UCR

Environmental
Health & Safety

LABORATORY SAFETY MANUAL

Laboratory Safety Manual (LSM)
Injury & Illness Prevention Plan (IIPP)
Lab Safety Rules

Chemical Hygiene Plan (CHP)

PI/Lab Supervisors

Risk and Safety Solutions Suite
(LHAT, Inspect, Chemicals, WASTe)

Lab Safety Evaluation Program
-inspection checklist
-inspection resolution

Training Records

Standard Operating Procedures (SOPs)

AUP, BUA, RUA, etc.

Emergency Procedures
Incident Reporting
-ERT

Tools & Resources
EH&S Programs

Laboratory Safety Manual
University of California Riverside
Main Campus

Overview

Introduction

The risks associated with laboratory research hazards are greatly reduced or eliminated when proper precautions and practices are observed. This Laboratory Safety Manual is intended to be the cornerstone of your safety program and is designed to aid faculty, staff, and students to better manage the risk and mitigate the hazard to maintain a safe environment to teach and conduct research.

Each laboratory using hazardous materials is required to have a copy of this manual readily available to all laboratory personnel. Each laboratory worker must be familiar with the contents of the manual and the procedures for obtaining additional safety information needed to perform their duties safely.

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Injury & Illness Prevention Program (IIPP)

A well-integrated IIPP provides the information required to monitor activities and resources to reduce the risk of workplace injury and illness to maintain a safe work environment.

Title 8, of the California Code of Regulations (CCR), requires every California employer to have an effective written IIPP in accordance with CCR Section 3203 of the General Industry Safety Orders. The Laboratory Safety Manual includes the purpose and components of the IIPP; procedures related to "assignment of responsibilities," "hazard identification," "hazard mitigation," "incident reporting," and "training" are included the Laboratory Safety Manual.

The development and implementation of a laboratory specific Injury and Illness Prevention Plan is a key step in strengthening the safety culture in laboratories. The UCR Injury and Illness Prevention Plan (IIPP) is a guide that is available to assist Faculty/Other Laboratory Supervisors to develop laboratory specific safety programs for employees. An IIPP provides a framework for laboratories to provide their employees with equipment and information necessary to work safely. It assigns responsibility for safety to specific individuals and outlines procedures to assure compliance with safety practices. This program addresses identification, communication, and correction of hazards, as well as accident investigations, training and recordkeeping.

Chemical Hygiene Plan

The Chemical Hygiene Plan (CHP) establishes a formal written program for protecting laboratory personnel against adverse health hazards associated with exposure to hazardous chemicals and must be made available to all employees working with hazardous chemicals as required in the California Code of Regulations (8 CCR 5191) Occupational Exposures to Hazardous Chemicals in Laboratories (http://dir.ca.gov/title8/5191.html). The CHP describes the proper use, handling practices and procedures to be followed by faculty, staff, students, visiting scholars, and all other personnel working with hazardous chemicals in laboratory settings.

Laboratory-Specific

Standard Operating Procedures

Standard Operating Procedures (SOPs) are written instructions that detail the steps that will be performed during a given experimental procedure and include information about hazards and how these hazards will be mitigated. SOPs must be written by laboratory personnel who are most knowledgeable and involved with the experimental process. The development and implementation of SOPs is a core component of promoting a strong safety culture in the laboratory and helps ensure a safe work environment. Faculty/Other Laboratory Supervisors are required to develop and implement laboratory-specific SOPs for certain hazardous chemicals and "particularly hazardous substances" (PHS) that are used in their laboratories. These SOPs must be submitted and reviewed by a qualified person after the Faculty in charge,) prior to implementation. For certain hazardous chemicals, PHS, or specialized practices, consideration must be given to whether additional consultation with safety professionals is warranted or required. Circumstances requiring prior approval from the Faculty/Other Laboratory Supervisors must also be addressed in laboratory-specific SOPs. The CHP provides more detailed information on SOPs (refer to the "***Resource and Reference Documents***" section below). Specific SOPs used in the lab should be kept in the Laboratory Safety Manual under the appropriate tab.

Laboratory-Specific

Training Records

Effective training is a critical component to facilitating a safe environment and for the prevention of laboratory accidents. All employees must be trained in general safe work practices and be given specific instructions on hazards unique to their job. Meeting safety training requirements is a cooperative effort between departments, Principal Investigators and Laboratory Supervisors, laboratory staff and EH&S.

An effective health and safety training program must include appropriate oversight, proper recordkeeping, instruction on the proper use of PPE (e.g., eye protection, gloves, laboratory coats, respirators, etc.), and extensive outreach. Accurate recordkeeping of training activities demonstrates a commitment to the safety and health of the UCR community, integrity of research and protection of the environment. The UC Learning Management System (LMS) is responsible for maintaining records of training conducted. Departments and/or laboratories are required to document and maintain records of all health and safety training, including safety meetings, one-on-one training, and classroom and online training. Safety training records can be kept in the Laboratory Safety Manual under the appropriate tab.

Hazard Assessment

The UCR Laboratory Hazard Assessment helps to categorize activities according to risk based on the hazards present in the laboratory. The Laboratory Hazard Assessment assists in identifying the laboratory activities involving chemical and other types of hazards, and the proper PPE that should be used by laboratory personnel to protect themselves from these hazards, and provides guidance once the appropriate PPE is identified. The laboratory must provide the required PPE to laboratory personnel and conduct and document training for them on the proper storage and use of

the PPE. Laboratories are required to provide information to EH&S concerning the laboratory location, identify the Faculty/Other Laboratory Supervisor, and certify that the assessment and training were completed. The Laboratory Hazard Assessment must be completed at least annually and updated whenever new hazards in the laboratory are introduced or change. The laboratory's most recent Laboratory Hazard Assessment should be kept in the Laboratory Safety Manual under the appropriate tab

Resources and References

In view of the wide variety of research that is conducted in research laboratories, we have included links that will enable faculty, staff, and students to access program areas pertinent to their particular research area. Additionally, Faculty/Other Laboratory Supervisors should include supplemental information pertinent to their specific areas in this manual.

Radiation Safety Manual
http://ehs.ucr.edu/radiation

Manual for Radiation Producing Machines
http://ehs.ucr.edu/radiation

Laser Safety Manual
https://ehs.ucr.edu/laboratory/laser

Laboratory Relocation Document
http://ehs.ucr.edu/laboratory

Biosafety Manual
http://ehs.ucr.edu/biosafety

Controlled Substance Use Authorization
http://ehs.ucr.edu/controlledsubstances

Biological Use Authorization, Animal Use Authorization, Human Use, Stem Cell Use
https://research.ucr.edu/ORI.aspx

Hazardous Materials:
http://ehs.ucr.edu/hazardousmaterials

Fire Prevention Plan
http://ehs.ucr.edu/fire

UC Lab Safety Design Manual
https://lsdm.ucop.edu/

Emergency Action Plan
http://ehs.ucr.edu/emergency

UC Laboratory Safety Training Policy
https://policy.ucop.edu/doc/3500598/LabSafetyTraining

UC Personal Protective Equipment Policy
https://policy.ucop.edu/doc/3500597/PersonalProtectiveEquip

Title 8 California Code of Regulations Section 5164, "Storage of Hazardous Substances"
http://dir.ca.gov/title8/5164.html

Title 8, California Code of Regulations, Section 5191, "Occupational Exposures to Hazardous Chemicals in Laboratories"
http://dir.ca.gov/title8/5191.html

Title 8, California Code of Regulations Section 5194, "Hazard Communication"
http://dir.ca.gov/title8/5194.html

Title 8, California Code of Regulations Section 3203, Injury and Illness Prevention Program
http://dir.ca.gov/title8/3203.html

Title 8, California Code of Regulations Section 3380-3387, PPE requirements
http://dir.ca.gov/Title8/sb7g2a10.html

Title 8, California Code of Regulations, Article 110, "Regulated Carcinogens"
http://dir.ca.gov/Title8/sb7g16a110.html

Title 8, California Code of Regulations, Section 5154.1, "Ventilation Requirements for Laboratory-Type Hood Operations"
http://dir.ca.gov/title8/5154_1.html

NFPA 45-Standard Fire Protection for Laboratories Using Chemicals

Uniform Fire Code

Other
Applicable regulations include those promulgated by the U.S. Department of Labor including 29 CFR 1910.1450 "Occupational Exposure to Hazardous Chemicals in Laboratories" (the "Laboratory Standard'). These regulations require that the CHP be readily available wherever potentially hazardous chemicals are used, handled or stored.
http://www.osha.gov/SLTC/laboratories

How to use this Laboratory Safety Manual

Faculty / Other Laboratory Supervisors

- ☐ **Review the Injury and Illness Prevention Plan (IIPP)** behind the appropriate tab. Familiarize yourself with your department contacts and any special communication channels.
- ☐ **Review the Chemical Hygiene Plan (CHP) annually**. Specifically review your responsibilities (pp. 5-7), Training (Chapter 7), Employee Training, Site-Specific Training, and Standard Operating Procedures.
- ☐ **Insert your laboratory-specific SOPs** behind the appropriate tab. Provide training and ensure all lab personnel review and sign the SOP.
- ☐ **Insert laboratory-specific and all required training documentation** behind the appropriate tab.
- ☐ **Insert a copy of your current Laboratory Hazard Assessment (LHAT)**. If it has been over 12 months since your LHAT has been updated, review and re-certify your LHAT. Ensure all lab personnel review and acknowledge the LHAT.
- ☐ **Review and document any new information** with your laboratory workers.

Laboratory Personnel

- ☐ **Review the Injury and Illness Prevention Plan (IIPP)** Familiarize yourself with your department contacts, how to report a hazard in your laboratory and how to report injuries.
- ☐ **Review the Chemical Hygiene Plan**: Specifically your responsibilities (pp. 5-7).
- ☐ Refresh your knowledge on **how to identify hazardous chemicals** (*Chemical Hygiene Plan*, Chapter 3).
- ☐ Understand how to **reduce your potential for exposure** to hazardous chemicals (engineering controls, administrative controls and personal protective equipment) (*Chemical Hygiene Plan*, Chapter 4).
- ☐ With your PI, ensure you know what to do to prepare for and **respond to an emergency** (*Chemical Hygiene Plan*, Chapter 10).
- ☐ **Review PPE requirements** with your PI and ensure you know how to acquire additional or replacement PPE.
- ☐ **Complete Lab Site-Specific** with your PI and ensure you know how to acquire additional or replacement PPE.
- ☐ **Review the laboratory-specific SOPs** with your PI and document your training. All training, whether formal or on-the-job, should be documented and placed behind the appropriate tab.
- ☐ **Ask for clarification** if there are any questions related to your laboratory work before you begin a new task.

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INJURY AND ILLNESS PREVENTION PLAN

https://ehs.ucr.edu/safety#injury_illness_and_prevention_program

Environmental Health & Safety

UCR Laboratory Safety Rules

1. Familiarize yourself with the lab, location and operation of the safety features (exits, fire extinguishers, safety showers, eye wash facility, and first aid and spill kits) and record this.

2. Complete and record training on all aspects of lab safety relevant to your work prior to beginning potentially hazardous activities and when changes are made to the procedures.

3. Wear appropriate Personal Protective Equipment (PPE), such as: approved gloves, safety glasses or goggles, lab coat or apron, long pants that cover your ankles, and closed-toe shoes that cover your entire foot. PPE requirements will be designated by the hazards associated with the lab space.

4. Work in properly-ventilated areas and in a safe manner according to Standard Operating Procedures.

5. Do not eat, drink, chew gum, smoke, or apply makeup while working in laboratory spaces where chemical, radioactive, or biological hazards are present.

6. Store all chemicals and other hazardous materials according to California State Law and UCR policy. Know your chemical compatibilities/incompatibilities, stability, shelf life and recommended storage conditions. Refer to Lab Safety Manuals for additional information on working with hazardous materials in lab.

7. Dispose of all laboratory waste in the correct manner in accordance with UCR policy. There are specific protocols for chemicals, contaminated and broken glass and plastic, sharps, radioactive isotopes and biological agents.

8. Know how to respond properly in an emergency. Clean up all spills safely and promptly, and report them to the PI/Lab Supervisor and EH&S. If unsure how to safely clean up a spill, ask PI/Lab Supervisor or EH&S for assistance.

9. Report to Lab Supervisor and EH&S of all incidents (spills, splashes, fires, etc.), injuries, and accidents, right away, even if the incident seems small or unimportant.

10. Report to PI/Lab Supervisor of any unsafe conditions in the laboratory as soon as possible.

Please contact EH&S at (951) 827-5528 or visit ehs.ucr.edu if you have any questions.

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CHEMICAL HYGIENE PLAN

Scan QR Code to go to UCR Chemical Hygiene Plan
https://ehs.ucr.edu/laboratory/chp

PIs/Lab Supervisors can utilize the resources available in this section for guidance on direct responsibilities to ensure a safe workplace for their workers. Guidance includes, but is not limited to, Research Approval and Training Requirements, PI & Lab Supervisor Checklists, Laboratory Site Specific Training Checklist, etc.

UC RIVERSIDE | Environmental Health & Safety

Guide for New Principal Investigators (PIs) and/or Supervisors

Principal Investigators and Lab Supervisors hold key responsibilities for the health and safety of laboratory personnel. Environmental Health & Safety (EH&S) wants to help you begin your research at UCR quickly, effectively and in compliance with environmental and occupational safety requirements.

PRINCIPAL INVESTIGATOR RESPONSIBILITIES: The following list will satisfy the needs for the majority of Principal Investigators. Consult with your EH&S Specialist for assistance with any of the following requirements.

	Lab Safety Program Element	Online Resource
Laboratory Hazard Assessment (Assessment) and Personal Protective Equipment (PPE)		
☐	Complete a Laboratory Hazard Assessment to identify hazards associated to your lab space and to obtain personal protective equipment (safety glasses and lab coats) from EH&S.	https://ehs.ucop.edu/lhat
☐	Maintain current lab personnel roster via Assessment. Ensure personnel review and complete their portion of the Assessment.	https://ehs.ucop.edu/lhat
Training		
☐	Ensure all lab personnel have completed the foundational training per UC Policy • **Lab Safety Fundamentals (initial) or Refresher (every subsequent 3 years)** • **Hazardous Waste Management (annual)** • **Fire Extinguisher (annual)**	ucrlearning.ucr.edu
☐	Ensure additional safety training is completed based on the unique hazards in the lab (bloodborne pathogens, shop safety, biosafety, radiation producing machines, lasers, +etc.)	ucrlearning.ucr.edu
☐	Ensure that each worker has completed lab site specific training before they handle materials in the laboratory and that the training is documented.	See Lab Site-Specific Training Checklist
☐	Provide access to Safety Data Sheets (SDS) for all chemicals.	https://ehs.ucr.edu/services/msds.html
Chemical Inventory		
☐	Establish/Maintain a Chemical Inventory using the cloud-based chemical inventory management tool – UC Chemicals. Update annually or when new inventory arrives.	https://ehs.ucop.edu/chemicals/
Laboratory Safety Manuals		
☐	Ensure all lab workers have reviewed and have access to the Chemical Hygiene Plan (CHP). The CHP can be maintained either in hard copy or with an easily accessible link to an electronic copy.	https://ehs.ucr.edu/laboratory/CHP/currentchps.html
☐	Maintain copies your Biosafety Manual, Exposure Control Plan, or Radiation Manual, as applicable. Templates are available from EH&S.	Environmental Health and Safety https://ehs.ucr.edu/
☐	Create and maintain Standard Operating Procedures (SOPs) for safely handling hazardous materials, such as carcinogens, reproductive or developmental toxins, acute toxins, biological hazards, radiological hazards, etc.	https://ehs.ucr.edu/laboratory/SOP
Hazardous Waste		
☐	Learn how to manage your chemical, radiological, biological and universal waste.	ucrlearning.ucr.edu
Emergency Management		
☐	Create an emergency placard and post at every entrance to an area with chemical, radioactive or biological hazards to aid emergency responders and comply with fire safety regulations.	https://econtact.ucr.edu

☐	Familiarize with campus Emergency Contact information. • **UCPD 951-827-5222 (cell phone)** • **9-1-1 (landline)** • **EH&S (951) 827 – 5528**	
☐	Familiarize where your Building's Emergency Assembly Area is located campus	http://campusmap.ucr.edu/emergency/
Laboratory Safety Inspections		
☐	Familiarize yourself with the Laboratory Safety Evaluation Checklist. EH&S Specialist will inspect your laboratory annually. All items requiring follow up must be corrected in a timely manner.	https://ehs.ucr.edu/laboratory/laboratory-evaluation
☐	Use the Laboratory Safety binder provided by EH&S to hold and track all work unit safety related items, including signed SOPs, training checklists and lab safety surveys.	Contact EH&S at (951) 827-5528 if you do not have a binder.
Research Authorizations		
☐	Review and follow the Research Approval and Training Requirement Obtain necessary authorization from a campus committee or EH&S for research involving: • Animal use • Human subjects • Biohazardous materials (i.e. bacteria, viral vectors, recombinant DNA, human materials, stem cells) • Controlled substances • Radioactive materials, radiation producing equipment, lasers • Respirators	https://ehs.ucr.edu/laboratory/Research_Approval_and_Training_Requirement_final.pdf
Injury/Incident Reporting Procedures		
☐	Know how to Report an Incident/Hazard/Safety Concern	https://ehs.ucr.edu/
☐	Know how to Report an Injury using the Employee First Report of Injury online form	https://ehs.ucop.edu/efr/home
☐	Post the UCR Emergency Procedures poster (available from EH&S)	Contact EH&S (951) 827-5528

LABORATORY SITE SPECIFIC TRAINING CHECKLIST

In accordance to *UCOP Policy: Lab Safety Training*, laboratory workers are required to receive a safety orientation specific to their unique laboratory work location and the processes common to their laboratory worksite. This checklist shall be performed and documented by the Principal Investigator or Supervisor on the first day the worker is granted access to or assigned work activities in the laboratory. All completed forms must be completed and maintained in the Laboratory Safety Manual.

Principal Investigator:
Name of Lab Worker:
Name of Trainer:
Date of Orientation:

Department:
Lab Worker Job Title:
Trainer Job Title:

	Training Topic
Prior to Starting Work	
☐	Complete **Laboratory Safety Fundamentals** via http://ucrlearning.ucr.edu/
☐	Complete **Hazardous Waste Management** via http://ucrlearning.ucr.edu/
☐	Read and confirm your PI's Laboratory Hazard Assessment Tool (LHAT)
☐	Review the Training Requirement matrix (Appendix 1), identify the courses to be completed, and complete all training courses prior to commencing work in laboratories.
Lab-Specific Safety Orientation	
Emergency Procedures	
☐	**Fire alarm pull station:** Location of and demonstrate how to activate.
☐	**Fire extinguisher:** Location of fire extinguisher(s).
☐	**Eye wash/safety showers**: Location of and demonstrate how to activate.
☐	**First aid kits:** Locations of and contents.
☐	**Phone**: Locations of, phone dialing instructions and posting of '911' or 951-827-5222 dialing instructions
☐	**Emergency Procedures Poster:** Locations of emergency procedure poster, and discuss actions for each of the scenarios listed.
☐	**Shelter-in-Place:** Review procedures for securing the lab for shelter-in-place orders.
☐	**Primary and Secondary Routes of Egress**: Walk both pathways to Emergency Assembly Area. Review evacuation procedures for disabled lab workers.
☐	**Emergency Assembly Area**: Review lab gathering point and evacuation procedures.
☐	**Reverse 911:** Enroll in campus emergency alert system. https://emergency.ucr.edu/ENS
Engineering Controls	
☐	**Chemical fume hoods:** Demonstration of proper use and instruction on adjustable controls.
☐	**Biological safety cabinets:** Demonstration of proper use and instruction on adjustable controls.
☐	**Chemical storage locations:** Locations and segregation rules.
☐	**Other engineering controls (glove boxes, gas cabinets)**: Demonstration of proper use and instruction on adjustable controls. Describe:
☐	**Aircuity:** Information the functionality of an aircuity building, purge button use and location, reporting to EH&S
Administrative Controls	
☐	**Laboratory Safety Manual (**including **Chemical Hygiene Plan):** Location of and content description. https://ehs.ucr.edu/laboratory/CHP/currentchps
☐	**SDS:** Demonstrate electronic access to Safety Data Sheet repository. https://ehs.ucop.edu/sds/#/

☐	**Laboratory Standard Operating Procedures (SOPs):** Location of written SOPs, describe the required approval needed.
☐	Identification of Chemical Processes/Areas that require specific SOP use.
☐	Demonstrate how to report an injury/illness/incident to EH&S online (https://ehs.ucr.edu/) or by phone (951) 827-5528.
☐	Review and document safety procedures for specific operations (e.g., UV light, laser, safe use of specialized equipment, high voltage equipment, confined space, etc.). Describe:
Personal Protective Equipment (PPE)	
☐	**Lab Coat:** Ensure personnel obtain fitted lab coat as prescribed by the Lab Hazard Assessment from EH&S at no cost. Certain labs require flame resistant (FR) lab coats. Type: ☐ White Barrier Coat ☐ FR ☐ Acid Apron
☐	**Eye Protection:** Ensure personnel obtain a fitted pair of safety glasses from EH&S at no cost. For laboratory where goggles must be worn, ensure personnel obtain a pair of fitted chemical splash goggles from EH&S at no cost. Splash goggles must be of the type and adjusted accordingly to be worn comfortably and stay securely in place.
☐	**Gloves:** Location of, knowledge to select the correct type and instructions on how to properly don and doff.
☐	**Other:**
Waste Disposal	
☐	**Hazardous Waste Accumulation Area:** Location and demonstration of proper labeling, proper storage requirements, and process to request pick-up.
Protocols and Authorizations	
☐	Ensure that lab worker has been added to appropriate protocols and authorizations and has completed all relevant training: • Animal Use Protocol • Biological Use Authorization • Carcinogen Use Authorization • Controlled Substances Use Authorization • Laser Use Authorization • Radiation Use Authorization Refer to **Research Approval and Training Requirement** document (https://ehs.ucr.edu/sites/g/files/rcwecm1061/files/2019-07/Research_Approval_and_Training_Requirement_final.pdf)

Principal Investigator Signature and Date:	
Lab Worker Signature and Date:	

UCR Environmental Health & Safety

Research Approval and Training Requirement Matrix

UCR Office of Research Integrity

Subject	Description	Policies/Procedures	Committee/Website	Required Authorization/Forms	Required Training & Medical Surveillance	Contacts
UCR Laboratories	All Research (e.g. wet labs, high hazards, etc.) and Teaching Laboratories	UC Lab Safety Training UC Personal Protective Equipment (PPE) Lab Safety Manual Injury and Illness Prevention Plan	Environmental Health and Safety https://ehs.ucr.edu/laboratory Office of Research Integrity https://research.ucr.edu/ORI UCR Learning Center http://ucrlearning.ucr.edu/ UC Safety Suite https://ehs.ucop.edu/	Office of Research Integrity Protocol approval required	Laboratory Hazard Assessment Tool (LHAT) https://ehs.ucop.edu/ Personal Protective Equipment (PPE) Laboratory Safety Fundamentals – every 3 years Hazardous Waste Management - annual Fire Extinguisher – annual Principal Investigator (PI) Responsibilities	**Research Safety Programs Manager** tiffany.kwok@ucr.edu
Vertebrate Animals	Vertebrate animals Contracts involving custom antibodies or other vertebrates	Animal Use Protocol approval required prior to any use or handling of vertebrate animals IACUC Policies: https://research.ucr.edu/about/policies-ucr IACUC Guidance: https://research.ucr.edu/ori/guidance	Institutional Animal Care and Use Committee (IACUC); Office of Research Integrity https://research.ucr.edu/ori/committees/iacuc	Animal Use Protocol (3-year renewal)	Working with the UCR IACUC on-line course Species specific video UCR Animal Program Occupational Health Review	**Campus Veterinarian** Akiko Sato 951-827-5845 **IACUC Administration** iacuc@ucr.edu
Chemicals	Research involving chemicals	Chemical Hygiene Plan Chemical Inventory	https://ehs.ucr.edu/laboratory/chemical-hygiene-plan https://ehs.ucr.edu/laboratory/chemical/chemical-inventory	Standard Operating Procedures (SOPs) Chemical Inventory https://ehs.ucop.edu/chemicals/	Additional Training may be required based on chemical used.	**Chemical Hygiene Officer** Patrick Monnig 951- 827-4254 **Chemical Inventory** Kyle Soliz 951-827-5879 ehslaboratory@ucr.edu

Research Approval and Training Requirement Matrix

Subject	Description	Policies/Procedures	Committee/Website	Required Authorization/Forms	Required Training & Medical Surveillance	Contacts
Biohazardous Materials	Biohazardous and potentially biohazardous materials, including human derived materials or infectious agents (human, animal, plant) such as, bacteria, yeast, virus, prion, fungi Recombinant DNA (rDNA) materials and activities	UCR Biosafety Manual Institutional Biosafety Committee (IBC) Charter Aerosol Transmissible Disease Program Bloodborne Pathogens Programs UCR Exposure Control Plan Federal Select Agents Programs Standard Operating Procedures UCR Biosafety Manual USDA APHIS (plant materials)	Institutional Biosafety Committee; Office of Research Integrity https://research.ucr.edu/ori/committees/ibc	Biological Use Authorization (BUA) – 3-year renewal	Biosafety Bloodborne Pathogens (if applicable) - annual Hepatitis B Vaccination (for work with human blood, tissue, primary human/primate cell lines or body fluids)	***Use the same contacts for all research types on this page*** **IBC Administration** Sherie Donahue 951-827-4814 Ian Naftzger 951-827-5524 ibc@ucr.edu **Acting Biosafety Officer (BSO) & BSL-3 Labs** Tran Phan 951-827-4246 ehsbiosafety@ucr.edu
Select Agents	CDC Select Agents USDA High-Risk Livestock Pathogens	UCR Biosafety Manual UCR BSL-3 Biorisk Plan Institutional Biosafety Committee (IBC) Charter Aerosol Transmissible Disease Program Bloodborne Pathogens Programs Exposure Control Plan Federal Select Agents Program Dual Use Research of Concern (DURC) Standard Operating Procedures	Institutional Biosafety Committee https://research.ucr.edu/ori/committees/ibc High Containment Laboratory Oversight Group (HCLOG) Dual Use Research of Concern (DURC), if applicable	Biological Use Authorization (BUA) BSL-3 Lab Specific Manual	Biosafety Bloodborne Pathogens - annual UCI BSL-3 Researcher Training BSL-3 Annual Training Medical Surveillance may be required based on agents used.	

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Research Approval and Training Requirement Matrix

UCR Office of Research Integrity

Subject	Description	Policies/Procedures	Committee/Website	Required Authorization/Forms	Required Training & Medical Surveillance	Contacts
Controlled Substances	Research involving regulated controlled substances (Schedule I to V)	UC Policy BFB-BUS-50: Controlled Substances UCR Policy #850-35: Procurement, Use, and Disposal of Controlled Substances 21 CFR 1308.11-1308.15	https://ehs.ucr.edu/laboratory/chemical/controlled-substances https://www.deadiversion.usdoj.gov/schedules/	Controlled Substance Use Authorization Use Logs Biennial Inventory	Controlled Substances	**EH&S** Kyle Soliz 951-827-5879 ehscs@ucr.edu
Epinephrine Auto-Injectors	Field activities needing to equip first aid kits with Epinephrine Auto-Injector	UCR EpiPen Approval for Field Activities	https://ehs.ucr.edu/laboratory/field	UCR Epinephrine Auto-Injector Risk Assessment UCR Epinephrine Auto-Injector Operation Plan EpiPen Emergency Action Plan	CPR/AED and First Aid Training Epinephrine Auto-Injector Training	***Use the same contacts for both of these research types*** Pamela See 951-827-5878 ehslaboratory@ucr.edu
Field Research	Research or work conducted in the field	Field Safety Plan	http://ehs.ucr.acsitefactory.com/sites/g/files/rcwecm1061/files/2019-05/2016_ucr_fieldsafetyplantemplate.pdf	Field Safety Plan UC Away	Heat Illness Prevention training Wilderness First Aid	
Human Subjects	Research involving human subjects or donated source materials	45 CFR 46	Institutional Review Board (IRB) https://research.ucr.edu/ori/committees/IRB-Clin	Determination of Activity form General IRB application form and project roster Biological Use Authorization (BUA) (Applicable for research with human specimens)	Collaborative Institutional Training Initiative (CITI) online Human Subjects Training (May not be required depending on materials used; contact irb@ucr.edu for information) ***If applicable:*** Biosafety Bloodborne Pathogens - annual Hepatitis B Vaccination	**IRB Administration** Lorraine Castro 951-827-5549 Heather Fonteno 951-827-3690 Monica Wicker 951-827-4811 irb@ucr.edu

Research Approval and Training Requirement Matrix

Stem Cells	Research involving human pluripotent stem cells	California Department of Public Health Guidelines for Human Stem Cell Research California Institute for Regenerative Medicine Regulations UCR Biosafety Manual Institutional Biosafety Committee (IBC) Charter	Stem Cell Research Oversight Committee (SCRO) https://research.ucr.edu/ori/committees/scro	Stem Cell Use Authorization (SCUA) Biological Use Authorization (BUA)	Biosafety Bloodborne Pathogens - annual Hepatitis B Vaccination	**SCRO / IBC Administration** Sherie Donahue 951-827-4818 ibc@ucr.edu **Acting Biosafety Officer (BSO)** Tran Phan 951-827-4246 ehsbiosafety@ucr.edu
Conflict of Interest	Research involving conflicts of interest (COI) A COI is a situation where an investigator's outside financial interests bias or have the potential to bias a research project. This also applies to the immediate family	Policies for Non-Governmental Sponsor (State Law – 700-U), Public Health Service & Organizations following PHS Regulations, and National Science Foundation & Organizations following NSF Policy can be found on the Promoting Research Objectivity Committee - formerly the Conflict of Interest Committee (PRO) website: https://research.ucr.edu/ori/committees/pro	Promoting Research Objectivity Committee - formerly the Conflict of Interest Committee (PRO) https://research.ucr.edu/ori/committees/pro	Required forms for State Law, PHS and NSF can be found on the Promoting Research Objectivity Committee website: https://research.ucr.edu/ori/committees/pro	For 700-U (State): No required training For PHS: Required COIR training is through the UC Learning Center system, entitled "Compliance & Conflict of Interest for Researchers Briefing (COIR)" For NSF: No required training	**PRO Administration** Monica Wicker 951-827-4811 Heather Fonteno 951-827-3690 pro@ucr.edu
Lasers	Research involving lasers	Laser Safety Manual Standard Operating Procedures (SOPs)	Radiation Safety Committee https://ehs.ucr.edu/laser/	Laser Machine Registration Application	Laser Safety Training	***Use the same contacts for both of these research types*** **Radiation Safety Officer** Bryan Ruiz (Interim) 951-827-5748 **Radiation Safety Specialist** Ondra Carter 951-827-5529
Radiation	Research involving radioisotopes or radiation-producing equipment	Radiation Safety Manual Radiation Producing Machine Manual Standard Operating Procedures (SOPs)	Radiation Safety Committee https://ehs.ucr.edu/radiation/	Radioactive Material Use Authorization (RUA)	Radiation Safety: Initial Radiation Safety: Refresher	

Equipment	Contact Information
Chemical Fume Hood Certification	Tiffany Kwok tiffany.kwok@ucr.edu
Chemical Fume Hood Repair	Submit a Facilities Service Work Order at http://fmm.ucr.edu/fmm/fwo.menu
Biosafety Cabinet Certification	Schedule an appointment with Technical Safety Services at (800) 877-7742
Respirators	**Sr. Industrial Hygienist** Adam Lucas 951-827-5533 ehsih@ucr.edu

Complete your Laboratory Hazard Assessment Tool (LHAT) on the Risk and Safety Solutions website (https://ehs.ucop.edu/). The LHAT will determine what type of PPE is required for work in your laboratory. All laboratory personnel must then review the certified LHAT and acknowledge that they have read and understood when appropriate PPE must be worn.

Laboratory personnel who have reviewed and acknowledged the LHAT will be able to receive a voucher to be fitted for PPE.

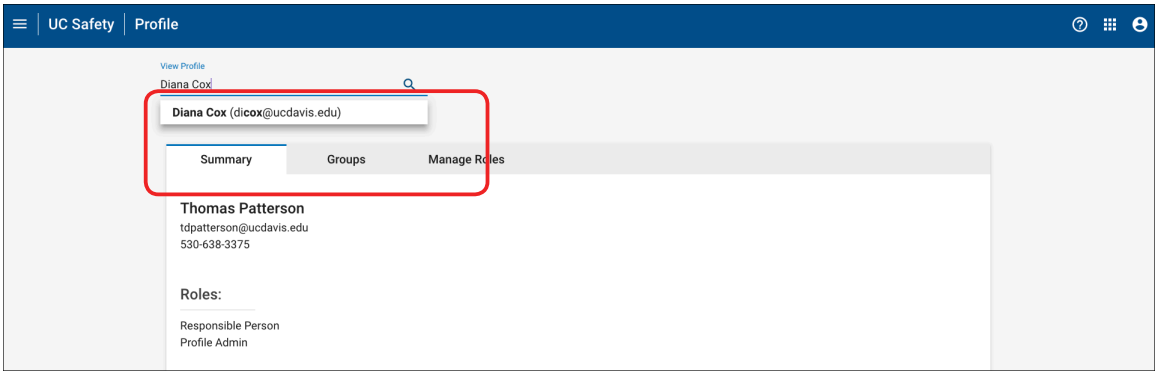
Guidance documents on how to use LHAT, UC Chemicals for management of your chemical inventory and UC WASTe system for hazardous waste management are also included in this section.

Profile: Admin Roles

Getting Started

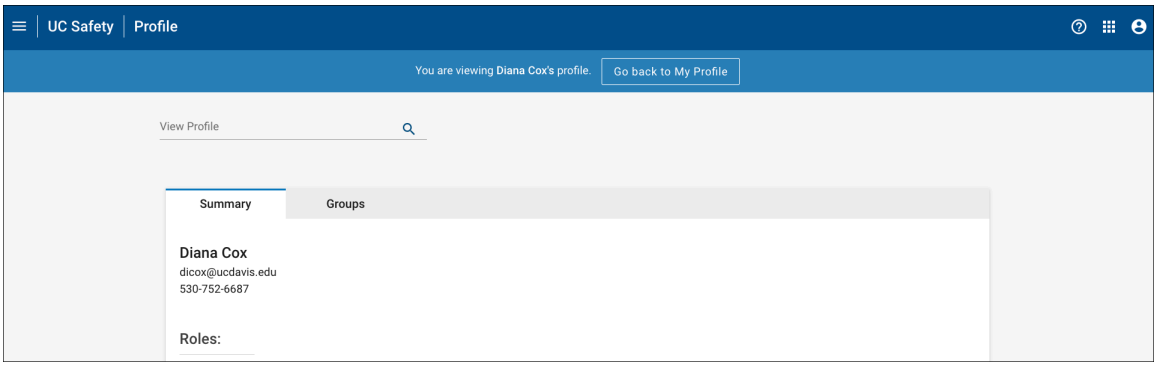
- Log in to https//ehs.ucop.edu
- Select the person icon on the top right and then select **Profile**.

- Because you have the Profile Admin role, you can view, create and edit anyone on your campus' profile and the group(s) they are in by typing their name into the **View Profile** section.

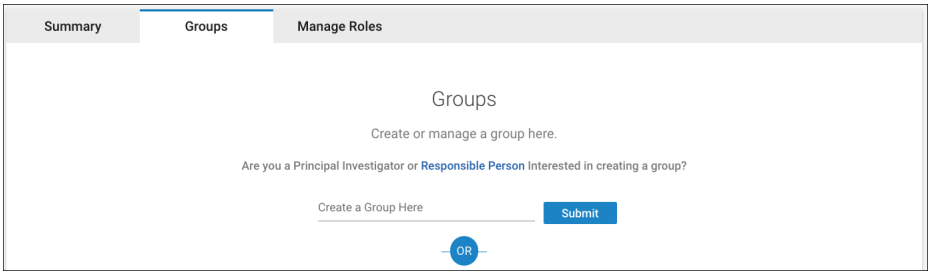


Creating Groups

- Select the **Groups** tab. If you are creating a group for the first time, enter the group name and select the Submit button.

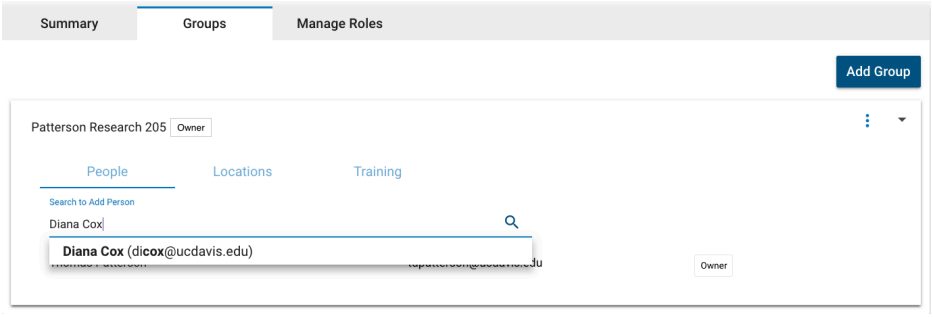


- Select the **People** tab to search and choose the name of the person(s) you would like to add to your group.



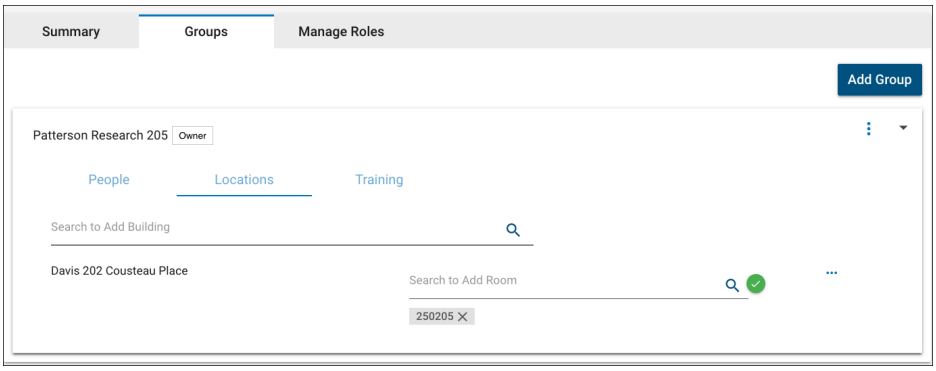
- Select the **Locations** tab to search and choose the buildings and rooms associated with your group. Select the checkmark icon to complete. Your group is now set up and is shared across all Risk & Safety Solutions products.

For more information about Profile, contact service@RiskandSafetySolutions.com

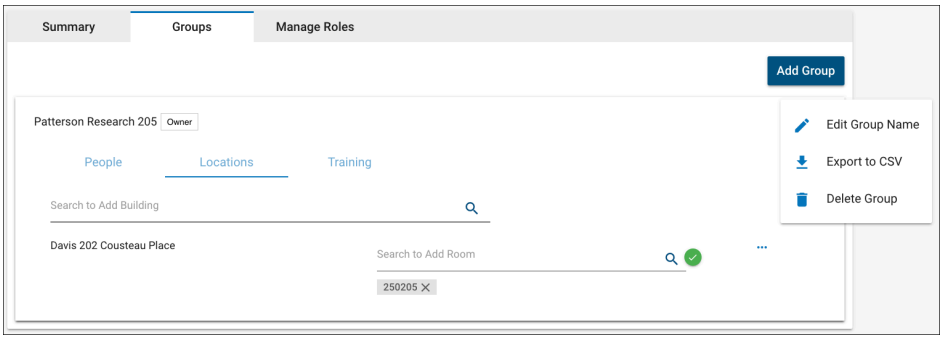


Editing Groups

- Selecting the ••• icon allows you to Edit Group Name, Export to CSV and Delete.

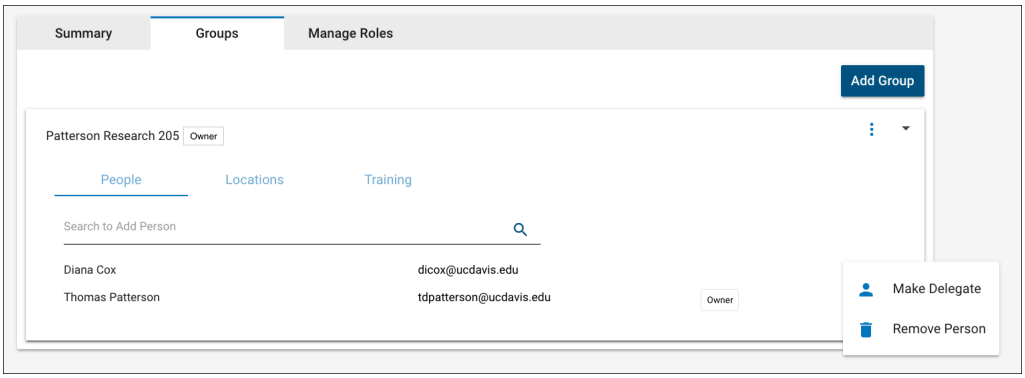


- Selecting the ⋮ icon allows you to assign/remove Delegate access to a member of the group and remove a person from your group.



Managing Roles

- To view who has the Profile Admin role, select the **Manage Roles** tab.
- To provide someone with the Profile Admin role, search for his or her name and then select the desired individual. After selection, the person will automatically have Profile Admin rights.
- To remove someone as Profile Admin, select the ⋮ icon and select **Remove Role**.



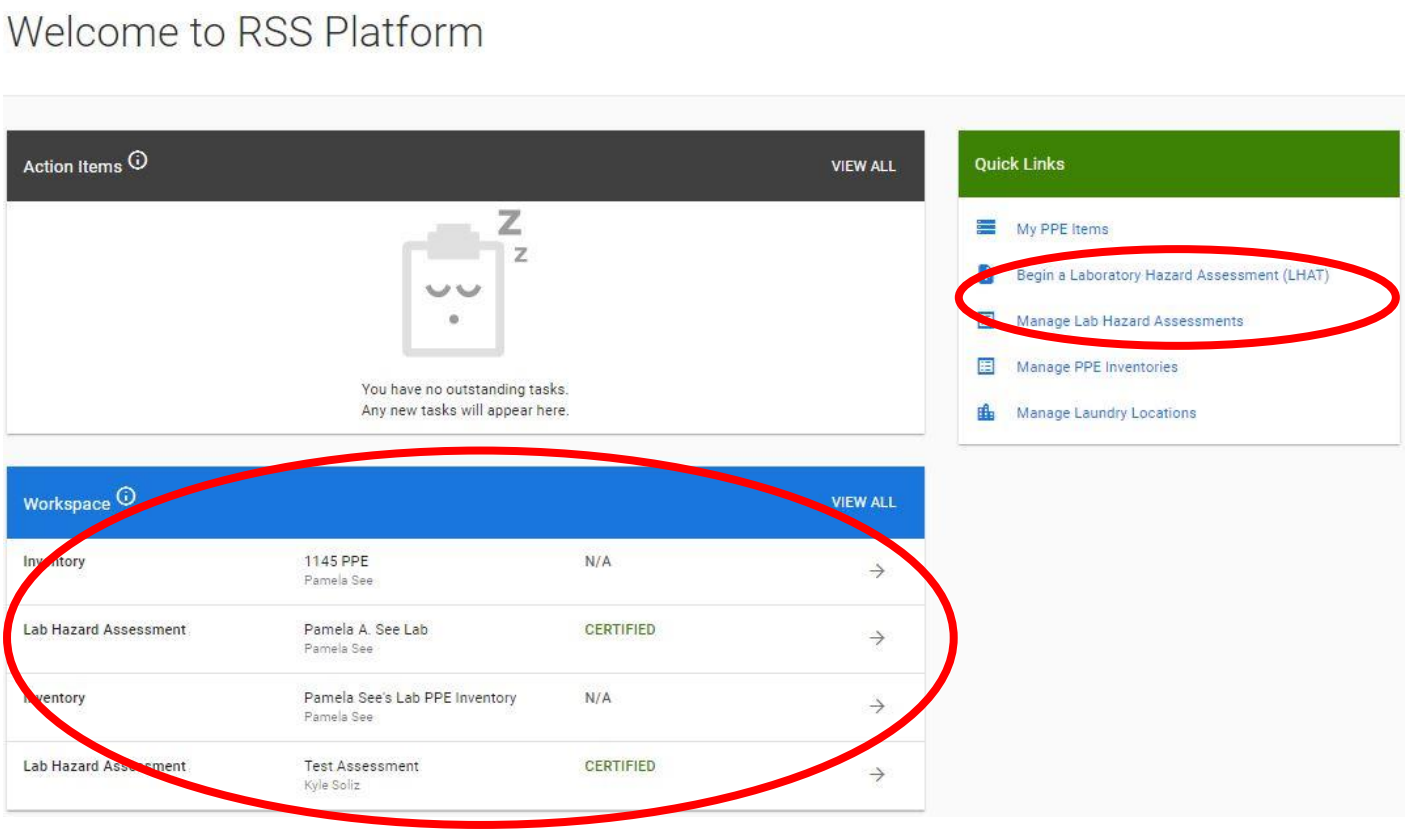
For more information about Profile, contact service@RiskandSafetySolutions.com

Laboratory Hazard Assessment (LHAT) & Personal Protective Equipment (PPE)

Contents

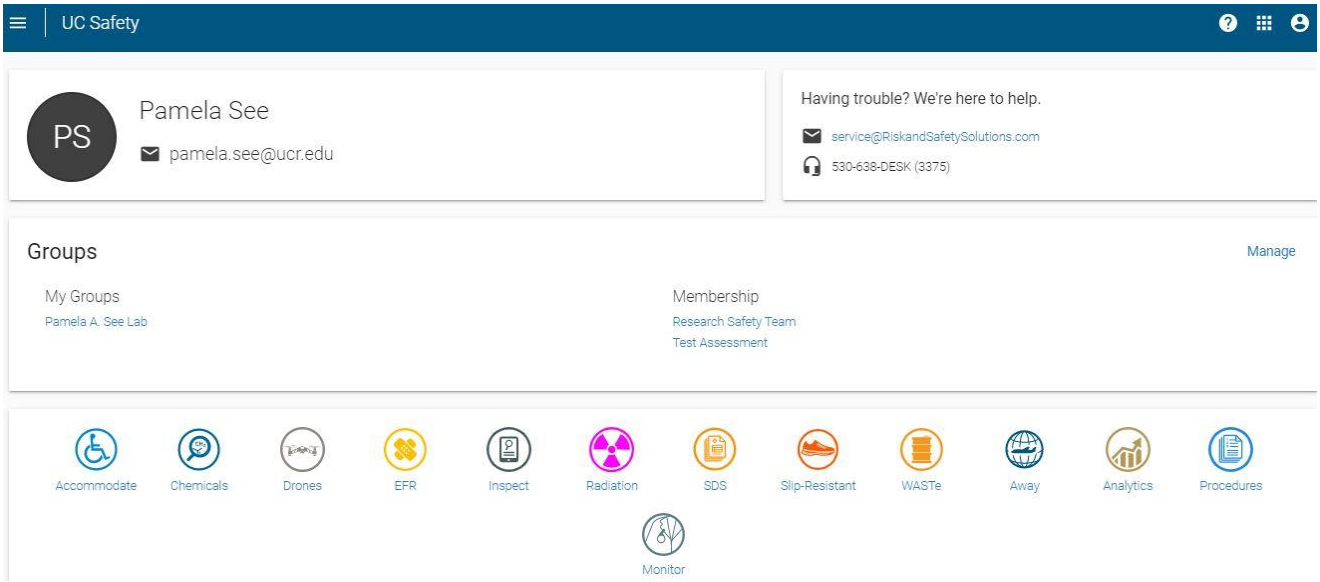
Logging into the LHAT Application

Visit the UC Safety suite by going to http://ehs.ucop.edu and follow the log-in procedure.



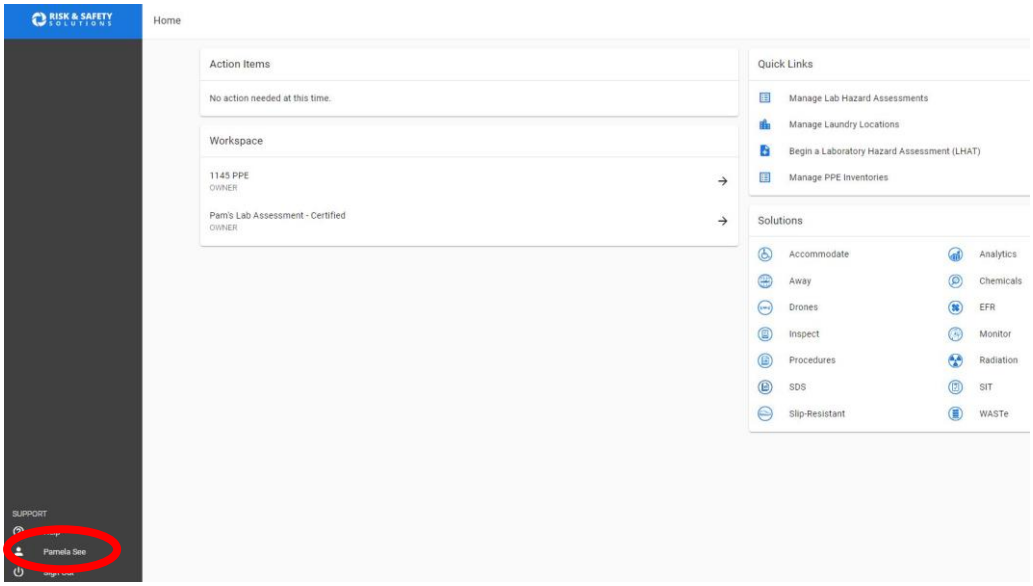
The LHAT can be managed by clicking the desired LHAT from the 'Workspace' section or either of the LHAT links on the 'Quick Links' section.

If the page pictured above does not load immediately, you may need to click the 'UC Safety' logo first.



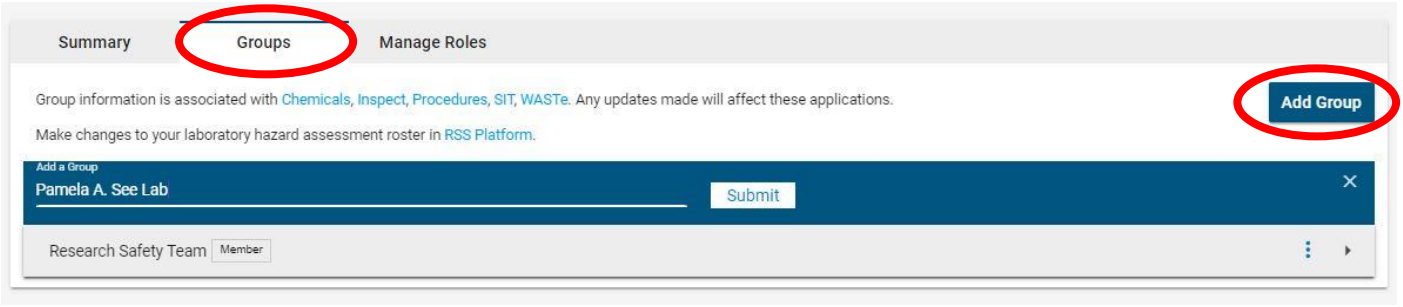
Creating a Laboratory Group

In the bottom left corner, click your name.



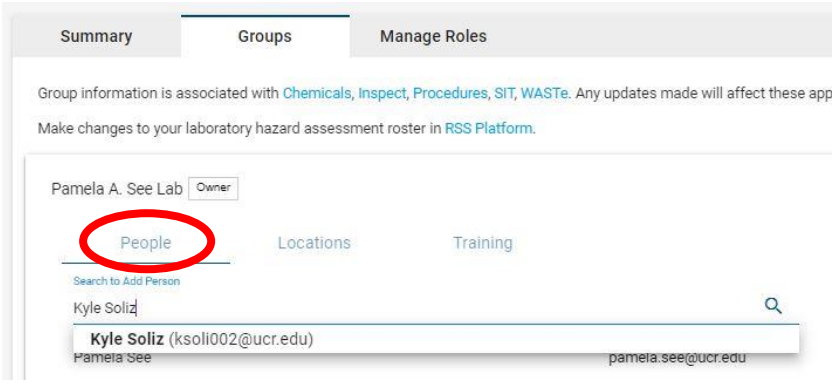
You will see a summary of your roles. Click the 'Groups' tab. Here, you will see a list of groups of which you are either an owner or a member. If you are a member, it means that you have been added to that group's roster by being added by the group's owner or lab delegate.

To add or create a group, click the 'Add Group' button. A text entry line will appear where you can type in the name you wish to give the group. Click 'Submit'.

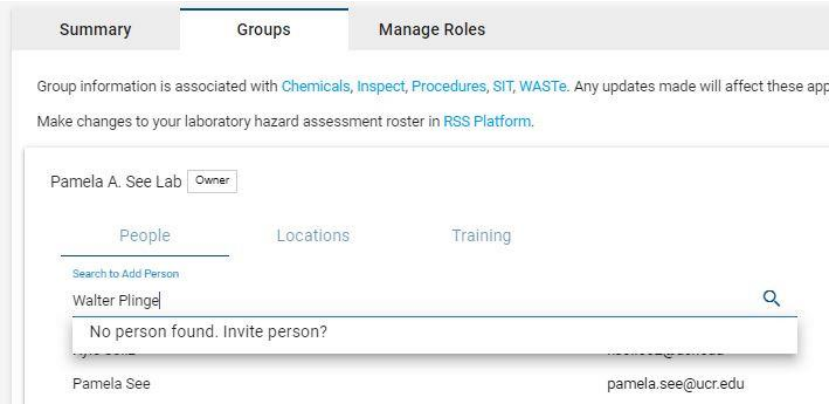


Adding People to the Profile Groups

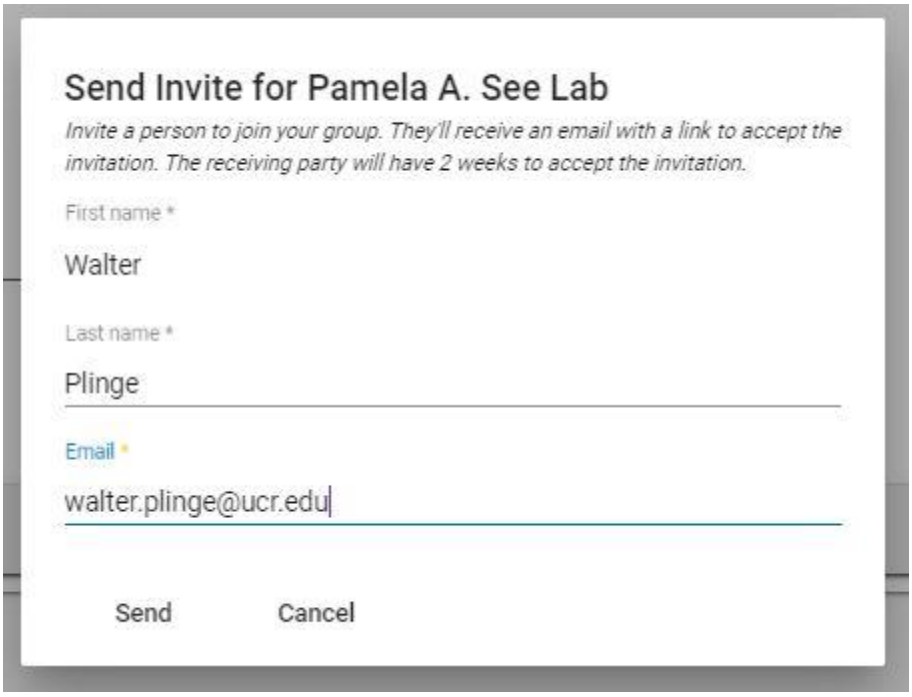
Once the group is created, you can begin adding people to your roster by clicking the 'People' tab. Type the person's name into the text entry line and select the correct person from the drop-down menu.



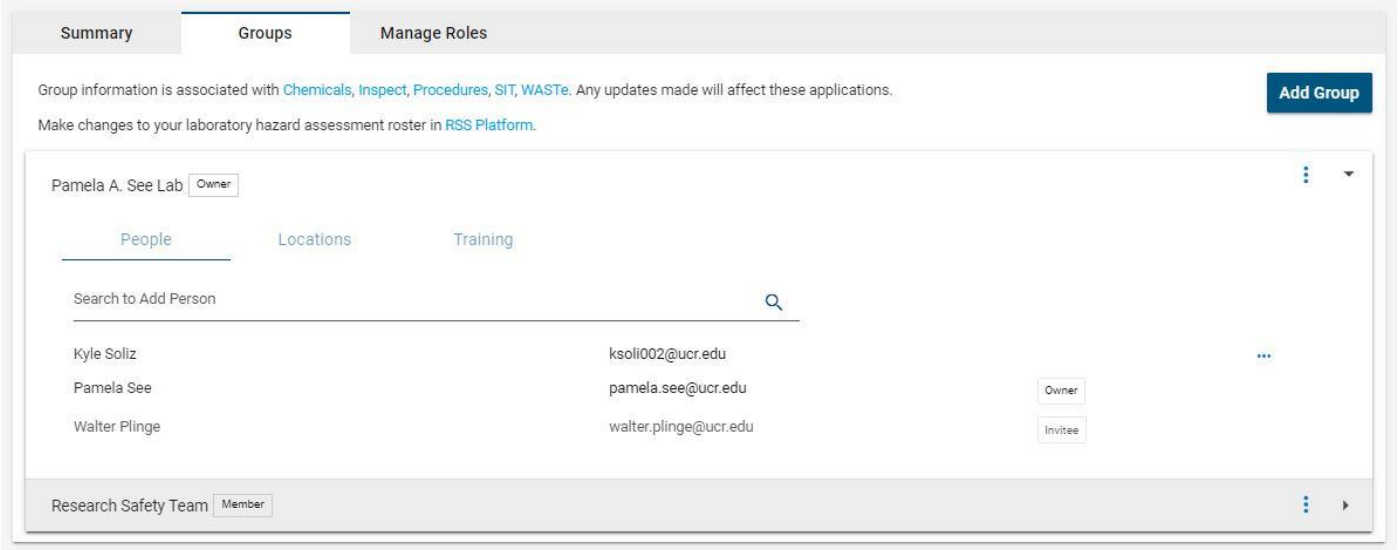
If the correct person does not appear in the drop-down menu, you may need to send an invitation.



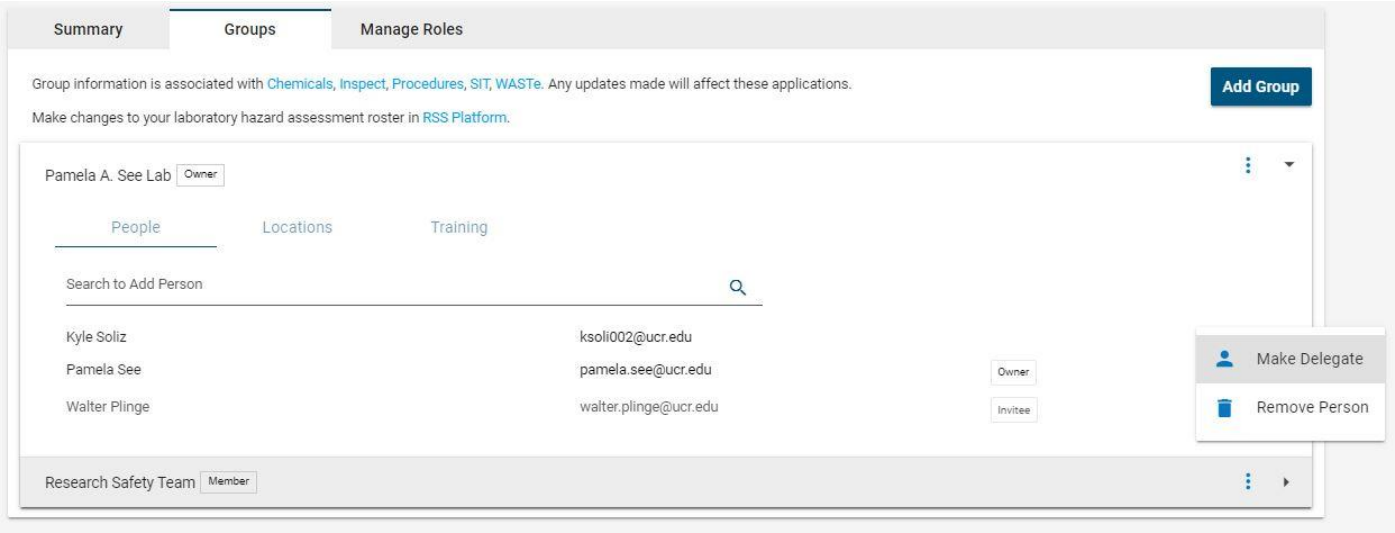
This will open an invitation form. Fill out the details of the person you are trying to add and click 'Send'. The person will receive an invitation in their email containing a link they need to click in order to accept the invitation.



The person will show up as an 'Invitee' in your roster until they accept the email invitation, after which they will automatically be added to your roster as a member.

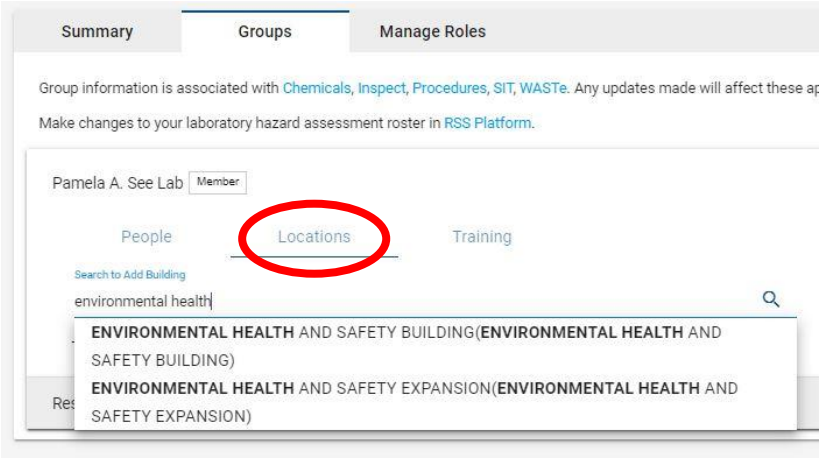


One or more persons can be given the laboratory delegate role. Delegates will be able to perform all administrative tasks associated with the laboratory on the UC Safety suite for the PI except the final certification of the hazard assessment. To do this, click the three dots next to the person's name and select 'Make Delegate'. This same menu can be used to remove a person from the roster.

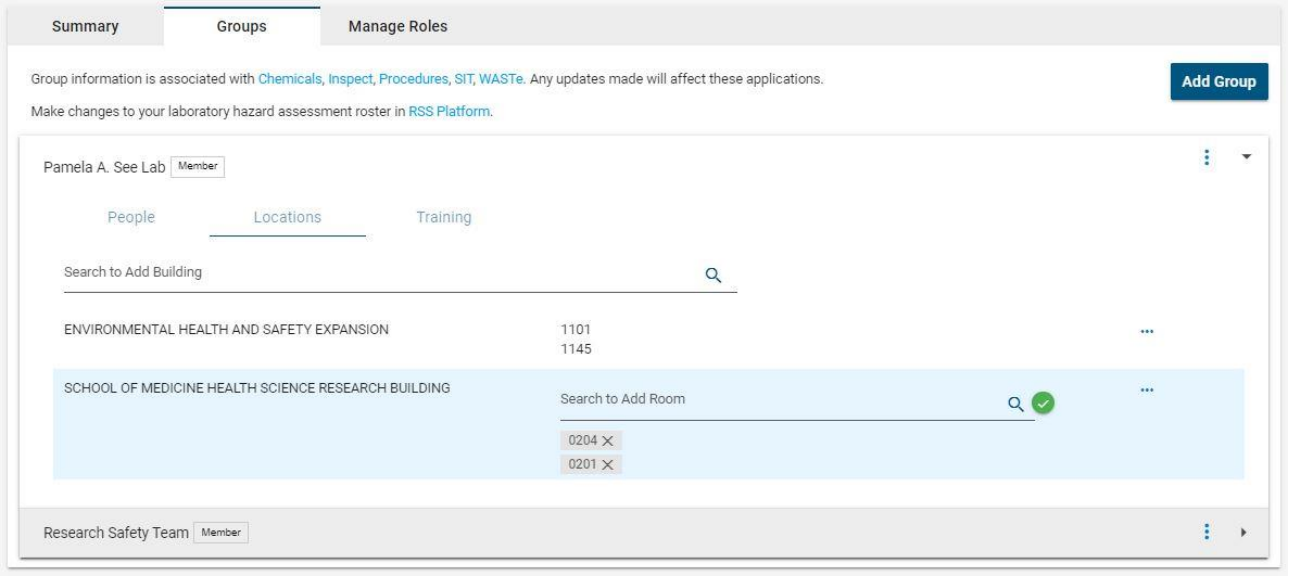


Adding Locations to the Profile Groups

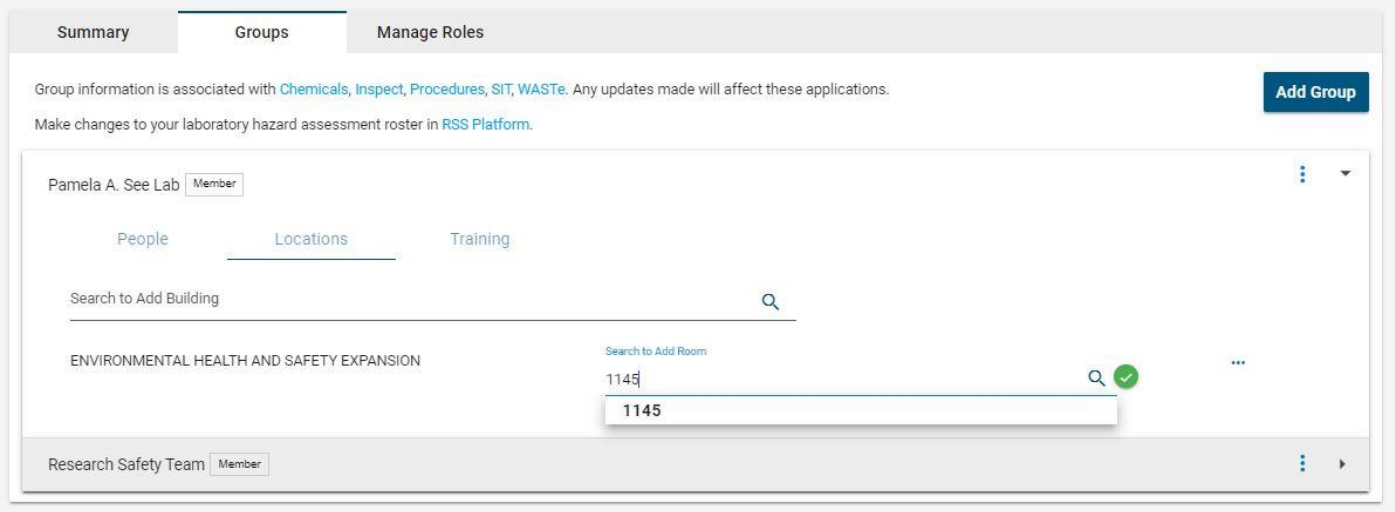
To add all the laboratory locations (buildings and rooms) for this laboratory group, select the 'Locations' tab. In the text entry line 'Search to Add Building', type in the name of the building you wish to add and select the correct building from the drop-down menu.



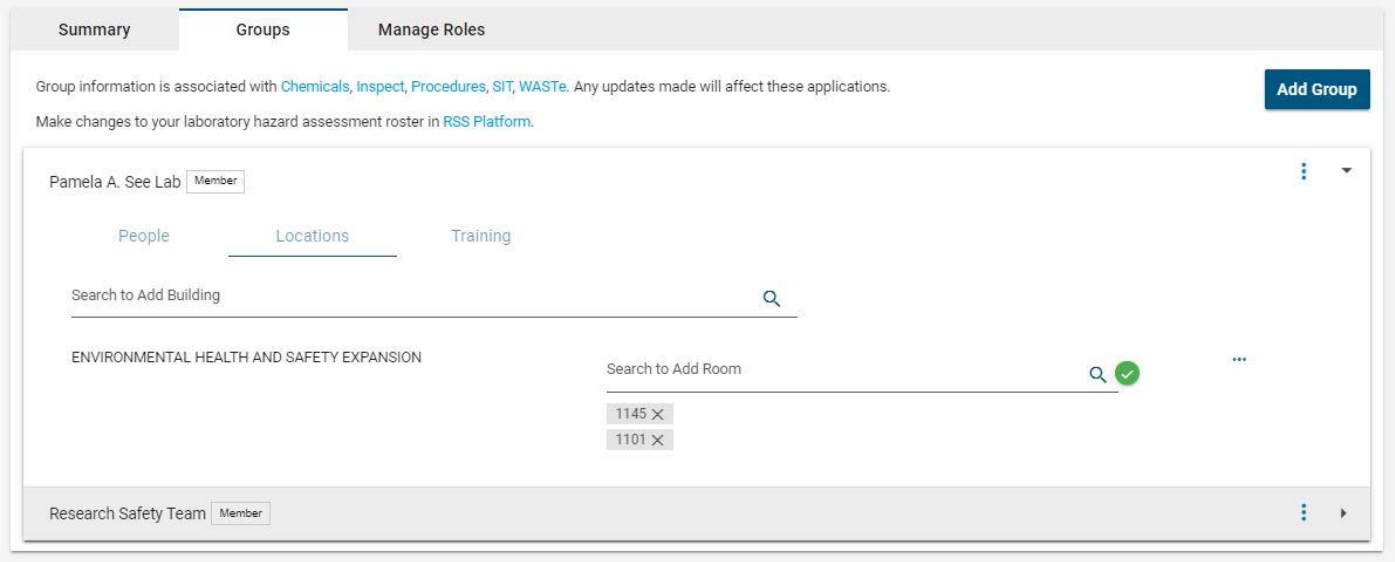
Multiple buildings may be added if the laboratory group occupies multiple buildings. To remove buildings, click the three dots next to the building you wish to remove and select 'Remove'.



To add the rooms associated with the buildings in which the laboratory group occupies, enter the room numbers in the text entry line 'Search to Add Room' and select the correct room numbers from the drop-down menu.



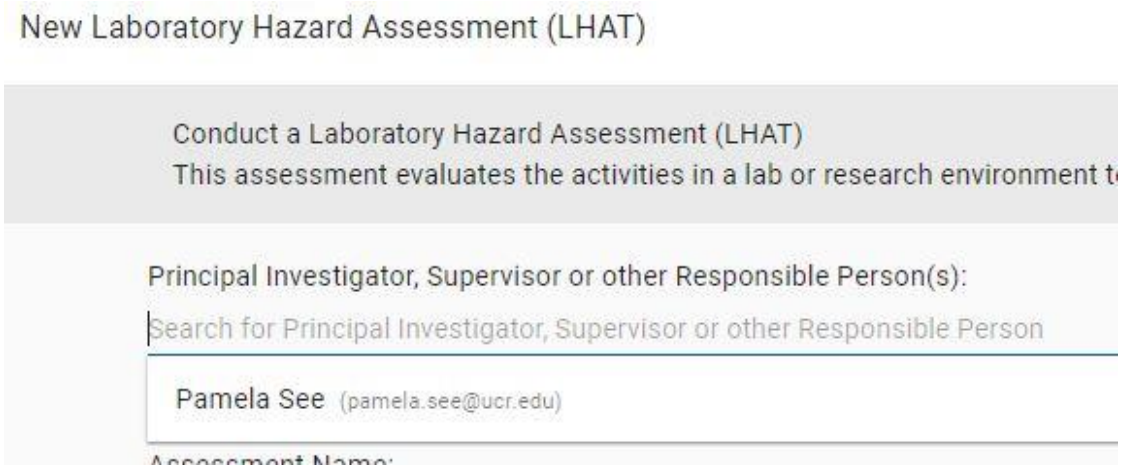
Multiple rooms may be added and will appear in a list form under the text entry line. To remove rooms, click the 'X' beside the room number you wish to remove.



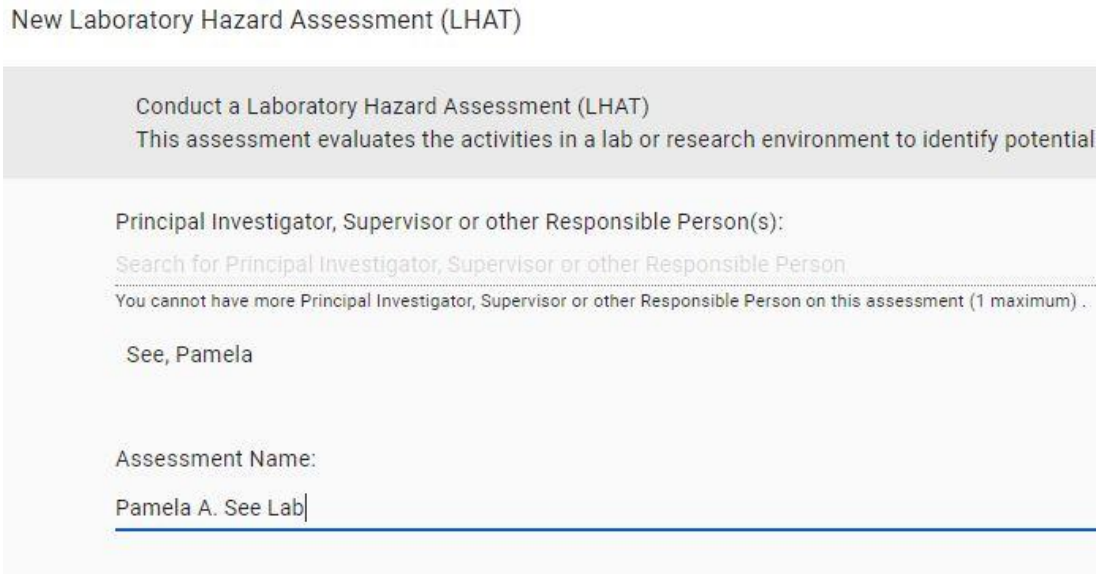
Creating a Laboratory Hazard Assessment

To create a laboratory hazard assessment, make sure you are on the LHAT home page. In the upper right corner, click 'Begin a Laboratory Hazard Assessment (LHAT)'.

Type in the PI's name in the text entry line 'Search for Principal Investigator, Supervisor, or other Responsible Person' and select the correct name from the drop-down menu.

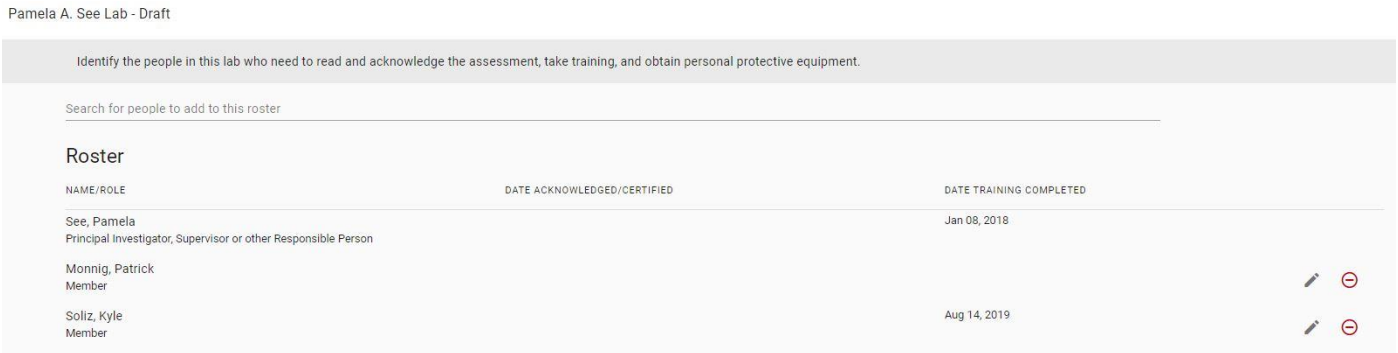


Type the name you wish to use for the lab hazard assessment in the text entry line 'Assessment Name'.

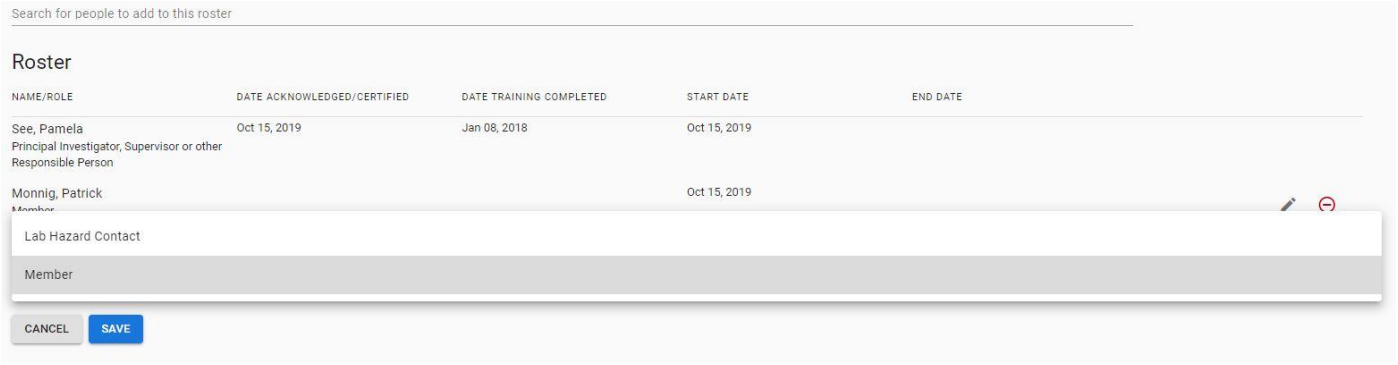


Adding People to the LHAT Roster

If the people added to your profile group did not populate into the LHAT roster, you may add them to your roster by typing their names into the text entry line 'Search for people to add to this roster'.

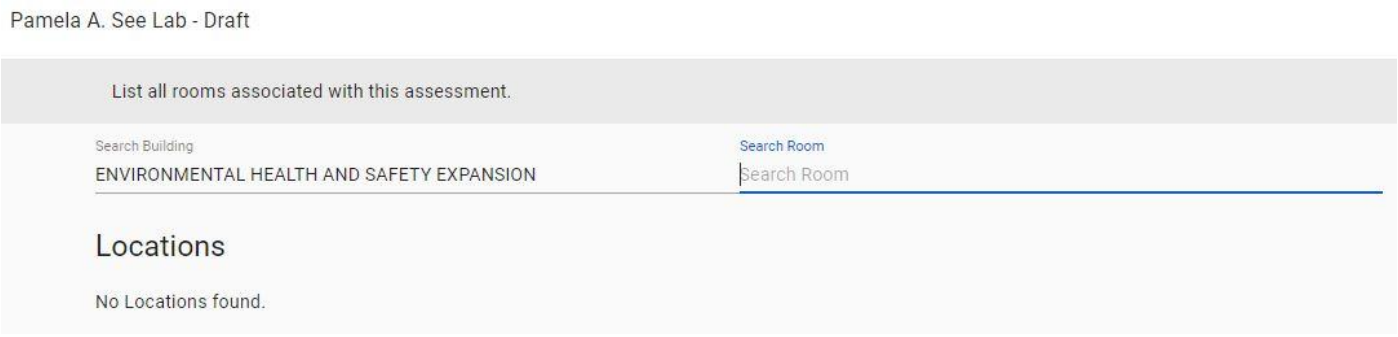


One or more persons on the roster may be made a lab delegate (also called a Lab Hazard Contact) by clicking on the pencil icon next to their names and selecting 'Lab Hazard Contact' on the menu and click 'Save'. People can also be removed from the roster by clicking the red ⊖ icon next to their names.



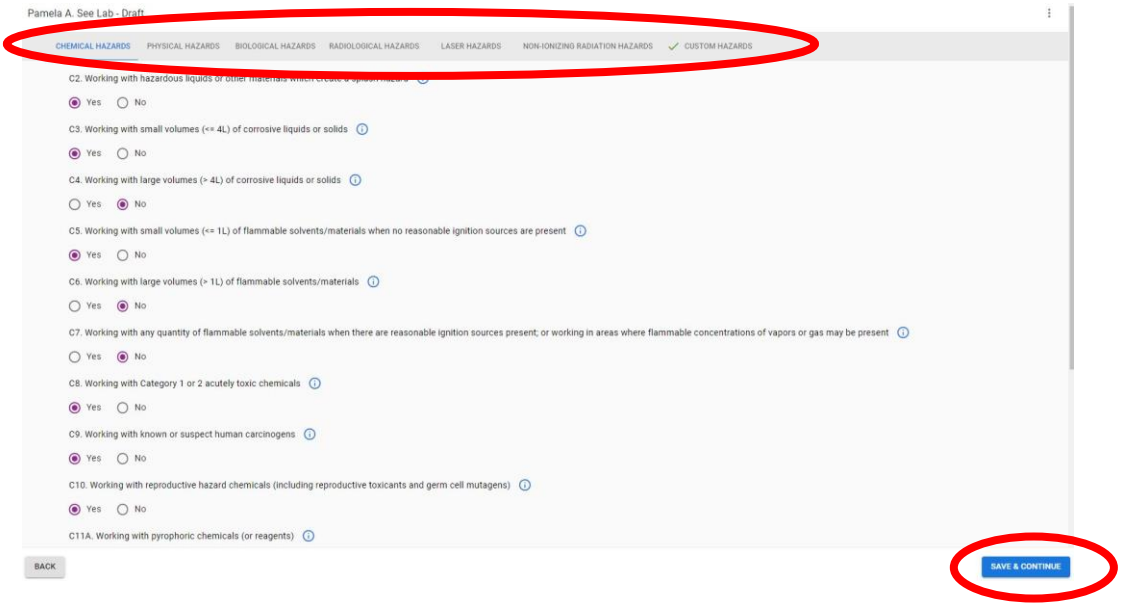
Adding Locations to the LHAT

If the locations added to your profile group did not populate into the LHAT, you may add the locations by building and room in the same way.



Completing the LHAT

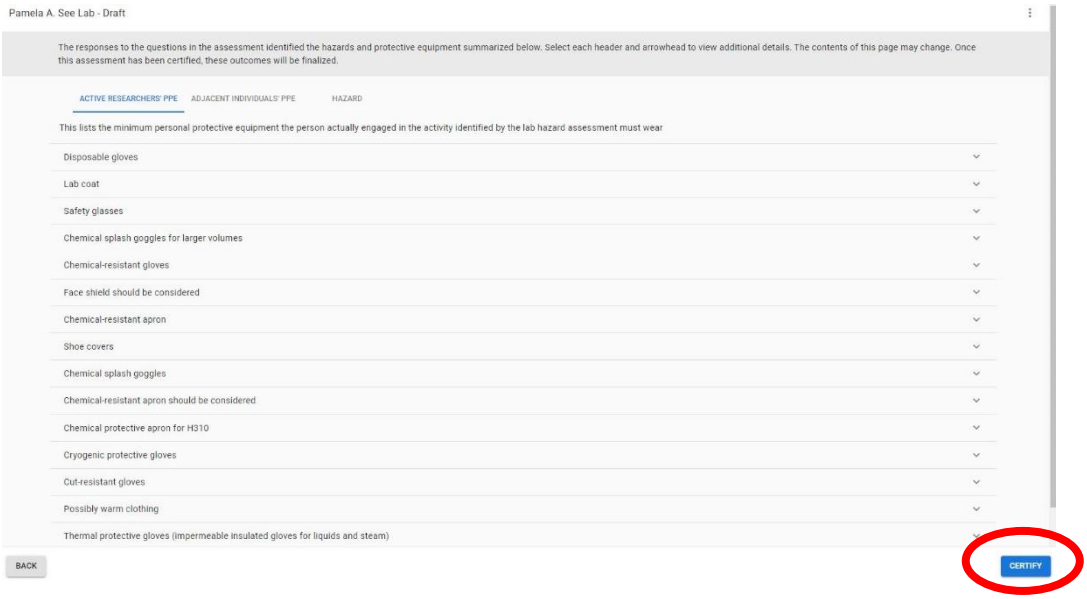
The hazard assessment questionnaire is divided into seven categories, separated by the tabs marked 'Chemical Hazards', 'Physical Hazards', 'Biological Hazards', etc. Complete each tab and be sure to click the 'Save & Continue' button in the bottom right corner. The 'Custom Hazards' tab is optional.



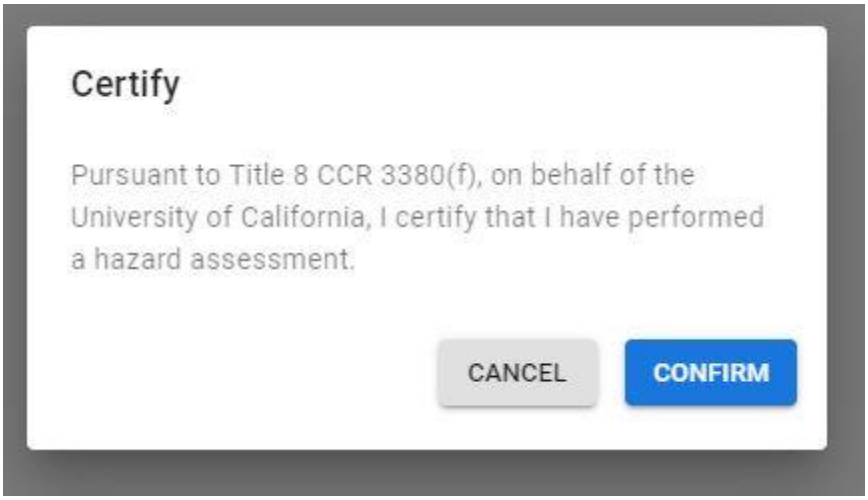
At the end of the entire assessment, a summary will appear detailing the types of personal protective equipment (PPE) recommended for the personnel. The 'Active Researchers' PPE' tab details the types of PPE recommended for the lab personnel actively performing lab work. The 'Adjacent Individuals' PPE' tab details the types of PPE recommended for the lab personnel not actively performing lab work, but is in the lab space. The 'Hazards' tab lists the types of hazards identified by the hazard assessment questionnaire.

Certifying the LHAT

Be sure to click the 'Certify' button in the bottom right corner. If you are not the PI, this will send the hazard assessment to the PI for approval before it will be fully certified.



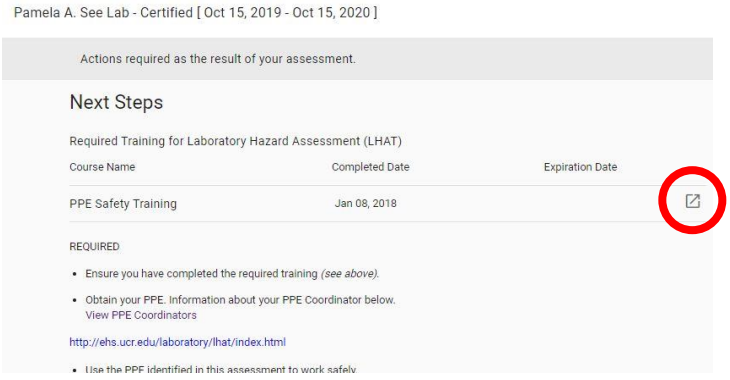
To confirm the certification, click 'Confirm'. The hazard assessment will remain valid for one year after which a re-certification will be required.



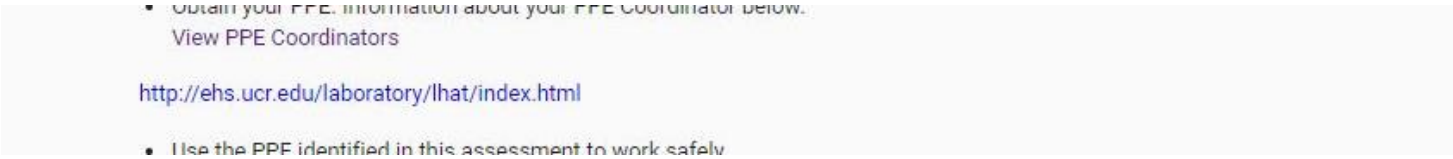
The next page will include information on the steps to take to obtain PPE.

Obtaining Personal Protective Equipment (PPE)

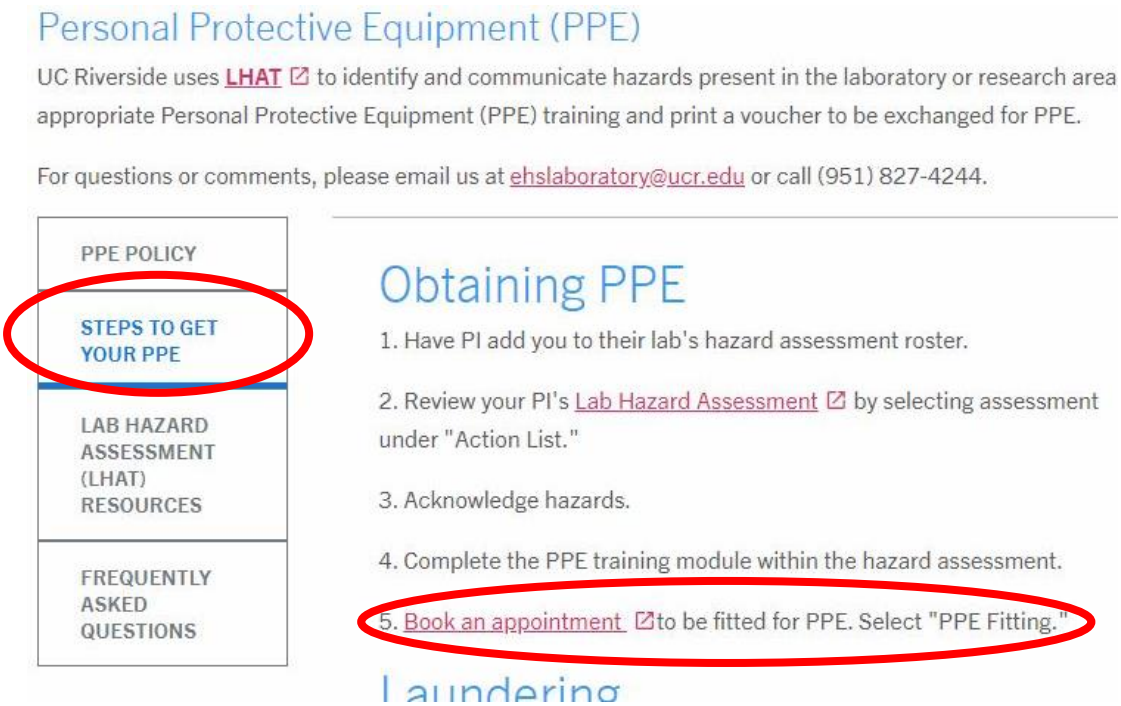
Each of the lab personnel will need to review the hazard assessment certified by the PI and then complete the PPE Safety Training by clicking the icon of the arrow in the box.



Once the training has been completed, lab personnel may click the link to take them to the EH&S website page with information about the PPE programme.

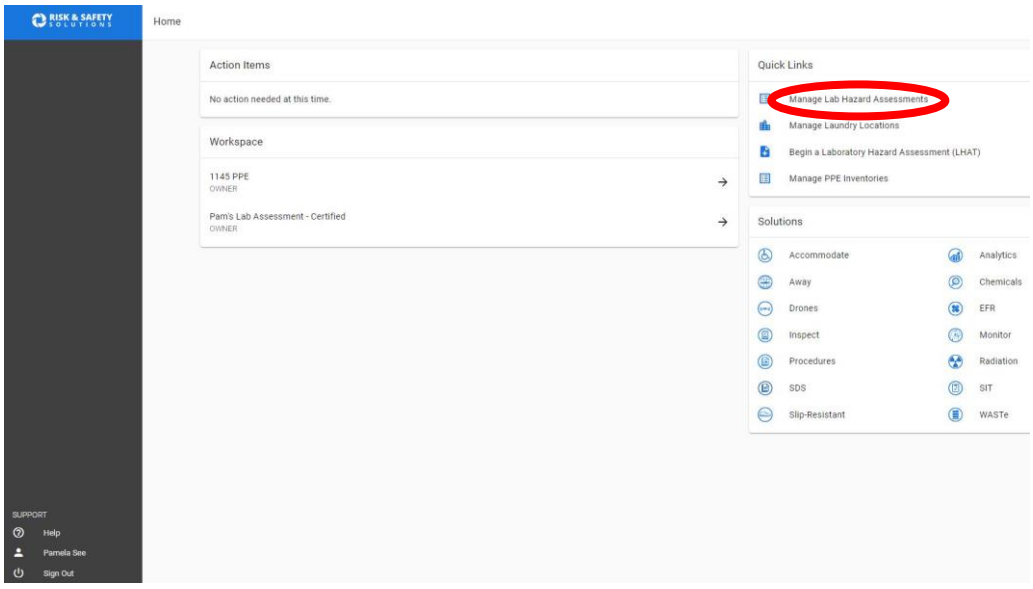


Click the tab 'Steps to Get Your PPE' on the left and follow the instructions to book an appointment for a PPE fitting.



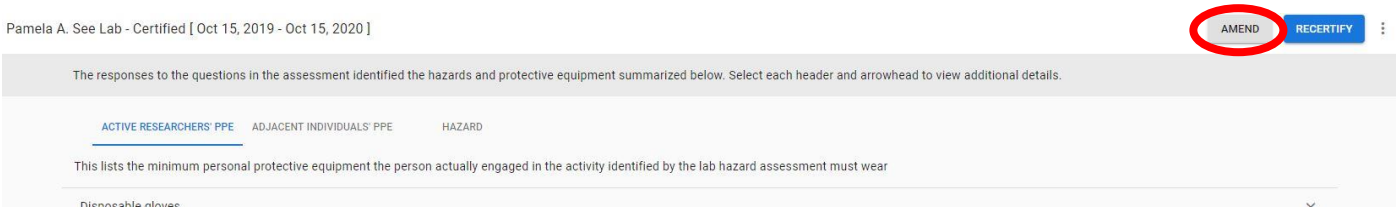
Making Amendments to the LHAT

If there are changes to the work performed in the laboratory, there may also be changes to the types of hazards involved. To make changes to the LHAT, click the 'Manage Lab Hazard Assessments' link in the top right corner.

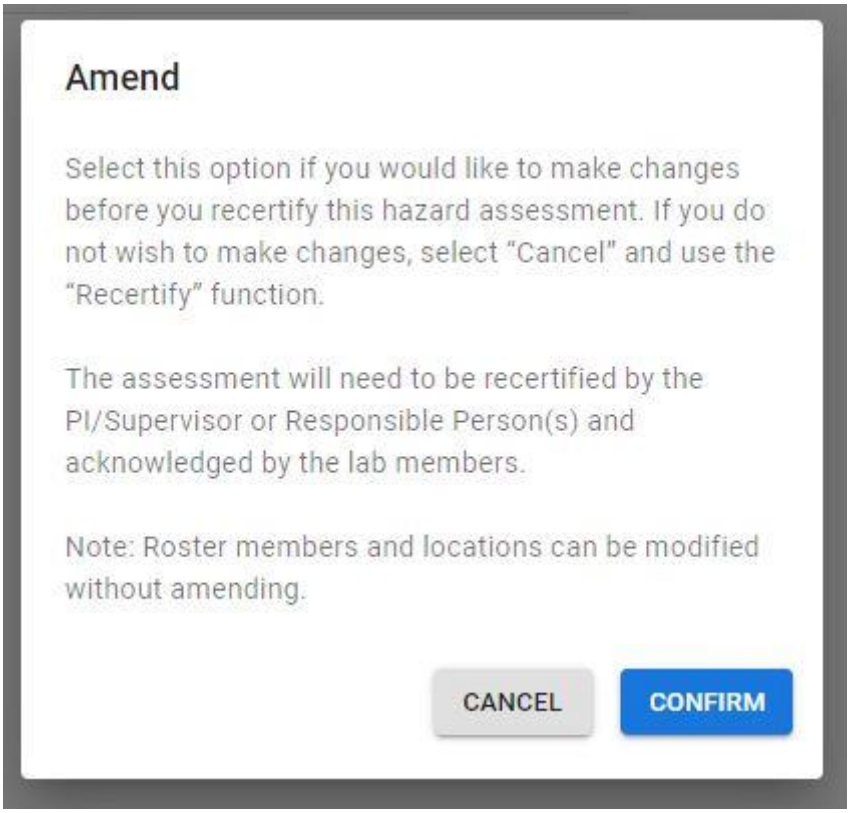


Search for the PI's LHAT by typing the PI's name in the text entry line 'Search Person' and select the correct person from the drop-down menu. Select the appropriate LHAT for the PI if there are multiple LHATs listed.

Click the 'Amend' button in the top right corner.



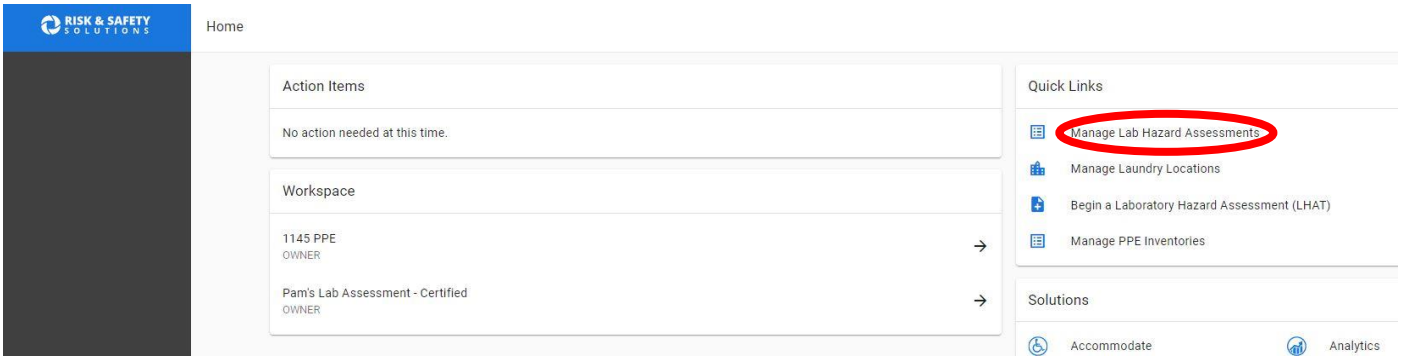
Click 'Confirm' to proceed with the amendment and make the changes you want to make to the hazard assessment.



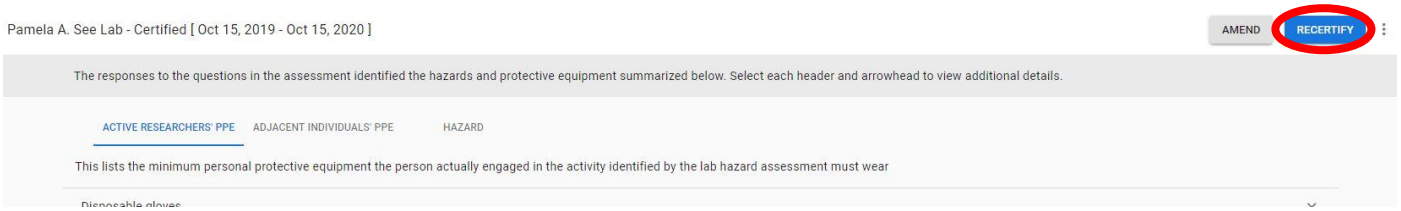
After making changes, be sure the click 'Save & Continue' through each tab and then click the 'Certify' button at the bottom right. If you are not the PI, this will send the hazard assessment to the PI to review and approve before it will be fully certified. Once certified, this hazard assessment will be valid for one year.

Recertifying the LHAT

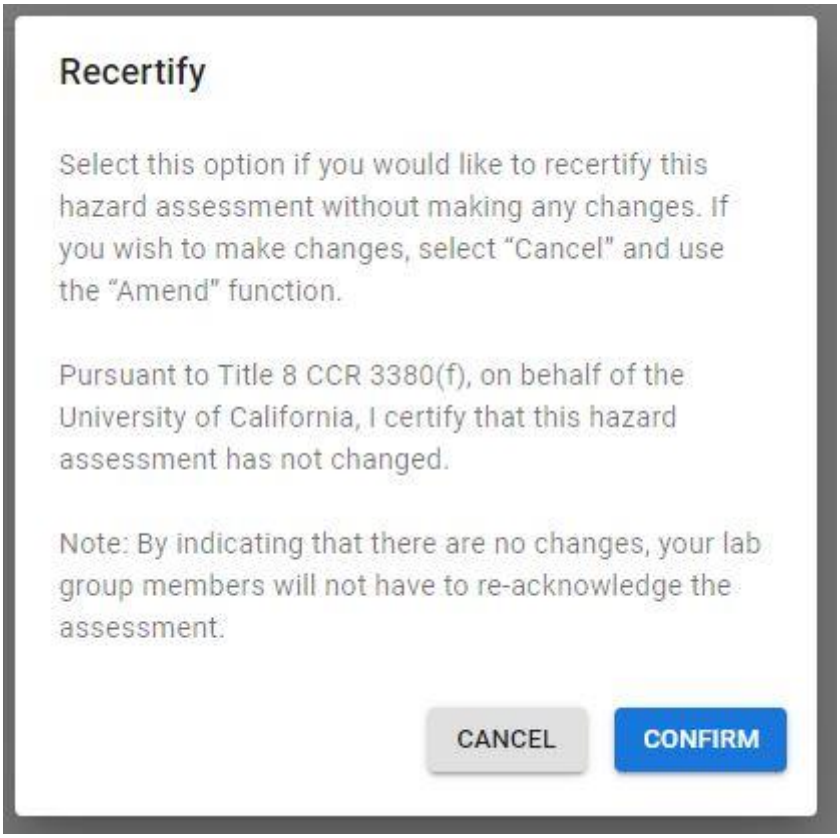
If there are no changes to be made to the hazard assessment, but it is time to recertify, click on 'Manage Lab Hazard Assessments' in the upper right corner.



In the upper right corner, click the 'Recertify' button.



To recertify the hazard assessment without making any changes, click the 'Confirm' button.



UC Chemicals: Getting Started

About UC Chemicals

UC Chemicals is a cloud-based chemical inventory management tool developed with a researcher-centric approach. It allows easy tracking and maintenance of containers using a barcoding system. Chemical and safety information, such as hazard codes and first aid, are auto populated. The application enables users to create chemical networks to easily share chemicals while controlling access. UC Chemicals includes a complementary web application that works in sync with the mobile app and has additional features such as structure search and import/export capabilities.

Installing the UC Chemicals Application

For iOS users

1. Navigate to the App Store
2. Search for UC Chemicals – Pilot
3. Select **Install**
4. Launch the application
5. Select your campus
6. Log in with your campus credentials

For Android users

1. Navigate to the Google Play Store
2. Search for UC Chemicals – Pilot
3. Select **Install**
4. Launch the application
5. Select your campus
6. Log in with your campus credentials

Adding Lab Managers (For PIs and Lab Managers-- Desktop)

1. Log in to http://ehs.ucop.edu/chemicals
2. Select the **Manage Lab** button
3. Select the ⋮ menu icon located to the right of Members
4. Select **Add/Remove Lab Managers**
5. Select the members you wish to add or remove as Lab Managers
6. Select **Done**

Manage Lab (For PIs and Lab Managers-- Desktop)

PIs and delegates have access to the Manage Lab section to perform administrative functions and can be accessed on the desktop version http://ehs.ucop.edu/chemicals

Inventory Summary

- Provides a summary of Total Chemicals and Total Containers in your lab
- View containers currently barcoded
- View containers missing barcodes

Manage Tags

- Add or remove tags for your lab
- View lab members in your group

Colleagues

- Add labs you work closely with to share chemicals
- PIs have the ability to mark containers as private for chemicals they wish not to share

For more information about UC Chemicals, contact service@RiskandSafetySolutions.com

Manage Lab (Continued)

Defining Sublocations

- Adding a sublocation
  1. Select the ⊕ button to the right of the Sublocations
  2. Select the **Building Name**
  3. Select the **Room Number**
  4. Enter in a **Sublocation Name**
  5. **Barcode** – The barcode can be entered in manually or scanned at a later time with your mobile device
  6. **Temperature** and **Pressure** default to Ambient and can be edited as needed
  7. Mark the sublocation as private to prevent sharing
  8. Select the appropriate hazard pictograms associated with the chemicals stored in the sublocation
  9. Select the **Save** button

- Editing a sublocation
  1. Select the ⋮ menu icon to the right of the sublocation you wish to edit
  2. Select **Edit**
  3. Edit information as needed
  4. Select the **Save** button

- Removing a sublocation
  1. Select the ⋮ menu icon to the right of the sublocation you wish to remove
  2. Select **Remove**
  3. Select the **Save** button

  Note: Before a sublocation can be deleted, the PI or delegate will be prompted to move the associated containers to the correct sublocation.

Barcoding Sublocations (For PIs and Lab Managers-- Mobile only)

Barcoding sublocations allow users to enter specific location by scanning a barcode and is also crucial to the reconciliation process. Reconciliation relies on scanning the sublocation barcode followed by scanning all containers at this sublocation. Therefore it is recommended to barcode all sublocation during initial set-up of the lab. Use the same barcode labels that are used for barcoding containers.

1. Place a barcode on your sublocation
2. Launch the app on your mobile device
   a. Select the settings icon ⚙ in the lower right hand corner
   b. Select the **Barcode your sublocations** link
   3. Select the **Room Number**
   a. On your mobile device, select **Scan** on the sublocation you wish to barcode
   b. This will enable the camera feature on your mobile device
   c. Scan the barcode

Barcoding Imported Inventory (Mobile only)

Once inventory file is imported, all containers are avialble for barcoding based on their sublocation. All users can share the task of barcoding.

1. To begin barcoding inventory
   a. Launch the app on your mobile device
   b. Select the settings icon ⚙ in the lower right hand corner
   c. Select the **Barcode your imported inventory** link
   d. Select a **sublocation** and then a **chemical** from the list
   e. Select **Display**
   f. Select **Missing Barcode**

For more information about UC Chemicals, contact service@RiskandSafetySolutions.com

Barcoding Imported Inventory (Continued)

2. To barcode the container
    a. Retrieve the chemicals and place a barcode on your container
    b. On your mobile device, select **Scan** on the container you wish to barcode
    c. This will enable the camera feature on your mobile device
    d. Scan the barcode (The container will clear from the Missing Barcode list and appear on the Barcoded list.)
3. Repeat Step 2 to barcode all of your inventory

Note: You can also swipe left on a displayed container to edit or delete the container.

Adding Chemicals

To Add Chemicals

1. Select **Add** from the home page
2. Search chemicals by CAS number, product ID or name
3. Select the chemical
4. Select the add icon ⊕ on the right of the container section
5. Enter container information
6. Select **Save**

To Add Commercial Substances (for Lab Managers and PIs only)

1. Select **Add** from the home page
2. Select the ⋮ menu icon
3. Select **Add Commercial Substance**
4. Enter chemical information
5. Select **Save**

To Add a Novel Compound

1. Select **Add** from the home page
2. Select the ⋮ menu icon
3. Select **Add Novel Compound**
4. Enter chemical information
5. Select **Save**

Creating a Custom Chemical Name (For PIs and Lab Managers -- Desktop only)

1. Select **Search Chemicals** from the home page
2. Select the chemical
3. Select the ⋮ menu icon
4. Select **Custom Chemical Name**
5. Choose from synonyms list or select **Create custom name**
6. Select **Save**

Reconciliation (For PIs and Lab Managers -- Desktop only)

You will need a handheld scanner for reconciliation. Contact your organization's EH&S department to request one.

1. Select **Manage Lab** from the home page
2. Select the **Reconcile Your Lab** link
3. Select the **Start Scanning** button
4. Scan sublocation
5. Scan the sublocation's containers
6. Repeat for all sublocations
7. Connect the scanner and select **Upload Barcodes**
8. Review report
9. Resolve any conflicts
10. Select the **End Scanning** button once complete

For more information about UC Chemicals, contact service@RiskandSafetySolutions.com

Frequently Asked Questions

1. Why barcode your inventories?
Barcoding allows you to uniquely identify each container in your laboratory. Once completed, inventory reconciliation can be done with a scanner which is both fast and accurate.

2. Why barcode your sublocation?
Barcoding allows you to uniquely identify each sublocation in your laboratory. Lab members can easily and quickly locate their chemicals when a sublocation is barcoded. Barcoded sublocations and inventories provide faster and accurate inventory reconciliation.

3. Who will be responsible for purchasing the labels and scanners?
UCOP is currently providing the labels for the pilot groups during the initial pilot. It is still being determined if UCOP will provide the scanner and labels moving forward.

4. Do the barcodes scan on curved surfaces?
Yes. The barcode format and size has been chosen specifically for scanning on chemical containers of every size, shape, and material.

5. Does the system support sharing?
Yes. PIs can add colleagues within the application. Once established, this relationship allows researchers to search for chemicals within their colleagues labs and to submit requests to borrow.

6. Are the barcodes chemical resistant?
Yes. The materials have been chosen specifically for use in the chemical lab environment.

7. Can certain chemicals be marked as not shareable so friend labs cannot see them when searching?
Yes. A container can be marked as private which prevents view of that chemical by any friend lab.

8. Is UC Chemicals integrated with other applications in the UC Safety Suite?
Not at this time, however, there are plans to integrate UC Chemicals with other applications within the UC Safety Suite.

9. Is UC Chemicals available as a mobile application?
Yes. UC Chemicals is available as a native mobile application for iOS and Android devices and also as a web-based application.

10. Does the app provide substructure searching?
Substructure searching is available on the desktop version. Select **Search**, then select the **Substructure** link.

11. The chemical information is incorrect. How do I correct this?
If chemical information is incorrect, users can report an issue. For mobile devices, select the **Message** icon located to the right of the chemical name to report an issue. For desktop, select the **menu icon** in the upper right hand corner and select **Report A Problem**.

12. How do I add/delete members for my lab?
Members of your lab can be managed through the UC Safety Profile page http://ehs.ucop.edu/profile. PIs can also designate a Delegate who can manage users and create groups on behalf of the PI.

13. I have a new building or room for my lab, how do I add this?
A PI or Lab Manager can manage locations for through the UC Safety Profile page http://ehs.ucop.edu/profile. Select the **Locations** tab for your group and select the **Add** button to add a buildings/rooms.

14. How can I get access to the Manage Lab section?
The Manage Lab section is available to only PIs and their lab managers. Please ask your PI to add you as a Lab Manager.

15. How do I correct a chemical that was incorrectly added to my inventory? Do I need to delete the chemical and add a new one?
The **Reassign** feature allows you to update an existing chemical to the correct chemical.

For more information about UC Chemicals, contact service@RiskandSafetySolutions.com

RISK & SAFETY SOLUTIONS

USING A POWER SCAN BARCODE SCANNER FOR RECONCILIATION

1. Plug the scanner base into your computer using the provided USB cable.

2. Open a blank Excel document and select cell A1. Be sure to save your document before you start scanning and save after scanning each sublocation.

3. Turn scanner on: Hold trigger for 5 seconds. *(A flashing green light and rapid beep will indicate when the scanner is on).*

   Scan the QR codes below. *(Frame barcode using the laser guide and pull the trigger. A green light and beep will indicate a successful scan).*

4. Enter Setup Mode

5. Enable Batch Mode

6. Exit Setup Mode

7. Scan Sublocation.

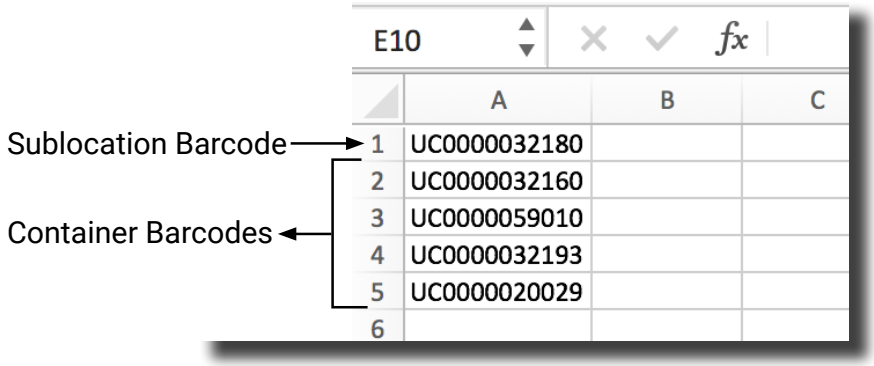
8. Scan containers within sublocation.

9. Send Batch (Sends all scanned barcodes from the sublocation to your excel sheet)

Please note: To confirm barcodes are being read, check and save your Excel sheet after scanning each sublocation. The barcodes should populate in the Excel sheet. See example below.

10. Repeat for all sublocations.

11. Power off



530-638-3375 | service@RiskandSafetySolutions.com

WASTe Manual

Table of Contents

Waste Tags

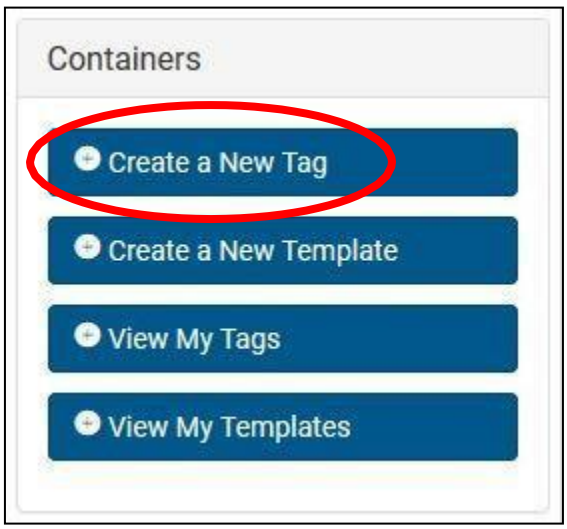
A Waste tag must be generated from the START of waste accumulation and must be attached to the waste container. After 180 days, EH&S will automatically be alerted to pick up the waste for you if you have not yet already requested a pick up.

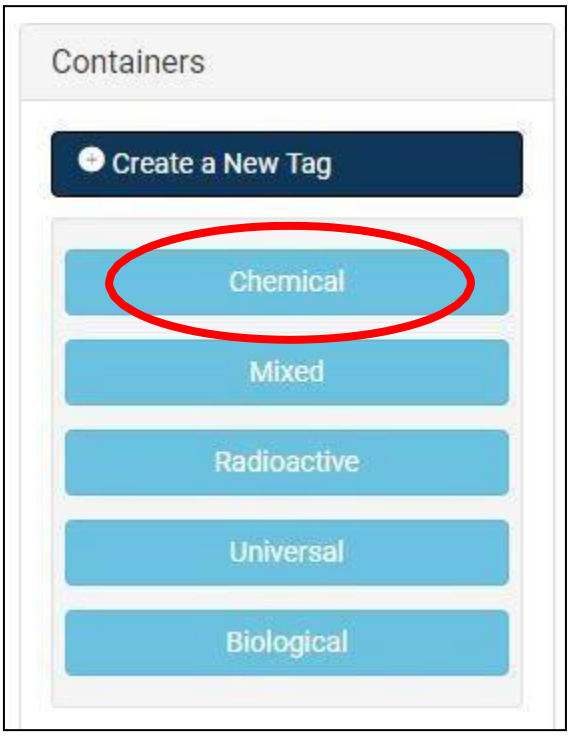
Log into the UC Safety interface at https://ehs.ucop.edu to access the WASTe app.

Generate Waste Tags

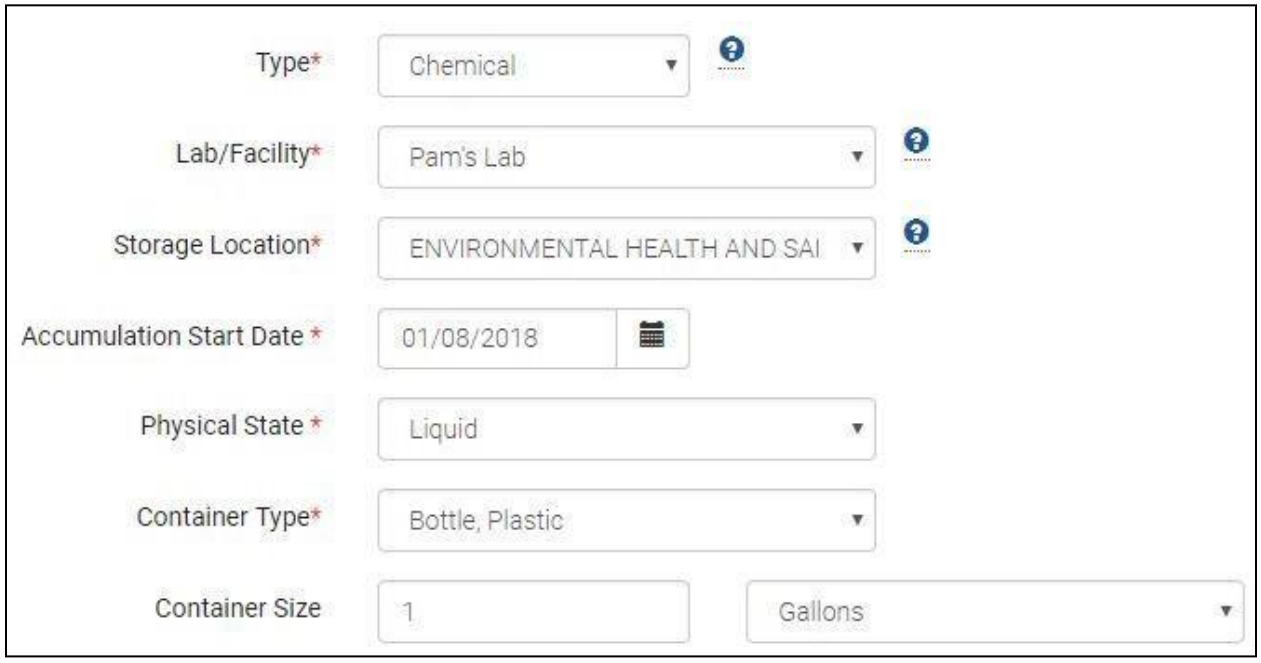
Click on the WASTe app on the dashboard.

Click on 'Create a New Tag' and a variety of options will become available. Click on the appropriate option for the Waste tag being generated.
(NOTE: For the purposes of this example, a Waste tag for Paraformaldehyde waste will be generated.)

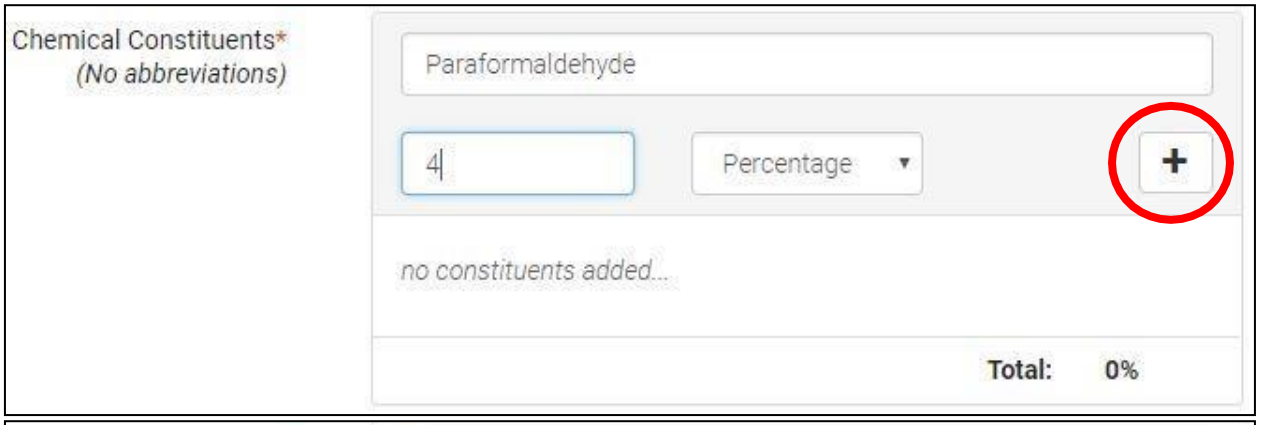


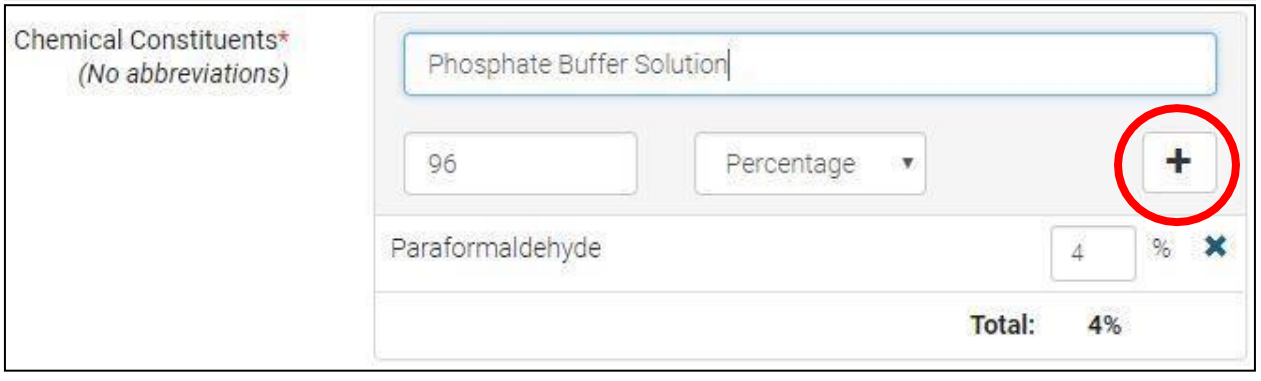


Fill out the form with the information pertaining to the waste.

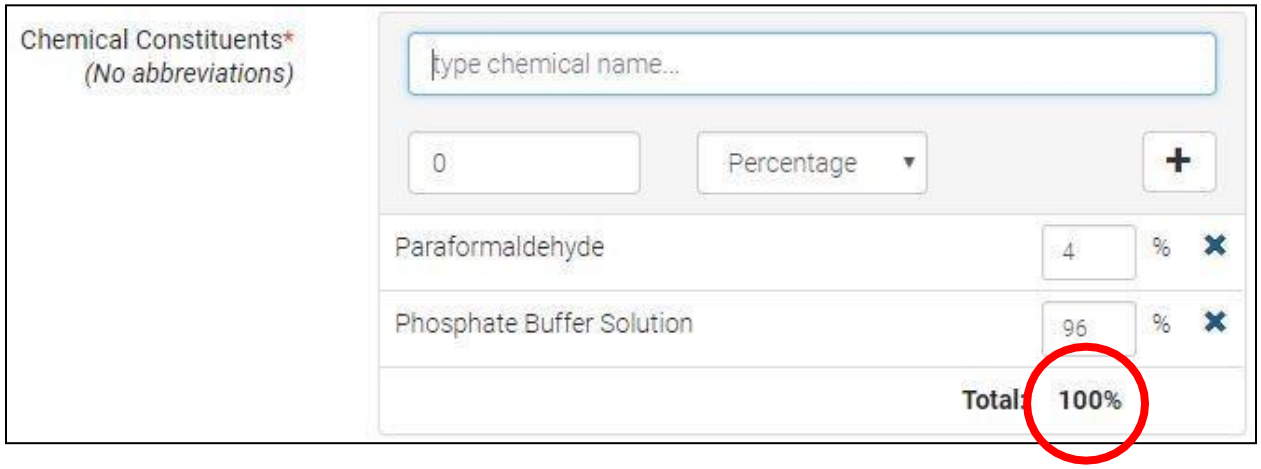


Add all chemical constituents with the full name and concentration percentage. Click the '+' button to add each constituent to the list.





Make sure that total concentration adds up to 100%.



Include any extra details in the 'Notes' section to provide more accurate details of the location of the waste for EH&S. Once your tag is complete, save the tag.

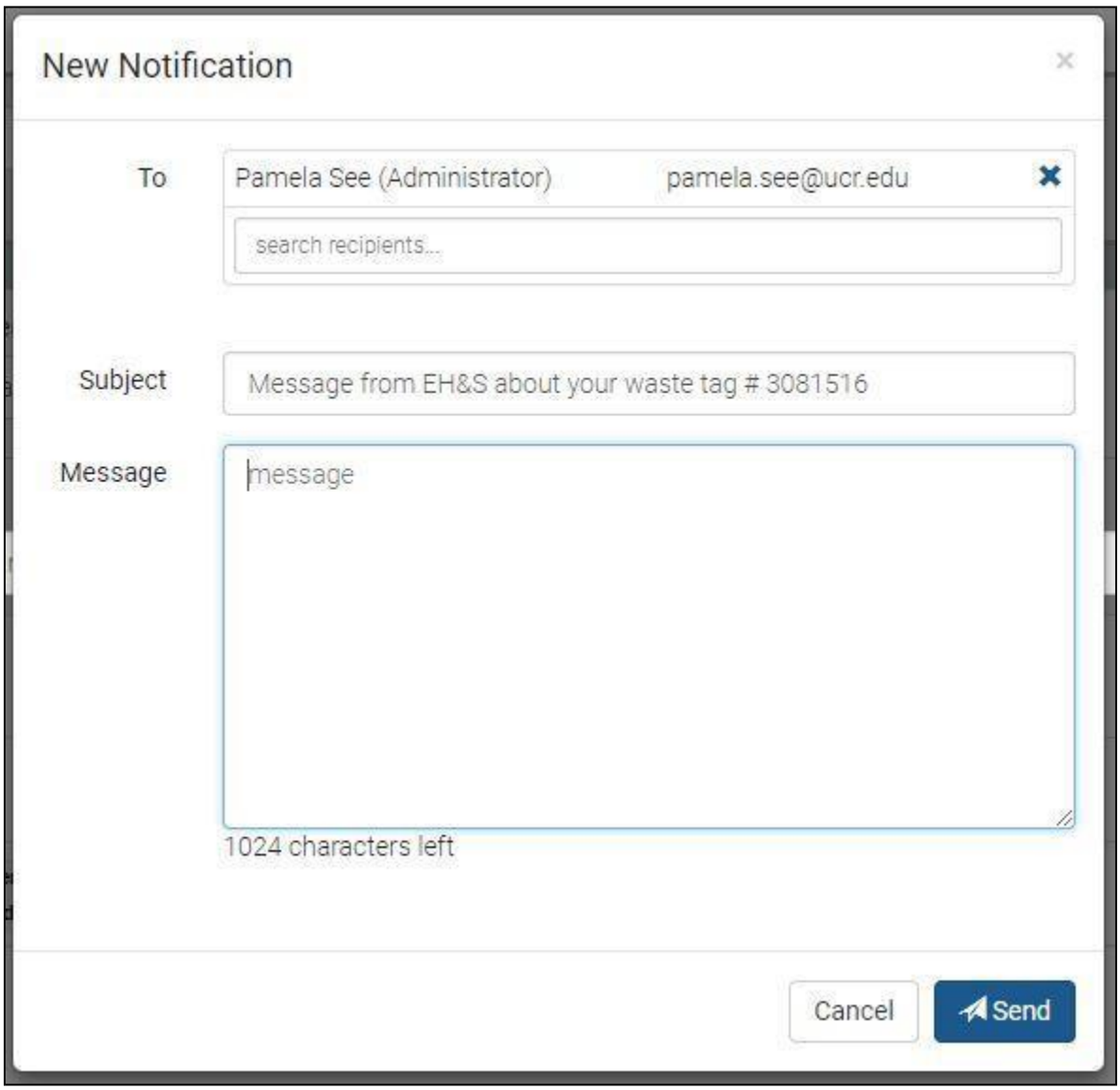
Managing Waste Tags

With the functional buttons, the tags can be printed, edited, or deleted.

Contacting EH&S Regarding a Waste Tag

To send a message to EH&S regarding the tag, click the 'message' button.

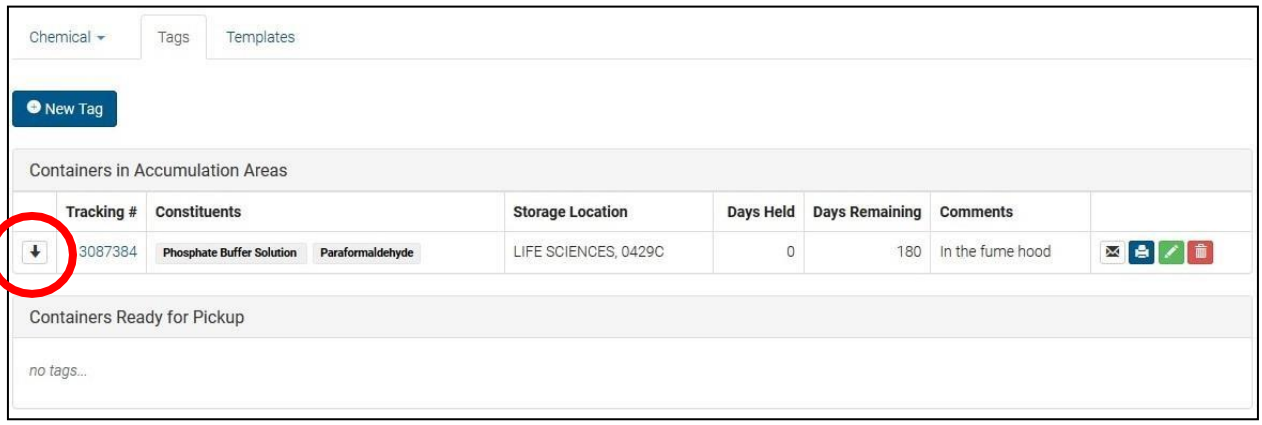
A message box will pop up for you to send in your message regarding the waste tag to EH&S.

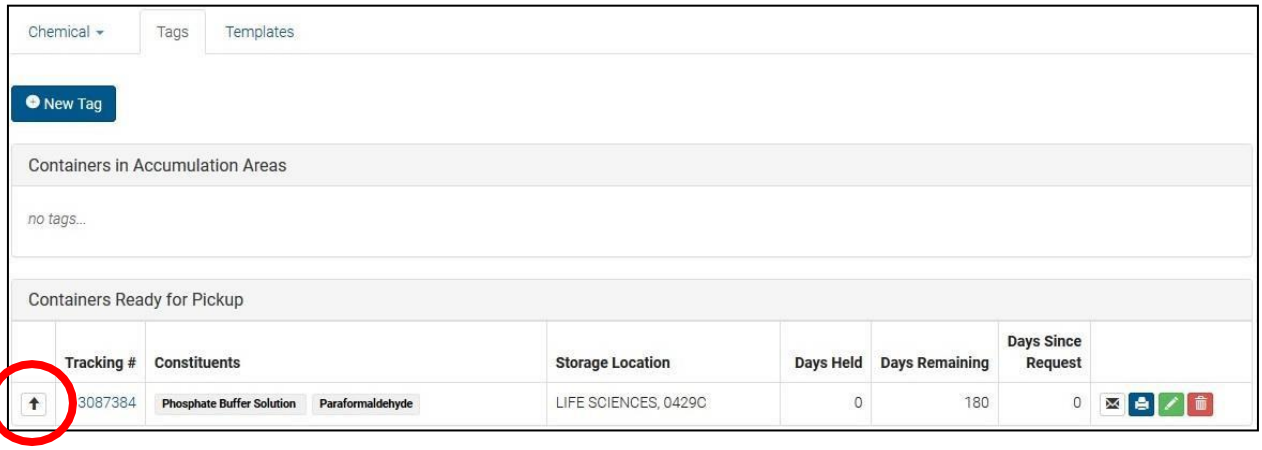


Waste Pick Up

Your waste will sit in accumulation for 180 days at which time EH&S will pick up the waste. If your waste is ready to be picked up, click the arrow button to move the waste tag from 'Containers in Accumulation Areas' to 'Containers Ready for Pickup'.

If you change your mind or the container was incorrectly moved to 'pickup', the 'up' arrow button can be clicked to move the waste tag back into 'Containers in Accumulation Areas'.



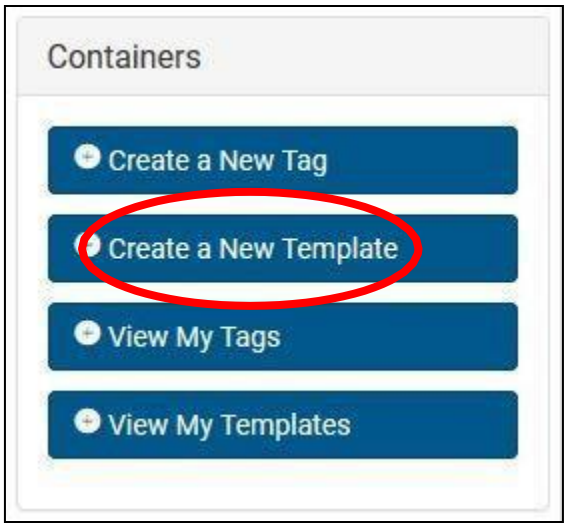


Templates

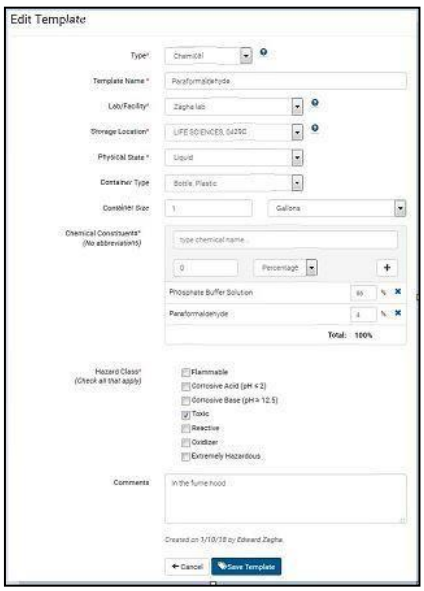
Templates can be created and saved on your system account for frequently or regularly generated waste tags to reduce the amount of time that would be spent creating the same waste tags regularly.

Generate Templates

On the main WASTe page, select ‘Create a New Template’.

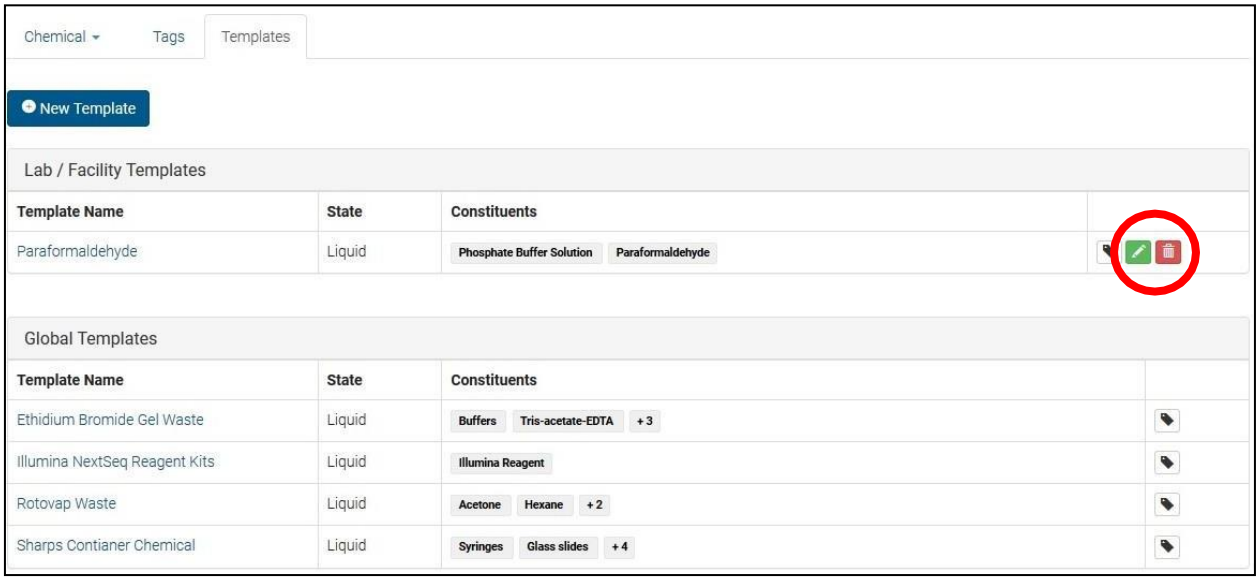


The form will be identical to that of the waste tag generator. Fill out the form accordingly.



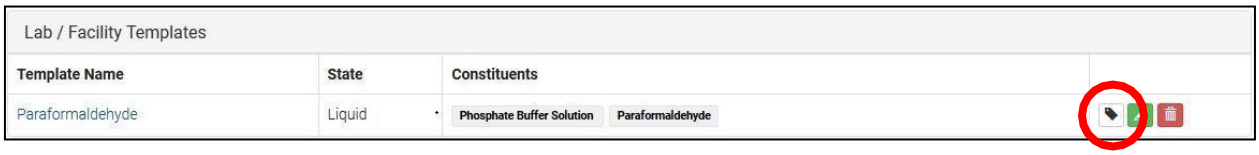
Managing Templates

The template form will be identical to the waste tag form. All templates can be viewed under the ‘Templates’ tab. The template can be edited or deleted with the functional buttons.



Using Templates to Generate Tags

To generate a tag using a template, click the ‘tag’ button and the information will be automatically filled out on the tag generator. Simply click ‘Save & Print’ to print the tag to be attached to the waste container.



Laboratory safety evaluations provide an opportunity to assist departments, faculty, staff, and students to identify potential health and safety hazards in research and teaching laboratories. Laboratory safety evaluations are conducted annually by EH&S personnel to ensure that each laboratory conforms with the safe and healthy work conditions and practices as identified in the Injury and Illness Prevention Plan (IIPP), UCR's Chemical Hygiene Plan, federal and state regulations, standards and UC policies. To learn more about the Laboratory Safety Evaluation program, visit EH&S website at https://ehs.ucr.edu/laboratory/laboratory-evaluation.

Resources available in this section include inspection checklist.

Place a copy of all training records in this section. Training records should include Lab Site-Specific Training, Laboratory Safety Fundamentals, Hazardous Waste Management, Fire Extinguisher, etc.

UCR Laboratory Safety Evaluation Checklist

Approvals/Documents/Manuals/Plans

- □ UC Laboratory Hazard Assessment Tool (LHAT) is complete.
- □ All group members are listed on the Lab Hazard Assessment Tool (LHAT).
- □ Laboratory Safety Manual is easily accessible.
- □ Chemical Hygiene Plan is available.
- □ The Injury and Illness Prevention Plan (IIPP) is available.
- □ Safety Data Sheets for hazardous chemicals are easily accessible.
- □ Hazard-specific Standard Operating Procedures (SOPs) are available and signed.
- □ Emergency Procedure poster is posted.
- □ Staff is aware of how to report incidents and near misses.
- □ Field safety plans are completed when working in the field.

Lab Safety Training

- □ Training on the Chemical Hygiene Plan is documented.
- □ Laboratory Site-Specific Safety Checklist has been completed and documented.
- □ Training on laboratory specific Standard Operating Procedures (SOP) is documented.
- □ All researchers have completed the Laboratory Safety Fundamentals.
- □ All researchers in the lab have completed Hazardous Waste Management training.
- □ All researchers have completed Fire Extinguisher training.
- □ Fume hood users know how to check the airflow monitor to verify that the hood airflow is functioning properly. Users know how to check the certification sticker for annual testing.
- □ Training on hydrofluoric acid (HF) first aid is documented.

Personal Protective Equipment (PPE)

- □ Long pants (legs covered) and closed-toe/heel shoes are worn in the lab.
- □ Safety glasses or chemical splash goggles are worn in the laboratory.
- □ Lab coats, appropriate to the activity, are worn.
- □ Properly fitted lab coats are available.
- □ Gloves are worn for laboratory procedures where skin contact with hazards may occur.
- □ Appropriate gloves are available for use with hazardous activities conducted within the lab.
- □ PPE contaminated with hazardous materials are disposed of appropriately.
- □ Lab workers were not observed wearing gloves while accessing common items, door knobs, elevator buttons, etc.
- □ Hazard assessment identified that specialty PPE is appropriate (eg. UV/IR glasses, laser safety glasses, cryogenic gloves, pyrophoric gloves, etc).
- □ Face shields are used, as appropriate.
- □ Respirator identified in use with documentation of voluntary use or participation in campus respiratory protection programme.

Laboratory Practices

- □ No evidence of eating or drinking in the laboratory where hazardous materials are being used or stored.
- □ Food is not stored with hazardous materials.
- □ No evidence of mouth pipetting.
- □ Furnishings used in laboratory are covered with a material that is easily decontaminated.
- □ Hand wash sink is available with soap and paper towels.
- □ Evidence suggests spills are promptly or properly cleaned.
- □ Good chemical hygiene practises are observed.
- □ General housekeeping in laboratory is maintained.
- □ Chemical work is conducted more than 6” from front of hood.
- □ Fume hood is free of clutter, not used for storage, or rear ventilation slots within the hood is not blocked or covered.
- □ Lab workers are using a hood in good working condition.

General Safety

- □ Heavy items and precariously situated items are not stored overhead.

- □ Large equipment/shelving units are seismically anchored/restrained.
- □ Overhead shelving and storage is secured and prevents items from falling.
- □ Ceiling tiles/panels are in good condition.
- □ Floors preclude slipping, tripping, or falling.
- □ Laboratory ventilation pressure is negative with respect to corridors and offices.
- □ Safety hazards are not present.
- □ Power tools and/or shop equipment do not present a safety hazard.

Fire/Life Safety

- □ Fire alarm bells, horns, and/or strobes are not obstructed and could not hamper proper operation or reduce the sound.
- □ Items are stored in a manner such that the minimum clearance of 18 inches of a ceiling with sprinklers.
- □ Aisles, exits, and/or hallways are not obstructed (minimum clearance guidelines of 36 inches is being met).
- □ Appropriate fire extinguishers are available, as required.
- □ Fire extinguishers are fully charged, pin and/or security seal are not missing.
- □ Fire extinguisher is properly mounted.
- □ Fire extinguisher maintenance tag is present and up-to-date.
- □ Fire extinguishers are visually inspected on a monthly basis.
- □ Fire rated doors are not propped open.

Emergency Equipment/First Aid

- □ A plumbed emergency eyewash/safety shower or emergency eyewash is available within 10 seconds.
- □ Access to emergency eyewash/shower is not obstructed.
- □ Annual test of emergency eyewash/shower or emergency eyewashes has been completed and documented. Monthly activation of eyewash/shower is documented.
- □ First aid kit is available and the items are not expired.
- □ Appropriate chemical/biological spill kit is available.
- □ Spill kit materials are adequately supplied.
- □ Calcium gluconate paste for hydrofluoric acid (HF) exposure is available and not expired.

Hazard Communication

- □ Safety Placard is current in the last 12 months and posted at the entrance(s) with appropriate hazard communication, emergency contacts, and PI/Supervisor information.
- □ Refrigerators/freezers are labelled appropriately for the use of the refrigerator/freezer.
- □ Storage cabinets are clearly labelled as to contents.
- □ Common abbreviations used on container labels are identified in a prominent place in the lab.

Carcinogens

- □ A Carcinogen Use Authorisation (CUA) for 5209 regulated carcinogens is current.
- □ Access to designated carcinogen work and storage areas is properly marked or controlled.
- □ California-regulated carcinogen are listed and maintained in UC Chemicals inventory.
- □ Standard operating procedure(s) specific to the carcinogen(s) in use are available and being followed.

Chemicals

- □ Compatible chemicals are appropriately stored together.
- □ Expired or unneeded chemicals are not stored in the laboratory.
- □ Chemical storage containers are in good condition.
- □ Chemicals are not stored above eye-level.
- □ Containers of hazardous chemicals are not stored on the floor.
- □ Flammable liquid storage in the lab does not exceed allowable quantities as determined by the Campus Fire Marshall.
- □ Flammable liquid storage outside of the flammable storage cabinet does not exceed 10 gallons.
- □ Flammables are not stored in large containers.
- □ Flammables stored in “laboratory safe” refrigerator/freezer.
- □ Flammables are not used in close proximity to ignition sources.

- □ Flammable liquids in 5 gallon cans are stored in the flammable cabinet.
- □ Time sensitive chemicals/peroxide formers stored appropriately.
- □ Pyrophoric chemicals are segregated or contained.
- □ Pyrophoric chemicals are properly labelled.
- □ Toxic gases are properly stored in a ventilated cabinet/fume hood.
- □ Chemical Inventory has been completed or updated within the past 12 months.

Compressed Gas

- □ Compressed gas cylinders are adequately secured.
- □ Oxygen and combustible cylinders are not stored together.
- □ Valves of gas cylinders are capped when not in use.
- □ Compressed gas cylinders are properly labelled with contents and hazards.
- □ Highly toxic gas cylinders are stored in a gas cabinet, ventilated enclosure, or fume hood.
- □ Incompatible compressed gas cylinders are stored separately.

Containment Equipment

- □ Audible/visual alarm is functional or visual airflow indicator is working.
- □ Fume hood has been certified within the past year.
- □ Fume hood illumination is functional.
- □ Proper sash height is indicated or sash position does not exceed approved working height, and is closed when not in use.
- □ Appropriate safety information is posted on equipment.
- □ Secondary containment is provided for vacuum pump.
- □ Flammable cabinets are self-closing.
- □ Flammable cabinets are marked “FLAMMABLE – KEEP FIRE AWAY”.

Controlled Substances

- □ A Controlled Substance Use Authorization (CSUA) is current and maintained.
- □ Controlled substances are stored securely.

Electrical Safety

- □ A minimum clearance of 36 inches in front of electrical panel/breaker box is being maintained.
- □ Equipment does not have damaged cords, plugs, or other condition that constitutes an electrical hazard.
- □ Major appliances/equipment are plugged directly into outlets.
- □ Extension cords are not being used as semi-permanent wiring.
- □ Extension cords or power strips are plugged directly into outlets.
- □ Ground Fault Circuit Interrupter (GFCI) protection is installed with receptacles that are within 6 feet of the sink.
- □ High voltage (>120 V) equipment is clearly labelled.
- □ High voltage (>120 V) equipment is properly guarded.
- □ Power strips near liquids have surge protection.
- □ 3-prong plugs have not been modified to plug into 2-prong receptacles.
- □ Personnel working on hard-wired equipment are trained to the Energy Isolation – Lock Out/Tag Out (LOTO) programme.
- □ Electrical cords do not pose trip hazards.
- □ Junction boxes are closed.

Hazardous Waste

- □ Chemical waste containers are in good condition and compatible with waste.
- □ Hazardous waste container or secondary containment is free of contamination.
- □ Hazardous waste container remains closed when not in use.
- □ Hazardous waste is properly disposed.
- □ Hazardous waste is properly labelled.
- □ Hazardous waste is disposed of within regulatory time limits.
- □ Sharps containers are properly labelled as to contents, hazard, etc.
- □ Sharps container contents are not filled past the fill line.

- □ Sharps are properly disposed in rigid, leak-proof container.
- □ Hazardous waste is stored in rigid, leak-proof secondary containment.
- □ Universal waste is properly labelled/discarded/contained under 1 year.

Biosafety

- □ Research involving recombinant DNA and/or biological materials are listed in the approved Biological Use Authorisation (BUA).
- □ Biosafety Manual is available and has been reviewed.
- □ Biosafety cabinet (BSCs) have been certified within the last year.
- □ Biosafety cabinets (BSCs) are located away from doors, heavily travelled areas, and other airflow disruptions.
- □ Biohazard stickers are posted on equipment used with biohazardous materials.
- □ Biohazardous waste in red biohazardous bags is properly disposed.
- □ Biohazardous waste is properly disposed in red biohazard bags.
- □ Biohazardous waste is stored in a rigid, leak-proof secondary container with a tight fitting lid.
- □ Biohazardous waste is properly labelled.
- □ All researchers working with biological materials have completed the Biosafety training.
- □ All researchers working with bloodborne pathogens or other potentially infections materials have completed Bloodborne Pathogens training.
- □ Exposure Control Plan is accessible to all researchers working with bloodborne pathogens or other potentially infections materials and reviewed annually.
- □ Vacuum systems (both house systems and stand-alone vacuum pumps) are fitted with traps and/or protection (HEPA/hydrophobic) filter, if required.

Radiation/Lasers

- □ A current Laser Use Authorisation is on file and current.
- □ All researchers working with lasers have completed the Laser Safety training.
- □ A Radiation Use Authorisation (RUA) is current and approved.
- □ All researchers using X-ray diffraction units or electron microscope have completed X-ray training.
- □ All researchers working with radiological materials have completed Radiation Safety training.
- □ Radiological waste is properly disposed.

Place all specific standard operating procedures (SOPs) for each procedure that will be performed while working with chemicals, biohazardous materials, radiological materials, lasers, etc. in this section. The SOPs need to be reviewed and signed by all lab personnel annually. To learn more about SOPs, visit EH&S website: https://ehs.ucr.edu/laboratory/SOP.

Place all relevant research committee protocols, such as the Biological Use Authorization (BUA), Radiation Use Authorization (RUA), Human-Subject Research Protocol, Animal Use Protocol (AUP), Controlled Substance Use Authorization (CSUA), etc. in this section.

EMERGENCY PROCEDURES

Principal Investigator Name: _____ Lab Safety Officer Name: _____

Principal Investigator Phone Number: _____ Lab Safety Officer Phone Number: _____

FIRE

- If your clothing catches fire: **USE SAFETY SHOWER** or **STOP**, **DROP and ROLL** to extinguish flames
- If safe to do so, use fire extinguisher on flame using PASS protocol (Pull, Aim, Squeeze, Sweep)
- Activate nearest fire alarm
- Close doors to confine fire
- Evacuate immediately
- Meet at Emergency Assembly Area
- Re-enter only when directed by authorities

Call UCPD

ACTIVE THREAT

"RAIN" Acronym

- **Respond**: Have an escape route and plan. If safe to do so, run to a safe area, leaving behind belongings, keeping hands visible to authorities
- **Assess**: Assess the situation and run to safety
- **Isolate**: Hide in place out of the active threat; Note your location; Silence cell phones; Lock all windows and doors; Barricade entrances (if possible)
- **Notify:** Notify the authorities

Call UCPD

SUSPICIOUS BEHAVIOR/OBJECT

- Do not touch, tamper with, or move suspicious objects/packages
- Do not interfere with suspicious behaviors
- Report immediately to UCPD
- Provide as much description to UCPD including size, weight, thickness, writing, odor, height, clothing colors, build, voice, messages, etc.
- Evacuate area immediately if safe to do so

Call UCPD

EXPOSURE RESPONSE

- **Needlestick, sharps injury, or animal bite/scratch**: Wash exposed area thoroughly for 15 minutes with warm water and soap
- **Eye exposure**: Use safety eye wash to flush eyes for 15 minutes while holding eyes open
- **Skin exposure**: Remove clothing and use nearest safety shower for 15 minutes
- Employees – see Notice to Employee Poster
- Students – visit UCR Student Health Services

Immediately Notify PI/Supervisor and EH&S

IN AN EMERGENCY CALL

UCPD: (951) 827-5222 (cell)

9-1-1 (campus phone)

EH&S:

(951) 827–5528 (M-F 8am-5pm)

Facilities Services:

(951) 827–4214 (M-F 8am-5pm)

(951) 827–4677 (After hours)

HAZARDOUS MATERIALS SPILL

- **Communicate the hazard** - Alert people in immediate area of spill; Post signs to indicate a spill has occurred
- Help contaminated or injured persons
- **Control the spill** – Take action to stop or minimize the spill; Secure the area to prevent entry
- **Clean Spill** - If you have been trained, clean spills according to Standard Operating Procedures (SOPs); Use appropriate Personal Protective Equipment (PPE)
- Re-enter when directed by authorities

Immediately Notify PI/Supervisor and EH&S

FUME HOOD

Fire in Hood:

- **Do not push emergency buttons**
- Use Fire Extinguisher, if safe
- Lower sash completely

Call UCPD

Alarm Sounds or Hood Not Functioning Properly:

- Stop working
- Lower sash completely
- Wait for alarm to stop
- If alarm continues, contact Facilities Services

Call Facilities Services

UTILITY FAILURE

- **Steam Line Failure**: Immediately leave area
- **Plumbing/Flooding**: If known leak source, shut off water, if safe to do so. If potential electrical hazard, evacuate the area
- **Power Failure**: Evacuate building, use caution
- **Elevator Failure**: Use the elevator phone to request help; activate the emergency alarm within the elevator
- **Ventilation Failure**: If smoke or strong burning odor, evacuate immediately

Call Facilities Services

EARTHQUAKE

- Drop to the floor, take cover under a sturdy desk or table, and hold on to it firmly
- After earthquake, help others and check for damage if safe to do so

EVACUATION

- Proceed to nearest exit
- Use the stairs to exit the building
- Report to Emergency Assembly Area
- Notify Emergency Personnel of individuals remaining inside the building or hazardous processes

UC RIVERSIDE | UNIVERSITY OF CALIFORNIA | Environmental Health & Safety

Visit www.ehs.ucr.edu for more information

Report all work-related injuries/illness to workerscomp@ucr.edu

Updated: 9/13/2019

Incident Reporting: Employer's First Report (EFR) Manual

Table of Contents

In the event that there is an incident or accident in the laboratory, an incident report can be generated using the EFR app on the UC Safety system.

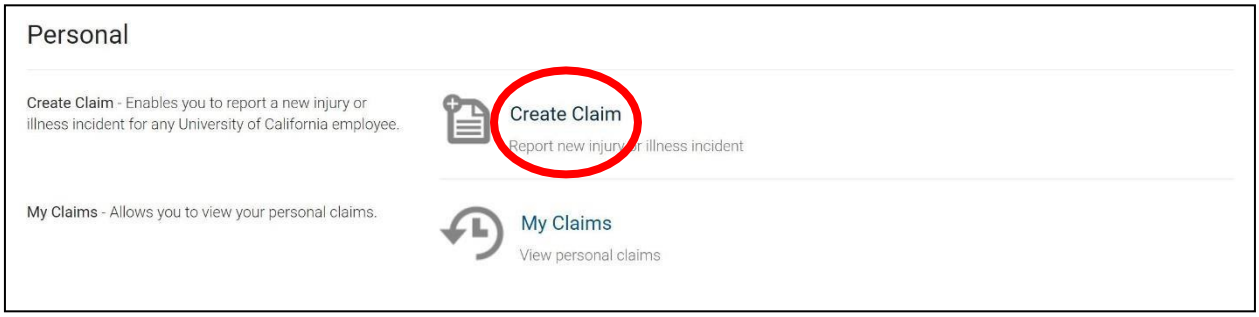
Log into the UC Safety system at https://ehs.ucop.edu to begin using the EFR app.

Generate an Incident Report

Starting a Report

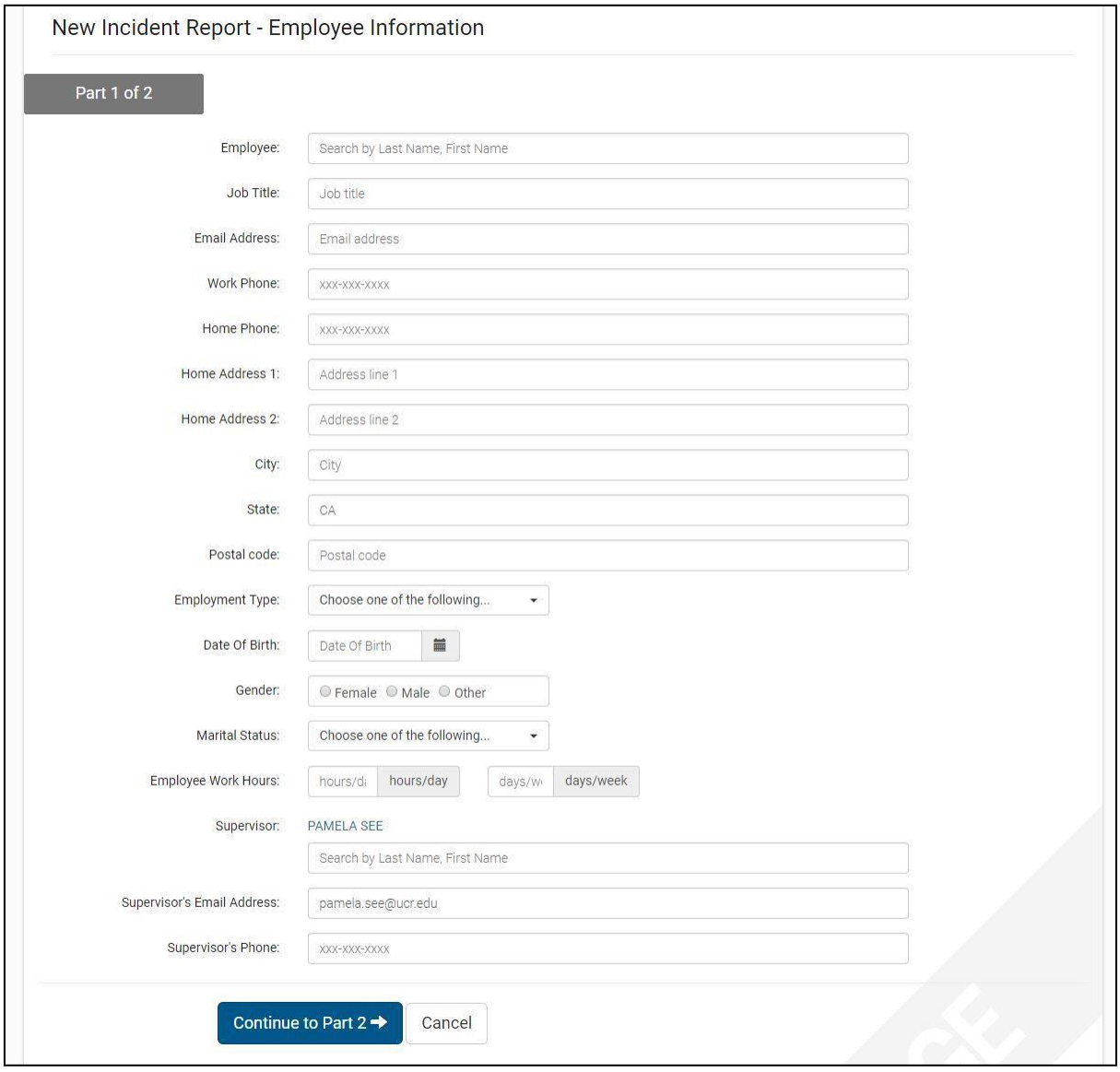
Click on the EFR app on the dashboard.

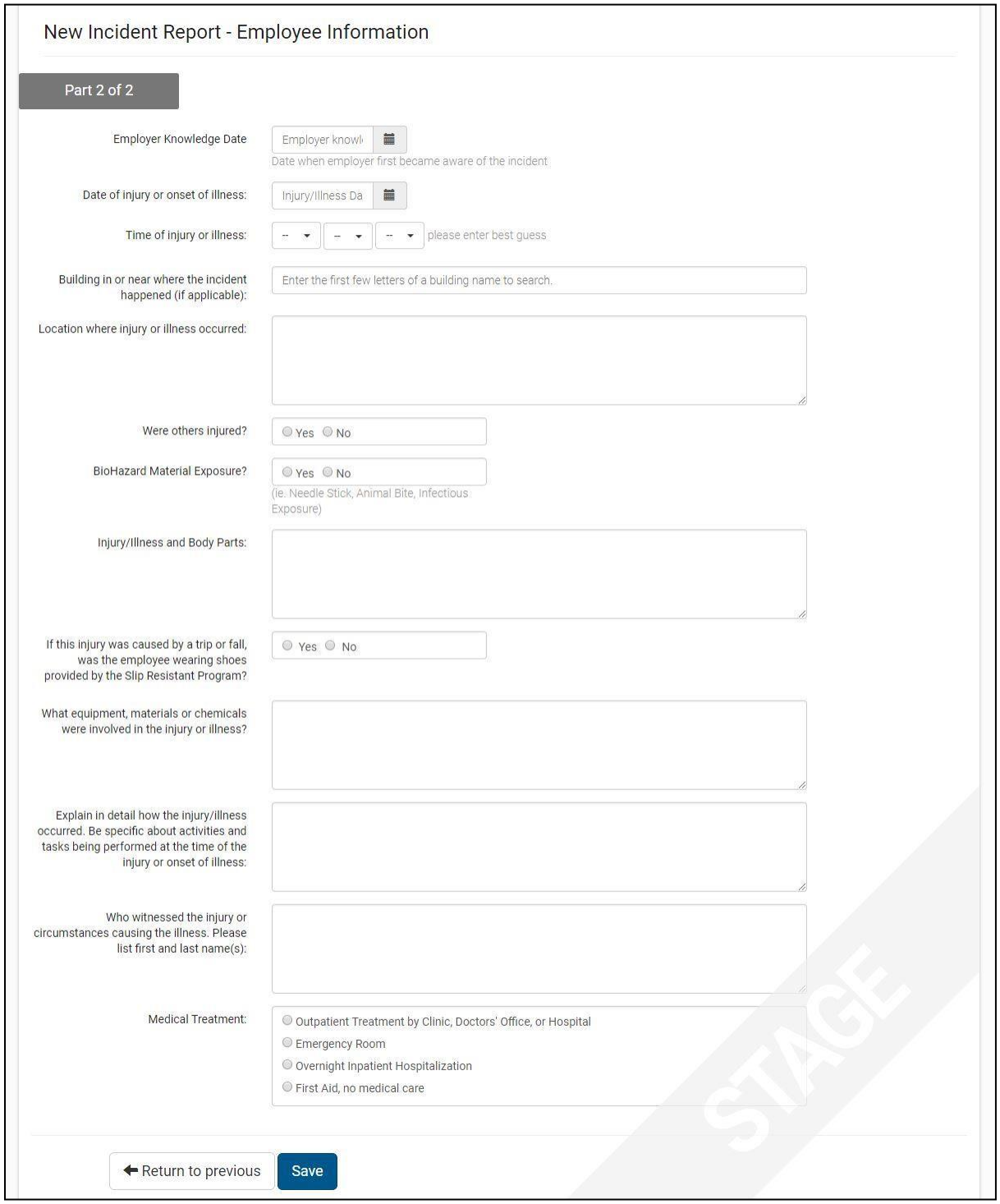
Click on 'Create Claim' to begin a new report.



Select the appropriate option and click 'Continue to Incident Report'.

Ensure that all the information is entered correctly into the form. Names must be entered in a 'Last Name, First Name' format and selected from the options in the drop down menu that appears. The first part of the form is for employee and supervisor information. The second part of the form is for details pertaining to the incident.

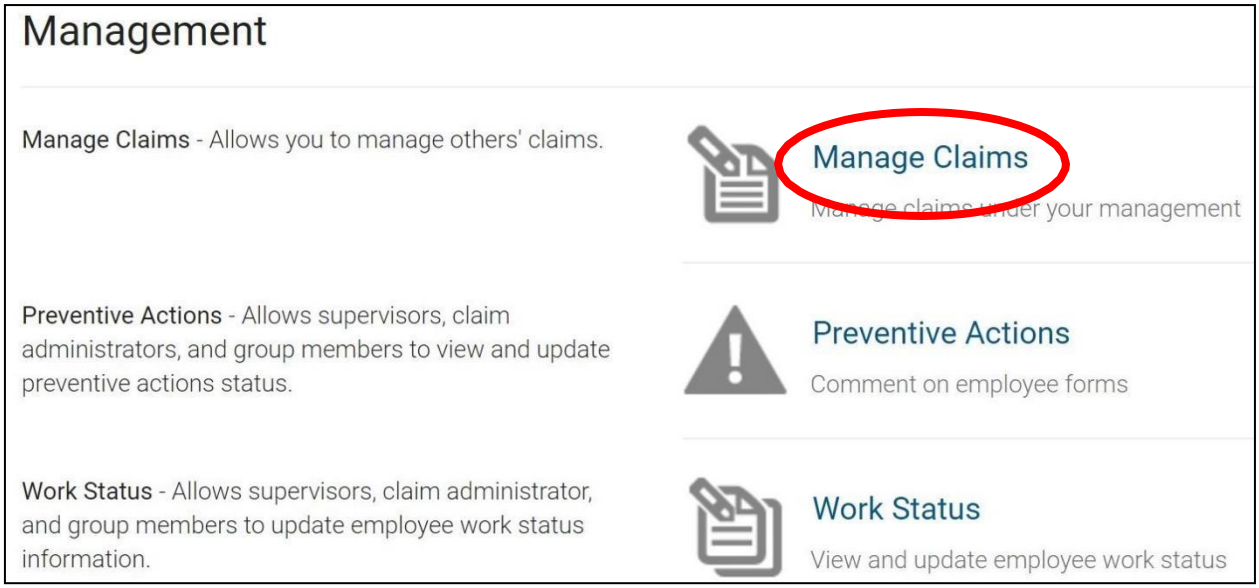




Once the report is complete, click ‘Save’.

Managing Claims

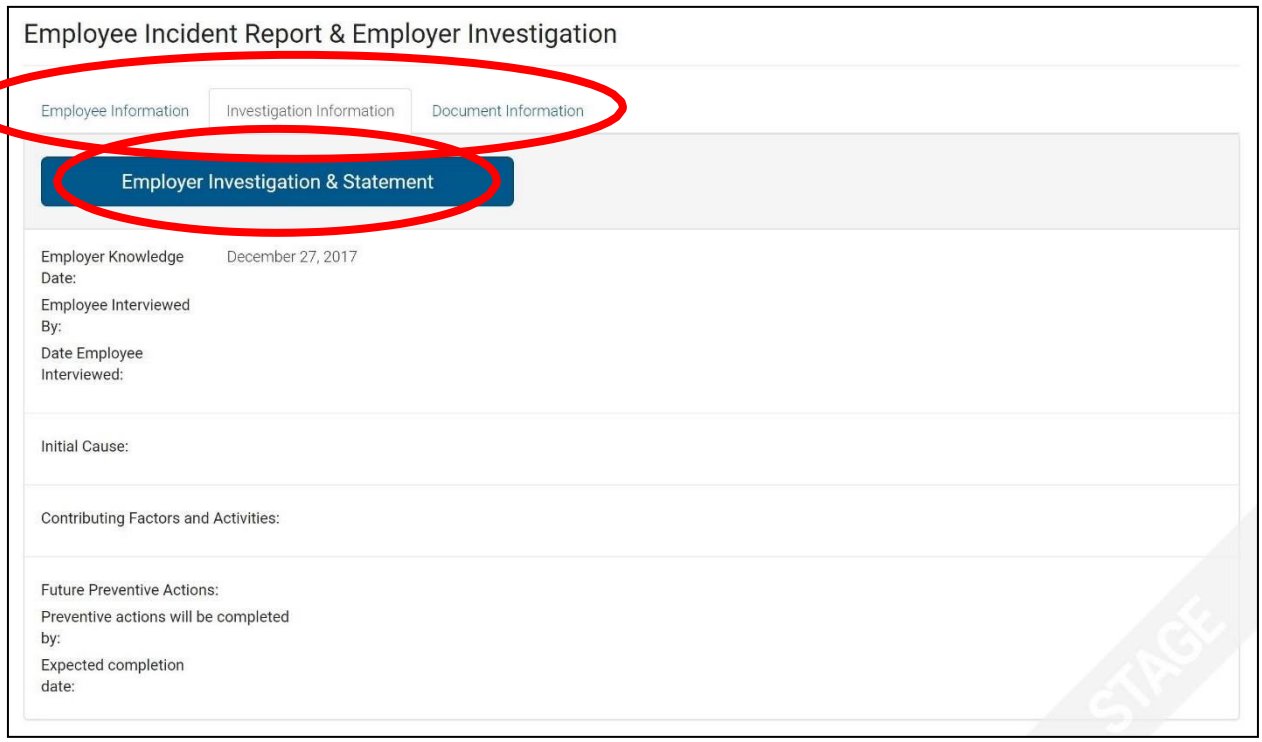
On the main EFR page, click ‘Manage Claims’. These options will only become available if there are existing past or current claims.



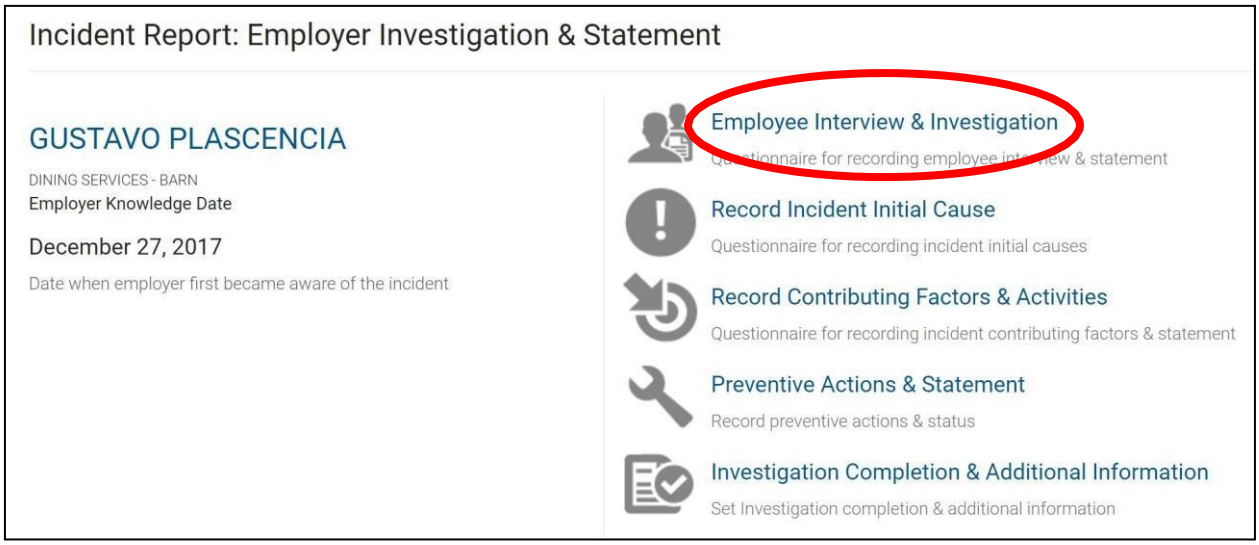
To make amendments to the report, click on the employee name.

Adding Interview and Investigation Details

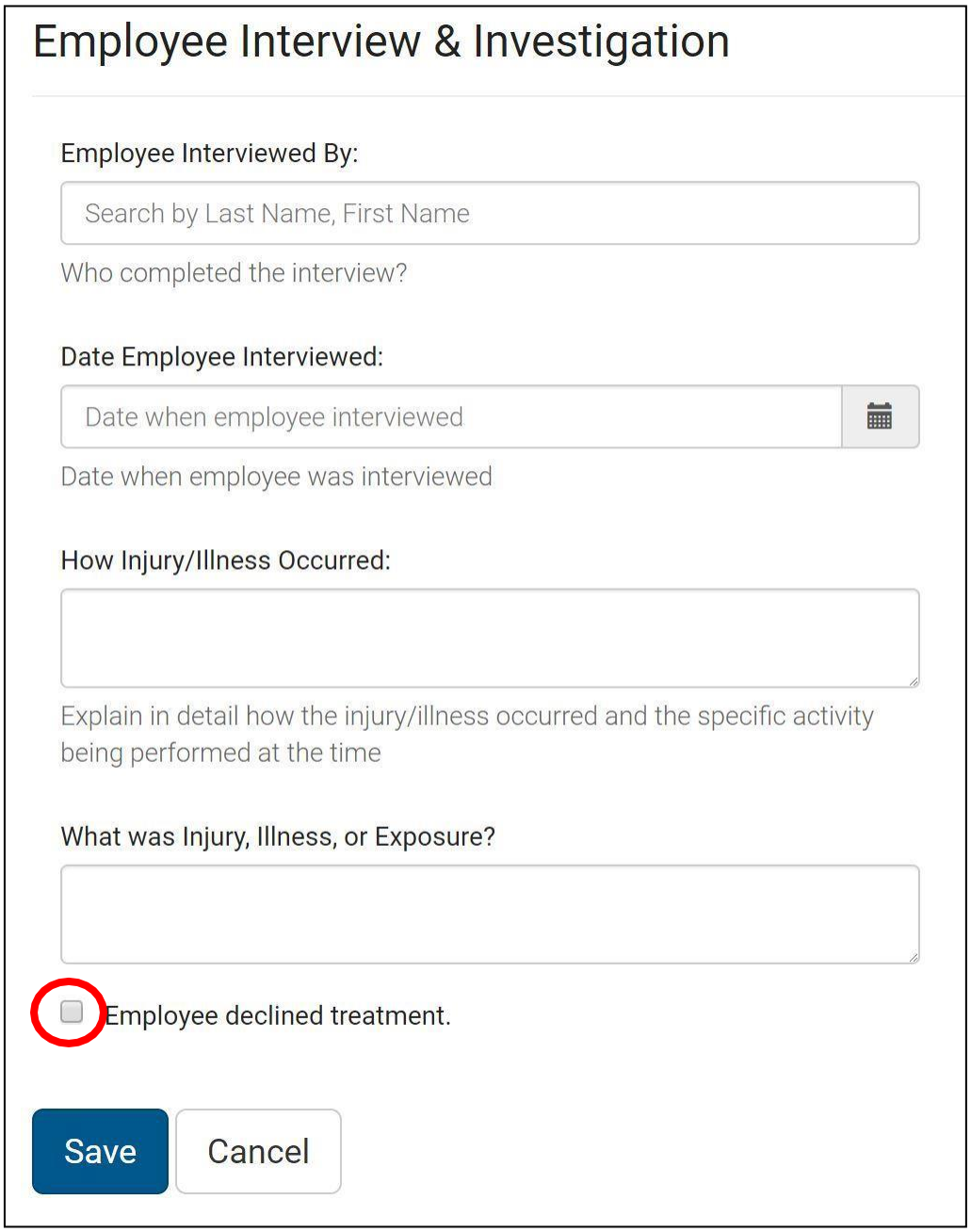
There are three tabs available, each with the option to manage information on the report. To manage the employer investigation of the statement, click the 'Investigation Information' tab and click the 'Employer Investigation & Statement' button.



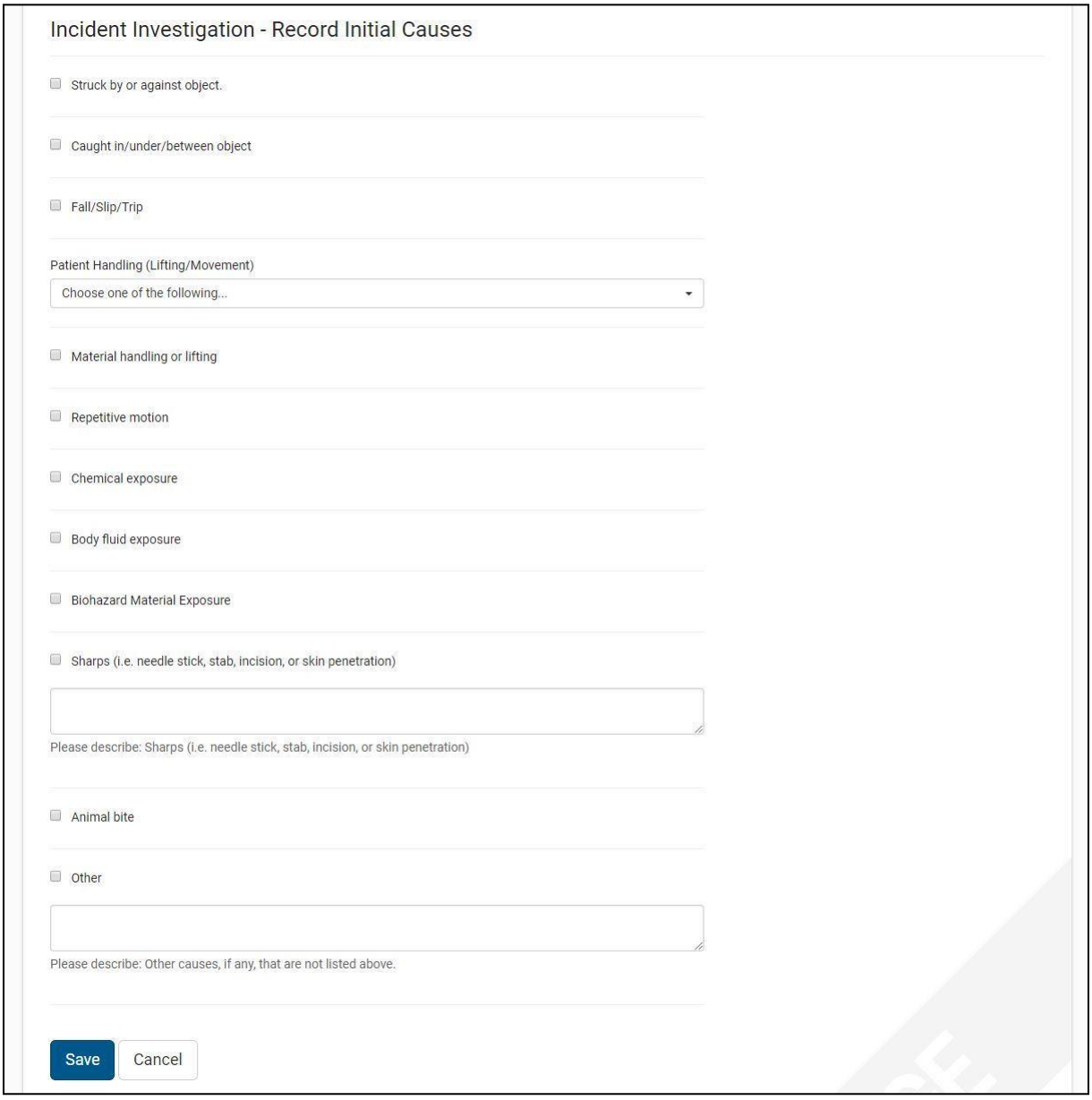
To log the interview and investigation details pertaining to the incident, click 'Employee Interview & Investigation'. All sections of the report are also available on this menu.



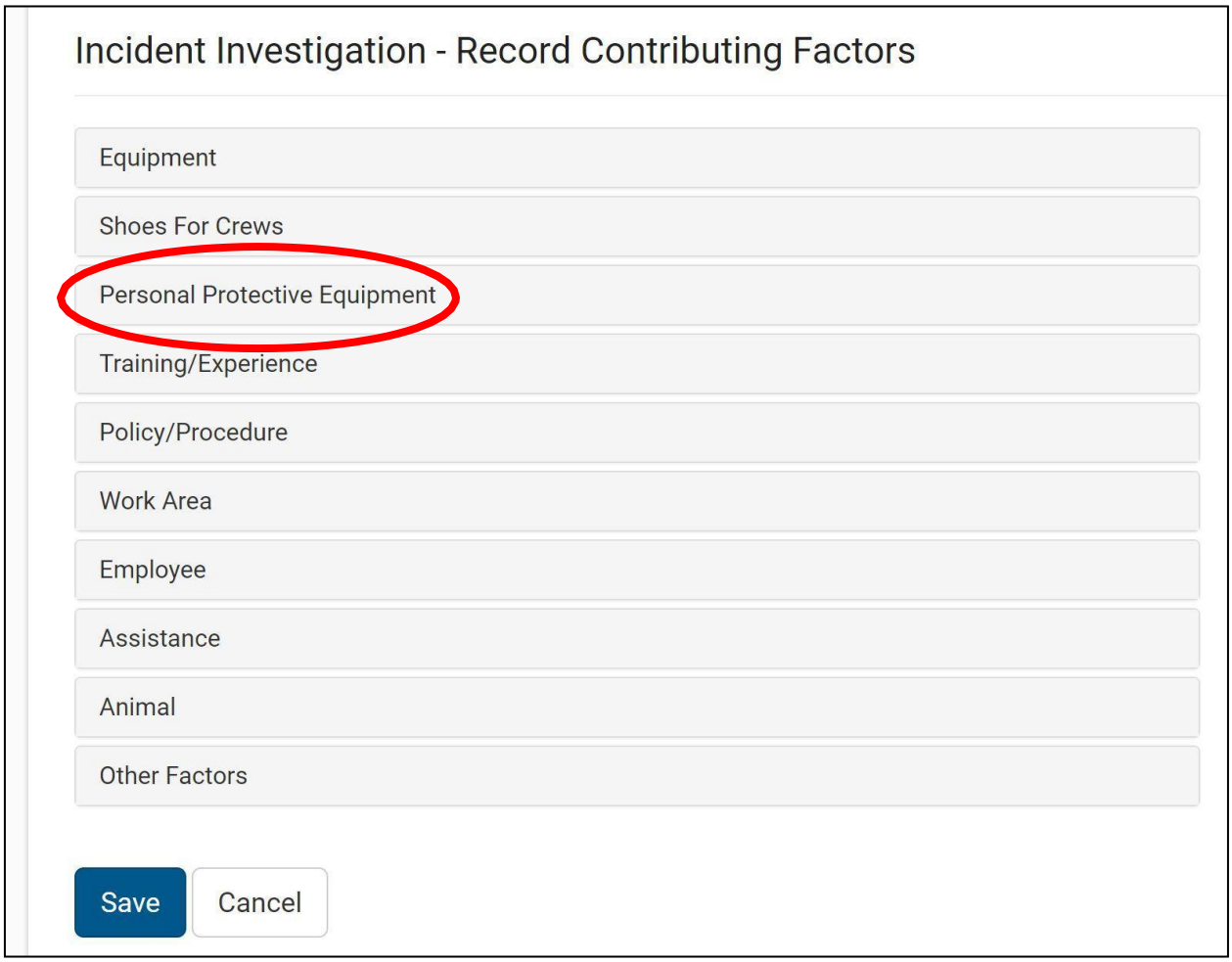
Fill out the interview details and indicate whether or not the employee declined treatment. Click ‘Save’ to proceed.



On the checklist, select all options that apply to the incident. Click ‘Save’ to proceed.

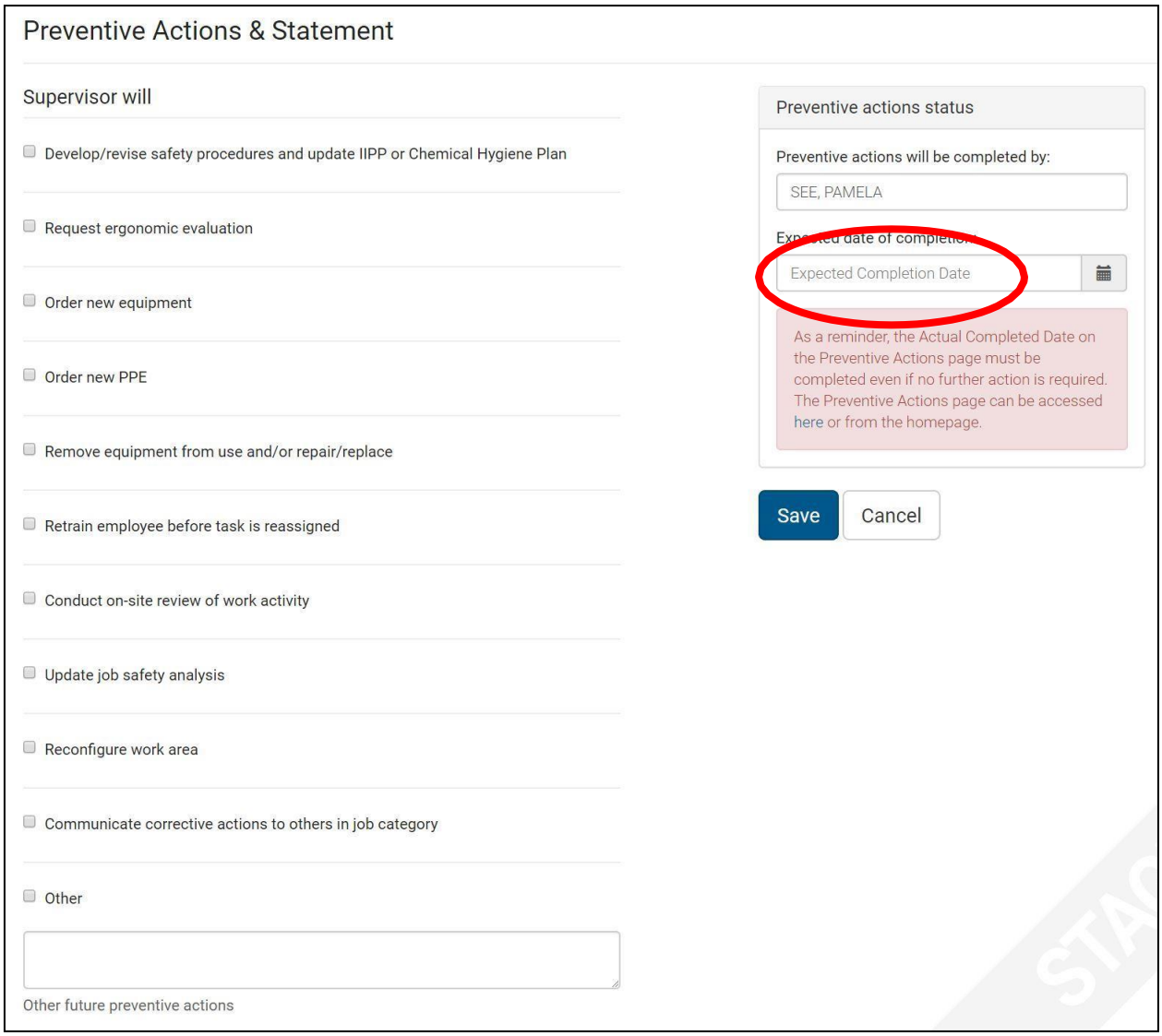


A list of categories will become available. Each menu title tab can be expanded for all options related to the category. Select all that apply. Click ‘Save’ to proceed.



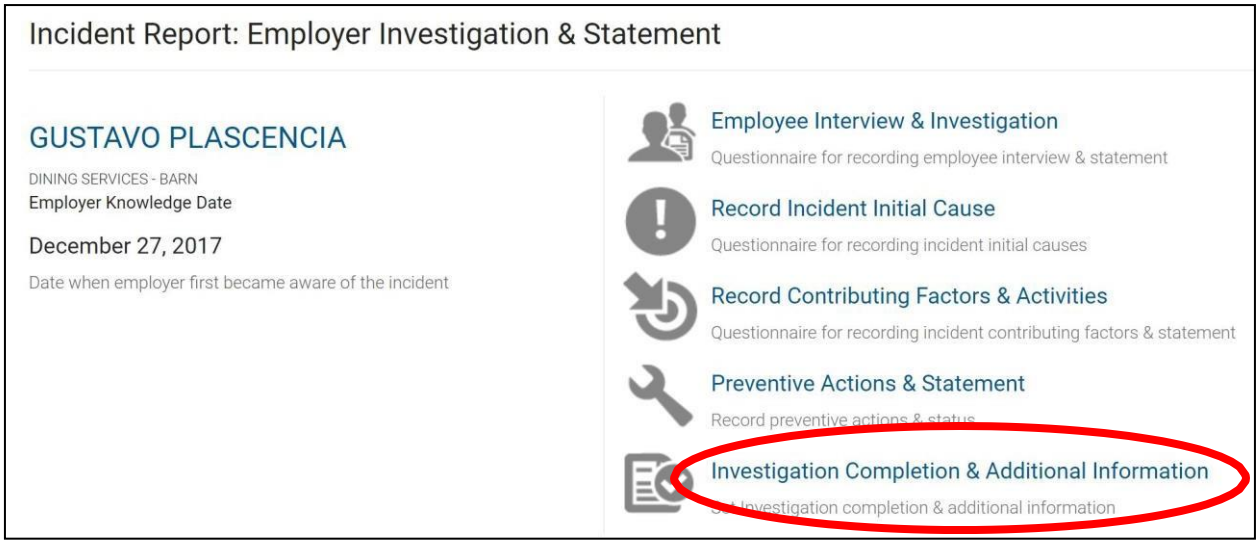
Preventative Actions

A list of preventative actions will become available. Select all actions that will be taken in order to prevent such an incident from reoccurring. On the right-hand side, include the expected date of completion for the proposed preventative actions. Click ‘Save’ to proceed.

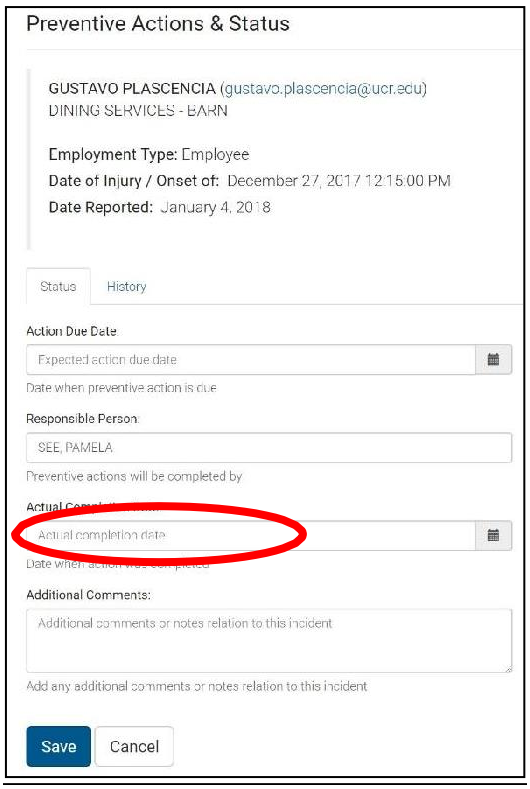


Completion of a Claim

To mark preventative actions as completed, click the 'Investigation Completion & Additional Information' menu item on the 'Manage Claims' page.



Complete the 'Actual Completion Date' section and include any additional comments. Click 'Save' when completed.



Tools & Resources

EH&S Website: http://www.ehs.ucr.edu

Risk and Safety Solutions Safety Suite: http://ehs.ucop.edu
This is where you'll find LHAT, Inspect, WASTe, Chemicals, etc.

UCR Learning Center: http://www.ucrlearning.ucr.edu

GOT BIO WASTE?

LET EH&S HANDLE THE PICK UP!

EH&S is now offering weekly biohazardous waste collections!

Why do it?

* No Cost to Labs
* No need to autoclave Biohazard waste before disposing
* No WASTe Label required for Biohazard bags
* Reduce cost of maintaining autoclaves
* Assurance Labs are in compliance with Medical Waste Act

Get Started today!
Contact EH&S to schedule a walk through of your space to get started!
Email: radiobiowastepickup@ucr.edu
Call JC Sanchez at EH&S 951-827-2648

UCR
Environmental
Health & Safety

UCR | Enviornmental Health & Safety

Biohazard Waste Collection

Description

Option of having laboratory generated Biohazard Waste (red bags, and sharps containers) collected on a weekly basis is now available. The collection will occur once a week, the day will be determined by the location of the generated waste. The goal is to reduce the use of autoclaves for biohazard waste processing.

Benefits to the Campus

- No cost to laboratories
- No need to create WASTe Labels for biohazard bags
- No need to autoclave Biohazard waste before disposing of biohazard bags into barrels
- Reduce cost of maintaining Autoclaves
    - No spore testing for autoclaves
    - No air quality issues due to biohazard autoclaving
- Assurance that labs are in compliance with Medical Waste Management Act storage requirements

Request Service

Please contact UCR Environmental Health and Safety Hazardous Waste Management for a **walk-through** to determine location of accumulation area and discuss specific lab needs. During the walk-through lab requirements, scheduling and volume of waste generated will be discussed.
Please contact Juan Sanchez juan.c.sanchez@ucr.edu at (951) 827-2648, radiobiowastepickup@ucr.edu (951)827-5528.

Packaging and Labeling

- Before placing waste into biohazard bags, the bags require the PI's Name and location clearly written on them.
- Biohazard bags must be **double bagged** and closed with either autoclave tape or zip ties.
- No WASTe label is required for biohazard bags.
- Biohazard Sharps containers will require to be **closed** and have a WASTe label before placing directly in red barrels.
- Place red biohazard bags in a rigid, leak proof red barrels with a tight-fitting lid.
    - These red barrels will be provided by EHS.
    - Please do not overfill bags or red bins.

Storage

Red biohazard barrels can be stored within labs or in secure accumulation areas that will be serviced weekly, this will be determined by the specific needs and space availability of the labs. These barrels will be on wheels for easy movability.

EH&S will collect full bins and replace them with new empty bins on the scheduled collection day.

- Designated Waste Accumulation Areas
    - Shall be secured so as to deny access to unauthorized persons and shall be marked with warning signs. "CAUTION – BIOHAZARDOUS WASTE STORAGE AREA – UNAUTHORIZED PERSONS KEEP

OUT" and "CUIDADO – ZONA DE RESIDUOS – BIOLOGICOS PELIGROSOS – PROHIBIDA LA ENTRADA A PERSONAS NO AUTORIZADAS"

  - Empty bins may **only** be moved from accumulation during the transfer of waste into the bin. They must be returned to the designated area immediately following the transfer.
  - These areas can be used by multiple biohazard waste generators.
- Lab to Lab Service (Interim Storage Area)
  - If a waste accumulation area cannot be identified, EH&S will provide lab-to-lab service.
  - Shall be stored in an area that is locked or under direct supervision or surveillance by the generator.
  - Area should be marked with warning signs.
  - Will be provided to labs that do not have access to an accumulation area or have safety issues with transporting their waste to such an area.

Please refer to UCR EHS Biohazardous and Medical Waste Requirements poster for further disposal requirements.

ChemCycle Program

Chemical Recycling: This program has been established to provide UC Riverside the opportunity to recycle unused and used (good condition) chemicals that would otherwise be disposed of as hazardous waste. All UCR researchers can donate usable surplus chemicals and obtain [recycled, unused chemicals, used but in good condition] for free. This opportunity saves money by reducing disposal costs and eliminating associated purchasing costs, and helps protect the environment by reducing the disposal burden of unwanted chemicals.

Requirements:

- Chemicals must be in the original manufacturer's container with original labels intact.
    - Acceptable Chemicals: non-potential peroxide forming, virgin, unused factory sealed containers, used/open in good condition, e.g, acetone, ethanol, methylene chloride, and organic and inorganic acids.
    - Unacceptable Chemicals: any mixtures, solutions, samples, expired, or degraded chemicals, e.g., research by-product, spent material, hazardous waste.
- Containers must be in good condition

How to Donate Chemicals: Use Qualtrics Survey

Go to this link (https://bit.ly/2IwMMtb) or use your smartphone to scan the QR code above to access a short survey about the chemical you would like to recycle.

After the survey, print out your responses and attach it to the container using a hazardous material sleeve, similar to how you would with a WASTe tag. Place the container in your normal chemical waste accumulation area.

The EH&S waste team will pick up your container from your lab during scheduled waste pickups and transfer it from your chemical inventory to the ChemCycle Sharables Inventory. No further action is required by the labs.

How to Request Free ChemCycle Chemicals:

1. Log into your chemical inventory on UC Chemicals (www.ehs.ucop.edu/chemicals).
2. Press the "Inventory Summary" button on the main landing page and then scroll down to the "Colleagues" section.
3. Type "ChemCycle Sharables" in the box and select it when it appears. EH&S will process and accept your request as soon as possible.
4. After the request is accepted, navigate back to the main landing page and click on the "Search Chemicals" button. In the top left corner, click on the "Inventory" button, select "Colleagues" in the drop down box. The list that appears is the current ChemCycle Sharables Inventory.
5. To request a chemical, click on the chemical name, scroll down to the "Request" section, and select "ChemCycle Sharables". In the message box, please be sure to add the date of your request. Chemicals will be distributed on a **first come, first serve basis**. EH&S will deliver the requested chemical to the specified lab.

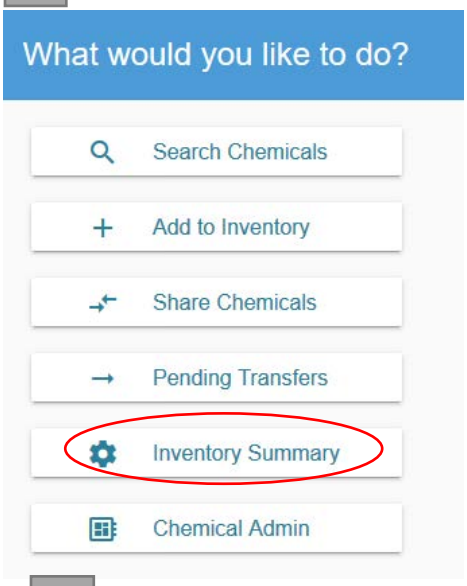
Value

The U.S. Congress has made waste minimization a national policy and goal of each waste generator. You as a user of chemicals, have the responsibility to minimize the waste you generate. Waste minimization has benefits such as decreasing your exposure to hazardous substances, protection of the environment, and the overall reduction in the cost of disposal which frequently can exceed the original cost of the chemical by 4 to 20 times. Waste minimization includes such things as changing procedures, reducing scale and substituting materials. In addition, if you have chemicals that you no longer have a use for and feel it could be recycled within the University, please contact EHS or use the quick survey link above.

For more information please contact EH&S JC Sanchez (juan.c.sanchez@ucr.edu) or radiobiowastepickup@ucr.edu

To **request** a chemical, follow the instructions below

1



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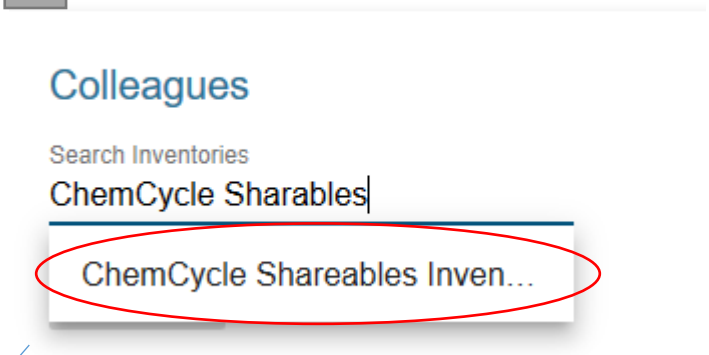

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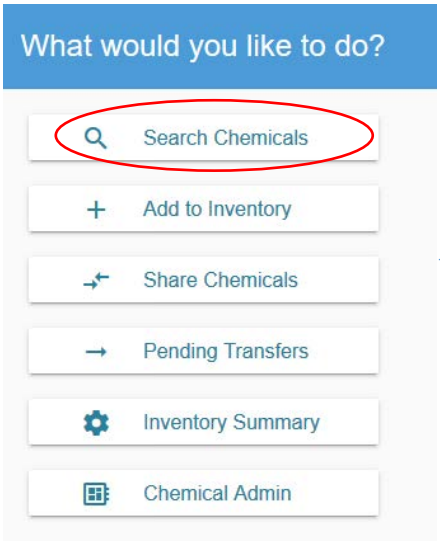

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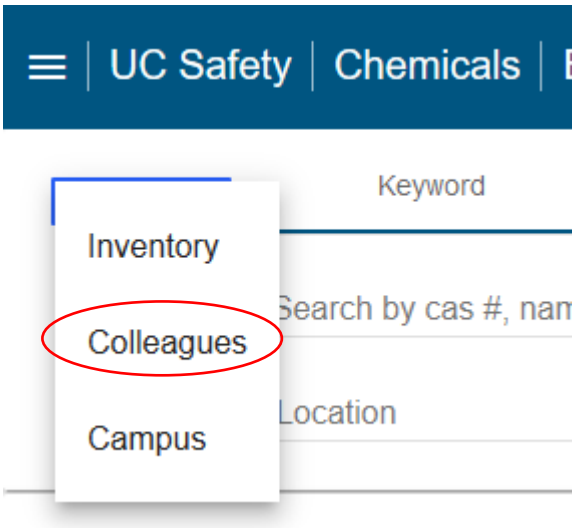

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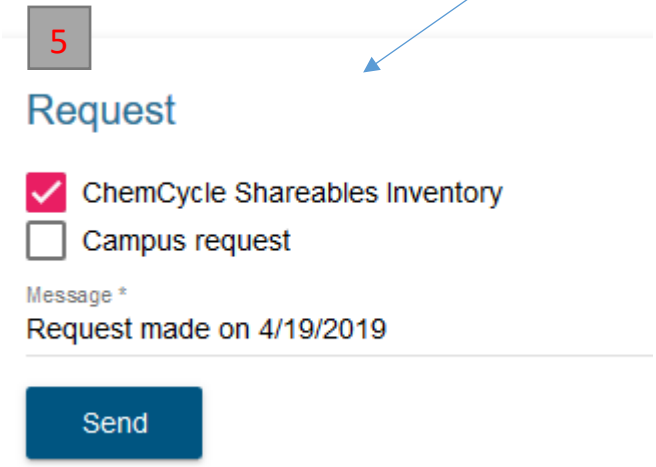

To submit a chemical for ChemCycle, scan the QR code below and fill out the survey

For more information please contact EH&S JC Sanchez (juan.c.sanchez@ucr.edu) or radiobiowastepickup@ucr.edu

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www.ehs.ucr.edu

LABORATORY/EQUIPMENT RELOCATION & CLEARANCE PROGRAM DOCUMENT

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LABORATORY/EQUIPMENT RELOCATION & CLEARANCE PROGRAM DOCUMENT

1. Introduction

This document provides guidance to all principal investigators, laboratory staff and department administrators on how to ensure laboratory and equipment moves are conducted safely. This document outlines the necessary steps to prepare a laboratory and/or equipment to be safely relocated, and how to properly transfer and/or dispose hazardous materials.

2. Roles and Responsibilities

a. Principal Investigators

The Principal Investigator (PI) is responsible for ensuring that all equipment to be moved or salvaged are properly decontaminated, and hazardous materials are properly handled, stored, transferred to another PI and/or disposed of according to regulatory requirements. If an injury or spill were to occur while moving, PI should report the injury or spill to EH&S (https://ehs.ucr.edu/ or 951-827-5528).

b. Lab Safety Officers/Delegates

The Lab Safety Officers/Delegates provide all pertinent checklists and guidance documents to lab occupants as soon as possible.

c. Departments

The department responsible for a space ensures that any unused chemicals that remain in the space are either given to other investigators or disposed of as hazardous waste. It is also the responsibility of the department to properly decontaminate equipment to be moved or salvaged.

d. Environmental Health and Safety (EH&S)

EH&S provides guidance to researcher, lab safety officers/delegates, and Facilities Services for the safe and proper transfer and/or disposal of hazardous materials when relocating a laboratory.

EH&S provides the following services:

- Conduct hazardous waste pick-up
- Provide approval to move the equipment after receiving acknowledgement from researchers that the equipment has been properly decontaminated according to this document
- Provide guidance and coordination to modify Use Authorizations (e.g. Biological Use Authorization, Controlled Substance Use Authorization, Radiation Use Authorization, etc.)

EH&S does not provide the following services:

- move or clean equipment
- lab pack

3. Contact Information

Name	Program	Phone Number	Email
Tiffany Kwok	Research Safety Programs Manager	951-827-4244	tiffany.kwok@ucr.edu
Juan Carlos Sanchez	Hazardous Waste Supervisor	951-827-2648	juan.c.sanchez@ucr.edu
Tran Phan	Acting Biosafety Officer/High Containment Lab Director	951-827-4246	tran.phan@ucr.edu
Patrick Monnig	Chemical Hygiene Officer/Lab Safety Supervisor	951-827-4254	patrick.monnig@ucr.edu
Pamela A. See	Research Safety Specialist	951-827-5878	pamela.see@ucr.edu
Karen Janiga	Radiation/Laser Safety Officer	951-827-5748	karen.janiga@ucr.edu
Kyle Soliz	Chemical Inventory & Controlled Substance Coordinator	951-827-5879	Kyle.soliz@ucr.edu
Facilities Services	http://facilities.ucr.edu/	951-827-4214	facilities@ucr.edu
Excess Property (Surplus)	https://cbs.ucr.edu/storehouse/surplus.html	951-827-5546	

Receiving & Shipping (non-Rad.)	http://cbs.ucr.edu/shipping/shipping.html	951-827-3134	

4. Move Into a Laboratory Procedures

- ☐ Notify EH&S of scheduled move. https://ehs.ucr.edu/laboratory/labequipmentmove.html
- ☐ Review **Guide for New Principal Investigators and Supervisors (Appendix A)** and **Research Approval and Training Requirement (Appendix B).**
- ☐ Meet with department's assigned EH&S Safety Mentor and other EH&S personnel for guidance on proper lab set up that will minimize hazards and mitigate risks.
- ☐ Set up lab and conduct research in a safe manner.

5. Move Out of a Laboratory Procedures

- ☐ Notify EH&S of scheduled move. https://ehs.ucr.edu/laboratory/labequipmentmove.html
- ☐ EH&S will respond within two (2) business days.
- ☐ Minimize the amount of materials to be moved.
- ☐ Do not move waste to new location. Properly label the waste using the WASTe system (https://ehs.ucop.edu/waste/#/) and request the waste be picked-up by the EH&S Hazardous Waste Management team.
- ☐ Decontaminate all contaminated surfaces using appropriate disinfectant or detergent solution.
- ☐ After decontaminating equipment, notify EH&S Safety Mentor that the equipment has been decontaminated according to SOPs.
- ☐ EH&S will review the equipment and/or lab space to be free of hazards, and if approved, EH&S will affix Clearance Tag to equipment and/or lab space to indicate it is safe for movers to move, or safe to enter lab space.
- ☐ Remove all supplies from drawers and shelving units.
- ☐ Limit weight when packaging boxes.
- ☐ Dispose broken glass/non-contaminated sharps in designated non-contaminated broken glass containers.
- ☐ Do not transport hazardous materials in personal vehicles.

6. Hazardous Materials Type

A. Biological Materials

- ☐ Wear personal protective equipment appropriate for the materials being handled (safety glasses, lab coat, gloves, closed-toe shoes, etc.).
- ☐ Dispose of biological agents in appropriate containers (i.e., sharps container and red autoclavable bags).
- ☐ Disinfect equipment and work surfaces that may be contaminated with biological materials with appropriate disinfectant (e.g. 10% bleach solution or 70% ethanol) for 15 minutes prior to relocation or vacating the laboratory. Do not remove biohazard labels, until the biohazard use areas have been de-contaminated/disinfected. If there are any questions regarding the proper disinfectants to use for decontamination, contact the Biosafety Officer (x2-4244).
  - ☐ Decontaminate all biological safety cabinets (BSC) by an approved biosafety cabinet service company prior to relocation. (Note: UC Agreement with Technical Safety Services, Inc. – Contact TSS at 800.877.7742)
  - ☐ Upon proper decontamination, contact Facilities Services to have the BSC relocated to a new location.
  - ☐ After relocation of biosafety cabinets, recertify BSC by an approved biosafety cabinet certifier for correct air flow and filter integrity after being moved.
- ☐ Update Biological Use Authorization (BUA) to include new locations and remove vacated locations. Contact the Office of Research Integrity for information (https://research.ucr.edu/ori/committees/ibc.aspx)
- ☐ Transport biological materials in a labeled, leak-proof, rigid secondary container.
- ☐ If transporting or shipping off-campus, consult with UCR Receiving & Shipping (http://cbs.ucr.edu/shipping/shipping.html) for specific inter/intrastate or international shipping regulations.

B. Chemicals

- ☐ Wear personal protective equipment appropriate for the materials being handled (safety glasses, lab coat, gloves, closed-toe shoes, etc.).
- ☐ Identify and clearly label all chemical containers.
- ☐ Identify all unknowns. Don't move unlabeled ("unknowns") or leaky containers. Unknowns cannot be disposed of until the contents are identified. If assistance is needed, contact EH&S Hazardous Waste Management team.
- ☐ Identify chemical waste, segregate waste streams, and label waste containers using WASTe. Dispose of all expired chemicals through EH&S by labeling the containers using WASTe.
- ☐ For unwanted chemicals, arrange with other labs to include in their inventory.
- ☐ Deface empty containers and dispose appropriately.
- ☐ Ensure that fume hoods are free of hazardous materials and cleaned with detergent cleaner or decontamination solution.
- ☐ Properly separate and package all chemicals in compatible hazard classes. Appropriately label each box. For more information, http://ehs.ucr.edu/resources/publications/ChemMove.pdf
- ☐ Transport chemicals in leakproof, chemical resistant secondary containers.
- ☐ Update Chemical Inventory.
- ☐ If transporting or shipping off-campus, consult with UCR Receiving & Shipping (http://cbs.ucr.edu/shipping/shipping.html) for specific inter/intrastate or international shipping regulations.

C. Compressed Gases

- ☐ Verify the valve cap is securely in place before moving any cylinder.
- ☐ Transport cylinders on a wheeled cart, carefully secured in an upright position to prevent them from falling. Never move a cylinder by rolling it across the floor.
- ☐ Don't leave a cylinder unattended in the corridor.
- ☐ Never drop cylinders or bang them against each other or another object.
- ☐ Report all suspected leaks immediately to EH&S. If the material in the tank is highly toxic, evacuate everyone from the area. Leaking bottles should be put in the fume hood, if possible.
- ☐ Ensure all compressed gas cylinders are labeled. Empty cylinders should be labeled "Empty." Call the vendor for disposal.
- ☐ Occupants that are leaving the University must arrange for the cylinders to be returned to the manufacturer or Campus Storehouse.
- ☐ Arrange transfer of toxic and flammable gases with 3rd party vendor. Toxic and flammable gases shall not be transported in personal vehicles.
- ☐ If laboratory is moving off-campus, consult with UCR Receiving & Shipping (http://cbs.ucr.edu/shipping/shipping.html) for specific inter/intrastate or international shipping regulations.

D. Controlled Substances

- ☐ Notify Controlled Substance Coordinator of planned move.
- ☐ Coordinate with Controlled Substance Coordinator to transfer temporarily all inventory to Coordinator.
- ☐ Complete Chain of Command.
- ☐ Submit amendment to Controlled Substance Use Authorization (CSUA).

E. Lasers

- ☐ Remove liquid dyes. If not reusable, request for waste pickup using WASTe.
- ☐ Upon clearance, EH&S will remove laser warning signs; battery operated warning lights, and any other laser signs (emergency procedure, etc.) from the door and the lab.

F. Radioactive Materials

- ☐ Arrange with EH&S to remove all radioactive materials including waste from the laboratory.

- ☐ Conduct surveys of all radioactive rooms and equipment for contamination by using a calibrated Geiger meter, followed by a wipe test. Decontaminate any contaminated areas using detergent cleaner or decontamination solution. Email the RSO a copy of the survey results and corresponding map.
- ☐ Update location(s) by amending the Radiation Use Authorization (RUA), if applicable. Send an updated survey map to EH&S Radiation Safety.
- ☐ If leaving the University, update and finalize usage logs.
- ☐ Personnel Dosimeters must be returned to EH&S.
- ☐ Radiation Safety Officer or designee will perform a confirmatory close-out survey and remove all radiation labels.

G. X-Ray Machines

- ☐ Schedule service technician visit to prepare X-ray machine for transport and for reinstallation in new location. Facilities Services may be required to move X-ray machines.
- ☐ Remove the X-ray posting from the lab door, as well as any other X-ray postings (emergency procedure, operating procedure, etc.) in the lab.

7. Equipment

- ☐ Repair or dispose old or damaged equipment prior to the move.
- ☐ Equipment or appliance that may contain refrigerant is subject to the "Safe Disposal Requirements" of the Clean Air Act of 1990 as implemented by 40 CFR Part 82, Subpart F, 82.150-166, requiring that refrigerants be removed from equipment and appliances prior to final disposal.
- ☐ Decontaminate all equipment (freezer, refrigerators, incubators, centrifuges, shakers, water baths, glove boxes, etc.) with appropriate disinfectant or a detergent cleaner.
- ☐ For fume hoods, remove all chemicals from fume hood and appropriately store in approved locations, and clean any signs of spills with detergent cleaner or decontamination solution.
- ☐ Once equipment has been decontaminated, notify EH&S for review and, if approved, Clearance Tag will be affixed to each equipment to indicate it is safe for movers to move.
- ☐ Coordinate equipment move with approved professional vendor (e.g. TSS, Matheson, Airgas, etc.) or Facilities Services (limited equipment). Be sure to include a detailed list of equipment to be move.
- ☐ When moving equipment with samples inside, be sure samples are packed in non-breakable containers, and prepare equipment according to professional vendor.

8. Clearance Tag

9. Appendix

A. Guide for New Principal Investigators and Supervisors
B. Research Approval and Training Requirements

Eye Protection Options

Which would you choose?

Prescription
Glasses

Safety
Glasses

Safety
Goggles

Medical
Face Shield

Impact
Face Shield

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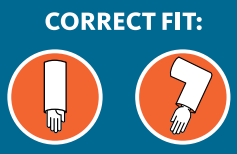
LAB COAT FITTING GUIDANCE AND REASSIGNMENT INSTRUCTIONS

Lab Coat Fitting Guidance

It is important that lab coats be an appropriate size and reasonably comfortable. Key factors include the circumference and length of the lab coat, as well as sleeve length.

If you intend to wear sweaters or sweatshirts under your lab coat, ensure that the circumference of the lab coat is sufficient to allow for full closure, including all buttons/snaps, for maximum protection.

The length of the lab coat should allow for easy transition from a sitting to a standing position and back.



Sleeve Lengths

Sleeve length should be such that there is no bare skin between the end of the sleeve and any gloves that you will be wearing. The sleeve should not require rolling to prevent it from interfering with your work.

Reassigning PPE

A Principal Investigator (PI), Laboratory Supervisor, or their delegate may want to reassign an existing and unassigned lab coat to a new lab member rather than purchasing a new lab coat. An existing lab coat shall only be reassigned if it fits the person appropriately. The steps below are to be followed to reassign a lab coat using the on-line Laboratory Hazard Assessment Tool (LHAT):

1. PI or delegate logs into LHAT at http://ehs.ucop.edu/lhat.
2. Select the “Roster” link. The next webpage will list the lab roster.
3. Add the new lab member(s) and remove individuals as needed.
4. The new lab member will receive an e-mail with information on how to access and review the online Laboratory Hazard Assessment, which includes the required PPE training. Emails are sent out Monday mornings.
5. Return to the homepage by selecting the title “LHAT” in the header.
6. Select the “Received PPE” link.
7. If the PPE was assigned to someone that is still a member of the lab group, you first need to remove it from its previous owner. To remove, simple find the PPE you wish to reassign and select the “Remove” button.
8. To reassign/assign PPE select the “Assign Protective Equipment” button.
9. Select the new lab member from your drop down menu.
10. Select the equipment that you will be assigning.
11. Add the Garment ID for the lab coat. This is the barcode located in the collar.
12. Select the size, quantity and laundry (pick-up) location, as appropriate.
13. Save changes by selecting the “Save” button.

Chemical Segregation Chart

UCR Environmental Health & Safety

This chart assists with proper segregation of chemicals in storage and waste. With all chemicals: **Check the SDS** (Section 7: Handling and Storage, Section 10: Stability and Reactivity) for specific storage requirements. **Label** all storage areas with the hazard present. Use **secondary containment** whenever possible for hazardous chemicals, and is **required** for all waste. Secondary should be large enough to contain **110% of the largest container**. For assistance with chemical storage questions, contact *ehslaboratory@ucr.edu*, and for all lab and research safety needs, visit **ehs.ucr.edu**

Cat.	GHS Symbol	Chemical Hazard	Examples	Storage	Store away from
Compressed Gas		**Flammable** 	Methane Acetylene Propane	• Cool, dry area • 20 ft. away from oxidizing gases or separated by 5 ft. high wall with 0.5hr fire resistance • Secure cylinders upright with two chains/straps	Oxidizing gases Toxic gases Oxidizing solids
		Oxidizing 	Oxygen Chlorine Fluorine mixtures	• Cool, dry area • 20 ft. away from flammable gases or separated by 5 ft. high wall with 0.5hr fire resistance • Secure cylinders upright with two chains/straps	Flammable Gases
		Poisonous 	Carbon monoxide Hydrogen sulfide	• Cool, dry area • Away from flammable gases and liquids • Secure cylinders upright with two chains/straps	Flammable Gases Oxidizing Gases
Corrosives		**Inorganic Acids**	Hydrochloric acid Sulfuric acid Phosphoric acid	• Separate acid storage cabinet • Use a chemically resistant secondary container • Metal shelves not recommended due to corrosion	Flammables Bases Oxidizers Organic acids
		Organic Acids	Acetic acid Trichloroacetic acid Lactic acid	• Separate acid storage cabinet • Use a chemically resistant secondary container • Metal shelves not recommended due to corrosion	Flammables Bases Oxidizers Inorganic acids
		Oxidizing Acids	Nitric Acid Perchloric acid Chromic acid	• Separate acid storage cabinet • Use a chemically resistant secondary container • Away from flammables and other acid types • Metal shelves not recommended due to corrosion	Flammables Inorganic acids Organic acids Bases
		Bases	Ammonium hydroxide Potassium hydroxide Sodium hydroxide	• Storage cabinet separate from all acids • Use a chemically resistant secondary container	Flammable liquids Oxidizers Poisons Acids
Reactives		**Explosives**	Picric acid (dry) Tri-nitro compounds Heavy metal azides	• Secure location • Away from all other chemicals • Protect from falls, impacts, and shocks • Contact EH&S for specific guidelines	All other chemicals
		**Flammable Liquids**	Acetone Benzene Methanol	• Flammable storage cabinet • Separate, dry, cool area • Away from oxidizers and corrosives • Peroxide forming chemicals must be dated when opened	Acids/Bases Oxidizers Poisons
		Flammable Solids	Phosphorous Carbon Charcoal		
		**Oxidizers**	Hydrogen peroxide Potassium dichromate Halogens Nitrate compounds	• Non-combustible cabinet • Use a chemically resistant secondary container • Away from flammables	Reducing agents Flammables Organic materials
	No GHS symbol	**Water Reactive Chemicals**	Sodium metal Potassium metal Lithium Metal	• Dry, cool location • Use a chemically resistant secondary container • Label location "water reactive"	All aqueous solutions Oxidizers
Other		**Poisons**	Cyanides Heavy metal compounds	• Cool, dry area • Well ventilated area • Use a chemically resistant secondary container	Flammables Corrosives *Check Sections 7 & 10 of SDS*
		**Skin/Eye Irritants** **Acute Toxicity** **Narcotic Effects** **Respiratory Tract Irritants**	Tris Base Dichloromethane Polyvinylpyrrolidone		
		**Carcinogens** **Mutagens** **Respiratory Sensitizers** **Target Organ Toxicity** **Aspiration Toxicity**	Acrylamide Chloroform Formaldehyde	• Secure location, limit access to only trained users • Use a chemically resistant secondary container • Store separate from flammable and corrosive materials to avoid damage to container	Flammables Corrosives *Check Sections 7 & 10 of SDS*

UCR LABORATORY WASTE DISPOSAL REQUIREMENTS

In case of a spill, contact EH&S at x: 2-5528 or UCPD at x: 2-5222 during non-business hours. Disposal using sinks, intentional evaporation and trash cans is against the law.

	Radioactive Waste	Hazardous Chemical Waste	Mixed & Combined Waste	Medical Waste: Pharmaceuticals	Medical Waste: Red Bag & Liquid	Medical Waste: Sharps	Medical Waste: Biohazardous Waste	Universal & Electronic	Animal Carcasses	Non-Hazardous Waste
Description	 Unwanted radioactive material, including Thorium & Uranium compounds	 Any unwanted or inherently waste-like material that because of its concentration, quantity, physical or chemical characteristics (ignitability, corrosivity, toxicity & reactivity) is considered hazardous by the State of California.	 Waste with more than one category of hazard as follows: • Radioactive: any quantity • Chemical: > 1% ignitable, corrosive, water/air reactive, or toxic; > 0.1% highly toxic or carcinogenic chemicals; specifically regulated (PCB>50 ppm, Cr(IV)>5 ppm, Ag>5 ppm, V>0.025% etc.) • Biohazardous: any quantity	 Unwanted prescription or over the counter human & veterinary drugs, If **NOT** a "controlled substance[1]"or radioactive material.	 Waste that is produced as a result of the diagnosis, treatment or immunization of humans or animals or research pertaining to the diagnosis, treatment or immunization of humans or animals.	 Sharp or pointed objects contaminated with biohazardous waste that can cut or pierce.	 All biologically contaminated waste that could potentially cause harm to human/animal health or environment.	 All used batteries, mercury lamps, and equipment containing a circuit board.	 Animal carcasses/tissues & unrecognizable human specimens/tissues from medical or pathology labs that are not biohazardous, radioactive or contaminated with hazardous chemicals.	 Uncontaminated trash, non-infectious liquids.
Examples	Gloves, protective coverings, LSC vials, contaminated items.	Any toxic, flammable, corrosive or regulated material, aqueous waste with a pH less than 5 or greater than 9, solutions with heavy metals, organic/ inorganic waste solutions & solids from research & teaching labs.Contaminated Broken Glass. Chemical Sharps (non-biohazard sharps)	Radioactive & chemical waste, radioactive & biohazardous waste, chemical & biohazardous waste, liquid scintillation cocktails, radioactively contaminated lead bricks & pigs, thorium nitrate, uranium oxalate.	Aspirin, antacids, cold remedies.	Unrecognized human specimens/ tissue, animal tissue/ carcasses & body parts, body fluids, blood or blood products (absorbed).	All hypodermic needles, syringes, blades, scalpels, razors, root canal files, contaminated broken glassware or pointed objects, slides, glass Pasteur pipettes & tips.	Human/animal cell cultures of infectious agents, waste from production of bacteria/ viruses/ spores, transgenic plants, recombinant DNA.	Used alkaline, NiCad, or silver batteries, fluorescent/ mercury vapor lamps, thermostats containing mercury, Cathode Ray Tubes, PC monitors, computers, cell phones.	Animal carcasses.	Paper, food, clothes, uncontaminated glass/ gloves/ blood/ urine, plastic ware/pipettes/ tips, tubes, autoclaved red bags with visible autoclaved indicator.
	Use the **UC WASTe** program at: https://ehs.ucop.edu/waste				Label with words **"Biohazardous Waste & Biohazard Symbol"**			Use the **UC WASTe** program	No Waste Label Required	
Storage & Labeling	•Use containers compatible with materials being collected •Use containers with positive closures (screw caps) & close when not in immediate use •Place containers with liquid waste in secondary containers with a capacity of 110% that of largest container •Do not allow contamination of the outside surfaces of waste containers •Do not overfill containers before submitting them for disposal	•Use chemicals compatible with containers that have positive closures (screw caps) •Close containers when not in immediate use •Place containers with liquid waste in secondary containers with a capacity of 110% that of largest container •Do not allow contamination of the outside surfaces of waste containers •Submit waste for disposal within 180 days of the start date of accumulation	Follow container requirements for the hazardous components present in the following order: • Radioactive • Chemical • Biohazards	Use tight, rigid container labeled "Incinerate Only."	•Use only **red** biohazard bags labeled "Biohazardous Waste" for solid •Double bagging is required •Do not fill more than ¾ full •Orange bags are **illegal** in California •For Liquid Waste Contact the Bio Safety Officer	Use only red "Sharps" containers labeled as "Biohazardous."	•Use only labeled red biohazard bags for solid •Double bagging is required •Orange bags are illegal in California •Use containers compatible with collected materials & with positive closures (screw caps)	•Must be stored in such a manner as to avoid damage to the waste •Batteries can be stored in a robust container (plastic or fiber) •Must not be stored longer than 9 months	•Double bag in heavy plastic bags •No single container greater than 50 pounds	•Solids: ordinary trash containers •Liquids: drain disposal
Disposal Guidelines	To reduce disposal costs: •Identify contents accurately •Segregate by half-life: less than 15 days, 15 - 90 days, greater than 90 days •Segregate by form: sharps, dry solid, stock vials, aqueous liquids, organic liquids, filled scintillation vials, bulked scintillation cocktails, lead containers/ shielding, other •Do not place lead containers/ shielding, stock vials or uncontaminated shipping containers with dry-solid waste •Label the "sharps" container as "Radioactive Material" If the waste contains ANY hazardous chemicals, the container must be treated as a chemical waste as well.	**Separate solids, liquids, gases & segregate waste into categories:** •Aqueous acids less than ph 5 (do not mix strongly oxidizing & organic acids) •Alkaline solutions greater than pH 9 •Alkali metals & materials that react strongly with water •Strong oxidizers •Non-halogenated organic solvents •Heavy metal solutions & salts •Mercury salts & solutions •Other toxic materials •Peroxide forming chemicals •Cyanides **Empty containers** •A container is empty if no material drips out while the container is in any orientation at any temperature for any length of time •Paint over, remove or completely deface labels •Always remove lid & discard separately •Place containers directly into dumpster	Avoid mixing wastes of different types & radioisotopes. Optimize waste disposal options: •Identify contents accurately •Avoid combining waste hazard categories •Eliminate hazardous characteristics when possible •Autoclave/ disinfect biohazardous component when practical	Tape closed in rigid container	•Liquid Waste Decontaminate with 10% bleach (30 minutes contact time), then release to sewer with abundant water if no chemicals or radioactive materials are present •Solid medical waste must be autoclaved in an approved autoclave or double bagged for collection by EH&S •Red bags must have indicator or autoclave tape to ensure proper decontamination prior to disposal as well as a label with the generator's building name and room number •Recognizable human tissue/ specimens must be incinerated	•Use an approved sharps container •Do not overfill •Close when full •Pipettes & pipette tips can be disposed of in a cardboard box with a red biohazard bag inside (when the box is full: seal the bag, tape the box closed, place in double red biohazard bags, autoclave with indicator tape & place in trash or call EH&S for pickup)	Decontaminate with 10% bleach (30 minutes contact time), then release to sewer with abundant water if no chemicals or radiologicals are present. •Solid biohazardous wastes must be autoclaved in an approved autoclave or packaged for collection by EH&S •Red bags must have indicator or autoclave tape to ensure proper decontamination prior to disposal as well as a label with the generator's building & room number	•Universal waste containers must be labeled with the words "Universal Waste" or, in the case of batteries, "Used Batteries" •All types of universal waste must also be labeled with the Accumulation Start Date •Submit a WASTe Request for Pick Up to EH&S when a container is 80% full or large volumes of waste are generated.	•Avoid including paper, wood or plastic products with waste •Arrange transport to storage freezer •Recognizable human specimens/ tissues must be cremated •Red bags must have indicator or autoclave tape to ensure proper decontamination prior to disposal •Contact Office of Campus Vivarium 951- 827 -5580	•Sharp objects (uncontaminated broken glass, Pasteur pipettes & tips, blades) must be placed in a hard-sided container •Non-hazardous materials in scientific containers should not be placed in the trash unless any hazard labels are clearly blacked out •Contact Building Services at 827-4219 for more information

FOR WASTE PICK UP REQUESTS OR DETAILED INFORMATION: https://ehs.ucr.edu/programs Questions? Call (951) 827-5528

[1] For Disposal of Controlled Substances contact EH&S (http://ehs.ucr.edu/controlledsubstances or call 951-827-5528). For a Department of Justice, Drug Enforcement Agency schedule of controlled substances, visit: www.deadiversion.usdoj.gov/schedules UCR Research Integrated Safety Committee Approved

[2] All red bags must be stored in rigid, leak proof containers with a tight fitting hood and labeled with the biohazard symbol on the top and four sides

Biohazardous & Medical Waste Disposal Requirements

Medical Waste Defined (Medical Waste Management Act 2016)

- Any biohazardous, pathology, pharmaceutical, or trace chemotherapy waste
- All sharps and any biohazardous waste from research involving the treatment, diagnosis or immunization of humans or animals
- Waste generated in autopsy or necropsy
- Waste generated in research using human or animal pathogens
- Laboratory waste such as human or animal specimen cultures that are infected with pathogens that are also infectious to humans
- Laboratory wastes from the production of bacteria, viruses, spores, discarded live and attenuated vaccines used in human health care or research

The California Medical Waste Management Act 2016 and UCR Medical Waste Permit requires anyone generating, treating, or storing medical waste to comply with the following procedures listed below.

Solid Medical or Biohazardous Waste:

1. Label a **red biohazard bag** with *building and room number* before filling it.
   For research Plant and Soil waste only, clear bag with red biohazard symbol is preferred.
2. Place the waste in the red biohazard bag **(orange bags are illegal in California)**. Do not place glass pipettes or anything that will puncture the plastic bag. Rigid objects such as transfer pipettes can be decontaminated by exposure to a 10% household bleach solution for at least 30 minutes.
3. Place **autoclave tape** on the bag to confirm autoclave attainment of adequate sterilization conditions.
4. Contaminated waste must be stored in a labeled, rigid, puncture-proof container with a tight-fitting lid and biohazard symbol on all visible sides and the top.
5. To dispose waste after autoclaving, take the biohazard bag directly to the building dumpster or make special arrangements with building services.
6. All waste must be decontaminated and disposed within seven (7) days of generation if stored at a temperature above 0°C.
7. All waste must be disposed within 90 days if stored at or below 0 °C.
8. Place all sharps in a red sharps container that is rigid, leak proof, and has the international biohazard symbol. Do not fill container more than ¾ full.

Biohazardous and Medical Waste Storage Area Requirements:

1. Biohazardous and medical waste storage areas must have warning signs on, or adjacent to, exterior doors, gates, or lids in English and Spanish:

   "CAUTION – BIOHAZARDOUS WASTE STORAGE AREA – UNAUTHORIZED PERSONS KEEP OUT" and
   "CUIDADO – ZONA DE RESIDUOS – BIOLOGICOS PELIGROSOS – PROHIBIDA LA ENTRADA A PERSONAS NO AUTORIZADAS"
2. The biohazardous and medical waste storage area must be either locked or under direct supervision or surveillance, and remain closed to prevent unauthorized access.

Autoclave Requirements:

1. The autoclave must be spore-tested monthly and all test results must be kept on file at the department for three (3) years. For guidance, contact EH&S Biosafety at 951-827-5528.
2. The autoclave must have a chart recorder. All charts must be dated and kept by the department for three (3) years.
3. All waste treatment runs must be listed on the autoclave log and the logs must be kept by the department for three (3) years.

How to Request Sharps Containers Pickup in WASTe:

1. Login to WASTe at https://ehs.ucop.edu/waste/#/ and create a "Biological" tag type, or if your sharps are contaminated with hazardous chemicals, create a "Chemical" tag type using the existing profile for sharps contaminated with hazardous chemicals.
2. Update the sharps container tag status in WASTe to "Ready for Pickup" and EH&S will pick up the container.

How to Request Sharps Containers:

Contact EH&S Waste Pickup Services at radiobiowastepickup@ucr.edu to request sharps containers.

How to Request Sharps Containers in WASTe:

1. If you have a sharps container for pickup, create a "Biological" tag type in WASTe, click the checkbox at "Replacement Sharps Container?" If you are using the "Chemical" tag type, request replacement sharps container at "Comments."
2. Update the sharps container tag status in WASTe to "Ready for Pickup" and EH&S will pick up the sharps container and bring a replacement.

For additional information, contact Environmental Health and Safety
radiobiowastepickup@ucr.edu (951) 827-5528

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