EH&S Guide for Principal Investigators

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A. EH&S GUIDE FOR PRINCIPAL INVESTIGATORS (PI GUIDE)

1. Why Read This Guide?
   This guide is an introduction to UW Environmental Health and Safety (EH&S) for Principal Investigators new to the University of Washington and a reference tool for any Principal Investigator. It outlines your health and safety responsibilities as a Principal Investigator and provides links to related resources. It lists related requirements for grant proposals, purchases and similar actions. It also outlines how to plan for emergencies and disasters.

   As a Principal Investigator, you are responsible for the safety of everyone who works in your laboratory and for the requirements outlined in this Guide. You may delegate safety-related tasks to others, but you retain ultimate responsibility for them. These responsibilities are outlined in University of Washington Executive Order 55.

2. Contact Information
   Webpages and contact information for specific issues are listed throughout the PI Guide. A list of contact information by topic is at www.ehs.washington.edu/pso/uwphones.shtm.

3. EH&S Resources
   EH&S offers training, advice and information regarding laboratory safety. The EH&S website should be your first stop for related information. The EH&S Information for Principal Investigators webpage includes links to everything covered in this guide. Principal Investigators often also use the Information for Laboratory Staff webpage, which provides links to information for day-to-day laboratory safety issues not covered in this guide. See Section N for more details about EH&S services and resources.

   EH&S provides resources and guidance for research at all UW campuses and most UW owned or leased facilities. However, policies and especially procedures may vary by location. If you work off campus, visit www.ehs.washington.edu/pso/partners.shtm for related resources listed by location.

B. TRAINING
   As Principal Investigator, you are responsible for ensuring that all your staff are trained on the hazards they will encounter while working for you. EH&S provides dozens of classroom and online courses. Some courses are required in certain situations. Almost all courses are free.

1. EH&S Laboratory Training Checklist
   The EH&S Laboratory Training Checklist lists what training is required for you and your laboratory staff as well as other courses offered by EH&S.
2. **EH&S Training Webpage**
   
   Visit the [EH&S training](#) webpage to see a schedule of current courses, register for scheduled classes and take online courses.

3. **Laboratory Specific Training**
   
   In addition to general courses taught by EH&S, all laboratory staff are required to have laboratory specific training on the hazards they will encounter while working for you. This training is usually conducted by Principal Investigators or laboratory managers. This training should also include training on your [Department Health and Safety Plan](#) and your building’s or department’s [Emergency Evacuation and Operations Plan](#) (EEOP).

4. **Laboratory Safety Seminar**
   
   At the beginning of each academic year, EH&S offers a Laboratory Safety Seminar for graduate students, faculty and staff working in laboratories. About a dozen related safety courses are presented over two days. New graduate students who will conduct research or teach in laboratories are required to attend.

C. **CHEMICAL SAFETY**

   If you use chemicals in your laboratory, you must have the following:

1. **Chemical Hygiene Plan**
   
   If you use hazardous chemicals in your laboratory, state law requires that you have a Chemical Hygiene Plan (CHP). A CHP documents safe use and management of chemicals in your laboratory. The [UW Laboratory Safety Manual](#) fulfills most of this requirement. However, the manual has blank sections that must be filled out for your laboratory, including floor plans and Standard Operating Procedures (SOPs) for the hazardous chemicals and/or procedures that use chemicals in your laboratory. For more information, see Section 6 and Appendix D of the Laboratory Safety Manual and [sample SOPs](#) on EH&S website.

2. **Chemical Hygiene Officer**
   
   A Chemical Hygiene Officer (CHO) coordinates chemical safety for your laboratory, including providing training, writing and updating SOPs and enforcing correct procedures. The CHO must be actively involved or observant of laboratory work and have the authority to enforce correct procedures. Usually the CHO is the Principal Investigator or a laboratory manager. For more information, see Section 1.C.1 of the Laboratory Safety Manual, [Responsibilities – Laboratory Chemical Hygiene Officer](#).

3. **Chemical Safety Training**
   
   See the [EH&S Laboratory Training Checklist](#) for a list of training required for working for chemicals. There is training both for laboratory staff and supervisors.

4. **Chemical Inventory**
   
   The University of Washington has [MyChem](#), an online chemical inventory system that stores the identity, location and amount of chemicals in your laboratory. It also is a central library for Material Safety Data Sheets (MSDSs). MyChem inventories must be updated annually and after major changes in inventory. Contact information must also be current in case of emergency.
5. **Access to MSDSs**
   Your staff have the right to access hazard information, usually in the form of MSDSs, for the chemicals they use. MyChem may be used to fulfill this requirement if your staff have ready access to MyChem. See the MyChem webpage for more information.

D. **RADIATION SAFETY**
   The State of Washington Department of Health (DOH) issues a Broad License to the University of Washington for use of radioactive materials. EH&S ensures compliance with the license conditions and can revoke authorizations if conditions are not met.

1. **Use Authorization**
   Principal Investigators need an authorization to use radioactive materials. To request an application packet, contact Radiation Safety at radsaf@uw.edu or 206.543.0463.

2. **Radiation Safety Training**
   Initial radiation safety training is required for all personnel using radioactive materials at the UW. A written exam must be successfully completed to satisfy the training requirements.

3. **Radioactive Material Management**
   Regulations and procedures for the handling, storage and disposal of radioactive materials and sealed radioactive sources are in the UW Radiation Safety Manual.

E. **BIOLOGICAL SAFETY**
   EH&S is involved in research proposal reviews and approvals, facility reviews, consultation on laboratory containment and training for biohazardous agents, recombinant DNA, bloodborne pathogens select agents, human gene transfers and research involving animals.

1. **Biohazardous Agents**
   The IBC’s working definition of a biohazardous agent includes:
   - Pathogenic agents (bacteria, rickettsia, fungi, viruses, protozoa, parasites, prions and select agents)
   - Recombinant DNA molecules, organisms, vectors (e.g., plasmids, viral vectors) and viruses containing recombinant DNA molecules
   - Human and non-human primate tissue, body fluid and cell culture (primary or continuous)
   - Plants, animals or derived waste which contain or may contain pathogenic hazards (including xenotransplantation tissue)

2. **Biological Use Authorization**
   If your study involves biohazardous agents, your work must be reviewed and approved by the Institutional Biosafety Committee (IBC) and/or EH&S. This review is called the Biological Use Authorization (BUA). IBC review and approval for research involving all biohazards is also required by the UW Administrative Policy 12.3 and UW Biosafety Manual. If your research involves biohazardous agents in animals or human gene transfer, a Biological Use Authorization is required prior to approval by the IACUC and the Institutions Review Board.
   Principal Investigators must review BUA Letters with staff and document that they have done so.
3. **Recombinant DNA**

The National Institutes of Health (NIH) requires review of all research involving recombinant DNA. The BUA Application (discussed above) addresses the NIH Office of Biotechnology Activities (OBA) directive that each Principal Investigator working with recombinant DNA must identify the section of *The NIH Guidelines for Research Involving Recombinant DNA Molecules* that applies to his or her research. There are several different levels of oversight depending on the agents and procedures. See [www.ehs.washington.edu/rbsresplan/bua.shtm](http://www.ehs.washington.edu/rbsresplan/bua.shtm) for more information.

4. **Bloodborne Pathogens**

Employees who have a reasonably anticipated potential for exposure to human blood and other potentially infectious materials (OPIM) must be included in the UW Bloodborne Pathogen (BBP) Program. Principal Investigators must do the following:

- Offer the [hepatitis B vaccine](http://www.ehs.washington.edu/manuals/bbpinfosheet.pdf) to staff within ten days of assignment into a job with reasonably anticipated exposure.
- Develop a written Site-Specific BBP Exposure Control Plan which is reviewed at least annually and updated as necessary. PIs must also train staff on the Exposure Control Plan prior to initial start of work and then annually and ensure it is followed.
- Ensure staff complete EH&S BBP training prior initial assignment and within 12 months thereafter.


5. **Select Agents**

Select agents are biological agents and toxins that have the potential to pose a severe threat to public, animal or plant health or to animal or plant products. Work with select agents requires a federal security clearance and strict oversight by the Centers for Disease Control and Prevention (CDC), and strict oversight, approval, and ongoing training specialized by EH&S. For more information, see [www.ehs.washington.edu/rbsresplan/selectagent.shtm](http://www.ehs.washington.edu/rbsresplan/selectagent.shtm).

6. **Human Gene Transfer (clinical trials)**

The National Institutes of Health (NIH) require that the Institutional Biosafety Committee (IBC) to review and approve human gene transfer investigations prior to initiation. Many human gene transfer clinical trials require an NIH Recombinant DNA Advisory Committee (RAC) review prior to the IBC review. The reviews are focused on protection of research personnel, research subjects, care givers and the general public. The IBC approval must precede the Institutional Review Board approval (University of Washington Human Subjects Division). Both are necessary prior to subject enrollment. For more information about the NIH requirements for human gene transfer see Appendix M of the NIH Guidelines for Recombinant DNA.

7. **Biosafety Training**

EH&S Biosafety Training is required prior to work with potential for exposure to biohazards and to Biological Use Authorization and then required every three years thereafter. Bloodborne Pathogens Training is required prior to work with potential for exposure to BBPs and then required within 12 months thereafter. Work with Select Agents requires specialized training and drills with EH&S.

8. **Occupational Health/Animal Use Medical Screening**

   a. **Occupational Health Reviews**

   All animal protocols and protocols involving biohazards are evaluated to determine medical surveillance and vaccination requirements for work with hazardous agents. These requirements are communicated to you in an Occupational Health Recommendation (OHR) Letter issued by
EH&S. Principal Investigators must review the OHR letter with staff and make it available to staff in the workplace. In addition, PIs must offer specified vaccinations and medical surveillance to staff. UW Employee Health Centers provides these clinical services.

b. Animal Use Medical Screening
Individuals who have contact with animals or conduct activities in areas where animals are housed must participate in the Animal Use Medical Screening (AUMS) program. See www.ehs.washington.edu/rbs/resocchealth.shtm for more information. Participation in the AUMS Program is required prior to approval from the Institutional Animal Care and Use Committee (IACUC) to work in the laboratory animal research environment.

F. PURCHASING AUTHORIZATIONS AND NOTIFICATIONS
Consult with EH&S prior to placing orders for specialized chemical use and storage equipment. New fume hoods and biosafety cabinets must also be tested and certified by EH&S before use. See Section 4 of the Laboratory Safety Manual for more information.

G. SHIPPING HAZARDOUS MATERIALS
You must be trained and certified to ship hazardous materials if you are involved with a shipment of hazardous materials via land, air or sea. There are prescriptive requirements for packaging and labeling of hazardous materials and for the associated documentation used in the event of an emergency. There are fines for lack of certification and improper packaging and, worse, a chance for loss of life and property. You may be jailed if you show that you willfully ignored shipping requirements. Even if you ask someone else to package the shipment, you must be trained because you know what the hazardous material is and therefore have some responsibility for it.

Hazardous materials include hazardous chemicals, infectious substances, radioactive materials, compressed gases, dry ice, liquid nitrogen, lithium batteries, aerosol cans and pressurized items.

Training, certification, advice and packing materials are available through EH&S. Radioactive material is shipped by EH&S. See www.ehs.washington.edu/eposhiphazmat/index.shtm for more information.

Shipments may also be subject to Import/Export requirements. Information on these requirements and contact information can be found on the UW’s Office of Sponsored Programs.

EH&S must notify the U.S. Department of Homeland Security if you ship certain listed substances.

H. RESEARCH GRANT PROPOSALS
Many research grants require institutional approval or periodic renewals prior to submittal or funding. In some cases research cannot start until facilities, processes and materials are reviewed and approved. EH&S administers several approval processes and should be contacted early to meet deadlines and avoid delays. See the UW Researcher’s Guide for more information on grant review and administration.

The list of pre-approvals or requirements includes:

- Biological Use Authorization Human Gene Transfer Clinical Trial Submission
- Select Agent Registration
- Animal Use Project Review
I. EMERGENCY PREPAREDNESS

Be prepared for emergencies including natural disasters, utility failures and acts of terrorism. In particular, western Washington is in an earthquake zone. Earthquakes may cause power outages, significant damage to buildings and physical harm. Be ready for all of appropriate types of emergencies to protect your staff and your research.

1. Laboratory

Prepare your laboratory and staff for emergencies by doing the following:

- Post an UW Emergency Flipchart for Laboratories. If you don’t have one, email ehsdept@uw.edu to request that one mailed to you.
- Review Section 9 of the Laboratory Safety Manual, “Emergency Preparedness and Response.” It outlines how to prepare for and respond to emergencies such as spills, fires, earthquakes, utility outages, gas leaks, unknown odors and laboratory floods. The manual includes information on chemical spill kit contents, first aid kits, eye washes, safety showers and more.
- Make sure your chemical SOPs include spill and exposure response procedures specific to the chemicals and processes in your laboratory.
- If your research involves radiation, see “Emergencies Involving Radiation” in the Radiation Safety Manual for detailed response procedures for spills, injuries and contamination involving radiation.
- If your research involves biohazardous materials, see Section IV of the Biosafety Manual “Procedures for Biohazard Control” for emergency preparedness and response procedures for hazards, including decontamination and spill response.
- Maintain a current chemical inventory and emergency contact information in MyChem.
- Train all of your staff on every applicable procedure outlined above.
- Plan ahead to protect your research in the event of a disaster that disrupts basic services or damages buildings so that they are unsafe for quick reentry.

2. Classroom

During an emergency, faculty and teaching assistants in classrooms and teaching laboratories are responsible for their students. Refer to the Classroom and Teaching Laboratory Emergency Procedures for more information on evacuation and other classroom emergency procedures.

3. Department

Department Health and Safety Plans lay the groundwork for preventing accidents and emergencies. Check with your department administrator to learn more about your department’s health and safety plan.

Emergency Evacuation and Operations Plans (EEOPs) are written at the building or department level and contain general planning guidelines for emergencies and evacuation procedures. Ask your administrator for your copy. Train all laboratory staff on emergency procedures, evacuation routes evacuation assembly points.

4. University

UW Emergency Management develops and implements institution-wide programs and projects for disaster planning, training, mitigation, response, prevention and recovery. Familiarize yourself with their website and resources.
J. DESIGNING/REMODELING A LABORATORY

If you are constructing a new laboratory or modifying an existing one, refer to the EH&S Laboratory Safety Design Guide which outlines requirements and recommendations for new laboratories.

At most locations, facilities services must be hired for alterations of laboratory and building infrastructure. This especially includes projects that affect electrical systems, plumbing and air balancing. New fume hoods and biosafety cabinets must be certified by EH&S before use.

K. MOVING INTO OR OUT OF A LABORATORY

See Appendix E of the Laboratory Safety Manual for a checklist of health and safety requirements for starting up or moving into a new laboratory. Use the checklist as early as possible; some items should be completed weeks or even months in advance of your move. Appendix E also includes a moveout checklist that must be filled out, signed and posted on the door before you leave. If biohazardous agents are being moved to a different location, submit a Request for Change to BUA form to update your Biological Use Authorization Letter.

L. RECORDKEEPING

Health and safety recordkeeping requirements are summarized in the UW General Records Retention Schedule, UW GS-2. See also the following guidance as applicable:

- Laboratory Safety Manual Section 8 Recordkeeping
- Radiation Survey Records
- Radiation Instrument Calibration Records

M. EXPOSURE RESPONSE AND ACCIDENT REPORTING

Before emergencies, review your laboratory emergency flipchart and other response procedures with staff. See also the EH&S exposure response procedures.

Report all work-related injuries, illnesses and near misses using the UW Online Accident Reporting System (OARS). In the case of a serious or fatal accident or hospitalization, notify EH&S as soon as possible after obtaining emergency care. During business hours, call EH&S at 206.543.7262. After hours, at all locations, call the UW Seattle Police Department Dispatch at 206.685.8973.

N. ROLE OF EH&S HEALTH AND SAFETY

EH&S communicates health and safety regulations to UW employees and also provides many services related to health and safety.

1. Education and Outreach

EH&S provides many classroom and online courses available at the EH&S training webpage. Also see the EH&S manuals and publications webpage.

2. Audits and Surveys

EH&S also does routine audits of laboratory spaces for general safety, fire safety, radiation surveys and Biological Use Authorizations. A general laboratory self-audit checklist is in Appendix E of the Laboratory Safety Manual.
3. Consultation
EH&S provides consultation regarding laboratory safety, including issues such as ventilation, exposure control, chemical storage/use and waste management.

4. Services Paid for by Indirect Costs
The majority of EH&S services are funded through indirect costs, including:

- Training (except First Aid)
- Chemical waste collection and disposal
- Health and safety surveys and monitoring
- Assistance meeting health and safety requirements of grant proposals
- Radiation use authorizations
- Radiation dosimetry and bioassay
- Fire prevention services
- Fume hood testing
- Central MSDS library and inventory system
- Respiratory fit-testing
- Spill advice

5. Services Paid for Directly
Some specialized EH&S services are funded by direct recharging to research budgets, including:

- Radioactive waste disposal and radiation instrument calibration
- Biosafety cabinet decontamination and certification
- Contract costs associated with hazardous material spills or improper waste disposal
- Analysis of unknown chemicals and deactivation of unstable chemicals
- First Aid Training and Certification

6. Liaison with Regulatory Agencies
EH&S is the UW liaison with government agencies regulating environmental and occupational health and safety issues. See UW APS 10.2 for more information.