Stanford | Environmental Health & Safety

LAB SAFETY COORDINATOR BINDER

Stanford | Environmental Health & Safety

Laboratory Safety Coordinator Binder

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Assignment of Laboratory Safety Tasks to Laboratory Safety Coordinators

Per Stanford University's Research Policy Handbook, the Principal Investigator/Laboratory Supervisor is responsible for the health and safety of laboratory personnel doing work in his/her laboratory. The PI/Lab Supervisor may delegate certain safety tasks to one or more lab members. These lab members are often referred to as Laboratory Safety Coordinators (LSCs), but may also be called Lab Safety Contacts or Lab Managers. The PI/Lab Supervisor still retains ultimate responsibility and must make sure that any delegated tasks are carried out.

Instructions to the PI/Lab Supervisor

Assigning Health and Safety Tasks: If you elect to delegate routine health and safety tasks to one or more members of your lab, use this checklist or an equivalent form to document task assignments. You may use the "Other Duties" section to assign other safety duties you deem appropriate. If, at any point, a new laboratory safety coordinator is appointed, update this form accordingly. EH&S recommends that outgoing LSCs overlap with their replacement for an extended period of time (e.g. 1-3 months) to ensure adequate knowledge transfer.

Completing Health and Safety Tasks: Refer to the following pages for guidance on Commonly Delegated Health & Safety Tasks. Stanford EH&S can provide more in-depth training to LSCs. Contact your Research Safety Specialist or the EH&S office (650) 723-0448 to sign up for Orientation for Laboratory Safety Coordinators (EHS-5200).

Lab Name:_____ **Building/Rooms:**_____

Task	Name of Assignee(s)	Date Assigned
A. Safety Training		
B. Standard Operating Procedures (SOPs) / Risk Assessment		
C. Laboratory Self-Inspections		
D. Chemical Inventory & Management		
1. Chemical Storage, Segregation, and Labeling		
2. Chemical Waste Management		
3. Life Safety Box Updates		
E. Incident Reporting		
F. Additional Safety Support 1. EH&S Lab Visits 2. Lab Ergonomics 3. Biosafety (if applicable) 4. Radiation Safety (if applicable)		
G. External Regulatory Inspections		
H. Other Duties:		

x_____ _____

PI/Lab Supervisor Signature Date

Commonly Delegated Health & Safety Tasks

A. Safety Training

1. Train New Lab Members
   a. **Tier I** Training is required for all personnel - General Safety & Emergency Preparedness - Available on-line in AXESS/STARS. (EHS-4200)
   b. **Tier II** Training is determined based upon your work responsibilities using the Training Needs Assessment on-line in AXESS/STARS. Training will be assigned in STARS based upon the assessment.
   c. **Tier III** is Laboratory-specific training for new lab members prior to conducting laboratory work. Include the Personal Protective Equipment (PPE) Assessment Tool.
      i. Recordkeeping - maintain all Tier III and other in-person training records for a minimum of one year (unless otherwise specified). Records may be stored in BioRAFT under the *Document* tab or as hard copies.
2. Develop and/or update Laboratory-specific training
   a. Work with PI/Lab Supervisor to establish and maintain a system by which lab members can obtain additional training prior to new procedures involving new potential exposure situations and/or hazardous operations.
   b. Assist PI/Lab Supervisor in development and revision of PI's Lab-Specific training program using the following templates:
      i. How to Develop Lab-Specific Training or Laboratory-Specific Checklist
      ii. Personal Protective Equipment (PPE) Assessment Tool

B. Standard Operating Procedures (SOPs) / Risk Assessment

1. Work with PI/Lab Supervisor to ensure that the lab has appropriate SOPs in place.
   a. Lab members must have an SOP approved by the PI/Lab Supervisor prior to working with SU Restricted Chemicals (e.g., toxic gases regulated by Santa Clara County, dimethylmercury, hydrofluoric acid, *tert*-butyllithium, and DoT 1.1 explosives).
   b. Lab members must consult with PI/Lab Supervisor to prioritize development of SOPs for work involving highly toxic chemicals, carcinogens, reproductive toxins, highly reactive materials, and other high risk operations. Refer to General Use SOP for Highly Reactive/Unstable Materials.
   c. Additional SOP Guidance include templates and General Use SOPs. EH&S is available to perform courtesy reviews of SOPs. Please use this form to submit your lab-specific SOPs if you would like EH&S to review them, or you are working with chemicals or procedures for which an EH&S review is required: https://app.smartsheet.com/b/form/6af14bd85ac64e2b90ddd7f16ee91fdb
   d. Safety Fact Sheets for commonly used materials and procedures can serve as starting points and references for laboratory personnel.
2. Evaluate the risk of an experiment, analytical process or task, researchers can use Stanford Laboratory Risk Assessment Tool. Contact EH&S at (650) 723-0448 with any questions or to request support in conducting a risk assessment.

C. Laboratory Self-Inspections

1. Ensure laboratory self-inspections are completed using BioRAFT (https://stanford.bioraft.com) or the templates linked below:
    a. Required quarterly self-inspections for lab areas (Jan-Mar, Apr-Jun, July-Sept, Oct-Dec)
    b. Required monthly self-inspections for hazardous materials storage areas (isolated areas not routinely occupied by lab personnel. Contact EH&S if you are unsure if a room requires monthly self-inspections)
    c. If applicable, quarterly self-inspections for Controlled Substances (recommended)
    d. If applicable, annual self-inspection for Laser Safety
2. Assist PI/Lab Supervisor in correcting any deficiencies identified during self-inspections, documenting corrective actions in BioRAFT or on self-inspection sheets, and reviewing findings from self-inspections during group meetings and via other internal lab communication systems.
3. Refer to the Lab Compliance Cheat Sheet for violations commonly cited by the County of Santa Clara during hazardous materials inspections.
4. Maintain records for a minimum of **three** years.

D. Chemical Inventory and Management

- Ensure chemical inventory is maintained on an on-going basis using ChemTracker. See the Chemical Inventory Management page for a list of materials that must be inventoried.
- Familiarize lab members with the ChemTracker application and inventorying requirements. Contact your Research Safety Specialist to arrange individual or lab-wide training.
    - Go to http://chemtrackerhelp.stanford.edu for account-related assistance, including creating new user accounts and resetting passwords for existing accounts.

1. Chemical Storage, Segregation, and Labeling

a. Periodically check lab practices regarding chemical storage, segregation, and labeling.
    i. Ensure flammable materials are stored in an appropriate flammables cabinet.
    ii. Ensure that all hazardous chemicals are stored in appropriate secondary containment. Refer to the guidance on Primary and Secondary Container Criteria.
    iii. Ensure chemicals are stored compatibly using the Stanford Storage Group system. Storage Groups for specific chemicals can be determined using the Stanford Chemical Safety Database (also accessible through ChemTracker).
    iv. Ensure all containers are clean, free of cracks and other structural defects, and labeled with their full English name; chemical abbreviations and formulas are not sufficient.
    v. Assist PI/Lab Supervisor in discussing findings during group meetings and via other internal lab communication systems to ensure lab-wide engagement and follow-through.

2. Chemical Waste Management

a. Periodically check lab practices regarding labeling and management of chemical waste.
    i. Containers must be labeled with a waste tag before any waste is deposited.
    ii. Waste tags can be created and managed via http://wastetag.stanford.edu
    iii. Wastes must be stored compatibly and in secondary containment.
    iv. EH&S maintains a list of non-hazardous chemical wastes and recommended methods for their disposal.

v. Assist PI/Lab Supervisor in discussing findings during group meetings and via other internal lab communication systems to ensure lab-wide engagement and follow-through.

b. Arrange for pickup of hazardous waste containers after 8 months of waste accumulation or when the container is full, whichever occurs first.
   i. Pickup of containers labeled with barcoded waste tags must be requested through http://wastetag.stanford.edu
   ii. Pickup of containers labeled with non-barcoded waste tags must be requested through http://wastepickup.stanford.edu

3. Life Safety Box Updates

a. Ensure contents of the Life Safety Box (emergency contact information and chemical storage map of laboratory) are current to within the last 12 months.
   i. Blank Emergency Contact Sheet (University Main Campus)
   ii. Blank Emergency Contact Sheet (School of Medicine)
   iii. Blank Chemical Storage Map

b. Request new ChemTracker inventory printout and cover sheet: If over a year old or significant changes to inventory: Go to http://chemtrackerhelp.stanford.edu

E. Incident Reporting

1. Be familiar with the Serious Injury/Illness Reporting Procedures
2. In the event of lab incidents, injuries, or near-misses, assist PI/Lab Supervisor and involved parties in the completion and submission of an Incident Investigation Report (eSU-17 form), available at https://ehs.stanford.edu/esu-17
3. Assist PI/Lab Supervisor in correcting conditions that were causal factors of the incident and documenting such efforts. Retrain lab personnel as appropriate.
4. Assist PI/Lab Supervisor in reviewing incidents and near-misses during group meetings and via other internal lab communication systems. This may involve:
   a. Reviewing how to minimize reoccurrence
   b. Reinforcement of correct use of engineering controls, work practices, and personal protective equipment (as appropriate)
   c. Promoting reporting of near misses
   d. Reviewing the University's Anti-Reprisal Policy, which allows for reporting of safety concerns without fear of negative repercussions.

F. Additional Safety Support

1. EH&S Lab Visits

a. Participate in laboratory visits with EH&S staff on topics such as:
   i. General lab safety (e.g., SOP development, chemical inventory, hazardous materials storage, and waste management)
   ii. Fire safety
   iii. Biosafety (if applicable)
   iv. Health Physics (if applicable)
   v. Controlled Substances (if applicable)

b. Address issues on the spot, when feasible (e.g., completion of hazardous waste tags, placing hazardous materials in secondary containment).
c. Assist PI/Lab Supervisor with implementing any corrective actions or best practice suggestions identified by EH&S representatives.

2. Lab Ergonomics

- **Laboratory Ergonomics Training – EHS 4800:** Prior to beginning work in a lab, EHS recommends completion of Lab Ergonomics Training. Refer to STARS for the training schedule.
- **Laboratory workstation evaluations:** For assistance with your laboratory workstation setup and ergonomic products, please contact EH&S Ergonomics team here.

Laboratory Ergo Self Eval Form
Laboratory Ergonomics Catalog
Laboratory Ergonomics Matching Fund Program
Ergo Tip Sheet Fume Hood
Ergo Tip Sheet Microscopy
Ergo Tip Sheet Pipetting
Adjusting Lab Stools
Microbreaks

3. Biosafety (if applicable)

a. Ensure biosafety cabinets (tissue culture hoods) are certified annually.
b. Arrange for pickup of biohazardous waste. For assistance, call (650) 724-0794 (University Main Campus) or (650) 721-2146 (School of Medicine).

If the lab uses human or non-human primate cells (including tissue culture), blood, blood products, body fluids, organs, or other potentially infectious materials:

- Assist PI/Lab Supervisor in ensuring researcher compliance with Universal Precautions. Refer to the Biosafety Manual or contact the Biosafety program for more information.

If the lab uses biologically hazardous agents (Biosafety levels 2 and higher) and/or non-exempt recombinant or synthetic nucleic acids:

- Assist PI/Lab Supervisor with submitting, revising, and renewing APB protocols through http://eprotocol.stanford.edu

4. Radiation Safety (if applicable)

If the lab uses/will use radioactive material or any machine that emits ionizing or non-ionizing radiation (including lasers):

- Visit the radiation safety and laser safety websites for a description of relevant safety duties.
- Contact Health Physics at (650) 723-3201 for additional assistance.

G. External Regulatory Inspections

- Whenever possible, be present during external regulatory inspections to address questions posed by inspectors regarding laboratory operations, including hazardous materials storage/waste management and review of quarterly and monthly lab self-inspection records.
  - EH&S staff (and/or Departmental Health & Safety Programs staff) escort external regulatory inspectors, along with the local area contact.

- Correct violations on the spot during the inspection, when feasible (e.g., completion of a hazardous waste tag) and as allowed.
- Assist PI/Lab Supervisor with: (1) correcting outstanding violations and (2) providing the required responses documenting abatement of violation to the local area contact within the required time frame.

H. Other Duties

Other lab-specific safety duties may be assigned as the PI/Lab Supervisor deems appropriate.

Resources

EH&S	ehs.stanford.edu
Emergency Preparedness Checklist for students, faculty, staff, and visitors	ehs.stanford.edu/wp-content/uploads/EmerPrepChecklist.pdf
Laboratory Continuity Planning	ehs.stanford.edu/topic/emergency-preparedness/continuity-planning
Laboratory Ergonomics	ehs.stanford.edu/wp-content/uploads/lab_ergo_tips.pdf ehs.stanford.edu/wp-content/uploads/Lab-Ergo-Product-List.pdf
BioRAFT	stanford.bioraft.com
Chemical Inventory	stanford.chemtracker.org
Chemical Safety Database	chemsafetydata.stanford.edu
Chemical Toolkit	chemtoolkit.stanford.edu
Free Chemicals	freechemicals.stanford.edu
Forms	ehsforms.stanford.edu
Hazmat Shipping	hazmatshipping.stanford.edu
Online Safety Store	ehs.stanford.edu/safety-store
Online Training	axess.stanford.edu
Radiation	radsafety.stanford.edu
Waste Pickups	wastepickup.stanford.edu
Waste Tag	wastetag.stanford.edu

STANFORD UNIVERSITY
LABORATORY CHEMICAL SAFETY PLAN
ENVIRONMENTAL HEALTH & SAFETY

Safety Training and Hazard Information

Summary: Information and training must be made available to educate laboratory personnel of the hazards of chemicals present in their work area.

A. For Work Directed by PI/Laboratory Supervisor: Laboratory personnel must receive general and laboratory-specific information and training at the time of initial assignment to the laboratory and prior to assignments involving new exposure situations, Particularly Hazardous Substances, and hazardous operations.

1. Safety Training

What to do?	How to do this?
Obtain General Laboratory Safety Training	Take the following training. • For PI: Supervisor Health & Safety Responsibilities (EHS-5400)* • For lab personnel: General Safety & Emergency Preparedness (EHS-4200)* • Laboratory Ergonomics (EHS-4800)* • Chemical Safety for Laboratories (EHS-1900)* ***AND**, where applicable:* • Compressed Gas Safety (EHS-2200)* • Cryogenic Liquids & Dry Ice Safety (call EHS at (650) 723-0448) • Computer Workstation Ergonomics (EHS-3400)* ** Available online, register in STARS at http://axess.stanford.edu/*

School of Medicine ONLY - Life Sciences Research Laboratory Safety Training (EHS-4875)*

Life Sciences Research Laboratory Safety Training covers essential training specifically for those working in Stanford University medical, biological and life sciences research laboratories that contain hazardous biological materials. It is designed to ensure compliance with external regulatory requirements applicable to those laboratory research activities, combined into one web-based training course.

EHS-4875 is inclusive of Biosafety (EHS-1500), Chemical Safety in Laboratories (EHS-1900), and Compressed Gases Safety (EHS-2200). Researchers not in a SOM laboratory, and not in a Life Sciences Research laboratory should instead take the separate courses as applicable.
** Available online, register in STARS at http://axess.stanford.edu/*

Obtain Laboratory-Specific training	1. See your PI/Laboratory Supervisor to review the lab-specific training procedures for your lab. 2. Review any individual Laboratory Safety Plan. 3. Complete lab-specific training* or equivalent, which includes: • Local/building safety information • Standard operating procedures (SOP) involving hazardous materials. You may use the form *Documenting SOP & Prior Approval*[1] to document your review. • Any other laboratory-specific safety procedures or hazards that may be encountered in the laboratory environment. Lab-owned equipment may require specialized training to ensure safety and prevent equipment damage.

	*Additional guidance for PIs on how to develop lab-specific training can be found in *How to Develop Lab-Specific Training* (available at **http://chemtoolkit.stanford.edu**)
Maintain Training Records	1. PI/Laboratory Supervisor or designate must retain training documents for laboratory personnel for at least one year. 2. Use *How to Develop Lab-Specific Training* (available at **http://chemtoolkit.stanford.edu**) or equivalent to document training.

2. Hazard Information: The following hazard information is available for PIs/Laboratory Supervisors and Laboratory Personnel to consult during the experiment planning process to assess the hazards and potential risks associated with the chemicals and laboratory operations

For Information on:	See:
Reference materials on the hazards, signs & symptoms of exposure, safe handling, storage & disposal of hazardous chemicals at the various website links:	• Safety Data Sheets • Stanford University's Chemical Safety Database • Chemical Safety, National Institute of Health • SOP Template
Cal/OSHA's Permissible Exposure Limits	"Permissible Exposure Limits (PEL) for Chemical Contaminants", California Code of Regulations, Title 8, Section 5155. Cal/OSHA establishes regulatory exposure limits for many airborne contaminants; the actual values are in Table AC-1. If a PEL is not established for a specific contaminant, contact EH&S for guidance.
Cal/OSHA's Laboratory Standard	"Occupational Exposure to Hazardous Chemicals in Laboratories." California Code of Regulations Title 8, Section 5191. Cal/OSHA is a governmental agency that protects worker health and safety in the State of California. This regulation was promulgated to protect laboratory personnel engaged in the laboratory use of hazardous chemicals. [NOTE: Custodial and maintenance staff who service the laboratory fall under Cal/OSHA's Hazard Communication Standard, Code of Regulations Title 8, Section 5194.]
Stanford University's Chemical Hygiene Plan	Stanford University's Chemical Hygiene Plan. The above-referenced Cal/OSHA regulation requires employers to have a written Chemical Hygiene Plan. This Plan fulfills this regulatory requirement and is a resource for information used for planning experiments and laboratory operations.

B. For Work Conducted Autonomously or Independently:

What to do?	How to do this?
Consult with PI/Laboratory Supervisor	1. PI/Laboratory Supervisor or designate must retain training documents for laboratory personnel at least one year. Note: Training records for EHS-provided trainings are maintained electronically. 2. Obtain any other training that is appropriate to the work you conduct in Stanford University laboratories. • Provide appropriate oversight, training and safety information to any laboratory personnel you supervise or direct.

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Research Safety

REQUIRED TRAINING FOR LAB RESEARCHERS & PIs

These courses are designed to ensure compliance with applicable external regulatory requirements and Stanford University guidelines and policies.

Course title and STARS number:	Must be taken by all who:	Courses in axess.stanford.edu Course Notes:
General Safety, Injury Prevention (IIPP) and Emergency Preparedness EHS-4200-WEB	…work at Stanford University	
Life Sciences Research Lab Safety EHS-PROG-4875	…work in life sciences research laboratories in the School of Medicine with biological agents, hazardous chemicals & compressed gases*	
Biosafety EHS-1500-WEB	…work with biological agents*	
Chemical Safety for Laboratories EHS-1900-WEB	…work with chemicals*	
Compressed Gas Safety EHS-2200-WEB	…work with compressed gas cylinders*	
Laboratory Ergonomics EHS-4800	…perform repetitive tasks such as microscope use, pipetting, and miscellaneous hand tool use	This is a classroom course.
Computer Workstation Ergonomics EHS-3400-WEB	…use a computer routinely	
Bloodborne Pathogens EHS-PROG-1600 EHS-PROG-1601 (Recert)	…work with human and/or non-human primate blood, blood products, cells (including tissue culture) or other potentially infectious material	Must be taken annually.
Aerosol Transmissible Diseases EHS-PROG-1090 EHS-PROG-1091 (Recert)	…work with aerosol transmissible pathogens	Must be taken annually and review the Lab ATD Biosafety Plan annually.
Radiation Safety Training EHS-5250-WEB	..have never worked with radioactive materials before	Must also take EHS-5251 Hands-on Training.
Laser Safety EHS-PROG-4820 EHS-PROG-4821 (Recert)	…work with Class 3 or 4 lasers	Must be taken every three (3) years.

Continue on next page...

Course title and STARS number:	Must be taken by all who:	Courses in axess.stanford.edu Course Notes:
DOT: Excepted Quantities EHS-PROG-2650 EHS-PROG-2651 (Recert)	…who are required to identify, package and air ship small quantities of hazardous chemical materials	Must be taken every two (2) years.
DOT: Shipping Dangerous Biological Goods or Dry Ice EHS-PROG-2700 EHS-PROG-2701 (Recert)	…package and/or ship dangerous biological materials, or who package and/or ship any packages containing DRY ICE	Must be taken every two (2) years.
Cryogenic and Dry Ice Safety EHS-2480	…work with cryogenic liquids and/or dry ice	This is a classroom course.
Orientation for Lab Safety Coordinators EHS-5200	…who are assigned safety/ compliance tasks by their PI or lab supervisor	This is a classroom course.
Controlled Substances EHS-2125-WEB	…work with controlled substances	
Fire Extinguisher Training EHS-3700 (classroom) EHS-3850-WEB	…work at Stanford University	
Other courses as necessary	This is not a complete list of safety training courses that you may be required to take	Please go to Training Needs Assessment Tool in http://axess.stanford.edu for help identifying the safety training that is required for your work.

*** EHS-PROG-4875 contains all content in the three courses EHS-1500-WEB, EHS-1900-WEB, and EHS-2200-WEB. Take EHS-PROG-4875 if you work in a School of Medicine research laboratory. If you work in a School of Medicine research laboratory BUT work with only one or two of the Biological, Chemical or Compressed Gas categories, you should instead take the separate courses.**

For questions, email: ehs-training@stanford.edu

STANFORD UNIVERSITY LABORATORY-SPECIFIC TRAINING CHECKLIST

Laboratory Name: _____ **Building/Room(s):** _____

- ☐ Add researcher to the "Laboratory Members" list in BioRAFT (Go to https://stanford.bioraft.com/)
- ☐ Show researcher how to access the STARS training (Go to https://axess.sahr.stanford.edu/) and assist them in completing a Training Needs Assessment for their research. Identify any additional training requirements.
- ☐ If applicable, add researcher to relevant APB, APLAC and/or IRB protocols in the eProtocol program.

Review the location and proper use of the following safety features:

- ☐ Information in Life Safety Boxes (including emergency contacts).
- ☐ Emergency evacuation routes and emergency assembly points.
- ☐ Fire extinguishers and closest fire alarm pull station.
- ☐ Safety showers and eyewash stations.
- ☐ Emergency shutoffs for laboratory equipment.
- ☐ First aid kits.
- ☐ Laboratory small spill kits and building spill kits or both.
- ☐ Chemical fume hoods, biosafety cabinets, and glove boxes.
- ☐ SU-17 incident report forms.
- ☐ If applicable, specialized medical supplies (e.g. calcium gluconate for hydrofluoric acid and amyl nitrite for cyanides).

Review the following lab hazards, safety plans, procedures, and safety manuals:

- ☐ Location of highly hazardous materials, equipment, and processes present in the work area.
- ☐ Lab's PPE assessment and location, use and limitations of required PPE (e.g. gloves, safety glasses, lab coats, etc.)
- ☐ Applicable protocols, risk assessments, Standard Operating Procedure (SOPs), lab's local plans (e.g. BBP Exposure Control Plan), safety fact sheets, pathogen safety data sheets and/or work plans for hazardous materials, equipment, or processes present in your work area.
- ☐ Laboratory waste management (e.g. chemical, biological, sharps, radiological).
- ☐ Location of Safety Data Sheets in lab or online.
- ☐ Location of Chemical Hygiene Plan, Biosafety Manual, and Radiation Safety Manual in lab or online.
- ☐ If work will involve radioactive materials and/or lasers, contact EH&S Health Physics at 723-3202 to discuss training requirements.

☐ ***I understand that additional risk assessment and training[1] may be required when there is a change in the hazards associated with my work.***

By signing this form, I agree that I have been trained on the above checked items.

Trainee name (print): _____

Trainee signature: _____ Date: _____

Training was provided on the above checked items by:

PI/designee name (print): _____

PI/designee signature: _____ Date: _____

[1] Use SU's Additional Laboratory-Specific or Job-Specific Training Log to document subsequent lab-specific trainings for specific lab equipment, SOPs, etc.

STANFORD UNIVERSITY

HOW TO DEVELOP LAB-SPECIFIC TRAINING

SUMMARY

Stanford's Chemical Hygiene Plan requires that all lab members be trained on the specific hazards that exist in their lab and the procedures, equipment, and resources available in their lab for working safely with these hazards.

Lab-specific training must be: (1) documented and (2) provided to all lab personnel at the time of initial assignment to the lab and prior to work involving new exposure situations and hazardous operations.

HOW TO USE THIS TEMPLATE

The template below may be used to develop a lab-specific training handout and for documenting the training. After reviewing the training goals in the left-hand column, describe in the right-hand column how your lab fulfills these goals. Guidance text provided in gray should be modified and adapted to reflect your lab's practices. The guidance text may be deleted.

	TRAINING GOAL	HOW LAB FULFILLS TRAINING GOAL
TRAINING	Ensure completion of all safety training before beginning lab work.	Identify required training for each new lab member. At **minimum** should include completion of: ◦ General Safety and Emergency Preparedness (EHS-4200; online via Axess) ◦ Chemical Safety for Laboratories (EHS-1900; online via Axess) ◦ Lab-Specific Training
SAFETY ROLES	Know the health and safety responsibilities of the principal investigator, lab safety coordinator, and all lab group members.	Describe the process for discussing and addressing health and safety concerns in the lab. Include information on expectations for all lab members. Identify additional key personnel for the building and/or department such as the facilities manager, Safety Chair, EH&S, Human Resources, etc.
SAFETY INFO	Know where to find safety data sheets (SDS), standard operating procedures (SOP), user manuals for equipment, journals, textbooks, etc.	Identify and list how to locate relevant resources for safety information including: o Chemical Hygiene Plan (http://chemhygieneplan.stanford.edu) and Cal/OSHA regulations o Resources specific to the lab such as a lab-specific SDS binder (if any), SOPs, etc.
LAB-SPECIFIC HAZARDS	Know the specific hazards that exist in the lab and which hazards are covered by existing SOPs.	In this section provide a basic overview of hazards present in the lab and any controls or alarms that all lab members must be aware of. For example, presence of lasers, biohazards, reproductive hazards, reactives, toxic gas, etc.

LAB OPERATIONS	Know the Chemical Hygiene Plan SOP requirements and the lab's process for developing and reviewing new SOPs.	Per SU Chemical Hygiene Plan the following materials receive priority for SOP development: highly toxic chemicals, carcinogens, reproductive toxins, and highly reactive materials. In addition, this section should review the PI's expectations for when written SOP development is triggered.
	Know the lab's chemical ordering, usage, and disposal procedures.	Include: Where lab chemicals are stored (including flammable cabinet locations), how ChemTracker is used for inventorying chemicals, and where hazardous waste is collected and what are the waste labeling procedures specific to the lab.
	Know what is required personal protective equipment (PPE) for working in the lab, including where lab-provided PPE is stored such as safety glasses/goggles, cryogenic gloves, etc.	See the Personal Protective Equipment section of the Chemical Safety Toolkit (chemtoolkit.stanford.edu) for minimum requirements. If PPE is not required at all times in the lab then identify the areas, times, and/or situations when eye protection, proper lab attire, etc. are not necessary.
	Know the rules for being trained on and authorized to use the lab's specialized equipment, e.g., centrifuge, rotary evaporator, glove box, etc.	In most cases this equipment should have a separate SOP which can be used in conjunction with any owner manuals as a training tool for that piece of equipment.
	Know the lab's "Do's and Don'ts"	For example, what are the lab rules regarding propping open lab doors, food storage, break areas, working after hours, cleaning up after yourself, etc. Refer to SU's Laboratory Toolkit: https://ehs.stanford.edu/topic/lab-safety
EMERGENCY EQUIPMENT & PROCEDURES	Know where to find safety equipment.	Includes spill kits, fire extinguishers, emergency alarm boxes, safety eyewash and showers, and first aid kits. List safety equipment relevant to your lab in this box and either describe location or as part of training show new lab personnel the location during lab walkthrough
	Know the emergency procedures for different hazards, including biohazards, chemical hazards, radioactive hazards, fire, and earthquakes.	Include: o What equipment do I need to quickly turn off before evacuating (heat sources, gases, vacuums, etc.)? o Where is the Emergency Assembly Point (EAP)? o What are at least two evacuation routes out of the building?
	Know the incident and injury reporting procedures.	Include: o How to obtain and complete an incident investigation report (SU-17 form) via su17.stanford.edu o How to call 911 from a campus phone and cell phone o How to contact the SU Occupational Health Center (650) 725-5308

Lab member: _____

Lab member's signature: _____

Trainer's name: _____ Training date: _____

Signature of PI: _____

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Laboratory Personal Protective Equipment (PPE) Assessment Tool

This tool is designed to:

- Identify and document hazards in your lab and the required PPE to minimize exposure.
- Document the required completion of laboratory-specific PPE training.

The Supervisor or PI/Lab Supervisor may assign a designee to perform or assist in the above duties but must ensure they are carried out.

Section 1: Laboratory Information

Department	
Principal Investigator/ Lab Supervisor	
Phone Number, e-mail	
Building/Rooms	

Section 2: PPE Assessment

1. Assess potential hazards and appropriate PPE for laboratory operations under your supervision.
    a. Include a walk-through survey of lab areas.
    b. Use the checklist below.
        - Check the corresponding boxes for the operations/tasks your lab conducts.
          Note: If a risk assessment by the PI/Lab Supervisor determines that, for some operations, more or less protective PPE is required than the applicable PPE indicated, this must be documented on the PPE assessment tool, the appropriate Standard Operating Procedure (SOP), or a separate document.
        - Use the section at the end of the checklist to include any hazards and PPE not covered in the form.
2. Complete and sign the "Certification of PPE Assessment." Keep a local copy.
3. Update the PPE assessment when new hazards are introduced into your work area.

For further technical guidance and assistance with PPE selection, consult with EH&S at 723-0448.

Chemical Hazards

Activities performed in the lab?	Lab Operation/Task Involving[1]	Applicable PPE (in addition to proper street clothing[2])
☐ Yes ☐ No	Flammable liquids	• Safety glasses (If splash potential exists, use goggles + face shield instead.) • Lab coat (A flame-resistant lab coat, such as Nomex, may be appropriate depending upon the quantity [> 4L] or the task, e.g., heating.) • Appropriate chemical-resistant gloves

☐ Yes ☐ No	Corrosive liquids	• Safety glasses (If splash potential exists, use goggles + face shield instead.) • Lab coat (Also use chemical-resistant apron if splash potential exists.) • Appropriate chemical-resistant gloves
☐ Yes ☐ No	Cryogenic liquids or dry ice (including working with cryogenic dewars)	• Safety glasses (If splash potential exists, use goggles + face shield instead.) • Lab coat • Insulated cryogenic gloves
☐ Yes ☐ No	Compressed Gases	• Safety glasses • Lab coat, as needed (e.g., when making or breaking connections with non-inert gases) • Gloves, as needed (e.g., work gloves when handling cylinders, chemical-resistant gloves when making or breaking connections with non-inert gases)
☐ Yes ☐ No	Pyrophoric or water reactive compounds (or highly exothermic reactions)	• Goggles + face shield • Flame-resistant lab coat, such as Nomex • Appropriate chemical-resistant gloves (Additional fire resistant gloves may be necessary, depending on the task.) • Non-synthetic street clothing
☐ Yes ☐ No	Explosive compounds	• Goggles + face shield • Flame-resistant lab coat, such as Nomex • Heavyweight gloves, such as anti-static PVC gauntlets • Engineering control: Use blast shield.
☐ Yes ☐ No	Engineered nanomaterials	• Safety glasses (If splash potential exists, use safety goggles + face shield instead.) • Disposable ®Tyvek-type coveralls (or Lab coat) • Appropriate chemical-resistant gloves • For additional guidance, see Engineered Nanomaterials.
☐ Yes ☐ No	Particularly hazardous substances, including select carcinogens, reproductive toxins, and substances with a high degree of acute toxicity	• Safety glasses (If splash potential exists, use safety goggles + face shield instead.) • Lab coat • Appropriate chemical-resistant gloves
☐ Yes ☐ No	Chemically preserved animal and/or human specimens	• Safety glasses • Gown or lab coat • Appropriate chemical-resistant gloves
☐ Yes ☐ No	Hazardous chemical not in one of the above special categories	• Safety glasses (If splash potential exists, use goggles + face shield instead.) • Lab coat • Appropriate chemical-resistant gloves

Biological Materials

Activities performed in the lab?	Lab Operation/Task Involving[1]	Applicable PPE (in addition to proper street clothing[2])
☐ Yes ☐ No	Working with biological agents or recombinant DNA classified as Biosafety Level 1	• No PPE required. However, if working in conjunction with another hazard (e.g., flammable liquids), wear appropriate PPE for that hazard.

Laboratory Personal Protective Equipment (PPE) Assessment Tool

☐ Yes ☐ No	Working with biological agents or recombinant DNA classified as Biosafety Level 2	• Safety glasses (If splash potential exists, use safety goggles and face shield.) Note: *When using the Biological Safety Cabinet (BSC), eye and face protection is not required for work with biological agents or recombinant DNA.* • Lab coat • Latex or nitrile gloves
☐ Yes ☐ No	Working with infectious agents or recombinant DNA classified as Biosafety Level 2+	• Safety goggles (If splash potential exists, also use face shield.) Note: *When using the Biological Safety Cabinet (BSC), eye and face protection is not required for work with biological agents or recombinant DNA.* • Disposable gown or lab coat • Latex or nitrile gloves • Respirator (as determined by Administrative Panel on Biosafety [APB] protocol review; contact EH&S for assessment 723-0448)
☐ Yes ☐ No	Working with Infectious agents or recombinant DNA classified as Biosafety Level 3	• Safety goggles (If splash potential exists, also use face shield.) Note: *When using the Biological Safety Cabinet (BSC), eye and face protection is not required for work with biological agents or recombinant DNA.* • Full disposable gown or ®Tyvek suit • Shoe cover or dedicated shoes • Latex or nitrile gloves (double) • Respirator (as determined by the APB review; contact EH&S for assessment, 723-0448)
☐ Yes ☐ No	Human or non-human primate blood and other body fluids, tissues or cells, or blood borne pathogens (BBP)	• Safety glasses (If splash potential exists, use safety goggles and face shield.) Note: *When using the Biological Safety Cabinet (BSC), eye and face protection is not required for work with biological agents or recombinant DNA.* • Lab coat • Latex or nitrile gloves
☐ Yes ☐ No	Live Animals (Animal Biosafety Level 1 or Risk Category 2 animals)	• Safety glasses (If splash potential exists, use safety goggles + face shield.) Note: *When using the Biological Safety Cabinet (BSC), eye and face protection is not required for work with biological agents or recombinant DNA.* • Lab coat • Latex, nitrile, or vinyl gloves (+ wire mesh gloves as appropriate) • Consult with EH&S for N95 respirator assessment, 723-0448 • In the space provided at the end of the checklist, list any additional or modified PPE required by (1) an APB or APLAC protocol or (2) consultation or written policies from VSC and/or EH&S (723-0448).
☐ Yes ☐ No	Live Animals (Animal Biosafety Level 2 or Risk Category 1 animals)	• Safety glasses (If splash potential exists, use safety goggles + face shield.) Note: *When using the Biological Safety Cabinet (BSC), eye and face protection is not required for work with biological agents or recombinant DNA.* • Disposable gown, hair cover, shoe cover, and surgical mask • Latex, nitrile, or vinyl gloves (+ wire mesh gloves as appropriate) • In the space provided at the end of the checklist, list any additional or modified PPE required by (1) an APB or APLAC protocol or (2) consultation or written policies from VSC and/or EH&S (723-0448).

Radiation

Activities performed in the lab?	Lab Operation/Task Involving[1]	Applicable PPE (in addition to proper street clothing[2])
☐ Yes ☐ No	Unsealed radioactive materials or waste	• For radionuclide-specific PPE, consult with Health Physics, 723-3201.
☐ Yes ☐ No	Class 3B or 4 laser	• Appropriate laser safety goggles (consult with Health Physics, 723-3201)
☐ Yes ☐ No	Laser(s) modified by optics	
☐ Yes ☐ No	Ultraviolet (UV) radiation (from sources other than lasers)	• UV-blocking eye protection or UV-blocking face shield • Appropriate UV blocking gloves
☐ Yes ☐ No	Infrared-emitting equipment	• Appropriately-shaded goggles for infrared radiation

Physical Hazards

Activities performed in the lab?	Lab Operation/Task Involving[1]	Applicable PPE (in addition to proper street clothing[2])
☐ Yes ☐ No	Glassware (or other vessels) under pressure or vacuum	• Safety goggles + face shield • Chemical-resistant apron for high risk activities • Appropriate chemical-resistant gloves • Engineering control: Use blast shield, as appropriate.
☐ Yes ☐ No	Working with knives, scalpels, razor blades, etc. or handling broken glass	• Cut-resistant gloves
☐ Yes ☐ No	Centrifuge	• Safety glasses • If centrifuging hazardous materials, wear additional PPE to match the hazard.
☐ Yes ☐ No	Sonicator or other loud equipment	• Ear plugs or ear muffs may be required (consult with EH&S 723-0448).
☐ Yes ☐ No	Removing freezer vials from liquid nitrogen	• Goggles + face shield • Lab coat • Insulated cryogenic gloves
☐ Yes ☐ No	Handling hot liquids/equipment (e.g., autoclaved materials, heated glassware, water or oil bath)	• Safety glasses (If splash potential exists, use safety goggles + face shield.) • Lab coat • Thermally insulated gloves (Wear chemical-resistant gloves underneath, as needed.)
☐ Yes ☐ No	Machinery (e.g., lathes, saws) and hand tools	• Safety glasses (+ face shield if flying fragments or particles generated) • Gloves appropriate for hazards (e.g., chemicals, sharp objects) Note: Gloves are not required if there is a potential to become entangled in moving parts; consult with EH&S 723-0448. • Work Practice: Confine long hair/beards to prevent entanglement in machinery (e.g., via bun, pinned-up ponytail, or hairnet). Do not wear any loose clothing and jewelry. • Hearing protectors, respiratory protection, or safety shoes may be required (consult with EH&S 723-0448). • See SU Safe Operation of Shop Machinery for additional PPE Guidance.

Other Laboratory Operations/Tasks

Lab Operation/Task Involving:	Applicable PPE:
Personnel that are not directly involved in the lab operations, but who are at risk for potential exposure to hazardous materials and/or physical hazards	• Lab coat • Safety glasses • Additional PPE deemed necessary (e.g., if touching contaminated surfaces, wear gloves to match the hazard) • Proper street clothing - long pants (or equivalent) that cover legs and ankles, and non-perforated, closed-toed shoes that completely cover the feet

[1] Conduct activities with potential to generate airborne contaminants using appropriate engineering controls (e.g., laboratory fume hood, biosafety cabinet, glove box, local exhaust at work bench). If engineering controls are not feasible, consult EH&S to determine if the activity presents a respiratory hazard, which may require a respirator; call 723-0448.

[2] Proper street clothing - *Long pants (or equivalent) that cover the legs and ankles, and non-perforated, closed-toed shoes that completely cover feet.*

Certification of PPE Assessment

Name of person conducting assessment	
Title	
Phone Number, email	
Signature:	**Date:**

Section 3: Laboratory-Specific PPE Training

1. **Deliver laboratory-specific PPE training**
   Train lab personnel upon their joining the lab or prior to performing work requiring the use of PPE. Training content shall include, but not be limited to:
   a. When and what PPE is required per *Section 2: PPE Assessment*
   b. Limitations of the PPE
   c. How to properly put on, adjust, wear, and remove PPE
   d. Proper care, maintenance, useful lifespan, and disposal of PPE

   For more information, refer to the PPE Safety Training Guidance at
   http://ehs.stanford.edu/resource/ppe-training-guidance

2. **Training documentation**
   a. When lab personnel have demonstrated an understanding of the above training and ability to the use PPE properly, the lab member and trainer must sign below that the PPE training has been conducted.
   b. Maintain training records for at least one year.

3. **Provide retraining**
   Retraining is required of laboratory personnel when:
   a. Changes in laboratory activities/operations render previous PPE training obsolete.
   b. Inadequacy of laboratory personnel's knowledge or use of PPE is evident.

PPE Training Verification					
Trainee Name:	**Trainee Signature:**	**SUNET ID:**	**Training Date:**	**Trainer Name:**	**Trainer Signature:**

Prior Approval and Special Precautions

Summary: Prior approval is the process whereby laboratory personnel seek permission and the PI/Lab Supervisor grants approval for the use of Restricted Chemicals. These include

- Toxic gases regulated by Santa Clara County (e.g. diazomethane, hydrogen cyanide, hydrogen fluoride (anhydrous), and nickel carbonyl)
- Dimethylmercury
- Chemicals classified as Department of Transportation (DOT) Division 1.1 explosives (e.g., picric acid, 2,4-dinitrophenylhydrazine (DNPH), ammonium perchlorate)
- Tert-butyllithium
- Hydrofluoric acid
- Procedures with "high" and "unacceptable" risk ratings on a self-conducted Laboratory Risk Assessment

Lab personnel should consult with the PI or their supervisors on certain higher-risk chemical usage and operations so that special safety precautions can be taken where appropriate.

Consultations can include discussion of special hazards and safety precautions and review of applicable standard operating procedures.

What to do?	How
For use of Restricted Chemicals, obtain prior approval before you execute the operation	1. Complete the form *Documenting SOP Review and PI Approval* available at **http://chemtoolkit.stanford.edu**; OR 2. PI/Laboratory Supervisor signs and dates laboratory personnel's laboratory notebook and indicates approval for the process, procedure or activity; OR 3. PI/Laboratory Supervisor provides other written approval (e.g., via e-mail or memo). 4. Retain record of prior approval for at least one year.

SOP Guidance

https://ehs.stanford.edu/sop-guidance

Standard Operating Procedures

A standard operating procedure (SOP) is a set of written instructions that describes in detail how to perform a process or experiment safely and effectively. SOPs may be utilized in laboratory and non-laboratory operations. Within the laboratory environment, SOPs are a requirement of Stanford University's Chemical Hygiene Plan, as described in section 4.

EH&S is available for consultation on SOPs. Submit your request for EH&S review of an SOP by completing the SOP Intake Form. Please note that EH&S review supplements, but does not replace, PI/lab supervisor review and approval.

Examples of SOP topics:

Lab Areas:

- The specific use of a chemical or class of chemicals (such as a specific laboratory procedure).
- The generic use specific chemical or class of chemicals with similar hazards (for example, mineral acids).
- A generic procedure (such as distillation) that covers several chemicals.
- Radionuclide use in DNA and RNA labeling.
- Laser operations.
- X-ray diffraction machine operation.
- Use and maintenance of laboratory equipment or instruments.

Non-lab Areas:

- Specific work practices (such as lifting techniques) to mitigate physical/health hazards.
- Specific tasks that are unique to work performed at Stanford University.

Responsibility in Laboratories

The PI/Lab Supervisor is responsible for providing written Standard Operating Procedures (SOPs) relevant to health and safety for laboratory activities he/she directs involving hazardous chemicals. Laboratory personnel working autonomously or performing independent research are responsible for developing SOPs appropriate for their own work using the guidance below.

Prioritizing SOP Development for Laboratories

Priority for SOP development should be given to any operation involving Restricted Chemicals, certain higher risk chemicals, such as Particularly Hazardous Substances and highly reactive chemicals, and specified higher risk research procedures described in the CHP.

Guidance for Non-Laboratory Areas

The Supervisor is responsible for providing written Standard Operating Procedures (SOPs) relevant to health and safety for activities he/she directs that require specific work practices to mitigate physical and/or health hazards.

Prioritizing SOP Development in non-lab areas

Priority for SOP development should be given to any operation involving control of energy sources via lockout/tagout, confined space entry, fall protection use, and/or respirator use.

Prioritize SOPs to generate	Consult with PI/Laboratory Supervisor/Supervisor
Create SOPs	SU SOP Template SU SOP Template for Alkali Metals SU SOP Template for Toxic Gases SU SOP Template for Nanomaterials SU Non-lab Task Safety Analysis Template
Incorporate General Use SOPs	Carcinogens Compressed Gases Corrosive Materials Cryogenic Liquids Flammable & Combustible Liquids Highly Acutely Toxic Materials Highly Reactive/Unstable Materials Irritants Reproductive Toxins Sensitizers
Maintain SOPs	Maintain copies of SOPs that are accessible to all lab members
Revise SOPs	Consult with PI/lab supervisor on a timeframe for re-evaluating and revising SOPs

EH&S is available for consultation on SOPs.

STANFORD UNIVERSITY

STANDARD OPERATING PROCEDURE TEMPLATE

#1	**CONTACT INFORMATION**

Procedure Title	[Specify – Note: *All guidance text in brackets may be deleted*]
Procedure Author	[Specify]
Creation/Revision Date	[Specify]
Responsible Person	[Name of PI, Lab Supervisor, or Autonomous Researcher, as appropriate]
Location of Procedure	[Building and room number]
Approval Signature	[Obtain prior approval, as appropriate. See section #10 of this template.]

#2	**THIS STANDARD OPERATING PROCEDURE (SOP) IS FOR A:**

☐ **Specific laboratory procedure or experiment**
[Examples: synthesis of chemiluminescent esters, folate functionalization of polymeric micelles, etc.]

☐ **Generic laboratory procedure that covers several chemicals**
[Examples: distillation, chromatography, etc.]

☐ **Generic use of specific chemical or class of chemicals with similar hazards**
[Examples: organic azides, mineral acids, etc.]

#3	**PROCESS OR EXPERIMENT DESCRIPTION**

[Provide a brief description of your process or experiment, including its purpose. Do not provide a detailed sequential description as this will be covered by section #6 of this template. Indicate the frequency and duration below.]

Frequency:	☐ one time ☐ daily ☐ weekly ☐ monthly ☐ other: _____
Duration per Expt:	_____ minutes; or _____hours

#4	**SAFETY LITERATURE REVIEW & HAZARD SUMMARY**

1. Hazardous Substances

[List hazardous substances and their associated health and safety hazards. Examples of potential hazards include toxicity, reactivity, flammability, corrosivity, pressure, etc. Refer to Safety Data Sheets (SDSs) and other resources, as needed.]

2. Other Hazards

[List nonchemical hazards, e.g., biological hazards, electrical hazards, mechanical hazards, nonionizing radiation, or ionizing radiation.]

3. References

[List all references you are using for the safe and effective design of your process or experiment, including safety literature and peer-reviewed journal articles. Safety resources are available at http://web.stanford.edu/dept/EHS/cgi-bin/lcst/creating-standard-operating-procedures/.]

#5 STORAGE REQUIREMENTS

[Describe special handling and storage requirements for hazardous chemicals in your laboratory, especially for highly reactive/unstable materials, highly flammable materials, and corrosives.]

#6 STEP-BY-STEP OPERATING PROCEDURE

[For each step's description, include any step-specific hazard, personal protective equipment, engineering controls, and designated work areas in the left hand column.

a. **Guidance on Engineering and Ventilation Controls –** Review safety literature and peer-reviewed journal articles to determine appropriate engineering and ventilation controls for your process or experiment. Guidance is available from health and safety specialists at Stanford EH&S and online in the General Use SOPs and Laboratory Safety Sheets in the Laboratory Chemical Safety Toolkit (http://chemtoolkit.stanford.edu/)

b. **Guidance on Personal Protective Equipment -** To assist with your PPE selection, refer to http://chemtoolkit.stanford.edu/LabPPE. Respiratory protection is generally not required for lab research, provided the appropriate engineering controls are employed. For additional guidance on respiratory protection, consult with EH&S, 723-0448.

c. **Designated work area(s)** - Required whenever carcinogens, highly acutely toxic materials, or reproductive toxins are used. The intent of a designated work area is to limit and minimize possible sources of exposure to these materials. The entire laboratory, a portion of the laboratory, or a laboratory fume hood or bench may be considered a designated area. See the Chemical Safety Toolkit for more information.

Describe the possible risks involved with failure to follow a step in the SOP in the right hand column.]

Step-by-Step Description of Your Process or Experiment	Potential Risks if Step is Not Done or Done Incorrectly (if any)
1. Don personal protective equipment. ☐ appropriate street clothing (long pants, closed-toed shoes)	

☐ gloves; indicate type: _____ ☐ safety goggles ☐ safety glasses ☐ face shield ☐ lab coat ☐ flame-resistant lab coat ☐ other: _____	
2. Check the location/accessibility/certification of the safety equipment that serves your lab:	

ITEM	STATUS
Laboratory Fume Hood/Glove Box or other Ventilation Control	Location: _____ *Check sticker to ensure that hood was certified within last 12 months.*
Eyewash/Safety Shower	Location: _____ *Ensure that it is accessible, not blocked. Check tag that it has been tested within last month.*
First Aid Kit	Location: _____
Chemical Spill Kit	Location: _____
Fire Extinguisher	Location: _____
Telephone	Location: _____
Fire Alarm Manual Pull Station	Location: _____

3. [Describe the next step in the procedure.]	
4. [Describe the next step in the procedure. Insert additional rows in table, as needed.]	
5. Dispose of hazardous solvents, solutions, mixtures, and reaction residues as hazardous waste.	
6. Clean up work area and lab equipment. [Describe specific cleanup procedures for work areas and lab equipment that must be performed after completion of your process or experiment. For carcinogens and reproductive toxins, designated areas must be immediately wiped down following each use.]	
7. Remove PPE and wash hands.	

#7	**EMERGENCY PROCEDURES**

1. Health-Threatening Emergencies

A. Fire, explosion, health-threatening hazardous material spill or release, compressed gas leak, or valve failure, etc.

1) Call 9-911 (or 286 in the School of Medicine).
2) Alert people in the vicinity and activate the local alarm systems.
3) Evacuate the area and go to your Emergency Assembly Point (EAP): [Indicate EAP location]
4) Remain nearby to advise emergency responders.
5) Once personal safety is established, call EH&S at 725-9999 (or 286 in the School of Medicine).
6) Provide local notifications (local notifications are listed at the end of this section).

Note: For compressed gas leaks, shut off gas supply only if this can be done safely, without risk to personnel.

B. Injuries and Exposures:

1) Remove the injured/exposed individual from the area, unless it is unsafe to do so because of the medical condition of the victim or the potential hazard to rescuers.
2) Call 9-911 (or 286 in the School of Medicine) if immediate medical attention is required.
3) Call 725-9999 (or 286 in the School of Medicine) to report the exposure to EH&S.
4) Administer first aid as appropriate.
5) Flush contamination from eyes/skin using the nearest emergency eyewash/shower for a minimum of 15 minutes. Remove any contaminated clothing.
6) Bring to the hospital copies of SDSs for all chemicals the victim was exposed to.

2. Non-Health-Threatening Emergencies

A. Injuries and Exposures

For injuries and exposures that are not considered serious or a medical emergency, call the Occupational Health Center (OHC) at 725-5308 between 8:00 am-5:00 pm M-F for immediate phone triage and to schedule an appointment. For urgent conditions when SUOHC is closed, go to the Stanford University Medical Center Emergency Department.

B. Spills

For hazardous material spills or releases which have impacted the environment (via the storm drain, soil, or air outside the building) or for a spill or release that cannot be cleaned up by local personnel:

1) Notify Stanford University responders by calling 725-9999 (or 286 in the School of Medicine). These services are available 24 hours a day, 7 days a week.
2) Provide local notifications (local notifications are listed at the end of this section).

3. Local Cleanup of Small Spills

In the event of a minor spill or release that can be safely cleaned up by local personnel using readily available equipment (absorbent available from EH&S in Small Spill Kit) and laboratory PPE:

1) Notify personnel in the area and restrict access. Eliminate all sources of ignition.
2) Review the SDS for the spilled material, or use your knowledge of the hazards of the material to determine the appropriate level of protection (do not clean up spills requiring respiratory protection locally).
3) Wearing appropriate personal protective equipment, clean up spill. Collect spill cleanup materials in a tightly closed container. Manage spill cleanup debris as hazardous waste.

4) Submit online waste pickup request to EH&S.
5) Reporting Requirements: All spills cleaned up locally must be reported if they occur outside of secondary containment. A spill that occurs within secondary containment (a laboratory hood is considered secondary containment) must be reported if it is greater than 30 ml or if it takes longer than 15 minutes to clean up. To report a spill, call EH&S at 725-9999 (or in the School of Medicine, x286) as soon as possible.

4. Lab-Specific Procedures

[This section is for any emergency procedures different from standard responses, or for additional emergency information due to the nature of materials or task. Include information on gas leaks, chemical spills, and personal exposure/medical emergency as appropriate.]

5. Building Maintenance Emergencies

Call Facilities Operations at 723-2281 (or 721-2146 in the School of Medicine) for building maintenance emergencies (e.g., power outages, plumbing leaks).

6. Local Notifications

[Identify the area management staff that must be contacted and include their work and after-hours numbers. This must include the principal investigator and may include the lab safety coordinator, facilities manager, and/or business manager.]

#8	**WASTE DISPOSAL**

[Describe the quantities of waste you anticipate generating and appropriate waste disposal procedures. Include any special handling or storage requirements for your waste. Contact EH&S at 723-0448 for questions and additional guidance.]

#9	**TRAINING REQUIREMENTS**

General Training *(check all that apply):*

- ☐ General Safety, Injury Prevention (IIPP) & Emergency Preparedness (EHS-4200)
- ☐ Chemical Safety for Laboratories (EHS-1900)
- ☐ Compressed Gas Safety (EHS-2200)
- ☐ Biosafety (EHS-1500)
- ☐ Life Sciences Research Laboratory Safety Training (EHS-4875)

  [In the School of Medicine, EHS-4875 is required for laboratory personnel in lieu of EHS-1900, 2200, and 1500.]
- ☐ Other: _____

  [Depending on the hazardous materials and processes you will be working with in this SOP, additional safety training may be required by the University. To evaluate if additional safety training is required, go to http://web.stanford.edu/dept/EHS/prod/training/index.html.]

Location Where Records Maintained:	

Laboratory-specific training *(check all that apply):*

- ☐ Review of SDS for chemicals involved in process/experiment
- ☐ Review of this SOP
- ☐ Other: _____

Location Where Records Maintained:	

#10	**PRIOR APPROVALS**

[You **must** seek prior approval from your principal investigator (PI) or lab supervisor if you plan to use **restricted chemicals** (dimethylmercury and toxic gases regulated by Santa Clara County).

You should also consult your PI or lab supervisor if your experiments involve **high-risk chemicals and operations,** as special safety precautions may need to be taken. High-risk chemicals and operations may involve chemicals with a high level of acute toxicity, carcinogens, reproductive toxins, and highly reactive materials. For additional guidance, see section 5.3 of the Chemical Hygiene Plan.

Your PI or lab supervisor's prior approval may be documented by his/her signature in the Approval Signature section of this document. For granting prior approval to individuals other than the procedure author, use one of the methods described at http://web.stanford.edu/dept/EHS/cgi-bin/lcst/restricted-chemicals-high-risk-procedures/.]

Prior Approval *(check if applicable):*

- ☐ Prior approval from the PI or lab supervisor is required for this procedure

Safety Fact Sheets

https://ehs.stanford.edu/safety-fact-sheets

Certain materials and procedures that are common and necessary in laboratories across campus have significant hazards associated with them. EH&S has authored fact sheets to assist laboratories in addressing these hazards. These fact sheets cover essential information on the hazards, safety protocols, recommended personal protective equipment, and emergency response procedures. These fact sheets can serve as starting points and references for laboratory personnel.

Hazard type	BIOLOGICAL
Hazard	Adeno-Associated Virus Fact Sheet Adenovirus Fact Sheet Epstein-Barr Virus Fact Sheet Herpesvirus Fact Sheet Lentivirus Fact Sheet Moloney Murine Leukemia Virus Fact Sheet Pox Viruses/Vaccinia Fact Sheet Rabies Virus Fact Sheet Sendai Virus Fact Sheet
Hazard type	PHYSICAL
Hazard	Asbestos Fact Sheet Autoclave Safety Seguridad del Autoclave Centrifuge Safety Electrophoresis Safety Cryogenic Vial Safety Laboratory Ergonomics Safe Operation of Shop Machinery Shop Machinery Guidelines for Supervisors Warm & Cold Rooms – Safe Work Practices
Hazard type	CHEMICAL
Hazard	Information on Alkali Metals Information on Azide Compounds Information on Cyanide Compounds Information on Hydrofluoric Acid Information on Peroxide-Forming Compounds Information on Picric Acid Information on Piranha Solutions Lead Fact Sheet Nitrous Oxide Used for Laboratory Fume Hood Testing Safe Use of Anesthetic Gases in Laboratory Research Working with Air-Sensitive or Highly Reactive Compounds
Hazard type	RADIOLOGICAL
Hazard	Ag-110m Radionuclide Fact Sheet Am-241 Radionuclide Fact Sheet As-73 Radionuclide Fact Sheet As-74 Radionuclide Fact Sheet

Ba-133 Radionuclide Fact Sheet
Be-7 Radionuclide Fact Sheet
Br-77 Radionuclide Fact Sheet
C-14 Radionuclide Fact Sheet
Ca-45 Radionuclide Fact Sheet
Cd-109 Radionuclide Fact Sheet
Ce-141 Radionuclide Fact Sheet
Cl-36 Radionuclide Fact Sheet
Co-57 Radionuclide Fact Sheet
Co-58 Radionuclide Fact Sheet
Co-60 Radionuclide Fact Sheet
Cr-51 Radionuclide Fact Sheet
Cs-137 Radionuclide Fact Sheet
F-18 Radionuclide Fact Sheet
Fe-55 Radionuclide Fact Sheet
Fe-59 Radionuclide Fact Sheet
Ga-67 Radionuclide Fact Sheet
Ga-68 Radionuclide Fact Sheet
Gd-153 Radionuclide Fact Sheet
Ge-68 Radionuclide Fact Sheet
H-3 Radionuclide Fact Sheet
Hg-203 Radionuclide Fact Sheet
I-123 Radionuclide Fact Sheet
I-125 Inorganic Radionuclide Fact Sheet
I-125 Organic Radionuclide Fact Sheet
I-131 Radionuclide Fact Sheet
In-111 Radionuclide Fact Sheet
Mn-54 Radionuclide Fact Sheet
Mo-99 Radionuclide Fact Sheet
Na-22 Radionuclide Fact Sheet
Nb-95 Radionuclide Fact Sheet
Ni-63 Radionuclide Fact Sheet
P-32 Radionuclide Fact Sheet
P-33 Radionuclide Fact Sheet
Pb-210/Bi-210/Po210 Radionuclide Fact Sheet
Rb-86 Radionuclide Fact Sheet
Re-186 Radionuclide Fact Sheet
S-35 Radionuclide Fact Sheet
Sb-125 Radionuclide Fact Sheet
Sc-46 Radionuclide Fact Sheet
Se-75 Radionuclide Fact Sheet
Sr82/Rb82 Generator Radionuclide Fact Sheet
Sr-89 Radionuclide Fact Sheet
Tc-99 Radionuclide Fact Sheet
Tc-99m Radionuclide Fact Sheet
Tl-201 Radionuclide Fact Sheet
U-Nat Radionuclide Fact Sheet
V-48 Radionuclide Fact Sheet
Various Radionuclides
Xe-133 Radionuclide Fact Sheet
Y-88 Radionuclide Fact Sheet
Y-90 Radionuclide Fact Sheet
Zn-65 Radionuclide Fact Sheet

Risk Assessment

https://ehs.stanford.edu/topic/lab-safety/risk-assessment

Evaluation and assessment of risk is an integral step in designing an experimental protocol. Not only does a thorough risk assessment allow researchers to systematically identify and control hazards, but also improves science through better planning and understanding of the research question and variables.

The Stanford Laboratory Risk Assessment Tool provides a framework for risk assessment that maps onto the scientific method, melding with the process researchers already use to answer scientific questions.

Stanford Laboratory Risk Assessment Tool

Contact EH&S at 650-723-0448 with any questions or to request support in conducting a risk assessment.

What are the steps for risk assessment?

The Risk Assessment Tool uses a four-part framework that can be used for an experiment, analytical process, or series of tasks:

- **Explore** – Determine the scope of your work, beginning with your research objective. What scientific question(s) are you trying to answer or problem(s) are you trying to solve? Conduct a broad review of the literature. Consider querying other disciplines. Talk with others who have done similar work.
- **Plan** – Outline your procedure/tasks. This may include a deeper dive into specific topics in the literature. Determine hazards associated with each step/task and the control measures for reducing risk. EH&S can help with more detailed guidance on how to control certain hazards.

- **Challenge** – What assumptions did you use? Question the importance of each step. Seek advice from others to challenge your thinking. Ask yourself "what could go wrong?" Assign a risk rating (revising steps or controls particularly if risk category is "high" or "unacceptable"). EH&S can provide experimental design review to help with this process.
- **Assess** – Implement a model, prototype, or trial run. Can you perform a dry run to familiarize yourself with equipment and procedures? Can you test your experimental design at a smaller scale or with a less hazardous material? Determine if any design changes are needed. Run your experiment and monitor how your controls perform. Assess as you go and make changes as necessary.

Who should do Risk Assessments?

All researchers should conduct a risk assessment prior to conducting an experiment for the first time. When repeating an experiment/process, researchers may refer to a previous risk assessment and update the "Assess" section with the findings.

The risk assessment process involves rating the risk of the experiment, from low to unacceptable risk. Consult with your PI/supervisor and EH&S if your risk rating is "high" or "unacceptable" to redesign the experiment and/or implement additional controls to reduce risk.

What is the PI/Supervisor's role?

PIs and Lab Supervisors should review risk assessments conducted by lab personnel/researchers. When personnel identify a "high" or "unacceptable" risk, PIs must work with them to redesign experiments or implement controls to reduce risk. If the risk rating remains "high" or "unacceptable" after redesign, consult EH&S to provide guidance to control hazards.

In addition to review of risk assessments, PIs are also encouraged to use the risk assessment framework during group meetings to discuss planned or completed experiments.

When is a Risk Assessment used versus a Standard Operating Procedure (SOP)?

Risk Assessments and Standard Operating Procedures (SOPs) are complementary tools. An SOP is typically written for repeated operations, equipment use, or required maintenance. SOPs may also be required for high-hazard chemicals and operations (e.g. work involving Restricted Chemicals, Particularly Hazardous Substances and Highly Reactive Chemicals, and other high risk research procedures).

A Risk Assessment is well-suited to novel operations in which the researcher is designing and planning an experiment. However, the Risk Assessment Tool can also be helpful in understanding risk when preparing for procedures that have an established SOP, varying parameters (e.g. scale, reagents, conditions), or in preparing to write new SOPs.

Stanford University

Laboratory Risk Assessment Tool

The Stanford Laboratory Risk Assessment Tool provides a framework for risk assessment that maps onto the scientific method, melding with the process researchers already use to answer scientific questions.

This tool allows researchers to systematically identify and control hazards to reduce risk of injuries and incidents. Conduct a risk assessment prior to conducting an experiment for the first time.

The risk assessment process involves rating the risk of the experiment, from "low" to "unacceptable" risk. Consult with your PI/supervisor and EH&S if your risk rating is "high" or "unacceptable" to redesign the experiment and/or implement additional controls to reduce risk.

Procedure:			
Lab Group:			
Completed By:		**Date:**	

EXPLORE

Identify your research question and approach. What question are you trying to answer? What are you trying to measure or learn? What is your hypothesis? What approach or method will you use to answer your question? Are there alternative approaches?

Research Question(s)
Approach(s) or Method

Identify the general hazards (check all that apply). Perform background research to identify known risks of the reagents, reactions, or processes. Review protocols, Safety Data Sheets (SDSs), and safety information for hazardous chemicals, agents, or processes. Review accident histories within your laboratory/department and Lessons Learned at Stanford or other institutions.

Hazardous Agents

Physical Hazards of Chemicals

- ☐ Compressed gases
- ☐ Cryogens
- ☐ Explosives
- ☐ Flammables
- ☐ Organic peroxides
- ☐ Oxidizers
- ☐ Peroxide formers
- ☐ Pyrophorics
- ☐ Self-heating substances
- ☐ Self-reactive substances
- ☐ Substances which, in contact with water, emit flammable gases

Health Hazards of Chemicals

- ☐ Acute toxicity
- ☐ Carcinogens
- ☐ Eye damage/irritation
- ☐ Germ cell mutagens
- ☐ Nanomaterials
- ☐ Reproductive toxins
- ☐ Respiratory or skin sensitization
- ☐ Simple asphyxiant
- ☐ Skin corrosion/irritation
- ☐ Specific target organ toxicity
- ☐ Hazards not otherwise classified

Ionizing Radiation

- ☐ Irradiator
- ☐ Radionuclide
- ☐ Radionuclide sealed source
- ☐ X-ray machine

Non-Ionizing Radiation

- ☐ Lasers, Class 3 or 4
- ☐ Lasers, Class 2
- ☐ Magnetic fields (e.g., NMR, MRI)
- ☐ RF/microwaves
- ☐ UV lamps

Biohazards

- ☐ BSL-2 Biological agents
- ☐ BSL-3 Biological agents
- ☐ Human cells, blood, BBP
- ☐ NHPs/cells/blood
- ☐ Non-exempt rDNA
- ☐ Animal work
- ☐ High risk animals (RC1)

- ☐ Other (list):

Hazardous Conditions or Processes

Reaction Hazards

- ☐ Explosive
- ☐ Exothermic, with potential for fire, excessive heat, or runaway reaction
- ☐ Endothermic, with potential for freezing solvents decreased solubility or heterogeneous mixtures
- ☐ Gases produced
- ☐ Hazardous reaction intermediates/products
- ☐ Hazardous side reactions

Hazardous Processes

- ☐ Generation of air contaminants (gases, aerosols, or particulates)
- ☐ Heating chemicals
- ☐ Large mass or volume
- ☐ Pressure > atmospheric
- ☐ Pressure < atmospheric
- ☐ Scale-up of reaction

Other Hazards

- ☐ Hand/power tools
- ☐ Moving equipment/parts
- ☐ Electrical
- ☐ Noise > 80 dBA
- ☐ Heat/hot surfaces
- ☐ Ergonomic hazards
- ☐ Needles/sharps

- ☐ Other (list):

Field Hazards

Environmental Hazards

- ☐ Foul weather
- ☐ Temperature extremes
- ☐ Intense sunlight
- ☐ Darkness/low light
- ☐ Altitude
- ☐ Smoke/dust
- ☐ Fire
- ☐ Animals/insects
- ☐ Plants/allergens
- ☐ Hygiene/water-borne and food-borne illness
- ☐ Vector-borne or other endemic diseases (list):

Site Hazards

- ☐ Uneven/slippery surfaces
- ☐ Heights/drop-offs
- ☐ Falling objects
- ☐ Tight spaces/overhangs
- ☐ Boating/swimming/water hazards (waves, tides, current, depth)
- ☐ Navigation challenges
- ☐ Limited communication
- ☐ Remote area/limited medical services
- ☐ Personal security issues, risk of harassment or violence, US State Department active travel alert

Task/Equipment Hazards

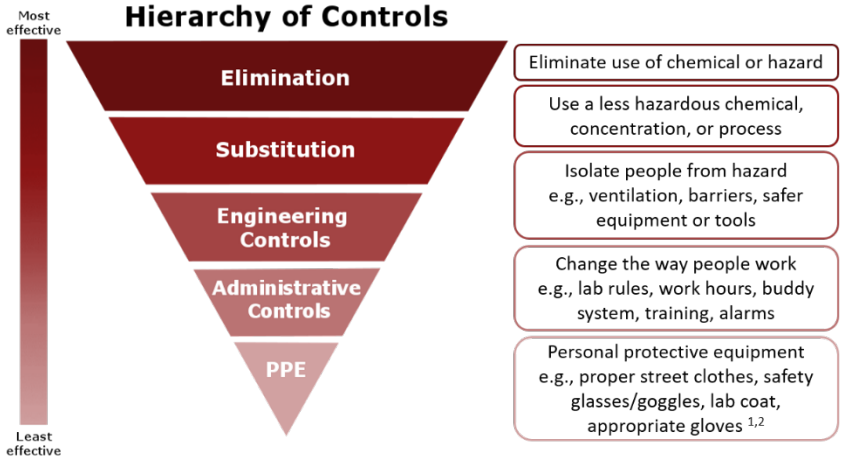
- ☐ Driving/vehicle operation/traffic
- ☐ Lifting/carrying
- ☐ Digging/trenching
- ☐ Hand tools/power tools
- ☐ Sharp objects
- ☐ Strenuous physical activity
- ☐ Mental demands (e.g. long days, high stress environment, language barriers)

- ☐ Other (list):

PLAN

Outline the Procedure. List the steps or tasks for your procedure and the hazard/potential consequences of each. Include set-up and clean-up steps or tasks. Define the hazard controls to minimize the risk of each step using the hierarchy of controls starting with the most effective (i.e., elimination, substitution, engineering controls, administrative controls, and personal protective equipment). List the hazard control measure you would use for each step or task (e.g., run at a micro scale, work in a fume hood, wear face shield and goggles).

Steps or Tasks	Hazard	Hazard Control Measure(s)



A hierarchy of controls should be applied starting with the most effective controls (i.e., elimination and substitution) at the top of the graphic and moving down. While personal protective equipment (PPE) should always be used, it should be considered the last line of defense from potential hazards.

[1] For guidance on selection of Personal Protective Equipment (PPE), use Stanford's Laboratory PPE Assessment Tool.

[2] For guidance on selection of chemical-resistant gloves, see Stanford's Laboratory Chemical Glove Selection Guide.

Select the appropriate PPE and safety supplies for the procedure (check all that apply).

Laboratory PPE/Safety Supplies

- ☒ Appropriate street clothing (long pants, closed-toed shoes)
- ☐ Gloves; indicate type: _____
- ☐ Safety glasses
- ☐ Safety goggles
- ☐ Face shield and googles
- ☐ Lab coat
- ☐ Flame-resistant lab coat
- ☐ Other (list):
- ☐ Fire extinguisher
- ☐ Eyewash/safety shower
- ☐ First aid kit
- ☐ Spill kit
- ☐ Specialized medical supplies (e.g. calcium gluconate for hydrofluoric acid and amyl nitrite for cyanides)

Field PPE/Safety Supplies

- ☒ Proper clothing (long pants, long sleeve shirt, warm layers, rain/wind protection, sun protection, hat etc.)
- ☒ Proper footwear (list): _____
- ☒ Communication device
- ☐ Eye protection (safety glasses and/or sunglasses)
- ☐ Work gloves
- ☐ Hardhat
- ☐ Hearing protection
- ☐ First aid kit
- ☐ Map (and GPS)
- ☐ Sunscreen
- ☐ Anti-animal devices (e.g. bear bell, whistle, bear canister)
- ☐ Personal floatation device
- ☐ Fall protection
- ☐ Road flares
- ☐ Safety vests
- ☐ Extra food, water/water treatment method
- ☐ Personal medications
- ☐ Other (list all):

Identify the appropriate training (check all that apply). Identify the general safety and procedure based/specific training appropriate for your procedure.

General Safety Training

General/Chemical Safety

- ☒ General Safety & Emergency Preparedness (EHS-4200)
- ☐ Chemical Safety for Laboratories (EHS-1900)
- ☐ Compressed Gas Safety (EHS-2200)
- ☐ Cryogenic Liquids and Dry Ice Safety (EHS-2480)

Biosafety

- ☐ Biosafety (EHS-1500)
- ☐ Bloodborne Pathogens (EHS-1600) and Refresher (EHS-1601)

Radiation Safety

- ☐ Radiation Safety and Radiation Safety Hands-On (EHS-5250 and 5251)
- ☐ Radiation Safety SAIF (Small Animal Imaging Facility) (EHS-5255)
- ☐ Sealed Sources, Non-Irradiator (EHS-5265)
- ☐ Research Cabinet X-ray or Irradiator (EHS-1755) and Refresher (EHS-1756)
- ☐ Irradiator Security Training (EHS-4780) and Refresher (EHS-4781)
- ☐ Laser Safety (EHS-4820) and Refresher (EHS- 4821)

Field Safety

- ☐ CPR
- ☐ Wilderness First Aid
- ☐ SCUBA certification/diving safety
- ☐ Driving safety
- ☐ Other (list):

Job Specific Training

- ☒ Lab/job-specific training
- ☐ Lab SOP(s) to review (list):
- ☐ Emergency plans or field evacuation plans
- ☐ Equipment SOP(s) to review (list):
- ☐ Other (list):

CHALLENGE

Question your methods. What have you missed and who can advise you? Challenge your hazard control measures by asking "What if…?" questions. "What if" questions should challenge you to find the gaps in your knowledge or logic. Factors to consider are human error, equipment failures, and deviations from the planned/expected parameters (e.g., temperature, pressure, time, flow rate, and scale/concentration).

What If Analysis
What if…? Examples: there is a loss of cooling? …valves/stopcocks are left open/closed? …there is unexpected over-pressurization? …a spill occurs? …the laser is misaligned? …weather conditions change?
Then… …there may be a runaway reaction. …there may be an unexpected splash potential. …the reaction vessel may fail. …there may be a dermal exposure. …there may be an eye injury. …routes may be inaccessible.
What if…?
Then…
What if…?
Then…
What if…?
Then…

Assign a risk rating to the experiment. Based on your procedure outline and the what if analysis, determine the risk rating for the experiment or procedure.

Risk Rating: _____

Risk Rating Table[1]

Likelihood of Occurrence	Severity of Consequences - Personnel Safety: No Injuries	Minor	Moderate to life impacting	Life threatening from single exposure
(Almost) Certain	Low	High*	Unacceptable*	Unacceptable*
Likely	Low	Medium	High*	Unacceptable*
Possible	Low	Medium	High*	High*
Rare	Low	Low	Medium	High*

[1]The Risk Rating is subjective. The primary goal is for researchers to pause, think about risk, and differentiate unacceptable and high-level risk steps from those with a lower level risk. This will help drive additional consultation and control measures where needed.

Revise plan if the risk rating is too high. Are these risks acceptable? Use the table below to determine the action to take based on the risk rating. What are the highest risk steps? What more can you do to control the risks? Return to planning and use the hierarchy of controls to design a safer experiment.

Risk Rating Action Table

Hazard Risk Rating	Action
Unacceptable*	STOP! Additional controls needed to reduce risk. **Consult with PI and EH&S** (650-723-0448)**.**
High*	Additional controls recommended to reduce risk. **Consult with PI and EH&S** (650-723-0448)**.**
Medium	Ensure you are following best practices. Consult with peers, PI, or EH&S, as needed.
Low	Perform work within controls.

PI/Supervisor Approval: _____

*Signature required for **High** risk ratings.

NOTE: **Unacceptable** risk rating experiments **may not proceed**. Introduce further controls to reduce risk.

ASSESS

Perform a trial run. How you can test your experimental design? Can you do a dry run of the procedure without hazardous chemicals/reagents/gases to familiarize yourself with equipment and demonstrate your ability to manipulate the experimental apparatus? Can you run the procedure with a less hazardous material? Can you test your experimental design at a smaller scale? If your procedure requires multiple people, would a table top exercise be useful?

Trial Run
Trial Run Procedure:
Did the trial go as expected? Yes ☐ No ☐
Experimental design changes needed (if any):

Perform and evaluate. Run your procedure using the appropriate controls you've identified. Evaluate controls and hazards as you work. Critique the controls and process you used by answering the following questions. If changes to controls are needed, update your risk assessment tool and re-evaluate any time you revise your process (e.g. changes in scale, reagent, equipment, or conditions that might increase the hazard/risk). Share your assessment with your PI/colleagues for the next iteration of the experiment.

Evaluate Your Procedure
What went well?
Did the controls perform as expected?
Did anything unexpected occur?
Did a hazard manifest itself that was not previously identified?
Were there any close-calls or near misses that indicate areas of needed improvement?
Did something go exceptionally well that others could learn from?
I plan to evolve my procedure by...

Laboratory Inspections

Summary: To identify and address potential safety and health deficiencies and for regulatory compliance purposes, laboratories must be inspected as follows. Current version of inspection forms available at **https://ehs.stanford.edu/topic/lab-safety/lab-inspections**, and can be performed online at **https://stanford.bioraft.com**.

What to do and where?	When?
General Laboratory Inspection For all laboratories	At least quarterly (more frequently where determined appropriate by PI/Laboratory Supervisor). Retain records of inspection and any follow-up for at least 3 years.
Hazardous Materials Storage Area Inspection For rooms designated as hazardous materials storage areas (including shared/ common work areas and designated storage rooms)	At least monthly. Retain records of inspection and any follow-up for at least 3 years.
Waste Accumulation Area Inspection For specially designated waste accumulation areas. Contact EH&S Chemical Waste Program at x5-7520 for more information.	At least weekly. Retain records of inspection and any follow-up for at least 3 years.
Controlled Substance Laboratory Inspection For laboratories where controlled substances are used and/or stored (applicable to those labs enrolled under the institutional program).	At least quarterly (recommended). Retain records of inspection and any follow-up for at least 1 year.
Shop Area Inspection For all locations, including labs, with shop machinery and tools	At least quarterly (more frequently where determined appropriate by PI/Laboratory Supervisor). Retain records of inspection and any follow-up for at least 3 years.

LABORATORY INSPECTION CHECKLIST

Building & Room:	**Inspected By:**
PI/Area Supervisor:	**Date:**

All laboratory spaces containing hazardous materials must be inspected at least quarterly. For each item check Yes, No, or N/A. Be sure to retain all documentation regarding inspections, including findings **and** corrective actions taken for any "No" responses, for a minimum of 3 years. Contact EH&S at 723-0448 for questions or additional information.

Y	N	N/A	
			RECORDKEEPING
			1. Findings identified on previous self-inspections have been corrected and corrections have been documented?
			2. Lab members roster is up to date; members have completed requisite EH&S (STARS) and Lab-Specific safety training? (https://ehs.stanford.edu/wp-content/uploads/Laboratory-Specific-Training-Checklist.pdf)
			3. Lab's Personal Protective Equipment (PPE) Assessment is complete to reflect current hazards in the laboratory. (https://ehs.stanford.edu/topic/lab-safety/personal-protective-equipment)
	N	N/A	**GENERAL SAFETY**
			4. Areas around fire extinguishers, pull alarms, and emergency eyewashes/showers clear and accessible?
			5. All objects stored at least 18 inches away from fire sprinklers?
			6. Cabinets, furniture, and equipment taller than 4 feet braced or anchored?
			7. Lab floors, aisles, and adjacent hallways unobstructed?
			8. Floors dry and free of slip hazards?
			9. Extension cords only used temporarily, and power strips not daisy-chained together?
			10. No exposed wiring or damaged electrical cords?
			11. First aid and chemical spill kits available?
			HAZARDOUS MATERIALS & WASTES
			12. Workspaces (e.g., benchtops, fume hoods, biosafety cabinets) organized and clean?
			13. Containers, including for non-hazardous chemicals and water, legibly labeled with the full chemical or trade name? (Note: abbreviations/formulas are not adequate.)
			14. Flammable liquids (including flammable waste and glacial acetic acid) stored in flammable storage cabinets? (Note: Up to 10 gallons per control area (NOT individual lab) may be stored outside of cabinets.)
			15. Flammable materials requiring refrigeration are placed in explosion-proof or flammables refrigerators only?
			16. Food and drinks stored and consumed away from toxic materials?
			17. Hazardous chemicals and oil pumps stored in adequate secondary containment?
			18. Hazardous materials near sinks or drains in secondary containment?
			19. Secondary containers clean and free from spilled material?
			20. Lab practices minimize volatilization (e.g., traps used, open-container procedures minimized)?
			21. "Chemical Waste Compliance" poster is posted in the location where hazardous waste is accumulated?
			22. Chemical containers and hazardous waste containers are clean, structurally sound, and closed when not in use?

Continued on next page

			23. Chemical containers and hazardous waste containers properly segregated according to hazard class?
			24. Hazardous waste containers labeled with completed waste tags?
			25. All hazardous waste in lab is less than 9 months old?
			26. Sharps placed in a designated sharps container and the container is no more than three-quarters full?
			27. Biohazardous waste in red bags in hard-sided container which is labeled with Universal Biohazard label on the top and lateral sides (must be labeled on all 4 sides and top)?
			28. Life Safety Box has current emergency contacts, chemical storage maps, and chemical inventories?
			COMPRESSED GASES
			29. Compressed gas cylinders are listed on the chemical inventory in ChemTracker, positioned so the label is visible, and stored in a dry, well-ventilated location protected from heat sources?
			30. Cylinders over 26 inches tall secured to a rigid structure at 1/3 and 2/3 height with metal chains, and a maximum of 2 cylinders used per pair of chains (one restraint for cylinders ≤26 inches and dewars)?
			31. Cylinder valves closed and valve caps in place when cylinders not in use?

Comments, Corrective Action & Additional Findings

Record comment(s), corrective action(s) & additional findings (Date/Initial)

HAZARDOUS MATERIALS STORAGE AREA: MONTHLY INSPECTION

Building Number _____ **Building Name** _____ **Room Number** _____

Inspector's Name _____ **Phone Number** _____ **Year** _____

Instructions:

1. **Use this form to inspect rooms that are designated as Hazardous Materials Storage Areas (not laboratories or work areas).**
2. **Evaluate the storage area during the inspection for breakage, odors, etc. and for items listed below to ensure safe storage conditions.**
3. **Record all corrective actions in the last space for items with a "No" answer; attach an additional sheet if necessary.**
4. **If the spill is more than 30 ml or if it escapes the secondary container, call EH&S at 725-9999 (24 hours).**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Enter Inspection Date →												
Is the area free from leaks and/or spills? (Yes/No)												
Is appropriate emergency equipment (spill kit, etc.) available? (Y/N)												
Are incompatible chemicals segregated? (Y/N)												
Are all containers labeled with full chemical name? (Y/N)												
Are all containers closed? (Y/N)												
Are leak-proof secondary containers provided? (Y/N)												
Are gas cylinders and lecture bottles in storage properly restrained and valve caps in place? (Y/N/NA)												
After each inspection initial here →												
Corrective Action:												

BioRAFT User Instructions

Version Date: April 29, 2016

Updated: October 14, 2021

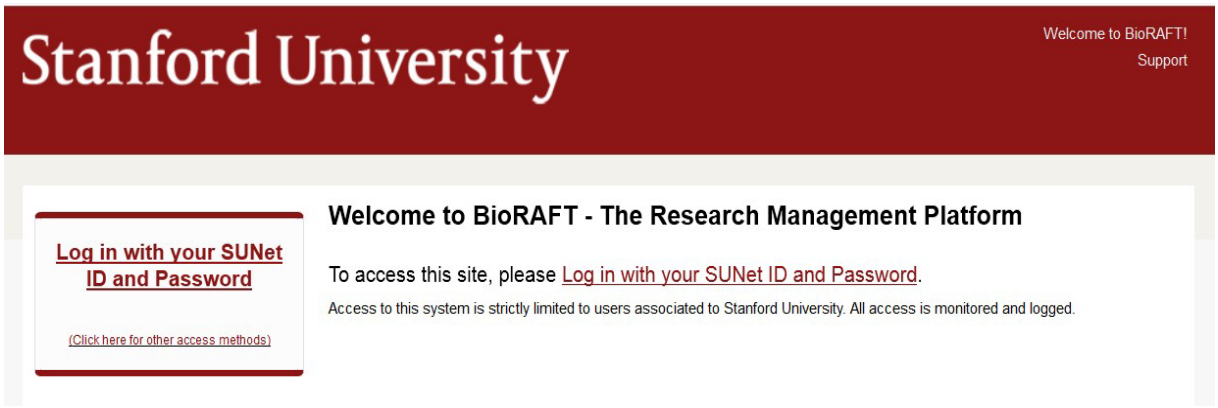
I. Introduction

BioRAFT is an electronic management tool provided by Stanford University to support a lab's health and safety efforts.

This document is a quick guide to familiarize users with basic BioRAFT functionalities. For further assistance with BioRAFT, please contact Environmental Health and Safety (EH&S) representatives at (650) 723-0448 or https://ehs.stanford.edu/contact.

II. BioRAFT Log in

The BioRAFT URL is https://stanford.bioraft.com.



Click on "Log in with your SUNet ID and Password" to proceed. Enter your SUNet ID and password, followed by two-step authentication.

III. Home Page

There are three sections to the research group's ***Home page*** in BioRAFT. Depending on the device being used (computer or mobile device) and the user's **permission** in BioRAFT, the BioRAFT **User Interface** mayappear differently than what is displayed on the screen captures in this document.[1, 2]

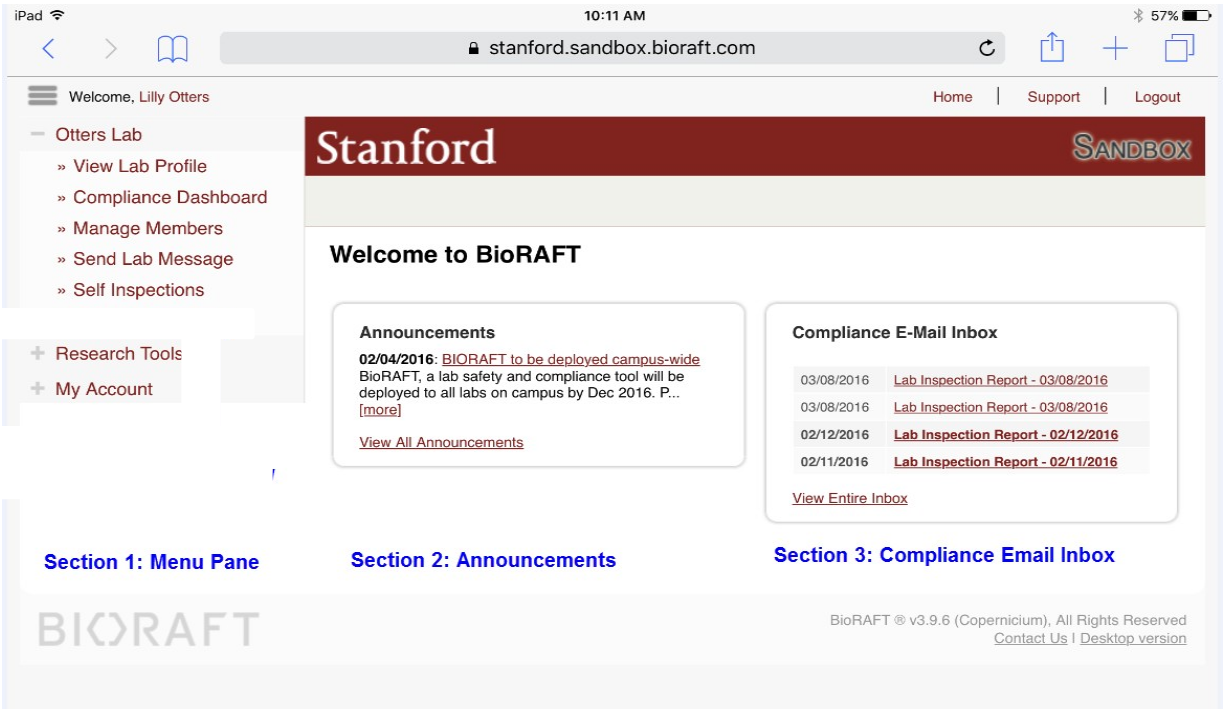
[1] *The screen capture of the BioRAFT Homepage on the following page is as viewed on an iPad. All subsequent screen captures in this document show the BioRAFT User interface as viewed on a desktop or laptop computer.*
[2] *Available menu items on the Menu Pane depends on user permission. For example, a user may see "View Members" instead of "Manage Members".*

Section 1: On the left side panel of the *Home page* is the ***Menu Pane***. On the ***Menu Pane***, users should see all the labs that they are a member of. In this document, screen captures are taken from "**Otters Lab",** a fictitious lab for a fictitious Principle Investigator named Dr. Lilly Otters.

On an iPad, click on the icon to expand or hide the ***Menu Pane***. On a computer, the ***Menu Pane*** should automatically appear. Click on the "**+**" or "**-**" sign to expand or contract the menus on the pane.

Section 2: In the middle section are the ***Announcements*** posted by the EH&S department.

Section 3: On the right-hand side is the ***Compliance E-mail Inbox***. It contains all correspondence sent via BioRAFT to the user's email inbox. Click on an item in this sectionto view the email.

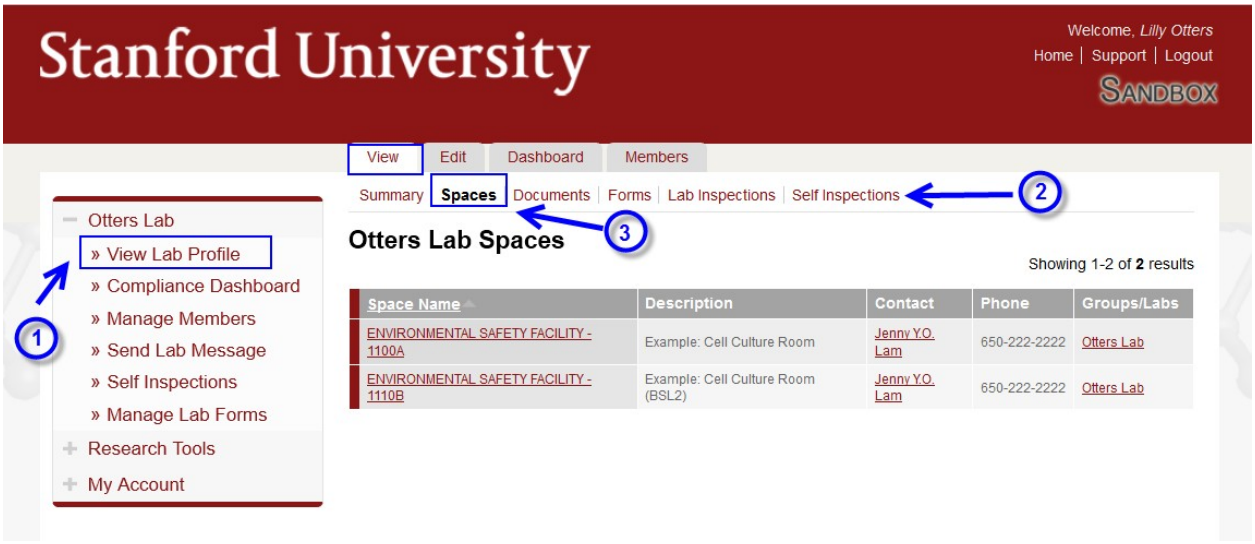


IV. Navigating in BioRAFT

To navigate between pages in BioRAFT, click on the available menu items on the page, or click on the **Back** or **Forward button** in the browser.

V. Viewing Lab Information

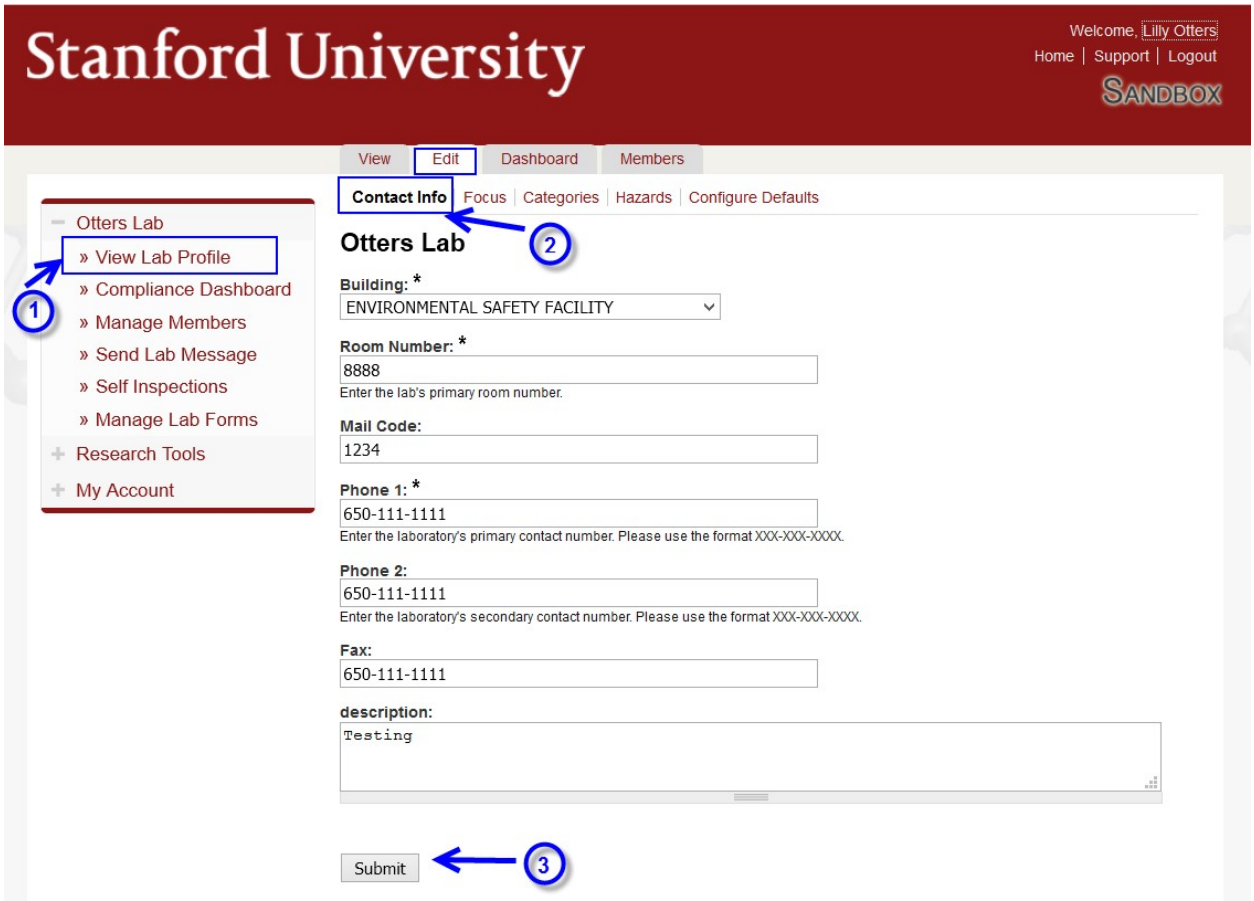
1. To view lab information, click on ***View Lab Profile*** on the *Menu Pane* followed by the ***View*** tab on the horizontal menu bar as displayed on the screen shot below.
2. Below the ***View*** *tab* are menu items that users can view:
   - Summary
   - Spaces [3]
   - ~~Forms~~ (**This feature is currently disabled**)
   - Lab Inspections (for use by EH&S)
   - Self Inspections
3. To view an item, click on the item. For example, to view lab spaces, click on the ***Spaces*** item.



[3] ***Lab spaces cannot be entered or edited by the labs.*** *Please contact EH&S to add, edit, or remove lab spaces.*

VI. Editing Lab Information

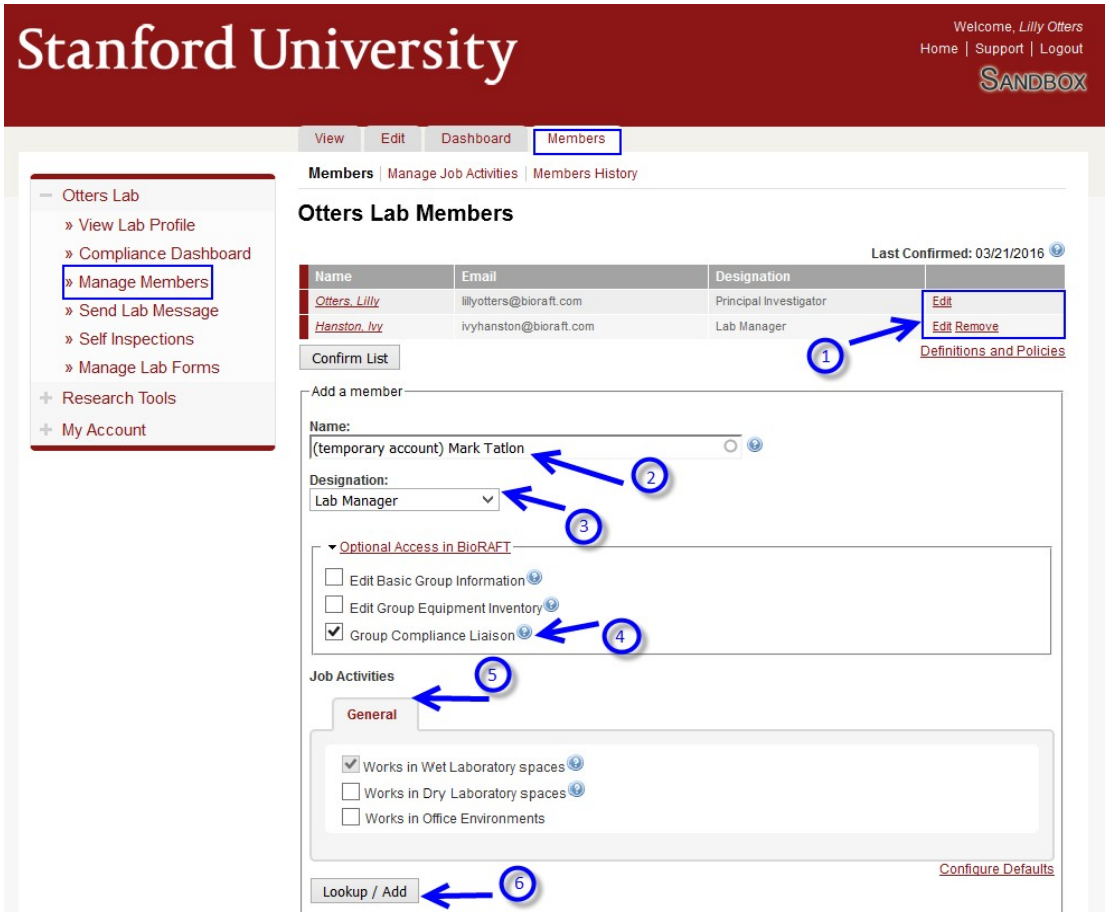
1. To edit lab information, click on ***View Lab profile*** on the ***Menu Pane*** followed by the ***Edit*** tab on the horizontal menu bar.
2. Below the ***Edit*** tab are items that can be edited. For example, to edit the building name orroom number, click on ***Contact Info***.
3. To save the edits, click on the ***Submit*** button.



VII. Adding, Editing or Deleting Lab Members

To manage lab-member information, click on ***Manage Members*** on the ***Menu Pane***. Please note that only members with the "Group Compliance Liaison" ***Optional Access*** will see this menu item. Others will see the ***View Members*** menu item instead. [4]

1. To edit or remove member: Click on the ***Edit*** or ***Remove*** link next to the member's name.
2. To add member: On the ***Name*** field, enter the member's first name and last name, orSUNet ID. BioRAFT will search the Stanford directory for the member to be added.
3. Member's Designation or Role: Click on the ***Designation*** field to bring up adesignation/role list and select one.
4. Optional Access: Optional Access options under the ***Optional Access in BioRAFT*** sectiongrants a member authority to perform certain tasks. Hover over the tool-tips for information about each access and select one.
5. Job Activities: Select one or more ***Job Activities*** for the member. Hover over the tool-tips for information about each activity.
6. When finished, click on the ***Lookup/Add*** button to complete adding the member.



[4] *Permission to perform certain tasks in BioRAFT is tied to the* ***Optional Access*** *granted to the member.*

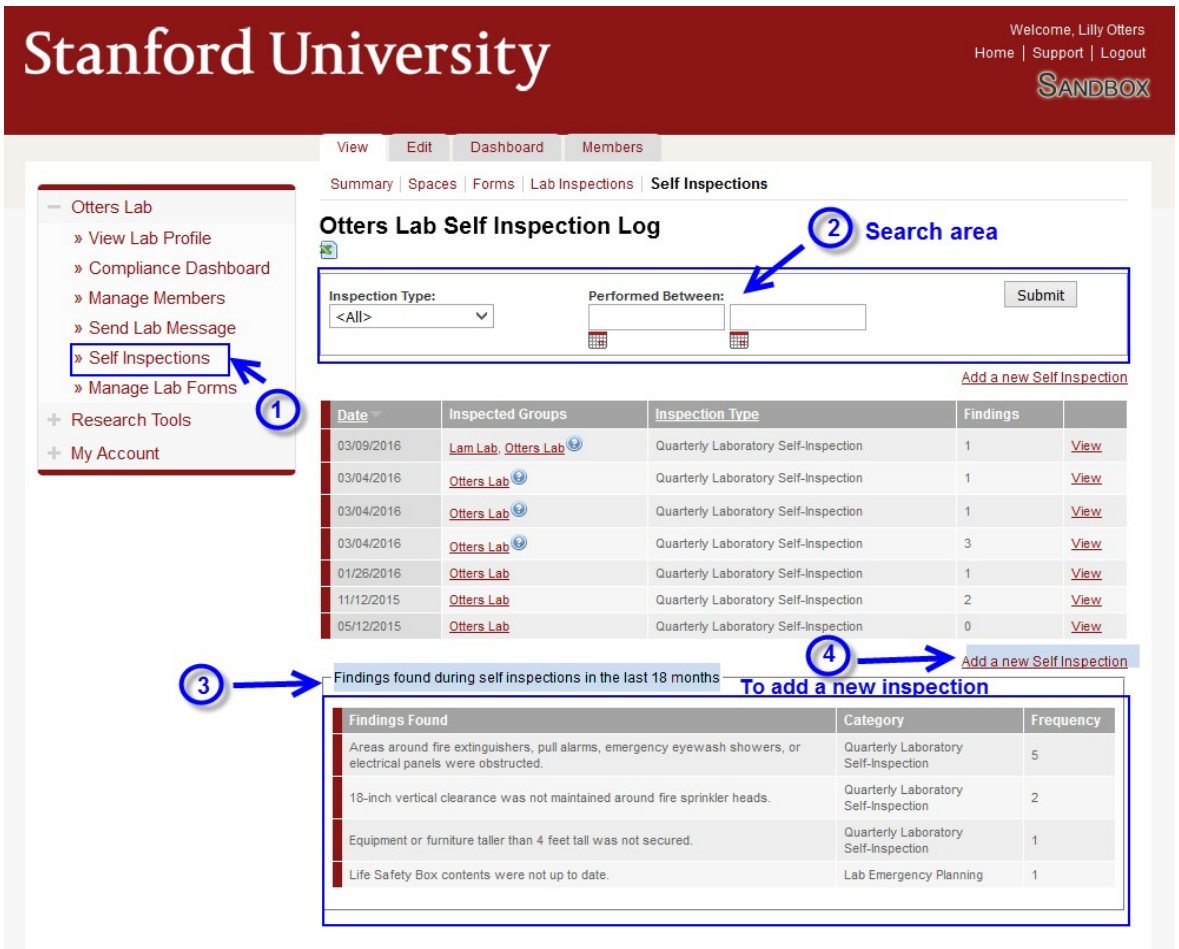
VIII. SELF INSPECTION

Quarterly and monthly self inspections are an essential function to identify and address potential health andsafety deficiencies and to fulfill regulatory compliance requirements. Lab spaces must be inspected quarterly whereas hazardous materials storage areas must be inspected monthly by each research group sharing the space.

All lab members can perform self inspections for their laboratory. The following sections describe how to view previous self inspections as well as how to initiate and perform a new selfinspection.

A. Self Inspection Log

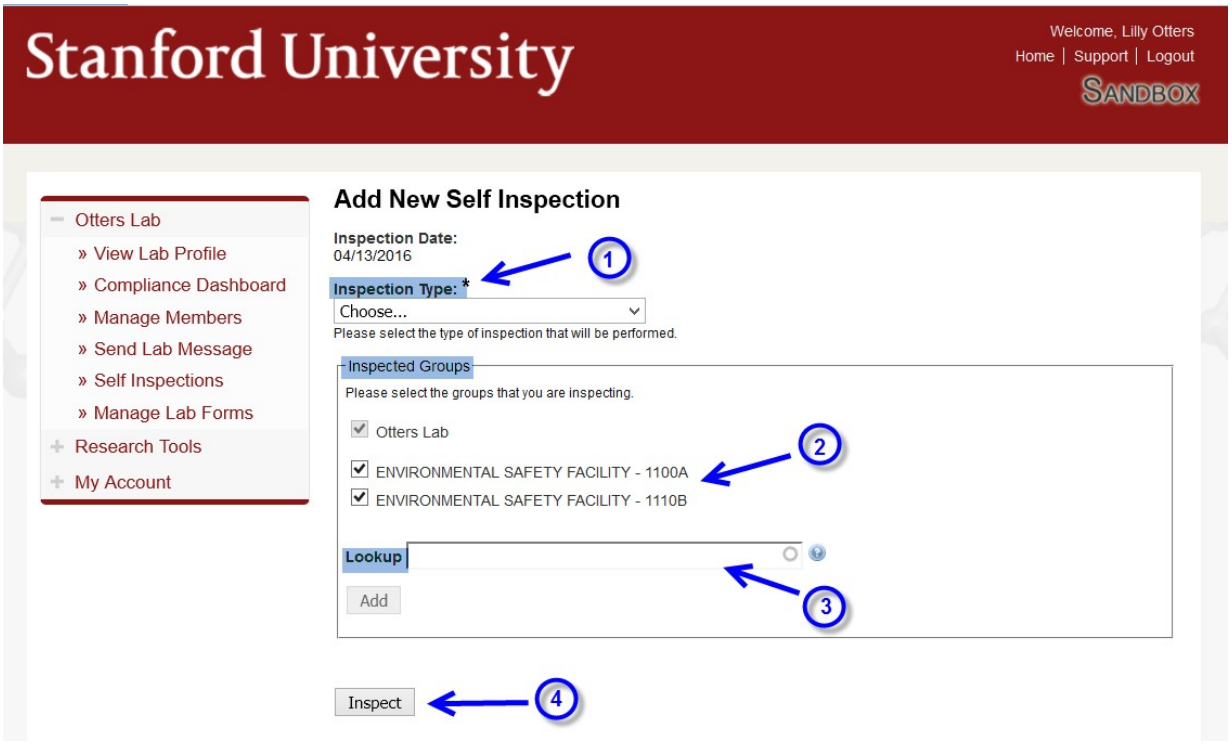
1. To view all recent self inspections performed, visit the laboratory ***Self Inspection Log*** byclicking on ***Self Inspections*** on the ***Menu Pane***.
2. To search for a particular self inspection, enter search criteria on the search area asindicated on the screen shot below.
3. Findings from the self inspections conducted in the past 18 months will be displayed at thebottom of the page.
4. To conduct a self inspection, click on the ***Add a new Self Inspection*** link.



B. Add a New Self inspection

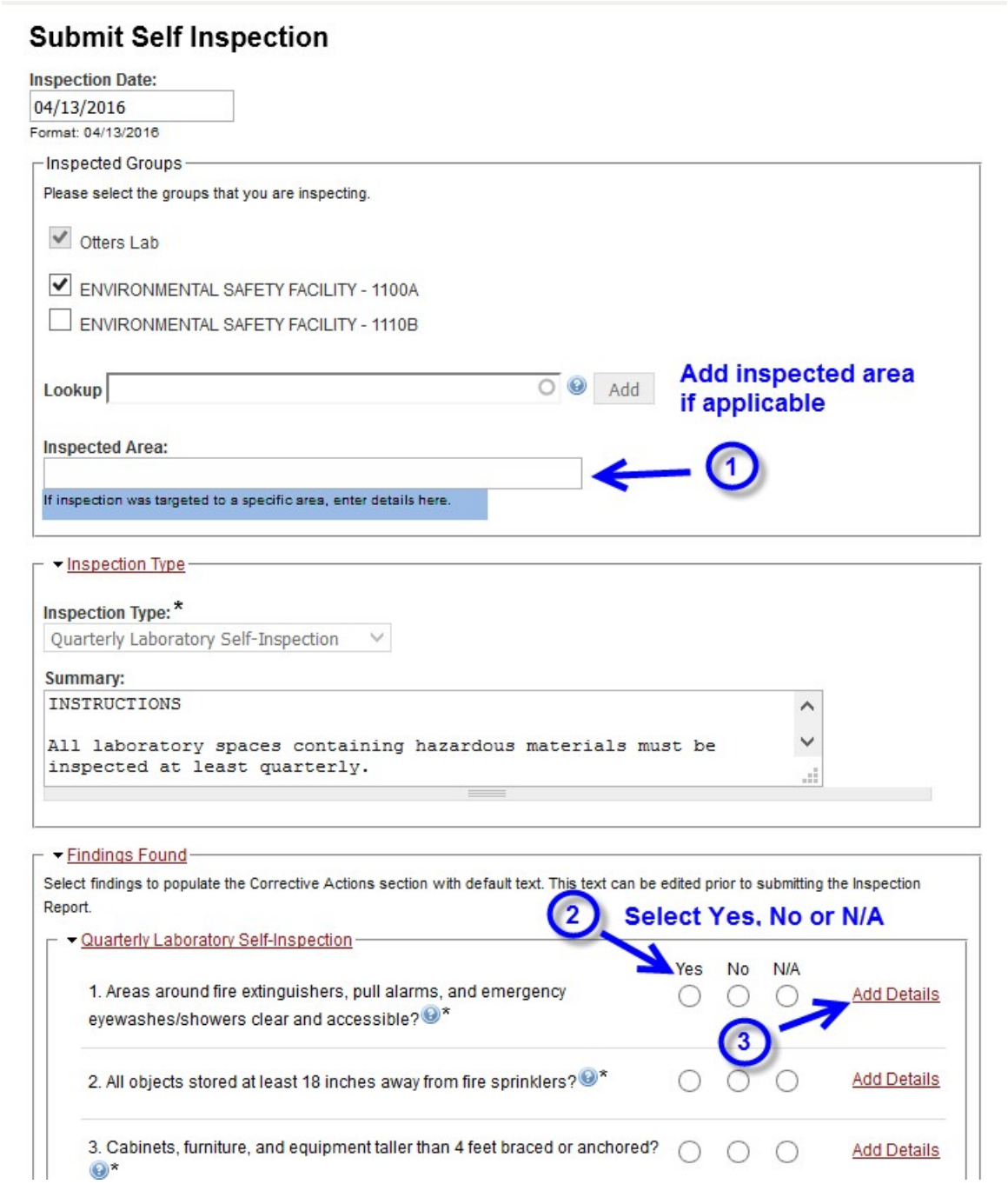
Upon clicking the "***Add a new Self Inspection***" link on the ***Self Inspection Log*** page, the ***Add NewSelf Inspection*** page will appear.

1. Click on the ***Inspection Type*** field to select an inspection type.
2. Identify the laboratory and spaces to inspect under ***Inspected Groups***.
3. The ***Lookup*** feature on this screenshot is not applicable to Stanford's self inspectionprocess. Please ignore.
4. Click on the ***Inspect*** button to start self inspection.

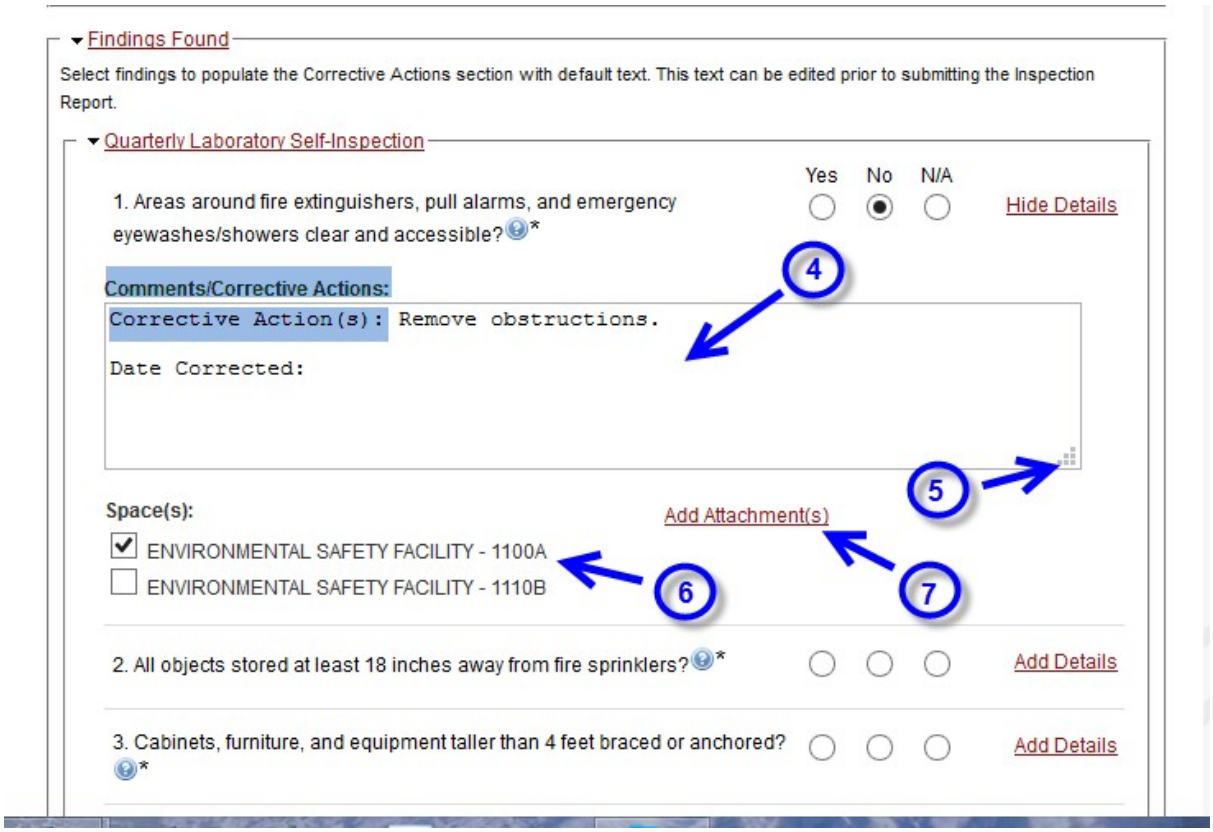


Clicking the ***Inspect*** button on the previous page will bring up the ***Submit Self Inspection*** page.

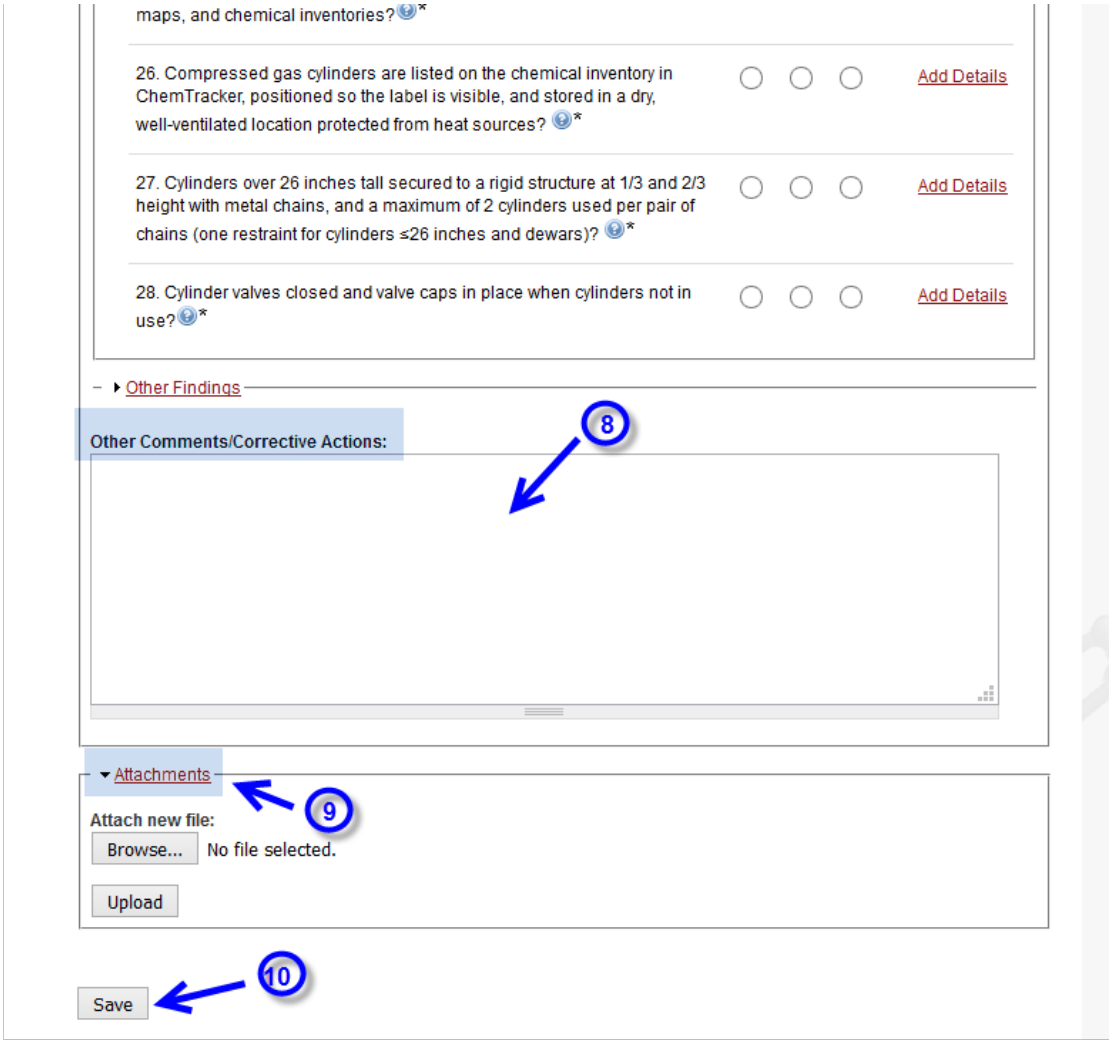
1. If inspection is for a specific area only, enter the area in the ***Inspected Area*** field.
2. On the ***Findings Found*** section, answer "**Yes**", "**No**" or "**N/A**" for each question.
3. To bring up a text box to enter comments or notes, click on the ***Add Details*** link.



4. Answering "**No**" to any question will trigger the ***Comments/Corrective Actions*** box to appear with recommended corrective actions. In this box, enter any comments and enterthe date that the issues have been corrected.
5. To enlarge the ***Comments/Corrective Actions*** box in order to view all texts, drag thehandle at the bottom right corner (where the arrow is pointing on the screen capturebelow).
6. To indicate specific ***spaces*** where issue is found, place checkmark(s) on the specificspace(s).
7. To add attachments such as a work order, click on the ***Add Attachments*** link.



8. Enter comments or observations that do not pertain to individual findings into the ***OtherComments/Corrective Actions*** box.
9. Add supporting files or upload photos in the ***Attachments*** section.
10. Click the ***Save*** button to save the inspection.



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LAB COMPLIANCE CHEAT SHEET

While not inclusive, the following items are lab violations commonly cited by Santa Clara County during hazardous materials inspections. **For questions, please call us at (650) 723-0448.**

HAZARDOUS CHEMICAL WASTE DISPOSAL

Drain disposal	• If you are unsure whether a material is drain disposable or trash disposable, check https://ehs.stanford.edu/reference/list-non-hazardous-chemical-wastes or contact EH&S at https://ehs.stanford.edu/contact o If the material is poured down the drain and is later determined to be hazardous, that is illegal disposal. Don't do it!
Waste label and disposal	• Waste tags must be attached to hazardous chemical waste containers when the first drop of waste is collected. o Waste tags are created using the **Online Waste Tag System** at http://wastetag.stanford.edu • Waste containers must be kept closed except when adding waste. o Funnels must be removed after use and the waste container immediately recapped. • Submit a waste pickup request when container is full or if it has been eight months past the accumulation date at http://wastetag.stanford.edu. o For waste tags not generated using the Online Chemical Waste Manager, submit an online pickup request through http://wastepickup.stanford.edu
Spill debris	• Rags and towels used to clean up hazardous material spills, including vacuum pump oil, become hazardous waste and must be disposed of as such. Do not throw into the regular trash. o On a waste tag, these can be described as "solids contaminated with (chemical name)".
Empty container management	• Empty Containers Disposal: o Use the "three shakes" rule to determine if a container is completely empty. ▪ Invert the container over an appropriate hazardous waste container, shake three times, and wait several seconds after the last drop is seen. For solids and viscous materials, scrape the container to remove any residue. o Once the container is empty, it can be tossed into the trash or recycling bin UNLESS it is an "extremely hazardous waste" or an "acutely hazardous waste" ▪ https://ehs.stanford.edu/reference/list-extremely-hazardous-wastes ▪ https://ehs.stanford.edu/reference/list-acutely-hazardous-wastes ▪ https://ehs.stanford.edu/forms-tools/empty-container-decision-tree • No evaporation of waste!
Non-contaminated broken glass	• Check that non-contaminated broken glass collection boxes only contain glass. Make sure that there are no liquids in bottles, gloves, or trash.
Solder waste	• Solder waste should be treated as hazardous waste. See: https://ehs.stanford.edu/reference/soldering-safety-reference-sheet

CHEMICAL STORAGE AND LABELING

Secondary container	• All hazardous chemicals must be stored in secondary containment and segregated according to chemical compatibility. o Example: Containers of bleach (storage group E), ammonia (storage group C), and ethanol (storage group L) must be in separate secondary containment.
Container type	• All chemical containers must be structurally sound and tightly capped. o Leaks into secondary containment must be cleaned up immediately (example: standing oil from a leaking vacuum pump).
Labels	• All containers must be labeled with their full chemical name in English (example: label "methanol" and not "MeOH"). o Exceptions to this rule: ▪ If the container holds a nonhazardous buffer with pH 5.5-11, you may use the buffer abbreviation (example: PBS, TRIS, TBS). ▪ If the contents are a manufactured product with a trade name, you may use the trade name (example: Zaclon ZR flux). • If you plan to reuse a chemical, label the container "for reuse" next to the full chemical name (example: acetone – for reuse). Do not use the labels "Dirty" or "Used".
Flammable storage	• Store flammable liquids in flammable cabinets in secondary containment. o In some areas, the California Fire Code permits storage of small quantities of flammable liquids outside flammable cabinets. ▪ Contact the Stanford University Fire Marshal's Office for additional guidance.

GASES

ChemTracker	• All compressed gas cylinders and liquefied gas dewars must be listed on the online chemical inventory system (ChemTracker) for the room in which they are stored. o The reported amount must be the size of the gas cylinder or dewar.
Restraint	• Gas cylinders >26" tall must be restrained by metal chains at 1/3 and 2/3 of the cylinder height. o A maximum of two cylinders can be restrained using the same set of chains. o This applies to in-use, stored, and empty cylinders. • Dewars and cryotanks must be restrained at a minimum of one point. o This applies to in-use, stored, and empty dewars and cryotanks.

INSPECTION RECORDS

Quarterly self-inspections	• Make sure you have at least three years' worth of quarterly self-inspection records either uploaded to BioRAFT or hard copies.
Monthly hazardous storage inspections	• Make sure you have at least three years' worth of monthly hazardous storage inspections either uploaded to BioRAFT or hard copies.

EMERGENCY EYEWASHES & SAFETY SHOWERS

Access	• Do not store boxes or equipment adjacent to or under eyewashes and safety showers. o This presents a danger to all lab personnel should anyone need to access the eyewash or safety shower during an emergency.
Testing and maintenance	• For Stanford University laboratories, the Stanford Plumbing Shop tests all campus eyewashes and safety showers monthly. • For Stanford School of Medicine laboratories, the Facility Operations group in the Office of Facilities Planning and Management (OFPM) tests eyewashes and safety showers.

REFRIGERATORS & FREEZERS

Storage	• Flammable and combustible materials must only be stored in refrigerators and freezers rated for flammable storage. o Household refrigerators and freezers are not designed and are not approved for this type of storage. • Incompatible hazardous materials stored in refrigerators and freezers, including in their doors, must be segregated and secondarily contained according to their storage groups.

ETHIDIUM BROMIDE AND GELS

Ethidium bromide waste	• If the ethidium bromide solution you use is over 4 mg/ml (0.4 weight percent), it must be handled as hazardous waste. • Know the concentration of the ethidium bromide you work with; you may be asked this by an inspector.
Gels	• If a gel has less than 0.4 weight percent of ethidium bromide, it can be disposed of in the trash.

UNIVERSAL WASTE (BATTERIES, LAMPS, E-WASTE)

Fluorescent and UV lamps	• Fluorescent and UV lamps are considered universal waste and cannot be thrown into regular trash or broken glass boxes. Contact your building's facilities coordinator for disposal. o Place in a hard-sided container, label as "universal waste," identify what the contents are, and indicate the date that you are designating it as waste. o The lamps must be removed from labs no more than nine months past the date you first designated them as universal waste.
Labels	• Universal waste labels may be obtained from EH&S.

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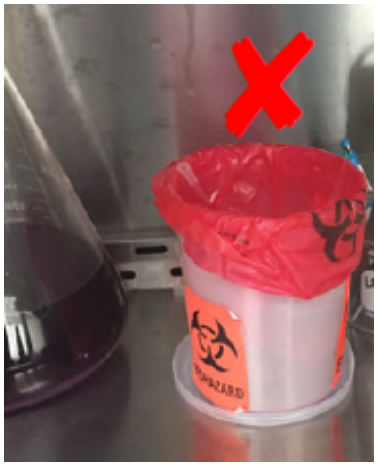
Medical Waste Common Inspection Findings

While not all-inclusive, the following items are commonly cited by Santa Clara County during medical and biohazardous waste inspections. **For questions, call EH&S at (650) 723-0448.**

Containment and Storage of Biohazardous Waste	
Bagged biohazardous waste must be in red bags. Do not use orange, pink, or clear autoclave bags. Biohazard bags must meet both ASTM tests: ASTM D1922 tear resistance and ASTM D1709 impact resistance.	
Bagged waste must be stored, handled, and transported in proper containment: ● Rigid hard-sided container ● Leak resistant and have tight-fitting covers ● Kept clean and in good repair ● Labeled on the lid and sides so as to be visible from any lateral direction - must use the words “Biohazardous Waste” or the international biohazard symbol and the word “BIOHAZARD”	

Open and unlidded biohazardous waste bins	
Do not leave the lids open and unattended. Biohazardous waste bins must remain closed to maintain a sanitary working environment and to prevent spillage of contents in the event of an emergency. Remember to keep all biohazardous waste bins closed when not in use. • Close or replace lid before you walk away • Do not overfill bins • Request a waste pick-up when bins are over 2/3 full	
Benchtop biohazardous waste bins in labs and tissue culture rooms must be closed when unattended. • As a best practice, tie the bag and place it into biohazardous waste bin when your work is complete	 

Improper Sharps Disposal

"Sharps waste" are items that have acute rigid corners, edges, or protuberances capable of cutting or piercing, including but not limited to:

- Hypodermic needles with syringes, needles with attached tubing, blades and scalpels, broken glass, Pasteur pipettes

Place contaminated sharps into approved sharps containers only:

- Rigid, puncture-resistant containers with the words "sharps waste" or with the word "BIOHAZARD"

Do not store full sharps containers for more than 30 days.

- Place any broken/damaged, faded, or outdated sharps containers into the biohazardous waste collection bins for immediate pick up

Open Sharps Containers

Sharps containers without safety trays must remain closed to maintain a sanitary working environment and to prevent spillage of contents in the event of an emergency.

- As a best practice, remember to keep sharps containers closed when not in use
- Close or replace lid before you walk away
- Do not overfill bins and containers
- Request a waste pick-up when bins are over 2/3 full
- Lock filled sharps bins when ready for pick-up

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Research Safety

LAB LEVEL MEDICAL WASTE INSPECTION GUIDANCE
BIOSAFETY MANUAL - Chapter 11 for more detailed information

Biohazard Bags as primary container (solid waste)

- Biohazard bags used for solid non-sharps waste must be red in color, labeled with the word "BIOHAZARD" and the universal biohazard symbol (No orange, clear, or black bags).
- Biohazard bags must meet both ASTM tests (ASTM D1922) tear resistance and (ASTM D1709) impact resistance tests.
- When finished adding to biohazardous bags, they shall be tied to prevent leakage or expulsion of contents during all future handling and storage (i.e., knot, gooseneck, tie or tape).

Biohazard Waste Containers as secondary container (solid waste)

- Biohazardous waste bags containing waste must be enclosed within a solid waste closed container that is rigid, puncture resistant, leak resistant, composed of a smooth cleanable material, properly labeled with universal biohazard symbols and "BIOHAZARD" on all visible sides:
    - rectangular container must have symbols on all 4 sides and the lid
    - circular container must have symbols on all equilateral points and the lid
- **Tight fitting lids must be closed on all biohazardous waste containers. Lids must be closed when you are not actively collecting waste.**
- No items should ever be placed on top of the medical waste containers, so that the biohazard symbols are viewable at all times.
- Red biohazard bags containing medical waste must be shipped off site within 7 days or 30 days if stored below 32 degrees fahrenheit.
- Biohazard waste containers must be stored in the lab where they are generated or moved directly to a designated accumulation area (DAA). Designated Accumulation Areas must be secure and locked rooms designated for the storage of medical waste before it is shipped off site by the vendor. Biohazardous waste must not be unattended or left in public hallways, autoclave rooms, or left outside of a designated accumulation room.

Liquid Biohazardous Waste

- Dilute with appropriate disinfectant or bleach 1:10 (final concentration = 0.5% sodium hypochlorite), allow 20 minutes for contact time, then dispose into the sewer with running water.

Sharps Waste

- Any waste with acute rigid corners, edges, or protuberances capable of cutting or piercing human skin (i.e., needles, glass pipettes) must be discarded in a sharps waste container.
- DO NOT OVERFILL sharps containers. Properly dispose of them when they are full.
- Add sharps only to the "Fill to Here" line; cover and dispose of containers when they are ¾ full.

- Sharps containers must have proper fitting lids that are closed when items are not being added and once ¾ full secure the lockable lid feature. Sharps containers without safety trays must be kept closed when not in use.
- Non-biohazardous sharps containers are clearly marked as “non-contaminated” and all biohazard markings are removed, covered or defaced.
- Pharmaceutical wastes are not discarded in sharps containers, but in a pharmaceutical waste container. Contact EH&S if you are unsure if your waste is pharmaceutical waste.

Medical Waste Transportation on Campus

- Prior to transport to a designated accumulation area (DAA), bags are secured and closed inside the lab and then transported to the DAA inside properly labeled, rigid, secondary containers. The transport container lid must be secured shut and the exterior of the container must be decontaminated before leaving the lab.
- All medical waste is transported in a clean, closed secondary container on a cart.
- The secondary transport container must be rigid, puncture-proof, leak resistant, and be labeled with the biohazard symbol and the word “Biohazard” on the lids and all lateral sides of the container.

Training

- If the researcher is generating biohazardous and medical waste containing bloodborne pathogens or other potentially infectious materials, then Bloodborne Pathogens EHS-PROG-1600 must be completed annually.

Segregation and Minimization of Medical Waste

- Non-contaminated paper towels, non-contaminated gloves and packaging materials should be disposed of as regular trash and not biohazardous waste.

Carcass Disposal for Labs Working with Animals

- Carcasses should be disposed of in a black plastic bag that is labeled with the protocol number.
- Red biohazard bags should ONLY be used to dispose of carcasses that have been exposed to BSL-2 or 3 agents.
- Red biohazard bags must never be used to carry or drape rodent cages during transport.

Chemical Inventory Management

https://ehs.stanford.edu/topic/chemical-safety/chemical-inventory-management

Chemical Labeling

Label all chemical containers with the identity of the contents.

- List the full chemical name(s) in English
- Do not use chemical formulas, chemical structures, abbreviations or acronyms
    - Exceptions to this rule
        - If the container holds a nonhazardous buffer with pH 5.5-11, you may use the buffer abbreviation (e.g., PBS, TRIS, TBS)
        - If the contents are a manufactured product with a trade name, you may use the trade name (e.g., Zaclon ZR flux, windex)
- Include hazard warning (e.g., flammable, corrosive, toxic, reactive)
- Include chemical concentration information
- Hazardous Waste Containers must be labeled with a waste tag

Chemical Inventory

Federal, state, and local regulations require that Stanford keep an accurate inventory of the chemicals stored on campus. We report this chemical inventory to the governing regulatory agencies in the form of the Hazardous Materials Management Plan (HMMP). The Plan also helps users keep track of their chemicals, conduct laboratory hazard assessments, provide chemical hazard information to emergency responders, and minimize unnecessary stockpiling of chemicals.

How do labs manage their inventory?

PIs and lab or shop managers must report the hazardous materials they have on hand via ChemTracker 4 online application to inventory all the hazardous chemicals on campus. Each lab and shop that uses chemicals must update their chemical inventories in ChemTracker 4 at least annually.

EH&S ChemTracker 4 information: https://ehs.stanford.edu/services/chemtracker
Request new ChemTracker 4 user account: https://ehs.stanford.edu/request-a-new-chemtracker-user-account
ChemTracker 4 Demos/User Guides: https://ehsapps.stanford.edu/chemtracker/help/inventory_management.html

What needs to be inventoried in ChemTracker 4?

What needs to be included:

- Containers on-site for more than 30 days
- It is important to pick the correct physical state, so that it will link with the chemical database
    - Liquid, Solid or Gas
- Any amount of
    - Chemicals with acute toxicity
    - Chemicals listed as a carcinogen or reproductive hazard
    - Chemicals that are pyrophoric, water reactive or potentially explosive
    - Compressed gases (including liquefied gases) – list each gas and the concentration
        - For compressed gases, if a hazardous material or mixture is determined to exceed threshold quantities at standard temperature and pressure, it shall be reported in the physical state at which it is stored. (For example, propane and liquefied nitrogen = report in gallons). For gases at Standard Temperature and Pressure report in cubic feet.

- Containers >100 mL of a liquid or >250 grams of a solid substance
    - Flammable/combustible liquids (e.g. alcohols, solvents, lubricants, and paints)
    - Flammable solids (e.g. magnesium, sodium, organo-metallics)
    - Oxidizers (e.g. concentrated mineral acids, bromates, chlorates, and permanganates)
    - Organic peroxides (e.g. hydrogen peroxide (>8%) and benzoyl peroxide)
    - Poisons not included in the above categories (e.g. biological toxins, select agent toxins, dyes, adhesives, and specimen solutions)
    - Corrosives (acids or bases that are corrosive to the skin, and other materials having a pH of ≤ 5.5 or ≥ 11.0) – provide the concentration
- 55 gallons of hazardous waste must be included in ChemTracker 4
    - Enter – Waste (chemical name)
- Hazardous Waste that is shipped directly from facility (offsite locations). EH&S is responsible for inputting this data into Chemtracker 4
- NSAR Select Toxins
- Controlled Substances (DEA-listed drugs)

It is not necessary to inventory in ChemTracker 4:

- Retail products used for routine household-like activities (e.g. cleansers and dish soap). However, do include bleach used in laboratory processes.
- Materials that will be expended within one or two days (e.g. working solutions)
- Radioactive materials
- Biohazardous materials
- Non-hazardous buffers
- Growth media
- Enzyme preparations
- Sugars

ChemTracker 4 support

EH&S provides customer support for ChemTracker 4 at Stanford. This includes: adding new chemical owner accounts (i.e., Principal Investigators), new ChemTracker 4 user access, and providing training for new users and basic troubleshooting.

You can contact the HMMP group for the following issues:

- Request new ChemTracker 4 user account
- Request new chemical owner account (for the responsible PI or supervisor)
- Request life safety box printout
- Other requests

For ChemTracker 4 user basics, check out the quick guides:

Part 1: Login/Logout, Layout, ChemInfo & MSDS (rev. 10/28/13)
Part 2: Add Inventory, Add Inventory Templates
Part 3: Search, View, Download, Saved Search Templates
Part 4: Modify, Surplus

For additional questions please contact EH&S at (650) 723-0448.

STANFORD COMPATIBLE STORAGE GROUP GUIDE

Effective segregation in chemical storage reduces the risk of dangerous chemical reactions.
This guide must be used in conjunction with information from the manufacturer's safety data sheets and chemical-specific expert knowledge.
This storage group system is intended to be used in research settings to store laboratory-scale quantities of chemicals.

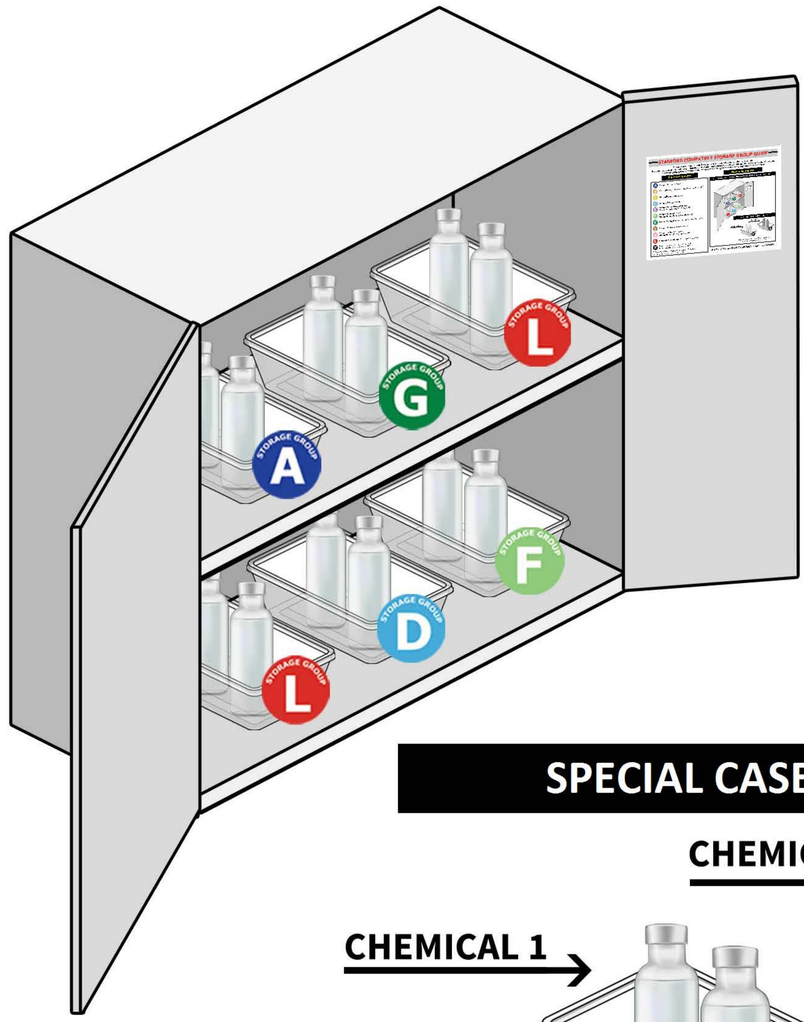
What to Segregate

- **A** — Compatible Organic Bases
- **B** — Compatible Pyrophoric & Water-Reactive Materials*
- **C** — Compatible Inorganic Bases
- **D** — Compatible Organic Acids
- **E** — Compatible Oxidizers & Peroxides (not including Strong, Oxidizing Acids)*
- **F** — Compatible Inorganic Acids (not including Oxidizers or Combustibles)
- **G** — Not Intrinsically Reactive, Flammable, or Combustible
- **I** — Compatible Strong, Oxidizing Acids
- **K** — Compatible Stable Explosives (not including Oxidizing Explosives)*
- **L** — Flammables, Combustibles, & Organic Solvents
- **X** — Incompatible with ALL Other Chemicals (including other chemicals within X)*

* These materials are likely to require special handling & storage conditions. Use extreme caution.

How to Segregate

USE SEPARATE SECONDARY CONTAINERS FOR EACH GROUP



SPECIAL CASE FOR GROUP X

NOTE: Different chemicals within Storage Group X must be segregated from each other.

Questions? Contact the EH&S Lab Safety Program at 723-0448

Use ChemTracker to find a chemical's Storage Group - stanford.chemtracker.org

Recommended Storage Groups for Common Chemicals

CHEMICAL	Group
1-Butanol or 2-butanol	L
1-Propanol	L
2-Mercaptoethanol	L
Acetic acid, glacial (flammable)	D
Acetic anhydride (in THF or acetone: L)	X
Acetone	L
Acetonitrile	L
Acetaldehyde	L
Acrolein	X
Acrylamide	G
Agarose	G
Ammonium acetate	G
Ammonium chloride	G
Ammonium formate	G
Ammonium hydroxide	C
Ammonium nitrate	E
Ammonium persulfate	E
Ammonium sulfate	G
Ammonium sulfide	L
Benzene	L
Benzyl chloride	B
Benzoic acid	D
BIS/Bis-acrylamide	G
BIS-TRIS	A
BIS-TRIS-HCl	G
Borax	G
Boric acid	G
Calcium chloride	G
Chloroform	G
Chromic acid	I
Citric acid	D
Coomassie Blue	G
Dextrose	G
Dichloromethane	L
Diethylamine (flammable)	A
Diethyl pyrocarbonate (DEPC)	L
Dimethyl sulfoxide (DMSO)	L
Drierite	G
Econo-Safe, UniverSOL, BetaMax, CytoScint, Scintisafe, EcoLume, Ecoscint, Opti-fluor	L
EDTA (in solution: G)	D
Ethanol	L
Ethanolamine	A
Ethers	L
Ethidium bromide	G
Ethyl acetate	L
Ethylene glycol	L
Ficoll	G
Formaldehyde	L
Formamide	L
Formic Acid (≥85%)	D
Glutaraldehyde	G
Glycerol	L
Glycine	G
Guanidine hydrochloride	G
Guanidinium thiocyanate	C
Halothane, isoflurane	G
HEPES	G
Hexanes	L
Hydrochloric acid	F
Hydrogen peroxide, > 5%	E
Hydrogen peroxide, < 5%	G
Imidazole	A
Isobutyl alcohol	L
Isopentane	L
Isopropanol	L
Lithium hydroxide	C
Magnesium chloride	G
Magnesium sulfate	G
Maleic acid	D
Methanol	L
N-Methyl-2-pyrrolidone	L
N,*N*-Dimethylformamide	L
Nitric acid	I
p-Dioxane	L
Paraformaldehyde	L
Perchloric acid	I
Periodic acid	I
Permount	L
Phenol (solid)	G
Phenol (liquid, ≤ 89% phenol)	L
Phosphoric acid	F
Picric acid (any concentration)	X
Piperidine	A
PIPES, free acid	G
Potassium acetate	G
Potassium chloride	G
Potassium cyanide	C
Potassium hydroxide (KOH)	C
Potassium phosphate (K_3PO_4)	G
Propionic acid	D
Propylene oxide	L
Pump oil	L
Pyridine	A
SDS (Sodium dodecyl sulfate) (in solution: G)	L
Sigmacote	L
Sodium acetate	G
Sodium azide	X
Sodium bicarbonate	G
Sodium bisulfate	G
Sodium bisulfite	G
Sodium borate	G
Sodium borohydride	B
Sodium carbonate	G
Sodium chlorate	E
Sodium chloride (NaCl)	G
Sodium citrate dihydrate	G
Sodium dichromate dihydrate	E
Sodium hydroxide (NaOH)	C
Sodium hypochlorite	E
Sodium hypochlorite solution (i.e. bleach)	E
Sodium phosphate	G
Sodium sulfide, anhydrous	B
Succinic acid	D
Sucrose	G
Sulfuric acid	I
Tannic acid	G
TEMED	A
TES free acid	G
Tetracycline	G
Tetrahydrofuran	L
Trichloroacetic acid	D
Trifluoroacetic acid	D
Toluene	L
Triethanolamine	A
TRIS	A
Triton X-100	G
Trizol	L
TWEEN 20	G
Urea	G
WD-40	L
Xylenes	L
Zinc chloride	G

See other side for information about the Stanford Storage Group System. Storage Groups are continuously reviewed and updated as needed. If you have any questions or suggested changes, please contact EH&S at 723-0448.

Stanford University
Laboratory Chemical Waste Guidelines

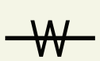
Hazard Awareness

How well do you know waste & chemical properties?

Corrosive (Acids and Bases): Materials that corrode skin or metal. **Examples: Hydrochloric Acid, Sodium Hydroxide**

Flammable (and Combustible): Materials that readily ignite and burn vigorously. **Examples : Alcohols, Acetone, Ethers, Acetic Acid**

Oxidizer (and Organic Peroxides): Materials that release oxygen readily to stimulate the combustion of organic matter. **Examples: Concentrated Hydrogen Peroxide, Potassium Permanganate, Bleach**



Air or Water Reactive (and Pyrophorics): Materials that react violently with air or water. **Examples: Zinc Dust, Magnesium Metal**

Toxic (Poisons, Carcinogens, Mutagens): Materials that contain a known carcinogen or known mutagen; exhibit oral toxicity; contain toxic metals or pesticides, or are toxic to aquatic species. **Examples: Mercury, Ethyl Acetate, Formaldehyde, Ethidium Bromide**

For regulatory reasons, chemical wastes that are not clearly in one of the above categories, and are not listed on the Stanford nonhazardous waste list should be considered toxic.

nonhazardouswaste.stanford.edu

Hazardous Materials are **Never** to be disposed of in the sink nor intentionally evaporated!

Note: This poster contains important regulatory information about hazardous materials and hazardous wastes that every laboratory worker is required to know. You may be asked to demonstrate your knowledge of these subjects by City, County or State inspectors.

Handling Laboratory Wastes

A laboratory chemical becomes a waste when you no longer intend to use or reuse the chemical.

Laboratory wastes may be accumulated in laboratories for up to 9 months.

An on line waste tag can be created and printed for your use
wastelabel.stanford.edu

Submit a pickup request on line at
wastepickup.stanford.edu
as soon as the container is full or 8 months after the initial accumulation, whichever comes first.

All laboratory waste containers must be:

- in good condition with no leaks or cracks,
- kept closed except when adding waste,
- segregated from other incompatible wastes,
- stored in clean and compatible secondary containment, and
- affixed with a fully completed hazardous waste label.

All laboratory chemical waste must be managed as hazardous waste unless it is listed on the Stanford University Non-Hazardous Waste List.

- See: nonhazardouswaste.stanford.edu
- Follow instructions from the list for other disposal options such as drain disposal for non-hazardous wastes.

Spill Response

Call 725-9999 for cleanup assistance of spills if:

- the spill is not contained in a hood or on a lab bench, **and**
- in your judgement, the spill may result in an environmental impact by entering a sink or floor drain, or by contaminating soil, or by producing personnel inhalation hazard, **or**
- you cannot complete cleanup within 15 minutes.

You do not need to call EH&S for assistance if:

- the chemical spill is less than 1 ounce, **and**
- you are knowledgeable of the hazards of the material, **and**
- you can clean it up using available spill response and personal protective equipment.

- Report to EH&S if you clean up a spill of less than 1 ounce yourself and it takes longer than 15 minutes.
- For cleanup of small spills that do not involve immersion in liquids or risk of overexposure, use laboratory protective equipment available for routine handling of the material (including appropriate gloves and eye protection).
- All contaminated spill cleanup materials must be managed as hazardous waste.

Accident Response

Emergency Response for Accidents Involving Hazardous Materials

If the accident is a fire, explosion, or health-threatening:

- **call 9-911 for emergency assistance, and**
- alert people in the vicinity, **and**
- evacuate the area, **and**
- remain nearby to provide information to emergency personnel.

In case of eye or skin contact with hazardous chemicals,

- immediately flush the affected area with water for 15 minutes
- use a safety shower/eyewash for any eye exposure and in cases of serious skin exposure.
- contact EH&S for all injuries at 650-723-0448

Contact Environmental Health & Safety (650) 723-0448
ehs.stanford.edu

revised: 12/07

For Room:	Room Phone:	
Building:	Department:	Date:

EMERGENCY ACTIONS FOR HAZARDOUS MATERIALS INCIDENTS

FIRES & HEALTH-THREATENING HAZARDOUS MATERIAL RELEASES
CALL 9-911

INCLUDES ALL COMPRESSED GAS CYLINDER LEAKS OR VALVE FAILURES

Activate fire alarm. Close door to laboratory or room.
Evacuate the area or building. For building evacuations, go to the Emergency Assembly Point (EAP) at

Administer first aid. For chemical spills, remove clothing from victim and deluge contaminated area with water for at least 15 minutes or until emergency personnel arrives.
Notify area management and staff identified below. Brief arriving personnel.

RELEASES OR INCIDENTS *NOT* IMMEDIATELY HEALTH THREATENING
CALL 5-9999

USE THIS EH&S 24-HOUR NUMBER TO REPORT
CHEMICAL, RADIATION, and OTHER HEALTH AND SAFETY INCIDENTS

Leave the area. Close door. Contain or clean up the spill ONLY if you are trained to do so.
Notify area management and staff identified below. Brief arriving personnel.

Area Management and Staff	Room	Work Phone	Emergency Phone (No pagers)
Lab Contact, or person most familiar with location			
Principal Investigator, or person responsible for location			
If above unavailable, Business Manager or Supervisor			

Emergency Building Maintenance: Call Facilities Operations (3-2281)

Chemical Storage Map

Building: | **Room:** | **Date:**

LSB
Life Safety Box


Fire Extinguisher


Shower


Eyewash


Shower & Eyewash


Free-Standing Cabinet


Fume Hood


Natural Gas Outlet


Gas Cylinder


Floor-Standing Equipment

Hazards Key

Hazard #	Description	Threshold Quantity
1	Explosive	Forbidden
2.1	Flammable Gases	1 cu ft
2.2	Non Toxic/Flam Gases	1 cu ft
2.3	Toxic gases	1 cu ft
3	Flammable Liquid	5 gals or 40 lbs
4.1	Flammable Solid	40 lbs
4.3	Water Reactive Flammable	1 gal or 8 lbs
5	Oxidizer	1 gal or 8 lbs
6.1	Toxic Solid or Liquid	1 gal or 8 lbs
7	Radioactive	Level B Storage or Radiation Producing Machines
8	Corrosive	5 gals or 40 lbs
9	Other Miscellaneous Hazards	Above as appropriate
BL2/3	Biohazards	Any material containing Biosafety level 2 or 3 agents


Refrigerator and/or Freezer


Door

INSTRUCTIONS FOR COMPLETING
THE ROOM HAZARD MAP FOR THE LIFE SAFETY BOX

1.General

Complete the top of the map with your building name, room number, and the date.

2. Equipment

a. Draw an outline of the room and fixtures including:
- · Doors
- · Benches and cabinets
- · Floor-standing equipment

b. Indicate the location of safety equipment using the symbols shown on the right side of the Map template.

c. Label refrigerators, floor-standing cabinets, fume hoods, and gas cylinders using the symbols shown on the right side of the map template.

d. Label natural gas outlets with the symbol shown on the map.

3. Chemical Hazards

a. Remove the "Guide to Hazard Quantities" and the “Hazardous Materials Inventory” from the Life Safety Box.

b. Compare the quantities of each Hazard Category given on the "Guide to Hazard Quantities" in the LSB box Printouts to the threshold in the "Hazards Key" on the map template.

c. If the quantity stored exceeds a corresponding threshold, mark the main storage areas for the Hazard Category with the corresponding hazard number on the map. If necessary, check the detailed “Hazardous Materials Inventory” to identify the specific compounds that fall within the Hazard category and then determine where those compounds are stored.

(For example, your "Guide to Hazard Quantities" indicates that you have a total of 3 gallons of oxidizers and 1 pound of moderate poisons. The amount of oxidizer exceeds the threshold of 1 gallon given on the Hazards Key and since you store most of this material in two locations, you mark both of these locations on the map with a number 5. A container of dilute oxidizer solution is stored on the bench top and because this is a minimal amount, you do not mark this location on the map with the number 5. The amount of moderate poison does not exceed the threshold of 8 pounds and thus you do not mark the map with hazard number 6.1.)

d. Stop after you reach Hazard Category 9.

4. Other Hazards

If applicable, use the number or letters annotated on the Hazards Key to indicate the location of the following hazards:
- · Biosafety Level 2 or 3 materials storage
- · Radiological materials storage
- · Radiation producing machines

Serious Injury/Illness Reporting Procedures

Regulatory background

Per Cal/OSHA regulation, employers shall report any work-related serious injury, illness, or death to Cal/OSHA as soon as practically possible, but not longer than eight hours after the incident. Cal/OSHA defines an injury or illness as serious if it:

- Requires inpatient hospitalization for a period longer than 24 hours, for reasons other than medical observation
- An employee suffers a loss of any limb of the body
- An employee suffers any serious degree of permanent disfigurement

Stanford reporting procedure

In the event of serious injury, illness, or death:

1. Call the EH&S Emergency Hotline at (650) 725-9999 immediately. (During non-business hours, this number will reach a University operator, who will collect incident information and contact EH&S.)
2. The Occupational Health and Safety (OHS) Program staff will take the facts about the incident and the status of the injured employee(s) from the supervisor and/ or the employee(s).
3. The OHS Program staff will report the incident to the Cal/OSHA district office.
4. The supervisor must complete the requisite forms (refer to the table below or contact Risk Management at (650) 723-7400).
5. The supervisor must follow up on the incident and document corrective actions (using the Incident Investigation Report). EH&S will review all forms and contact supervisors as needed for follow up. The goal of incident investigations is to prevent incidents from recurring, not to assign culpability.

Who calls Cal/OSHA?

- EH&S is the designated University authority to report serious incidents to Cal/OSHA. The EH&S emergency reporting number (5-9999) is monitored 24 hours a day.
- **Supervisors and co-workers must not contact Cal/OSHA directly to report serious incidents.**

What are the time limits for reporting?

- EH&S shall report all serious incidents, injuries, and illnesses to the nearest District Office of Cal/OSHA as soon as practically possible, but not longer than eight hours after the incident.
- Failure to immediately report serious incidents and injuries to EH&S can result in Cal/OSHA citations and fines. Note that regulatory violations are paid by the operating unit responsible for the citations.

Additional information on incident reporting at Stanford University

- See the table below for Stanford University work-related incident/injury/illness reporting forms.
- If necessary, contact EH&S at (650) 723-0448 or visit the IIPP website.
- If necessary, contact the Office of Risk Management at (650) 723-7400.
- Review the Stanford University Administrative Guide:
  - Emergency/Accident Procedures (25.2)
  - Accident and Incident Reporting (25.6)

Stanford University work-related incident/injury/illness report forms

Supervisors are responsible for reporting all work-related incidents, injuries, and illnesses to the Office of Risk Management by completing the necessary forms. Forms can be obtained online or by calling Risk Management at (650) 723-7400.

Incident/injury/exposure report forms

Form	When To Use	Instructions
SU-17 – Incident Investigation Report		
	Any incident involving a Stanford University employee, student, visitor, and/or contractor (note: use the SU-17B for non-University employees)	
		Submit to Risk Management within 24 hours
State Form DWC-1 (workers compensation)		
	Provide to employees when they visit a doctor due to a work-related injury/illness	
		Complete and provide to employee within 24 hours of incident or report of incident
SU-16 – Workers' Compensation Lost Workdays Report		
	Provide to employees and Risk Management when they visit a doctor due to a work-related injury/illness.	
		Supervisors/HR Managers must complete and provide to the employee within 24 hours of incident or report of incident.
Cal/OSHA 5020- Employer's Report of Occupational Injury or Illness		
	Supervisors/ HR Managers must complete for employees when treatment is required by a physician/provider in a medical facility.	
		Submit to Risk Management as soon as possible, but within 5 days

Incident Report (eSU-17)

Stanford is committed to keeping a safe environment for their employees, students and visitors.

Incidents involving injury/illness or close-call events must be reported here within 24 hours of occurrence. This reporting helps identify possible hazards and opportunities to improve our future safety.

IMPORTANT! Any injury resulting in death, permanent disfigurement, dismemberment or hospitalization expected to last more than 24 hours shall be reported immediately to EH&S at 650-725-9999.

Report an Incident (Injury, Illness, or Close Call Event)

Instructions for Supervisors

1. After an incident occurs, it is to be reported by the employee or on behalf of the employee.
   - You may submit the initial Incident Report on behalf of your employee by clicking the Submit an Incident Report button at the top of this page.
2. Once a report is submitted, the supervisor will receive an email with a direct link to complete the Supervisor Followup section.
   - Tips to assist Supervisors in conducting an investigation into an incident are available here. For additional assistance contact EH&S at 650-723-0448.
3. Upon submittal of the Supervisor Follow-up report, the supervisor will receive an email containing information from Incident Report and the Supervisor Follow-up report. This can be forwarded to the local HR Manager or others in your department per your local policy. Users can also download a PDF of the form while completing the report.
4. As corrective action(s) are identified to prevent similar recurrence, the Supervisor is responsible for promptly implementing them, and documenting their completion.

Information for HR Managers

- The on-line eSU-17 Incident Report form replaces the previous paper SU-17 form. Using the eSU-17 eliminates the need to fax or email forms to Risk Management.
- Employees are encouraged to report incidents directly but supervisors may complete the form on behalf of their direct reports.
- There are other forms that may need to be filed including Employees Claim for Worker Compensation Benefits (DWC-1) and Workers Compensation Lost Time Report (SU-16). See the Admin Guide for details on reporting requirements.
- Employees and supervisors will receive emails that confirm submittal of the eSu-17 Incident Report and completion of the Supervisor Follow-up section.
  - These emails will contain copies of the Incident Report and Supervisor Follow-up report. HR Managers can request employees and supervisors to forward or print a copy of the submitted forms.
  - A PDF copy of the form can be downloaded upon completion of the Initial Incident report and Supervisor Follow-up reports.

FAQs

When to report: Any incident (illness/injury or close call) that occurs on campus to a University employee, student, visitor, or contractor must be reported promptly, but no later than 24 hours afterwards.

- Incidents that occur at the National Accelerator Laboratory (SLAC) must be reported to the SLAC Medical Department.

For anonymous reporting (not for injuries), contact the Ethics and Compliance Helpline.

Who can report:

- Employees or their supervisor.
- Non-employees (i.e., students, visitors, contractors) or an associated Stanford representative.

Where does this report go? The Incident Report is sent to the responsible University supervisor/manager, Environmental Health and Safety (EH&S), and Risk Management to take any necessary corrective measures towards addressing associated safety issue(s). Individuals listed in the employee and supervisor email fields automatically receive a copy of the submitted information. Additionally, the reporting party can download the report after submission.

The reported information is kept confidential and only shared with those University units managing the relevant safety risks and regulatory compliance.

What happens next? The responsible supervisor is prompted to complete incident follow-up/analysis to take necessary corrective measures towards addressing any associated safety issue(s). When the supervisor completes their follow-up report, the employee will receive an email containing the information from the follow-up report. EH&S may follow up with the person(s) involved and their supervisor to gather additional information and support local safety improvement.

Need assistance completing the on-line eSU-17? E-mail us at esu17support@lists.stanford.edu

MEDICAL CARE IN EMERGENCIES & AFTER HOURS

For immediate, life-threatening emergencies, call 911
(or 286 in Medical Center)

and/or go to the

Stanford Hospital
Emergency Department
1199 Welch Road
Palo Alto, CA 94304
(650) 723-5111

CONTACT US

Phone: (650) 725-5308
Email: stanfordohc@stanford.edu
Website: suohc.stanford.edu

VISIT US

Environmental Health & Safety
484 Oak Road (2nd Floor)
Stanford CA, 94305-8007

HOURS

8:00 am - 4:00 pm
Monday - Friday

STANFORD UNIVERSITY

OCCUPATIONAL HEALTH CENTER

On-site services for Stanford University faculty, staff, and postdocs' work-related:

- Medical surveillance
- Immunizations
- Injuries & Illnesses
- Travel Consultations

Stanford | Environmental Health & Safety
Occupational Health Center

REPORTING EMPLOYEE WORK-RELATED ACCIDENTS, INCIDENTS & EXPOSURES

1. Inform Supervisor

2. Call SU Occupational Health Center (SUOHC) at 650-725-5308, if event involves a work-related injury or illness

3. Complete an SU-17, at **https://SU17.stanford.edu**

Stanford | Environmental Health & Safety
Occupational Health Center

MEDICAL STAFF

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ONSITE SERVICES

MEDICAL SURVEILLANCE

Medical Surveillance is the process of evaluating workers' health as it relates to their potential occupational exposures to hazardous agents, it includes:

- Tuberculosis screening
- Vision Exams
- Respirator Use Clearances
- Hearing Tests
- Focused Physical Exams
- Urinalysis
- Blood Tests

IMMUNIZATIONS

- MMR (Measles, Mumps, Rubella)
- Varicella (Chickenpox)
- Hepatitis B
- Tetanus and Pertussis
- Rabies
- Others as indicated for work-related travel or exposures

EMPLOYEE WORK RELATED INJURY AND ILLNESS CARE

- Diagnostic Testing
- Medications
- Exercise / Stretching Programs
- Referral to Physical Therapy
- Work Status Reports
- Medical Treatment for:
  - First Aid - Cuts, Abrasions
  - Sprains / Strains (e.g., back, knee, wrist)
  - Repetitive Stress Injuries
  - Bloodborne Pathogen Exposure (e.g., needle sticks, blood splash)
  - Animal Bites
  - Non-Human Primate Exposures
  - Laser Exposures
  - Radiation Exposures