LABORATORY SAFETY EVALUATION PROGRAM DOCUMENT

Contents

1. PURPOSE

The laboratory is a workplace that may contain numerous potential hazards which include but are not limited to corrosive, flammable, reactive and toxic substances; biological hazards; radiological hazards; cryogens; pressure and vacuum systems; glassware; electrical hazards; mechanical hazards; and other physical hazards.

UCR is committed to protecting the health and safety of its faculty, staff, students and visitors in accordance to campus and UC systemwide health and safety policies, and state, local, and federal regulations.

The purpose of the UCR Laboratory Safety Evaluation Program is to evaluate research and instructional laboratories spaces on an annual basis to minimize the risks associated with the activities. It also evaluates the implementation of appropriate laboratory safety principles and practices, identify any deficiencies, and provide guidance to assist laboratory personnel to create a safer laboratory environment. Additionally, it ensures that each laboratory conforms with the safe and healthy work conditions and practices as identified in the Injury and Illness Prevention Plan (IIPP) and the Chemical Hygiene Plan (CHP). Additional safety visits, walk-throughs, and unannounced evaluations are conducted when necessary.

2. SCOPE

This program applies to all activities in a laboratory/technical area where there is the potential for personal injury or property damage and to all those identified as laboratory personnel. As defined by UCOP policies and UCR Research Integrated Safety Committee (RISC), a laboratory/technical area is a location where the use or storage of hazardous materials occurs or where equipment may present a physical or chemical hazard. It includes, but is not limited to:

- Research laboratories, including but not limited to, greenhouses, insectaries and quarantine facilities
- Teaching laboratories
- QA/QC and analytical laboratories
- Stock rooms
- Storage rooms
- Waste accumulation areas/locations
- Cold rooms
- Machine and other workshops
- Vivaria
- Visual/performing arts studios and shops
- Computational laboratories

The laboratory evaluations cover the following items:

- Personnel training and documentation
- Laboratory safety design
- Hygiene and personal protective equipment
- Laboratory practices
- Chemical storage, handling and disposal
- Emergency/Incident response and reporting
- Fire and life safety
- Hazard Communication
- Engineering Controls

3. RESPONSIBILITIES

Department Chairs

Department chairs are responsible for the broad implementation of UC Policies and Procedures by:

- Ensuring all PIs/lab managers/lab supervisors clearly understand their duties and responsibilities as defined in this program.
- Reinforcing safety
- Addressing safety concerns
- Partnering with EH&S to provide support and consultation to PI/researchers to ensure all laboratory personnel conduct research safely and comply with UC Policy and Procedures.
- Collaborate with EH&S to establish mutual goals.

Principal Investigators (PIs)/Lab Managers/Lab Supervisors:

A principal investigator (PI)/Lab Manager/Lab Supervisor is directly and primarily responsible for the safe operation of their laboratory, must be knowledgeable about the hazards, control measures, waste procedures, and safety procedures associated with activities in the laboratory, the education and training requirements, and for compliance by all their laboratory personnel with all UCR Laboratory Safety policies and procedures. PIs/Lab Managers/Lab Supervisors have the following responsibilities:

- Implement this program and ensure compliance with the UCR Lab Safety Manual in their workspace
- Ensure all laboratory personnel clearly understand their responsibilities as defined in this program.
- Ensure all laboratory personnel have received appropriate training in the hazards associated to the laboratory, safety rules, proper work practices, etc., and also understand where to access a copy of this program document and Chemical Hygiene Plan.

- Provide health and safety information, including Safety Data Sheets for handling hazardous agents used in their laboratory.
- Provide written standard operating procedures (SOPs) for activities involving hazardous work in the laboratory.
- Ensure appropriate safety equipment, such as fume hood, eyewash and safety shower units, fire extinguishers, etc. are accessible, operable, and known to all laboratory workers by completing the Lab Site Specific Checklist.
- Review and certify the laboratory hazard assessment on a biennial basis.
- Provide and enforce the use of appropriate personal protective equipment in accordance to UC PPE Policy.
- Implement and enforce laboratory safety rules for all laboratory personnel.
- Within 30 calendar days of the laboratory evaluation, address all deficiencies identified and provide updates to EH&S via the RSS Inspect
- Report all accidents/incidents to the EH&S.

Laboratory Personnel

Laboratory Personnel are individuals who work in the laboratory including PIs, research scientists, post-doctoral fellows, laboratory managers, technicians, undergraduate and graduate students, visiting scientists, laboratory volunteers, and support personnel. Laboratory personnel are responsible for the following:

- Familiarize with hazardous materials that are in the laboratory regardless of whether or not they work directly with them
- Complete all appropriate training and verify documentation of training.
- Wear the appropriate personal protective equipment (PPE) in accordance with UCOP PPE Policy.
- Follow all laboratory health and safety policies and procedures.
- Promptly report all accident/incidents and unsafe conditions to your PI/Lab Manager/Lab Supervisor and EH&S.
- Follow all laboratory practices as outlined in the Laboratory Safety Manual.

Environmental Health and Safety (EH&S)

EH&S has the following responsibilities within the Laboratory Safety Evaluation Program.

- Provide technical advice and recommendations to the University community on matters related to health and safety in the laboratory.
- Conduct in-person evaluations of each laboratory/technical areas.
- Conduct follow-ups verifications of in-person evaluations.
- Proactively work and assist researchers to correct findings.
- Aid the laboratories in standard operating procedure development, revision and improvement
- Conduct laboratory hazard assessments

4. PREPARING FOR AN EVALUATION

Before the evaluation, EH&S will contact the PI and Laboratory Safety Contact to schedule the in-person evaluation. Once a time has been confirmed, a calendar invite will be sent to the PI and laboratory contact(s). Relevant information about the laboratory, such as the hazards associated with the laboratory activities, the nature of the research, authorization statuses, and particular standards that might apply, will be reviewed. Each building has an EH&S Representative who is responsible for conducting the laboratory evaluation and

will notify the PI and/or Lab Safety Contact about items that can be addressed before the evaluation (e.g., training). Below are guidelines on how to prepare for an evaluation.

a. Laboratory Hazard Assessment (LHAT)

Review the latest certified hazard assessment for the following items to ensure an accurate reflection of the laboratory.

- All types of **hazards** present in the laboratory
- Ensure that it has been **certified** on a biennial basis
- Review and update laboratory **groups** and **roster**
- Ensure all research locations are included as a **location**.

b. Training

Ensure all required training courses are completed and current. At a minimum, all laboratory personnel are required to take the following:

Via UCR Learning Center

- Laboratory Safety Fundamentals (initial) or the Refresher (subsequent 3 years)
- Hazardous Materials and Waste Management - annual
- Fire Extinguisher – annual

Via In-person

- Lab Site Specific Checklist
- Chemical Hygiene Plan
- Standard Operating Procedures

If additional hazards, such as biological, radioactive, pyrophoric materials, etc., are identified in the certified laboratory hazard assessments, then refer to **Research Approval and Training Requirements** to identify other training requirements needing verification of completion.

c. Chemical Inventory and Door Placards

Review your chemical inventory annually for accuracy. Update and certify the inventory. After the inventory has been updated and certified, print a new door placard sign (in color) and post it next to the laboratory entrance.

d. Standard Operating Procedures (SOP)

Standard Operating Procedures (SOPs) are essential in a laboratory setting as they provide clear, detailed instructions for performing tasks consistently and efficiently. They ensure that lab personnel follow established protocols, which helps maintain safety, quality, and reliability in research and experiments. SOPs are crucial for minimizing errors, ensuring compliance with regulatory standards, and facilitating training for new staff. Each laboratory should ensure that SOPs are reviewed regularly or when changes to the process occur. All laboratory personnel must review and sign the SOP and PI/lab supervisors are required to maintain records of signatures.

e. Safety Data Sheets

Ensure all laboratory personnel understand how to access the Safety Data Sheets for all hazardous materials and can demonstrate this.

f. Use Authorizations

Based on the hazards identified in LHAT, ensure appropriate use authorizations (e.g. IRB, BUA, AUP, CSUA, RUA) have been submitted and are current. When use authorizations are missing or expired, contact respective Officers.

g. Personal Protective Equipment (PPE)

Ensure all laboratory personnel understands the requirements of wearing the minimum PPE (laboratory coat, safety glasses, long pants, and closed-toe/heel shoes) when entering or working adjacent to hazardous materials as prescribed in the UCOP PPE Policy. have obtained lab coats and safety eyewear. The minimum PPE are laboratory coat, safety glasses, long pants, and closed-toe shoes.

h. Laboratory Safety Evaluation Checklist

To prepare, review the laboratory safety evaluation checklist. For additional information, visit the EH&S website.

5. EVALUATION

Laboratory safety evaluations are conducted by EH&S Professionals on an annual basis. All laboratory spaces associated to the PI/Lab Manager/Lab Supervisor will be evaluated. The laboratory evaluation focuses on identifying unsafe or unhealthy working conditions outlined in the Laboratory Safety Manual and Chemical Hygiene Plan, as well as issues that are not in alignment with university policies and procedures, local, state, and federal regulations. Appropriated PPE should be worn throughout the duration of the evaluation by all laboratory personnel and EH&S. PIs and/or Lab Safety Contact are highly encouraged to accompany the EH&S professional during the laboratory evaluation and foster a dialogue on safety requirements and best practices.

a. Interview Questions

During evaluations, EH&S Professionals may interview laboratory personnel, in private, about safety and health conditions and practices in the laboratory. Ensure laboratory personnel understand that unsafe and unhealthy conditions identified will remain anonymous. Restate the purpose of the evaluation program, if needed to build trust.

Examples of Questions:

- What are the top three (3) safety concerns do you have while working in the laboratory?
- What are your laboratory procedures when there is an emergency/incident?
    - Reference Incident/Hazard Notification System and Emergency Procedure poster, and Notice to Employees.
- How do you store your hazardous materials?
    - Reference proper chemical segregation practices.
- Who conducts laboratory-specific training and how do you document it?
    - Reference Laboratory Site Specific Training Checklist

- What are your laboratory procedures when working alone in the laboratory?
- What do you refer to when you encounter a safety concern and how would you address it?
    - Reference Laboratory Safety Manual

b. Resources

EH&S professionals will provide updates and resources to laboratory personnel, and remove any resources that are no longer current. Accident/incident notifications and procedures will be discussed. Items that EH&S may provide include, but is not limited to:

- Door placard
- Emergency Procedure Poster
- Labels – “no food or drinks,” “warning,” “biohazard,” “radiological,” etc.
- Sharps container
- Secondary containers
- Any additional available resources that will improve safety in the laboratory

c. Corrective Actions

When unsafe and unhealthy conditions and practices are observed during evaluation, EH&S Professionals will immediately address/correct the situation, if possible. If situation cannot be immediately corrected, interim measures or feasible recommendations will be provided to correct the situation or provide background information as to why the situation is considered unsafe and unhealthy. If training is not complete, do not allow individuals to continue working until training is complete.

d. Documentation

All unsafe and unhealthy conditions and practices, including those that were corrected immediately, is documented in the RSS Inspect.

Additionally, good work practices will be recognized in accordance to the **Safety Recognition Program.**

e. Closing Evaluation

Before leaving the laboratory, observed findings will be discussed, recommendations to correct findings will be provided, and a follow-up date will be scheduled. Laboratory personnel will be provided a follow-up visit timeline, as well as, a corrective action timeline. Laboratory personnel are encouraged to update the report in RSS Inspect as findings are corrected; however, EH&S will return on the scheduled follow-up date to verify findings and update the report on behalf of the laboratory.

6. REPORT

Within one business day of the evaluation, an evaluation report is submitted to EH&S Research/Lab Safety managers for review within 24 hours. Once approved, the report will be sent to the PI, laboratory safety contact, and Safety Coordinators. The PI/Lab Safety Contact will have 30 calendar days, unless otherwise specified in the findings, to correct any deficiencies. Deficiencies that require other departments to follow up will be notified by RSS through routing groups or by EH&S. Deficiencies requiring a work order to Facilities Services will be submitted on behalf of the lab and the work order numbers will be included in the report.

When COAs are required for Facilities Services work orders, PIs/Lab Managers/Lab Supervisors are responsible for providing the COA.

7. FOLLOW-UP / VERIFICATION

Follow-up and verification of corrected deficiencies will be conducted during the designated correction time. For major deficiencies, EH&S Professionals will work closely with the PI/laboratory to correct deficiencies. When corrective actions are due or the PI/Lab Safety Contact "Marks As Ready for Verification" in RSS Inspect, EH&S Professionals will conduct a follow-up visit to verify that the issues have, in fact, been corrected. When corrective actions are verified, select "Resolved" to indicate the date of verification in the report.

When corrective actions are not corrected, the following should be done:

- "Mark as Not Resolved" – select this if deficiency has not been resolved
- "Mark as In Progress" – select this if the deficiency requires additional time to resolve.
- "Mark as No Further Action" – select this if deficiency no longer applies (e.g. training deficiency was identified, but the individual is no longer with the laboratory)

8. ESCALATION PROCESS

Time Elapsed	PI/RP Notified in addition to	CC in notification
48-hours	Send updated report to Laboratory Safety Contact (LSC)	
30 Days	Send updated report to LSC	
45 Days	• EH&S Assistant Director, Research Safety • EH&S Executive Director • Department Chair • Safety Coordinator	
60 Days	Dean/Division Deans	EH&S Assistant Director, Research Safety, EH&S Executive Director, Department Chair, Safety Coordinator, Laboratory Safety Contact
90 Days	• Vice Chancellor of Research and Economic Development • Vice Chancellor of Planning, Budget, and Administration	EH&S Assistant Director, Research Safety, EH&S Executive Director, Department Chair, Safety Coordinator, Laboratory Safety Contact

9. MID-YEAR CHECK-IN

Approximately six months after initial evaluation date, a mid-year check-in will be conducted with the laboratories. The following items will be reviewed during the mid-year check-in:

- Review last evaluation to determine if EH&S can assist or provide any resources to the laboratories to ensure laboratories operate in a safe and healthy condition.
- Determine whether research processes have changed. Provide updated SOPs to new processes.
- Conduct a PPE Spot Check.
- Verify/Update assigned locations and rosters.

- Identify unsafe and unhealthy conditions and provide a reminder notification to the PI/RP.
- Review/Update door placards, signs and labels.
- Review/Update LHAT roster for current and accurate account of laboratory personnel.
- Review training records and identify pending/missing training.
- Use Mid-Year Check-In checklist to capture visit.

10. NO HAZARDS

When a PI identifies no hazards in the assigned space in Laboratory Hazard Assessment (LHAT), EH&S Professionals will conduct a site visit to verify there are no hazards in the space. Once the space is verified hazard-free, a hazard-free sign will be posted at the door. These spaces will be verified biennially.