

CHEMICAL HYGIENE PLAN

QCC 1226 (environmental science laboratory) and QCC 1220 (prep lab)

Dial 911 for a police, fire, or medical emergency!

Other First Responder Phone Numbers

Moline City Police Department
309.797.0401 (non emergency)

Moline City Fire Department
309.524.2250 (non emergency)

Moline City Public Works (24 hr. sewer & water emergencies)
309.524.2300

WIU-Quad Cities Security
Ext. 64526 from any WIU-QC campus phone

Date:

May 19, 2015

WIU-QC Points of Contact

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Read This First

All lab workers are required to read the Chemical Hygiene Plan, complete the associated lab safety training materials, and sign and submit a training certification form to the Faculty Laboratory Supervisor before beginning work in QCC 1226 (Environmental Science Research Laboratory) or QCC 1220 (the adjacent prep lab). Each lab worker will repeat this process annually.

Failure to comply with this policy will result in a revocation of lab privileges which can be reinstated only after (1) completing the required review of the Chemical Hygiene Plan, safety training materials and submission of a signed training certification form to the Faculty Laboratory Supervisor and (2) obtaining written and/or electronic permission to work in the lab from the Faculty Laboratory Supervisor. Revocation and/or reinstatement of laboratory privileges will be communicated via the official WIU email system. Only official WIU email addresses will be used in correspondence.

Ultimate permission to work in the laboratory can be granted and/or revoked at the discretion of the Faculty Laboratory Supervisor.

Description of Lab Operation and List of Potential Hazards

Environmental Science Research Laboratory, QCC 1226

Lab Operation

Environmental Science Research Laboratory and the attached Prep Lab are used to prepare and analyze surface-water samples and sediment collected in the field. Typically, samples are preserved with nitric, sulfuric, or hydrochloric acids. Strong bases such as sodium hydroxide may also be used. Sample containers and caps/lids (typically Nalgene™ high density polyethylene bottles) are rinsed with dilute acid and stored in cabinets prior to field sampling. Some water samples may be filtered using a vacuum pump and filter apparatus. The filter and filtrate may then be heated to temperatures as high as 550°C in a muffle furnace.

In some cases, the filter and filtrate as well as sediment samples may be digested using concentrated hydrogen peroxide and a strong acid (see above) that is heated. This digestion process is conducted in a fume hood with watch glass over each vessel. The use of personal protective equipment (PPE) is required.

Flame atomic absorption (FAA) spectrophotometry is used to measure the concentration of ions in water and sediment samples. FAA analysis requires the use of containerized gases (typically acetylene and/or nitrous oxide) and is conducted under an adjustable fume hood.

Strong acids and bases are diluted in fume hoods and require the use of PPE. Hazardous materials such as strong acids, strong bases, or other reactive chemicals are stored in the appropriate designated cabinet in QCC 1220.

Potential Hazards

- Spills from strong acids, bases, and oxidizers
- Skin burns and fumes from concentrated chemicals

- Skin burns and other thermal injuries from hot ovens, muffle furnace, and the flame atomic absorption spectrophotometer
- Breakage of glass beakers, flasks, *etc.*
- Explosion from leaking containerized gas
- Slip or trip on wet floor from spills
- Eye injury from chemical splashes

Prep Laboratory, QCC 1220

Lab Operation

Environmental Science Research Laboratory and the attached Prep Lab are used to prepare and analyze surface-water samples and sediment collected in the field. Typically, samples are preserved with nitric, sulfuric, or hydrochloric acids. Strong bases such as sodium hydroxide may also be used. Sample containers and caps/lids (typically Nalgene™ high density polyethylene bottles) are rinsed with dilute acid and stored in cabinets prior to field sampling. Some water samples may be filtered using a vacuum pump and filter apparatus.

In some cases, the filter and filtrate as well as sediment samples may be digested using concentrated hydrogen peroxide and a strong acid (see above) that is heated. This digestion process is conducted in a fume hood with watch glass over each vessel. The use of personal protective equipment is required.

Strong acids and bases are diluted in fume hoods and require the use of PPE. Hazardous materials such as strong acids, strong bases, or other reactive chemicals are stored in the appropriate designated cabinet in QCC 1220.

Potential Hazards

- Spills from strong acids, bases, and oxidizers
- Skin burns and fumes from concentrated chemicals
- Breakage of glass beakers, flasks, *etc.*
- Slip or trip on wet floor from spills
- Eye injury from chemical splashes

The Roles of Laboratory Personnel

Faculty Laboratory Supervisor/Principal Investigator

The faculty laboratory supervisor has overall responsibility for chemical hygiene in the laboratory; this includes the responsibility to:

- Ensure that laboratory personnel comply with the Chemical Hygiene Plan (CHP) and do not operate equipment or handle hazardous chemicals without proper training and authorization.
- Set an example for others by following all applicable safety rules when working in the laboratory.
- Always wear personal protective equipment that is compatible to the degree of hazard of the chemical.
- Review experimental procedures for potential safety problems before permitting other laboratory personnel to conduct experiments.

- Ensure that visitors follow the laboratory rules and assumes responsibility for laboratory visitors.
- Ensure that personal protective equipment is available and properly used by each laboratory employee and visitor.
- Maintain and implement safe laboratory practices.
- Provide regular, formal chemical hygiene and housekeeping inspections.
- Monitor the facilities and the chemical fume hoods to ensure that they are maintained and function properly. Contact facilities management to report problems with the facilities or the chemical fume hoods.

Laboratory Personnel (undergraduate and graduate students, visiting researchers, post doctoral researchers, etc.)

- All laboratory personnel must read, understand, and follow all safety rules and regulations that apply to the work area.
- Plan and conduct each experiment/operation in accordance with the accepted/standard methods.
- Promote good housekeeping practices in the laboratory or work area.
- Use personal protective equipment as appropriate for each procedure that involves hazardous chemicals.
- Notify faculty laboratory supervisor of chemical sensitivities or allergies.
- Notify the faculty laboratory supervisor of any hazardous conditions or unsafe work practices in the work area.
- Complete assigned safety training by established deadlines.

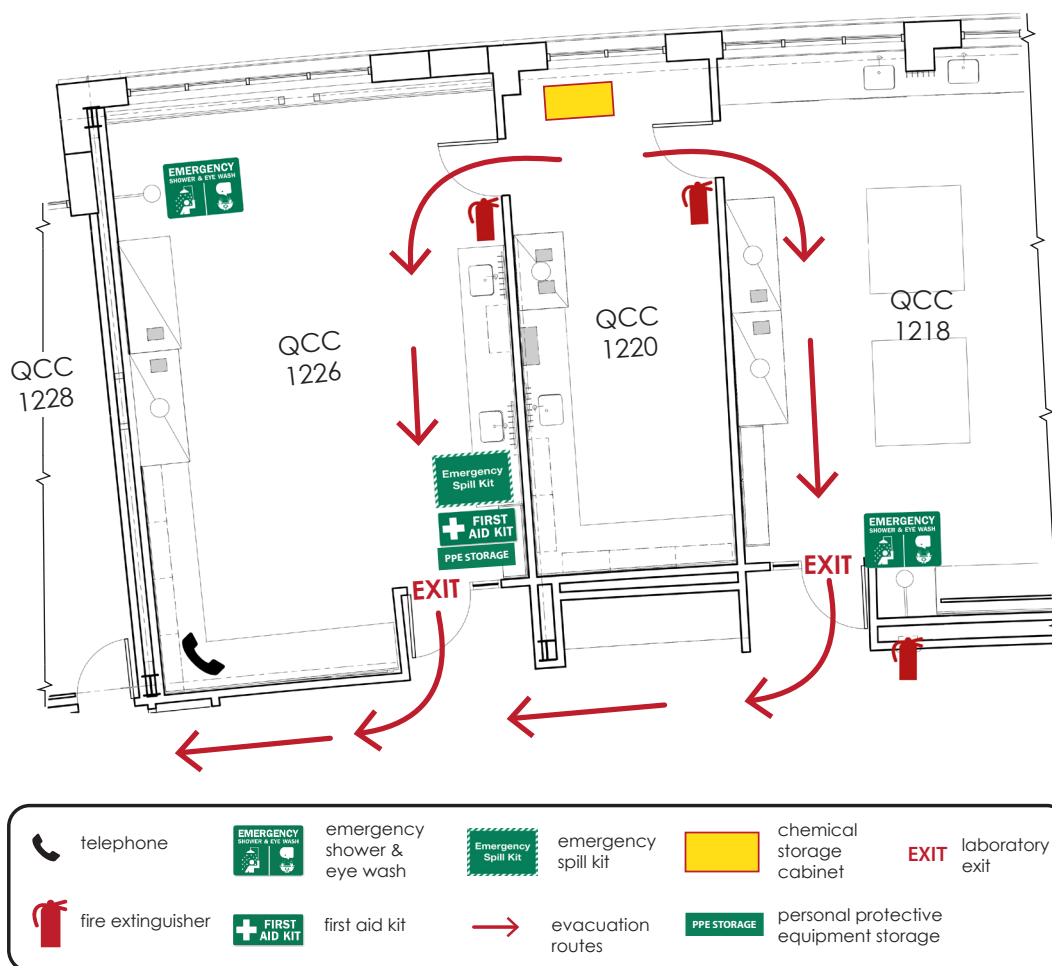
Risk Assessment

Prior to conducting any new experimental work in the laboratory, a risk assessment must be completed. The National Research Council (NRC) has developed a practical five part rubric for conducting a risk assessment:

1. What potential hazards are associated with the proposed work?
2. Identify potential impacts associated with each hazard.
3. Determine what can be done to prevent each impact from occurring. Possible actions include the use of a less hazardous chemical(s) and using only the smallest amount of a hazardous chemical needed.
4. Determine what can be done to protect personnel from each possible impact. The use of appropriate personal protective equipment and engineered controls such as fume hoods are possible measures that can be used to protect personnel.
5. Identify appropriate responses in the event an impact occurs.

The full text of the “NRC Guidelines Concerning Chemical Hygiene in Laboratories” is available in the Code of Federal Regulations, Title 29, Subtitle B, Chapter XVII, Part 1910, Subpart Z - Toxic and Hazardous Substances, Section 1910.1450 Occupational exposure to hazardous chemicals in laboratories., Appendix A (https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10107).

Map of Safety Equipment and Evacuation Routes in/from QCC 1226 and QCC 1220



Laboratory Safety Training

Prior to working in QCC 1226 or QCC 1220, workers must complete the lab safety training modules listed below. Laboratory workers must complete the Lab Safety Training annually unless directed otherwise in writing or electronically by the Faculty Laboratory Supervisor or other individual in a position of responsible charge.

These materials are provided by Dow® through the American Institute of Chemical Engineers' (AIChE) Safety and Chemical Engineering Education (ASChE) Program. Training modules can be accessed at <http://safety.dow.com/en/safety-courses> or by following the hyperlinks associated with each topic (see below). When prompted, provide your name and WIU email address. The screen will then proceed to the selected training module.

Safety Orientation & Training

(<http://safety.dow.com/en/safety-courses/safety-orientation-and-training>)

- Office Ergonomics
- Laboratory Ergonomics
- Fall, Slip, and Trip Protection
- PPE Basics
- Waste Handling
- Secondary Containment
- Housekeeping
- Basic Electrical Safety
- Fire Extinguisher Basics
- Lone Worker

Specialized Topics (<http://safety.dow.com/en/safety-courses/specialized-topics>)

- Fume Hood Basics
- Gas Cylinder Use
- Glassware Handling
- Biological Hazards
- Mechanical Integrity

Plan, Evaluate, and Execute (<http://safety.dow.com/en/safety-courses/plan-evaluate-execute>)

- Lab Hazards/Management of Change
- Lab Hazard Assessment/Trigger Grid
- Reactive Chemicals
- Energy Calculations
- Interpreting Material Safety Data Sheets
- Chemical Labeling
- Sample Transportation and Shipping

Sustainable Safety Culture (<http://safety.dow.com/en/safety-courses/sustainable-safety-culture>)

- Making Safety Personal
- Inspections
- Interventions
- Near Miss Reporting
- Effective Safety Communications
- Sustainability

Standard Operating Procedures for Handling Hazardous Chemicals

General Guidelines

- Unauthorized experiments will not be performed.
- Unauthorized personnel are not allowed in the laboratory.
- Plan safety procedures before beginning any operation.
- Follow standard operating procedures/experimental protocols at all times.

- Always read the Material Safety Data Sheet (MSDS) and label before using any chemical with which you are not familiar.¹
- Wear appropriate Personal Protective Equipment at all times.
- Loose-fitting clothing is not permitted in the laboratory.
- Loose, unconfined long hair is not permitted in the laboratory.
- Open-toed shoes or sandals are not permitted in the laboratory.
- Always wear long pants and closed-toe shoes to protect your skin from splashes and spills.
- Contact lenses should not be worn when working with chemicals in the in the laboratory.
- Hands should be washed with soap and water immediately after working with any laboratory chemicals, even if gloves have been worn.
- Eating, drinking, smoking, gum chewing, applying cosmetics, and taking medicine in the laboratory is strictly prohibited.
- Food, beverages, cups, and other drinking and eating utensils are not permitted in the laboratory.
- Laboratory refrigerators, ice chests, cold rooms, and ovens should not be used for food storage or preparation.
- Use appropriate ventilation (fume hoods) when working with hazardous chemicals.
- Pipetting should never be done by mouth.
- Unplug hot plates when not in use.
- When in use, hot plates should not be left unattended.
- Contact the faculty laboratory supervisor with all safety questions or concerns.
- Know the location and proper use of safety equipment.
- Maintain situational awareness.
- Make others aware of special hazards associated with your work.
- Notify faculty laboratory supervisor of chemical sensitivities or allergies.
- Do not store chemicals on bench tops and in hoods.
- Avoid exposing chemicals to heat or direct sunlight.
- Report all injuries, accidents, incidents, and near misses to the faculty laboratory supervisor.
- Report unsafe conditions to the faculty laboratory supervisor.
- Chemical wastes must be disposed of safely.

Use of Personal Protective Equipment (PPE)

The individual lab worker is responsible for wearing appropriate Personal Protective Equipment (PPE; clothing and safety-related apparel and equipment such as lab coats, eye protection, and gloves). Lab workers are required to consult the “Handling and Storage” section in the Material Safety Data Sheets for the safety and protective equipment needed when handling each chemical. Each lab worker’s PPE will be kept in the his/her designated location in the storage cubes located at the entrance of QCC 1226.

The appropriate gloves will be used when handling materials that are hazardous, irritants, or biologically active. If noise in the workspace will be in excess of 85 decibels, hearing protection will be used. There are no specific specialized safety audible or visual alarms in the QCC 1226 or QCC 1220 laboratories.

¹ The MSDS is equivalent to the Safety Data Sheet (SDS) when using the United Nation’s Globally Harmonized System (GHS) for the Classification and Labeling of Chemicals.

Compressed Gas Cylinders

Compressed gases are potential chemical and physical hazards. The following guidelines must be followed when working with compressed gas cylinders:

- The contents of each compressed gas cylinder must be appropriately identified with a durable label.
- When not in use, compressed gas cylinders must be secured to a stationary surface using an approved bracket and chain and stored with the protective cap installed.
- Compressed gas cylinders will be transported using an approved cylinder cart. The cylinder must be fastened securely to the cart in an upright position. Cylinders will be transported with the safety cap installed and fully screwed down.
- Compressed gas cylinders should never be lifted by the safety cap.
- Compressed gas cylinders should not be transported with regulators in place.
- Only one compressed gas cylinder should be moved at a time.
- The appropriate regulator should be used with the gas in each cylinder.
- The regulator should be attached to the cylinder using a cylinder wrench or equivalent.
- Cylinder valves should be opened slowly by hand.
- Lab personnel should stand to the side of the regulator when opening the cylinder valve.
- Compressed gas cylinders must be monitored for leaks.
- Cylinders containing acetylene (C_2H_2) should never be stored in their side.
- Full and empty compressed gas cylinders should be stored separately and labeled clearly to avoid confusion.

Signs and Labels

Emergency telephone numbers are posted by the telephone, on the inside cover of the CHP, and on the outside of the entrance doors. Prominent signs are posted to show the location of safety showers, eyewash stations, first aid equipment, and exits. Warning signs may also be used in areas where special or unusual hazards exist.

Containers of reagents, solutions, and other preparations must be clearly and properly labeled. Labels must include the chemical identification and appropriate hazard warnings. The contents of all other chemical containers and transfer vessels, including, but not limited to, beakers, flasks, reaction vessels, and process equipment, should be properly identified.

Housekeeping

Housekeeping can help reduce or eliminate a number of laboratory hazards. Proper housekeeping includes appropriate labeling and storage of chemicals, safe and regular cleaning of the facility, and proper arrangement of laboratory equipment.

The following housekeeping guidelines should be followed in the laboratory:

- Unused combustible items, such as unused boxes and paper should not be stored in the laboratory.
- Passageways, aisles, and floors must be clear from clutter and tripping hazards.
- Doorways and exits should be kept free of obstructions.
- Electrical cords should be in good condition.

- Chemicals should not be stored on bench tops or in chemical fume hoods.
- Stored items should not block access to safety equipment or block access to laboratory exits.
- Glassware should be free from chips or other sharp edges.
- Broken glassware should be disposed of in an appropriate receptacle.
- At least 18" of clearance must be maintained between the ceiling and the tops of cabinets.
- Sink traps should be free of chemicals/chemical residue.

Chemical Fume Hoods

The following general guidelines should be followed when working/conducting experiments in a chemical fume hood:

- Chemicals should not be stored in chemical fume hoods.
- When using chemicals in the hood, chemical containers should be capped/closed.
- Chemical waste should never be disposed of by evaporation in a chemical hood.
- The area in and around chemical fume hoods must be kept clean and free of debris at all times.
- Solid objects/materials (*e.g.*, paper) must be prevented from entering the exhaust ducts as they can reduce the air flow.
- When not in use, the glass shield should be maintained in the down position.

Waste Management

The management of laboratory wastes is based on the following hierarchy of practices:

- Reduction - Reduce waste sources. The best approach to minimize waste generation is by reducing the scale of operations, reducing its formation during operations, and, if possible, substituting less hazardous chemicals for a particular operation.
- Reuse - Reuse surplus materials. Only the amount of material necessary for an experiment should be purchased, and, if possible, materials should be reused.
- Recycle - Recycle waste materials. If waste cannot be prevented or minimized, the possibility of recycling should be assessed.
- Disposal - As a last resort, dispose of waste properly. Consult the MSDS/SDS, the faculty laboratory supervisor, and/or facilities management personnel if needed.

For the collection and storage of waste, the following procedures should be followed:

- Appropriate PPE must be worn by workers involved in waste management.
- Chemical waste should be accumulated at or near the point of generation.
- Each waste type should be stored in a compatible container.
- Incompatible waste types should be kept separate.
- Waste containers should be segregated by how they will be managed.
- Waste containers should be stored in a designated location that does not interfere with normal laboratory operations.
- Waste containers should be clearly labeled and kept sealed when not in use. Labels should include the accumulation start date and appropriate hazard warnings.
- Waste management workers should be trained in proper waste handling procedures as well as contingency planning and emergency response. Trained laboratory workers most familiar with the waste should be actively involved in waste management decisions to ensure that the waste is managed safely and efficiently.

- Engineering controls should be implemented as necessary.

Working Alone in the Laboratory & Unattended Laboratory Operations/Experiments

Working alone in a laboratory is dangerous and should be strictly avoided. Accidents are inherently unexpected; consequently, coworkers should always be present. Workers should coordinate schedules to avoid working alone.

For unattended laboratory operations/experiments, signs should be posted to identify the nature of the experiment and any hazardous substances in use. Emergency contact information should be clearly posted.

Under some circumstances working alone in the laboratory and/or conducting unattended laboratory operations can be prohibited outright by the faculty laboratory supervisor.

Emergency Procedures

Dial 911 if there is an immediate threat to life or health. Provide your name, location - including the building name and room number - and a description of the emergency.

WIU Emergency Alert System (WEAS)

The WIU Emergency Alert System (WEAS) is used to quickly and reliably communicate with students, staff, and faculty in the event of an emergency.

Emergency contact information for the WIU Emergency Alert System can be updated on STARS (students) and MVS/WIUP (employees). STARS and MVS/WIUP can both be accessed at: http://www.wiu.edu/university_technology/administrative_information_management_systems/#

Fires

- If you are unable to control or extinguish a fire, pull the nearest fire alarm and follow the building evacuation procedures.
- Attend to any injured worker(s) if it is safe to reach them.
- Close the laboratory doors.

Spills and Accidents

- Spills should be contained using absorbent materials compatible with the chemical as specified in the appropriate MSDS/SDS. A spill containment supply cabinet is located on the right side bench top immediately upon entering QCC 1226.
- Notify personnel in the immediate and adjacent areas about the spill.
- Appropriate PPE must be worn during cleanup.
- Spills should be cleaned from the outer perimeter, cleaning toward the center.
- If the spilled material is flammable, turn off all potential ignition sources.
- If the spilled material is flammable, avoid breathing vapors.
- Liquid spills should be covered with a compatible absorbent material such as spill pillows.
- Powdered materials can be covered with wet paper towels (when compatible) to avoid dispersal.
- Corrosives should be neutralized prior to absorption.

- Spill clean up materials should be placed into a waste container and labeled appropriately prior to disposal.
- When conditions are safe and appropriate, affected surfaces can be washed with soap and water. In some cases, the wash water and supplies may also require special disposal.

Severe Weather

In severe weather, individuals working in QCC 1226 or QCC 1220 should take shelter in restrooms, the stairway immediately outside the library, or in any interior hallway under a solid ceiling.

Other general guidelines for sheltering in severe weather include:

- Proceed to the lowest level of your building using the stairs.
- Do not use elevators during a severe weather alert.
- Stay clear of windows and glass.
- Individuals who are unable to navigate stairs should proceed to stairwell areas marked “Area of Rescue Assistance”.

Building Evacuation

- Be aware of the marked building exits and pay particular attention to the exit closest to the laboratory.
- If building needs to be evacuated, walk to the nearest marked building exit. Ask others to do the same.
- Outside, proceed to reassembly area located at least 150 feet from the affected building.
- Keep walkways clear for emergency vehicles.
- DO NOT re-enter the building until you are told to do so by emergency responders.

Other Procedures

- Use safety showers and eyewashes as appropriate.
- In the case of eye contact, flush eyes with water for at least 15 minutes and seek medical attention immediately.
- In the case of skin contact, flush the affected area with water and remove any contaminated clothing or jewelry. Seek medical attention if symptoms persist after washing.
- In cases of ingestion, seek medical attention immediately.

Chemical Procurement, Distribution, and Storage

Chemical Procurement

- Information on proper handling, storage, and disposal should be known to those who will be involved before a substance is received.
- Only containers with appropriate identifying labels should be accepted.
- Ideally, a central location should be used for receiving all chemical shipments.
- Shipments with breakage or leakage should be refused or opened in a chemical hood.
- Only the minimum amount of the chemical needed to perform the planned work should be ordered.
- Proper PPE and handling and storage procedures should be in place before receiving a shipment.

Chemical Storage

- Chemicals should be separated and stored according to hazard category and compatibility.
- MSDS/SDS and label information should be followed for storage requirements.
- Labels on containers used for storing hazardous chemicals must include the chemical identification and appropriate hazard warnings.
- The contents of all other chemical containers should be properly labeled.
- Chemical shipments should be dated upon receipt and stock rotated.
- Peroxide formers should be dated upon receipt and upon opening. They should be stored away from heat and light in containers with tight fitting, nonmetal lids.
- Keep incompatible chemicals separate during transport, storage, use, and disposal.
- Oxidizers, reducing agents, and fuels should be stored separately.
- Laboratory-grade, flammable-rated refrigerators and freezers should be used to store sealed chemical containers of flammable liquids that require cool storage.
- Food or beverages must not be stored in the laboratory refrigerator.
- Chemical storage rooms should have controlled-access with proper ventilation, appropriate signage, and fire suppression systems.

Chemical Handling

- A risk assessment should be conducted prior to beginning work with any hazardous chemical.
- All MSDS/SDS and label information should be read before using a chemical for the first time.
- Trained laboratory workers should ensure that proper engineering controls (ventilation) and PPE are in place and used correctly.

Chemical Inventory

- An accurate inventory of the chemicals stored in the laboratory will be maintained. The inventory will be stored in the laboratory with MSDS/SDS sheets and in Room QCC 2115.
- Unneeded items should be discarded using appropriate procedures.

Transporting Chemicals

- Secondary containment devices should be used when transporting chemicals.
- When transporting chemicals outside of the laboratory or between stockrooms and laboratories, the transport container should be break-resistant.
- High-traffic areas should be avoided.

Transferring Chemicals

- Adequate ventilation (such as a fume hood) will be used when transferring chemicals.
- If chemicals from commercial sources are repackaged into transfer vessels, the new containers should be labeled with all essential information on the original container.

Shipping Chemicals

- Outgoing chemical shipments must meet all applicable Department of Transportation (DOT) regulations and should be authorized and handled by the institutional shipper.

Safety in The Field

Field work is a vital part of most environmental research. To make the most of every trip into the field, it's necessary to plan and prepare for the safety of all Team Members.

Prior to conducting any off-campus studies, an itinerary must be submitted electronically to the faculty laboratory supervisor and to support personnel in both the Quad Cities and Macomb.

The itinerary should include:

1. Date and destination(s).
2. Departure time and an estimated return time.
3. Name and contact information for the Team Leader. This person will serve as the group's main point-of-contact.
4. Names of Team Members working in the field.
5. The make, model, and registration/license plate numbers of vehicles.
6. Any planned periodic check ins with the lab and the method used to check in (phone call, text, email).
7. A brief overview of the planned work.

Use of Chemicals in the Field

- In environmental science field research, the most common chemicals taken into the field are small volumes of concentrated strong acids including nitric acid (HNO_3), hydrochloric acid (HCl), and sulfuric acid (H_2SO_4). These acids are used to preserve samples for later analysis in the laboratory. The particular acid used is a function of target analyte(s).
- The use of chemicals in the field should be minimized by taking the smallest volume of chemical needed and/or taking dilute solutions. Generally, acids used to preserve samples in the field are transported in small dropper bottles.
- MSDS sheets for chemicals used in the field must be taken with the Field Team.
- Any chemicals used in the field should be transported in a secondary containment holder.
- Appropriate personal protective equipment must be taken and used by all members of the Field Team.
- Appropriate supplies should be taken to appropriately manage any spill of the reagent(s) used in the field.

- An itinerary must be field before any field work is performed.
- Field work itineraries should be submitted to the faculty laboratory supervisor and to support personnel in both the Quad Cities and Macomb.
 - * Emily Pitz, Office Support Specialist, Quad Cities
Complex 2115, 309/762.9481
Ext. 62245, EI-Pitz@wiu.edu
 - * Robin Bauerly, IES Office Manager, 301, 309/298.1632,
RR-Bauerly@wiu.edu

Personnel Responsibilities

Before leaving, the Team Leader should:

- Submit an itinerary.
- Take a first aid kit with a first aid manual.
- Verify that necessary MSDSs and spill containment materials are taken.

- Ensure the team takes appropriate personal protective equipment for each Team Member.
- Check the weather forecast.
- Be familiar with potentially poisonous animals and insects, hazardous terrain/site conditions, and weather.
- Ensure the team has necessary scientific and safety equipment and supplies to complete planned work. This includes personal flotation devices (PFDs) when working on or from boats/watercraft. Often, PFDs will be available on the boat. The Team Leader should ensure a sufficient number of PFDs are available on board the boat for all Team Members.

Team Members should:

- Gather any necessary personal protective equipment (safety goggles, hard hats, boots, gloves, *etc.*)
- Be sure immunizations are up-to-date.
- Have weather-appropriate clothing (rain jacket, insulated boots, a hat, waterproof gloves, *etc.*)
When working around water, an extra change of clothes is recommended.
- Have necessary personal supplies (medications taken on a regular basis, identification such as a state-issued driver's license or equivalent, medical insurance identification card, drinking water, sunscreen, *etc.*)
- Have a sufficient supply of allergy treatments for those who suffer from a severe reaction(s) to an allergen(s). Team members who know they have severe reactions must inform the Team Leader of the nature of the allergy, known signs/symptoms, and the location of allergy treatments in the event assistance is needed to administer the treatment.
- Be familiar with potentially poisonous animals and insects, hazardous terrain/site conditions, and weather.

Training Certification Form

Name: _____

I have read, understand, and intend to adhere to the guidelines presented in the Chemical Hygiene Plan. I have asked for and received clarification on any issues that I did not fully understand.

I have completed the Dow® Lab Safety Academy training modules indicated in the CHP.

Signature: _____

Date: _____

Laboratory Inspection Checklist and Notes

Laboratory: QCC1226 (Environmental Science Research Laboratory) and QCC1220 (Adjacent Prep Lab)

Faculty Laboratory Supervisor: _____

Inspected by: _____

Date: _____

Checklist

For each item check either “Yes”, “No”, or “N/A”. For any “No” response, include findings, corrective action(s) taken, and “lessons learned”. Inspection documentation should be retained for at least five [5] years.

Yes	No	N/A	GENERAL
			Are passageways, aisles, and floors clear from clutter and tripping hazards?
			Are bench tops and hoods clean and well maintained?
			Are heavy objects stored on low shelves?
			Is there at least eighteen inches of vertical clearance between the top of cabinets/shelves and fire sprinkler heads?
			Are floors unobstructed, dry, and free of slip hazards?
			Are all doorways and exits free from obstructions?
			Are electrical cords in good condition?
			Are hood sashes in the closed (down) position when not in use?
			Are refrigerators and freezers labeled “No Food or Drink”?
			Is there a spill kit appropriate for the hazards present in the laboratory?
			Is there a first aid kit available?
			CHEMICAL & HAZARDOUS WASTE STORAGE & HANDLING
			Are all containers labeled appropriately with the full chemical or trade name? This includes containers of hazardous and nonhazardous materials. This includes containers of water!
			Is there an approved storage cabinet for hazardous materials?
			Are all waste containers labeled?
			Is there a receptacle for broken glassware?
			Are incompatible materials segregated?
			Are chemical and waste containers in good condition?
			Are chemical and waste containers capped when not in use?

Example Environmental Science Field Work Itinerary

Environmental Science Field Work Itinerary

Date

Destination(s)

Departure time

Estimated return time

Team Leader & cell phone #

Team Members & cell phone #s if available

Vehicle make, model, year, & registration

Planned periodic check-ins with the lab

Method of check-in

- phone
- text/SMS
- email

Brief overview of work to be conducted

References

Code of Federal Regulations, Title 29 - Labor; Subtitle B - Regulations Related to Labor; Chapter XVII - OSHA Administration, Department of Labor; Part 1910 - Occupational Safety and Health Standards; Subpart Z - Toxic and Hazardous Substances; Section 1910.1450 - Occupational exposure to hazardous chemicals in laboratories; Appendix A, "NRC Guidelines Concerning Chemical Hygiene in Laboratories" (https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10107).

International Code Consortium, Inc. (2012). International Fire Code® (IFC®) and Commentary, International Code Consortium, Inc., Washington, D.C. (<http://publicecodes.cyberregs.com/icod/ifc/2012/>)

National Academy of Sciences (2011). "Prudent Practices in the Laboratory, Handling and Management of Chemical Hazards, Updated Version," The National Academies Press, Washington, D.C., 388. pp. (http://www.nap.edu/catalog.php?record_id=12654)

Illinois Job Safety and Health Notice

Department of Labor IDOL
State of Illinois



Job Safety and Health Required Posting for Public Sector Employers

EMPLOYEES:

- You have the right to notify your employer or IDOL about workplace hazards. Your name can remain confidential upon request.
- You have the right to request an IDOL inspection if you believe that there are unsafe or unhealthy working conditions in your workplace. You or your representative may participate in that inspection.
- You have the right to see IDOL citations issued to your employer.
- You must comply with all occupational safety and health standards issued under the Acts that apply to your own actions and conduct on the job.
- You can file a complaint with IDOL within 30 days of retaliation or discrimination by your employer for making safety and health complaints or for exercising your rights under the Acts.
- You have the right to copies of your medical records and records of your exposures to toxic and harmful substances or conditions.

EMPLOYERS:

- You must furnish your employees a place of employment free from recognized hazards.
- You must comply with the occupational safety and health standards issued under this Act.
- You must post this notice in your workplace.
- You must post any citations issued by IDOL at or near the place of the alleged violation(s).
- You must correct workplace hazards by the date indicated on the citation and must certify that these hazards have been reduced or eliminated.

NOTIFICATIONS:

Within eight(8) hours after the death of any public sector employee from a work-related incident or the in-patient hospitalization of one (1) or more employees as a result of a work-related incident, you must orally report the fatality/hospitalization by telephone 24/7 Notification – (800) 782-7860

The Illinois Occupational Safety & Health Act [820 ILCS 219] provides job safety and health protection for employees of State and local government agencies. The Illinois State Plan is a developmental plan partially-funded by federal OSHA. Any concerns regarding the administration of this program can be forwarded to OSHA Region V.

www.osha.illinois.gov

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(312) 793-2081 fax

900 South Spring Street
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OSHA Region V
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