:

- a. Properly wearing and maintaining required PPE as identified in the Hazard Assessment
- b. Completing the required safety training courses prior to working in the lab
- c. Being familiar with and complying with, the UC Merced Lab Safety Plan for their lab prior to starting work
- d. For those chemicals requiring SOPs, understanding signing the SOP to acknowledge the requirements for working the hazardous chemical including PHSs and complying with the SOP requirements prior to starting work with the chemical
- e. Reporting any hazardous and/or unsafe conditions or practices to their PI/supervisor. This includes reporting broken or improperly working safety equipment (e.g., fume hood, PPE).

3. Accountability

The University has an ethical obligation to ensure that employees adhere to safe work practices. It is the responsibility of delegated authorities, including Deans, Provost, the VC for ORED, department chairs, and laboratory PIs, professors and supervisor to inform and correct, in a timely manner, any unsafe acts or conditions or issues of laboratory safety non-compliance that they observe or that is brought to their attention. It is the responsibility of VC of Research, the school Deans, By-Law Chairs, PIs, professors and other supervisors to hold employees under their direction accountable for observing laboratory safety best practices in their work. This includes providing proper recognition of consistent safe work practices as well as effectively addressing negligence in complying with safe work practices and regulatory compliance procedures.

C. POLICIES FOR NONCOMPLIANCE

Noncompliance with this policy is handled in accordance with [Personnel Policies for Staff Members \(PPSM\)](#) policies 62-65 pertaining to disciplinary actions and [Academic Personnel Manual \(APM\)](#) policies 015-016 pertaining to the Faculty Code of Conduct and administration of discipline; and APM 140 and 150 pertaining to Non-Senate Academic Appointees.

VI. PROCEDURE REVISION HISTORY

Date	Action/Summary of Changes
February 7, 2018	Issued interim procedure
June 15, 2022	Issued revised interim procedure with substantive changes