



Appendix E - Checklists

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A. EARTHQUAKE PREPARATION CHECKLIST FOR LABORATORY PERSONNEL

The following checklist is designed to assist University Department Chairs, Principal Investigators, and laboratory supervisors and personnel perform earthquake self-assessments. Use this list of questions to identify situations that may pose a problem in the event of an earthquake.

Preparing for a Major Earthquake

- **If an earthquake occurred right now, where would you go for protection?**
 - Locate safe and danger spots in your area. Decide if you would go under a desk or table, in a safe corner, or out of the lab against a corridor wall.
 - Consider flying glass hazards from windows and glass and falling hazards from light fixtures, books, pictures, and equipment when selecting safe spots.

- **Do you know the evacuation routes from your building?**
 - If you're unfamiliar with your evacuation route(s), refer to your department's Fire Safety Evacuation Plan (FSEP) or if still in use the Emergency Evacuation and Operations Plan (EEOP) or contact your evacuation warden or evacuation director. For further information on evacuation routes from your building, contact EH&S at 206-543-0465.
 - Post a lab floor plan near laboratory exits that shows exit routes.
 - Do not leave the building until the tremors have stopped.

- **Where is the primary evacuation assembly point (EAP) for your building, department, or work unit? Where is an alternate EAP in case your primary EAP happens to be downwind of a chemical or gas release or otherwise unusable?**
 - Check your departmental health and safety plan or FSEP/EEOP for location(s) of EAPs.

- **Are gas cylinders properly secured in an upright position?**
 - Are pressure regulators removed and cylinder caps in place on cylinders not in use?
 - Are two cylinder straps or chains securely fastened to the lab wall for each cylinder?

- **Are chemicals stored properly?**
 - Are chemicals recapped and returned to their storage cabinets immediately after use?
 - Are chemical storage cabinets closed and latched?
 - Are chemical storage cabinets secured to prevent tipping or movement?
 - Are storage shelves equipped with lips or restraints to keep chemicals and glassware in place?
 - Are waste and unwanted chemicals removed in a timely fashion?
 - Are chemicals stored in secondary containment trays or tubs?
 - Are non-compatible chemicals stored separately?

- **Are fume hood sashes closed as far as possible to contain spills while still maintaining adequate ventilation rates?**

- **Are heavy pieces of equipment and furniture that might block exit routes secured?** If your lab has only one exit, UW policy requires items be secure.

- **Are exits and aisle ways maintained and free and clear of obstructions?** Avoid storing anything, even temporarily, that could impede a quick exit or cause injury.
- **Do you have equipment and/or processes that could be damaged or pose a fire or health hazard if the power goes out?** What contingency plans have been made to provide backup or emergency power to maintain critical systems?
- **Are safety systems (e.g., fire extinguishers, safety showers, eyewashes) accessible and in proper operating condition?** Does everyone in the lab know where they are and how to operate them?
- **Are chemical and biological spill kits available?**
- **Are food, water, flashlight, first-aid kit, radios and batteries available?**

Operations after a Major Earthquake

- After the shaking stops:
 - Assist injured or mobility impaired people in evacuating the building
 - Turn off gas burners and the main gas supply valve to the lab
 - Check quickly for fires, fire hazards, or spilled chemicals
 - Close the lab door as you leave
 - Bring emergency supplies (first-aid kit, flashlights, etc.) to the evacuation assembly point
 - Report crucial items or hazards to the appropriate official at the evacuation assembly point
 - Do not re-enter the building until the building has been declared "safe" for entry by the University's Applied Technology Council (ATC)-20 assessment teams or other trained professionals.

Depending on the circumstances of the earthquake, you may be asked to stay out of the building for a few minutes to a few days -- or indefinitely. Develop long-term plans in case you cannot re-enter your laboratory. Contact UW Office of Emergency Management at **206.765.7192** for assistance in developing Business Continuity Plans. Here are some items to consider:

- Which experiments and data are your first priorities?
- Do you have plans for routine tasks, such as taking care of lab animals or making certain you have enough liquid nitrogen for freezers? (Remember that normal distribution systems may not work, so you should have your own supply.)
- Do you have backup copies of important data?

For free informational handouts on earthquake preparedness (including for home/family), call EH&S Training at 206.543.7201. Also check the Office of Emergency Management webpage for more earthquake preparedness information: <https://www.washington.edu/uwem/preparedness/know-your-hazards/earthquake/>

B. MOVING IN/NEW LABORATORY CHECKLIST

Use this checklist as a tool to help you get started with health and safety requirements.

General Safety

- Visit the laboratory to determine if it will meet your needs, has been cleaned/decontaminated, and is in good condition. If the lab had prior tenants, it should have a *Notice of Laboratory Moveout* (UoW 1800) posted inside one of the doors. If it does not, contact your Building Coordinator.
- If previously occupied, have all of the hazardous materials been removed? If not, contact your Building Coordinator.
- Reserve an accessible area for storage of health and safety related documents, including Material Safety Data Sheets/Safety Data Sheets (MSDSs/SDSs), training records and your Chemical Hygiene Plan (the UW Laboratory Safety Manual plus Laboratory-Specific Information.)
- Keep areas uncluttered; maintain three feet of space in all aisles
- Do not block exits or safety equipment, such as showers and eyewash stations

Emergency Planning

- Know locations of emergency showers and eye washes
- Know the emergency escape routes (contact your Building Coordinator for more information)
- Prepare and post a floor plan which includes direction of exit from the laboratory, locations of signs, safety equipment, and process-related equipment
- Post emergency phone numbers next to telephone and computer
- Obtain chemical spill kit, biohazard spill kit (as needed), and first aid kit
- Reserve an accessible area for spill kits and other emergency equipment
- Keep tall cabinets, filing cabinets, and other furnishings away from doorways or secure them to the wall

Facilities/Equipment

- Check test dates on the fume hoods, biosafety cabinets, fire extinguishers, and safety showers. To update fume hoods and biosafety cabinets, contact EH&S at **206-543-0465**. To update fire extinguishers and safety showers, enter work order through local Facilities Services procedures (Refer to Appendix F, *Lab Safety Manual* for Facilities Services.)
- To relocate or purchase a new biological safety cabinet (BSC), submit a "Request to Purchase" or "Relocate a Biological Safety Cabinet" form to EH&S at <http://www.ehs.washington.edu/rbsbiosafe/approvedlist.shtm>
- Any new fume hoods and BSCs are required to be tested and certified by EH&S before research can start. Contact EH&S at 206.543.0465 to schedule a test.
- If this is a newly constructed laboratory or if you have purchased new laboratory equipment, ensure that equipment has been certified for function before using chemicals, radioactive materials, or biological agents.

- If research involves work at BSL-3/ABSL-3 containment, contact EH&S at 206.221.7770 as soon as possible for facility authorization.
- If lab does not have fire extinguisher, request one through your local Facilities Services. (Refer to Appendix F, *UW Lab Safety Manual* for servicing Facilities Services.)
- Ensure that gas cylinders are secured to walls or bench tops with two chains or straps. Complete a Facilities Services work order request to secure cylinders. (Refer to Appendix F, *Lab Safety Manual* for servicing Facilities Services.).

Chemical Safety

- Assess storage capacity for hazardous materials. Obtain approved storage cabinets as needed for flammable liquids (including flammable liquid wastes) so that the amount of flammable liquid outside a cabinet is always less than ten gallons. Obtain storage cabinets for acids and/or bases.
- Apply for a new hazardous materials permit through your local fire department if one has not already been obtained by the department for the lab. (In Seattle, contact the Fire Marshal's Office Permit Section at 206.386.1450 to obtain the application form. If the lab is already covered under an existing SFD permit, contact permit holder with the department and arrange for SFD to conduct an inspection of the lab.) Contact EH&S at 206.543.0465 for technical assistance.

Fill out or update the Laboratory-Specific Information in this Manual, including:

- Laboratory floor plans
 - General laboratory safety rules
 - Designations of individuals performing the following tasks:
 - Chemical Hygiene Officer
 - Maintaining first aid supplies
 - Maintaining chemical inventories
 - Performing certain safety protocols
 - Any special instructions for receiving and storing hazardous materials
 - Locations and contents of chemical spill kits
 - Location of Emergency Plans
 - Location of MSDSs/SDSs and other safety reference materials if stored separately from the Laboratory Safety Manual
 - Operating procedures for equipment
 - Training records (or location of same if stored separately from the *Laboratory Safety Manual*)
 - Standard Operating Procedures (SOP) for hazardous materials
- Segregate and store your chemicals correctly. Refer to this manual and our website for more information <http://www.ehs.washington.edu>.

Make sure your chemical inventory is entered in the UW MyChem system.

- Call 206.616.4046 to obtain a MyChem account (training is available through EH&S) or
- Update your contact information and location if you are an existing PI. EH&S can transfer MyChem inventories to your new location and help can be obtained by calling 206.616.4046.
- Call EH&S at 206-543-0465 to let them know that your inventory is new in MyChem or has been updated in MyChem. If necessary, EH&S will request building use and fire department permits, which must be applied for before occupancy.

For questions or assistance concerning MyChem <https://www.ehs.washington.edu/epomychem/> or call EH&S at 206.616.5835.

Biological Safety and Animal Research

- Register and obtain approval for your research with EH&S if your research involves hazardous materials in animal studies, biohazards, recombinant DNA, or clinical trials involving human gene therapy. To initiate this process, submit a Biological Use Authorization (BUA) application online at <http://www.ehs.washington.edu/rbsresplan/bua.shtm>. This process also initiates the Institutional Biosafety Committee (IBC) approval process.

Additional requirements for animal research:

- Submit an Animal Use Medical Screening Form: <http://www.ehs.washington.edu/rbs/resocchealth.shtm>
- If your research requires work at Biosafety Level 3 (BSL-3) containment, notify EH&S at 206-221-7770 for approval as soon as possible because of limited availability of facilities.
- If your research involves work with select agents, notify EH&S at 206-221-7770 for authorization instructions.
- Maintain a Biosafety Manual with laboratory specific information. See link: <http://www.ehs.washington.edu/rbsbiosafe/bsmanualindex.shtm>

If you are working with blood or other potentially infectious materials, you must be included in the University's Bloodborne Pathogens Program. This requires a site specific Exposure Control Plan, annual training, and offering of hepatitis B vaccination. The UW core Exposure Control Plan is in the *Biosafety Manual* or <http://www.ehs.washington.edu/rbsbiosafe/bsmanualindex.shtm>

- Complete the Supplemental Form for Bloodborne Pathogens to complete your site specific ECP, online at <http://www.ehs.washington.edu/forms/rbs/bbpecp.docx>.

For questions or assistance, contact EH&S at 206.221.7770.

Radiation Safety

- New Principal Investigators:** Obtain an authorization to use radioactive materials. If this is a new location, contact EH&S Radiation Safety as soon as possible to evaluate any special needs and potential for air emissions.
- Amend an existing authorization when adding workers or a changing a radionuclide use
- Human Subjects:** Submit an application with EH&S to use radiation with human subjects
- Make sure you have a way to keep radioactive stock solutions locked when not in use
- Using radioactive materials may require additional constraints than those stated above (e.g. using iodine for labeling requires radioiodine hood and using large quantities of material may require dosimeters)
- Using Lasers, non-ionizing radiation, EMF, RFR, etc. requires that you contact RS for registration, surveys, and evaluation

For questions or assistance, contact EH&S Radiation Safety at 206.543.0463.

Hazardous Waste

- Reserve areas in your laboratory for safe hazardous waste accumulation as appropriate.
- If you have hazardous waste “routines” update the contact information and location. Email chmwaste@u.washington.edu with your routine numbers and new information.
- New Principal Investigators:** Consider obtaining hazardous waste “routines” for specific waste streams that you generate on a regular basis. Fill in the New Routine Collection request form online: <http://www.ehs.washington.edu/forms/epo/1471.pdf>. For more information about “routines”, see <http://www.ehs.washington.edu/epowaste/chemwaste.shtm>.

For questions or assistance call EH&S Environmental Programs at 206.616.5835.

EH&S Training

- Chemical Training
 - Managing Laboratory Chemicals:* PI's and staff working with chemicals or working near chemicals
 - Laboratory Safety Standard Compliance:* for PIs, Lab Managers, CHOs, and Supervisors to learn your responsibilities for health and safety of your employees.
 - MyChem Training: Recommended for staff assigned to update chemical inventories and others who use MyChem
- Biological Safety Training
 - BSL-2/ABSL-2:* for staff who work in BSL-2/ABSL-2 laboratories
 - Bloodborne Pathogens:* for staff who work with bloodborne pathogens or other potentially infectious materials
- Radiation safety training for new workers
- Other EH&S courses that may apply to your work:
 - Earthquake Disaster Preparedness
 - CPR Certification
 - First Aid & CPR
 - Back Protection
 - Compressed Gas Safety
 - Fume Hood Safety
 - Fire Extinguisher
 - Forklift Safety, Pallet Jack, And Narrow Aisle Lifters
 - Respiratory Protection and Fit Testing
- PIs are responsible for providing additional documented laboratory-specific safety training to staff.

For additional information about training, and to sign up for classes, see the EH&S training webpage: <http://www.ehs.washington.edu/psotrain/index.shtm>.

Office of Research - Research Required Training

- Check required training: <http://www.washington.edu/research/compliance/required-training/>.

C. LABORATORY MOVING OUT CHECKLIST

Use this checklist as a tool to help you relocate or shut down your laboratory, or to temporarily relocate for remodels and renovations. Refer to Moving In/Moving Out for more details, including your responsibilities.

Laboratory Decontamination and Cleanup

- ❑ If you are partially or completely vacating your laboratory for remodeling, relocation or closure, you must leave it clean, empty and safe for Facilities Services staff or the next occupants. Follow all applicable instructions on the *Notice of Laboratory Moveout* (UoW 1800) online at <http://www.ehs.washington.edu/forms/fso/1800.pdf>. The Principal Investigator or laboratory manager/Chemical Hygiene Officer must sign the checklist to verify that all instructions were followed. **A copy of the *Notice for Laboratory Moveout* must be posted inside the door near one or more exits of your laboratory for Facilities Services or the next occupants.**

Chemical Safety

- ❑ Arrange for disposal of all hazardous waste and unwanted chemicals. Attach a completed UW "Hazardous Waste Label" to any waste not in its original manufacturer's container, and complete and send a Chemical Collection Request form (UoW 1470) at least one month before you vacate.
- ❑ Properly manage unwanted gas cylinders. (Return gas cylinders to the supplier or to whom you are leasing them from if at all possible. If you cannot do either, email chmwaste@u.washington.edu for assistance.)

For questions or assistance call EH&S Environmental Programs at 206.616.5835.

Biological Safety

- ❑ If your laboratory is relocating or shutting down, contact EH&S at 206.221.7770 to update your Biological Use Authorization Form and/or laboratory spaces.
- ❑ If you are relocating or ending research involving select agents, contact EH&S at 206.221.7770 for instructions.
- ❑ If you intend to relocate a biological safety cabinet, call 206-543-0465 or complete and submit a "Request to Purchase or Relocate a Biological Safety Cabinet:" <http://www.ehs.washington.edu/fsobiocab/approvedlist2.shtm>.
- ❑ If applicable, submit written plans for the decommissioning of a Biosafety Level 3 (BSL-3) area to EH&S (Box 357165).

For questions or assistance call EH&S at 206.221.7770.

Radiation Safety

- ❑ Notify EH&S in writing as soon as the intent to vacate is known. Mail correspondence to EH&S Radiation Safety, Box 354400 or e-mail radsaf@u.washington.edu. Inform Radiation Safety of your new laboratory location if known.
- ❑ Discuss arrangements with Radiation Safety (206.543.0463) to assure removal of all radioactive waste and to coordinate relocation or transfer of ownership for remaining radioactive materials

If the Principal Investigator is leaving the University of Washington, these additional steps must be followed with Radiation Safety:

- ❑ Usage records, including Radiation Survey Records, must be updated, finalized and submitted to Radiation Safety
- ❑ Waste disposal records must be finalized and turned in to Radiation Safety
- ❑ All radioactive material waste containers must be picked up by Radiation Safety
- ❑ Personnel dosimeters must be returned to Radiation Safety
- ❑ Termination bioassays must be performed if necessary

For questions or assistance call EH&S Radiation Safety at 206.543.0463.

Transportation

- ❑ **Biological Materials:** follow the instructions in Appendix C of the *UW Biosafety Manual*, online: <http://www.ehs.washington.edu/rbsbiosafe/BSM.pdf>
- ❑ **Chemicals:** follow the instructions above (Section 10: Moving In/Moving Out and in Section 2: Chemical Management) in your *UW Laboratory Safety Manual*. Under certain conditions, you can transport the chemicals yourself on campus. You can also arrange for a hazardous material contractor to pack and/or transport your chemicals for you.
- ❑ **Radioactive Materials:** for short moves of radioactive materials between locations on the contiguous UW Seattle campus, "hand carrying" is an option. For transport of radioactive materials over public roads, call Radiation Safety at 206-543-0463.
- ❑ **Equipment and Non-Hazardous Items:** you may choose to hire an outside moving company or UW Property & Transport Services to move equipment. Either way, do these items first:
 - ❑ Schedule with your local Facilities Services to remove materials or equipment that are attached to the building or would impact building materials. Refer to the Laboratory Safety Manual, Appendix F, for contact means.
 - ❑ Decontaminate your laboratory equipment if it has or may have come into contact with hazardous materials. Follow the instructions and fill out Form UoW 1803 Notice of Laboratory Equipment Decontamination and attach it to the equipment. For more details, see the form at <http://www.ehs.washington.edu/forms/fso/lab equip.pdf>. To schedule pickup or drop off of surplus equipment, see www.washington.edu/facilities/transportation/movingandsurplus.
 - ❑ Freezers: special arrangement must be made with EH&S to move freezers and Dewar flasks that contain infectious materials. Specialized moving companies can move other materials. See above (Section 10 of this manual) for more details.

General

- ❑ Inform vendors and on-campus suppliers of your new box number and physical delivery address. Update your own information using your MyUW account. Follow guidelines on records retention in Section 7 of this manual and also on the Records Management website: www.washington.edu/admin/recmgt/index.php. Box and label sensitive files (data, patent files, etc.) for personal transport.

- ❑ If your laboratory is relocating, take your Laboratory Safety Manual and all laboratory-specific information (chemical inventory, standard operating procedures, training records, etc.) which will pertain to the new laboratory.
- ❑ If your laboratory is closing down permanently, give to your departmental administrator your copy of the Laboratory Safety Manual, a printout of your chemical inventory and your training records.
- ❑ If your laboratory is relocating or shutting down permanently, email mychem@u.washington.edu with your contact information to change your inventory location or eliminate your chemical inventory on MyChem.
- ❑ If you are leaving a leased or rented space, contact the UW Real Estate Office. Their website is at www.washington.edu/admin/reo.
- ❑ Notify your Building Coordinator that you are vacating your laboratory.
- ❑ Your department may have additional requirements for relocation and closure; check with your administrator.

D. UW LABORATORY SAFETY INSPECTION CHECKLIST

The checklist at the website listed below is an example of the checklists currently being used to assess laboratories at the University of Washington:

<http://www.ehs.washington.edu/fsosurveys/prvaslbcklkt.pdf>

Explanatory information for each item on the checklist is available at:

<http://www.ehs.washington.edu/fsosurveys/checklistexpl.shtm>.

Conclusion

While these checklists pertain to earthquakes and building fires; chemical, biological and radiation safety, other natural or man-made disasters could critically impact the health and safety of laboratory occupants. We encourage you to discuss these plans and take whatever actions necessary. Practice your disaster plans periodically to assure that the plans meet the requirements of current laboratory operations and UW policy, and that all staff are familiar with both the overall plan and their specific role, and that the plan is successful in accounting for staff and reporting conditions to department administrators.

