

Laboratory Materials and Equipment Management Procedure

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Office of the Chief Risk Officer

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1. Document Background

Purpose and scope of document

The Laboratory Materials and Equipment Management Procedure (hereafter known as “the procedure”) outlines the University of Ottawa (also known as “uOttawa”) procedure for working with laboratory materials and equipment within uOttawa premises.

The procedure applies to uOttawa employees and is extended to serve as a reference for stakeholders at uOttawa.

The procedure does not outline all the independent requirements and potential risks or challenges specific to any projects, workspaces, or situations, but rather is intended to serve as a framework to build a fit-for-purpose approach for managing the applicable risks.

Terms and definitions

Refer to the [OHS Glossary](#) for the OHS terms and definitions that apply to the documents contained within the OHS Management System.

Responsibilities

The responsibilities of individuals in roles applicable to this procedure, including contractors, students, supervisors, workers, deans and directors, Office of Risk Management, and senior management, are detailed in the [Laboratory Safety Program Manual](#) and [Administrative Procedure 14-1](#) (Internal Responsibility Procedure for Health and Safety Issues).

Reference documents

- [General OHS Program Manual](#)
 - [Hazard Identification and Risk Assessment \(HIRA\) Procedure](#)
- [Laboratory Safety Program Manual](#)
 - [Laboratory Decommissioning Procedure](#)
- [Biosafety Program Manual](#)
- [Radiation Program Safety Manual](#)

2. Procedure

The University of Ottawa’s laboratories harbour chemical, biological, physical, biomechanical, and psychosocial hazards. Regardless of the type of laboratory or the operations conducted in it, the steps outlined in this procedure remain the same.

Standard chemical laboratories are traditional laboratory spaces that tend to focus on life sciences. These spaces may contain, but are not limited to, any of the following substances (either for academic or support purposes):

- Chemicals
- Biological materials
- Radioactive materials
- Drainage and vent systems
- Greater controlled environmental rooms used for testing

Workshops are areas in which traditional laboratory activities are not generally conducted. This is not to say that a workshop is devoid of chemical, biological, or radiological hazards, simply that workshop hazards here are generally not the same as those in a traditional laboratory, although they can still present significant risk to users. At uOttawa, workshops include any of the following types of areas (either for academic or support purposes):

- Woodworking workshops
- Sculpture workshops
- Photo media workshops
- Theatre workshops
- Machine shops
- Welding shops
- Civil and mechanical engineering workshops
- Electrical engineering workshops

Procedural Steps

The following procedural steps **must be followed** when planning for or performing work in which laboratory materials and equipment are involved:

1. Conduct a hazard identification risk assessment (HIRA)
2. Review and implement housekeeping procedures and safety devices
3. Provide laboratory-specific training to personnel, based on the lab safety training framework
4. Ensure proper procurement, storage, use, and disposal of materials and equipment
5. Inspect and document materials and equipment at regular intervals

Additional steps may be required, depending on the project or work scope.

STEP 1 Conduct a Hazard Identification and Risk Assessment (HIRA)

Main activities

- Obtain and complete the Hazard Identification and Risk Assessment (HIRA) form with approval from the appropriate supervisor, unless an equipment or activity-specific procedure has been developed that includes the outcome of a HIRA.

Contextual Details

Hazard Identification and Risk Assessment (HIRA)

Those who work or perform activities in projects or workspaces in uOttawa laboratories shall use the HIRA process outlined in the [Hazard Identification and Risk Assessment \(HIRA\) Procedure](#) to assess the procurement, use, and disposal of laboratory material.

This assessment shall include an evaluation of laboratory materials and equipment hazards including, but not limited to:

- Required PPE
- Housekeeping plans

- Classification of hazardous materials and designated substances
- Equipment involved in the proposed work, including engineering controls (fume hoods, glovebox, blast shield, etc.) and emergency equipment (fire extinguishers, calcium gluconate, etc.)
- Location and timeframe of work
- Interested parties who will be working with laboratory materials or equipment, or are affected by them
- Proper disposal of materials

Potential laboratory materials and equipment hazards and risks that have been identified through the initial and ongoing HIRA shall be prioritized and appropriately addressed. Ongoing HIRAs shall be conducted at least once a year or whenever the scope of work or physical workspace has changed significantly.

Laboratory material and equipment management requirements identified during the assessment shall be documented and communicated to individuals working within the lab. Documentation shall meet the OHS document management and control requirements detailed in the [General OHS Program Manual](#).

STEP 2 Review and implement housekeeping procedures and safety devices

Main activities

- Identify and implement the necessary PPE for the proposed work
- Ensure that safety devices are present and maintained prior to starting work
- Comply with laboratory housekeeping requirements as outlined in Appendix 1 and adapt them to the individual needs of the laboratory work
- Ensure that the laboratory is left in a safe, tidy, and hazard-free condition when permanently vacating (i.e., decommissioning) the laboratory space

Contextual details

The details outlined in this section are limited to laboratory safety procedures and devices. The following table outlines additional resources:

Table 1: Relevant OHS documents to reference.

Scope of Work	Reference document
Radioactive materials	Radiation Safety Program Manual
Biological materials	Biosafety Program Manual
Electrical safety	Electrical Safety Management Procedure
Fire safety	uOttawa Office of Emergency Management

PPE

Individuals working with any laboratory materials and equipment must use Personal Protective Equipment (PPE) as outlined in the [General OHS Program Manual](#). Laboratory-specific PPE shall include, but is not limited to:

- Gloves
- Eye and face protection
- Hearing protection
- Suitable clothing
- Respiratory protection
- Fall arrest equipment
- Head protection
- Foot protection

Safety devices

In a laboratory setting, lab managers, principal investigators (PIs), and supervisors must ensure that the necessary laboratory safety devices are present and that such devices are regularly inspected and maintained. These devices may be inspected and/or maintained by other uOttawa entities; however, the responsible supervisor must ensure that these inspections and maintenance are complete. If the proper checks and maintenance have not been completed, the matter must be escalated to the appropriate authority. Laboratory-specific safety devices may include (refer to Appendix 1 for additional details):

- Fire extinguishers
- Fume hoods
- Glove boxes
- Emergency showers
- Eye/face wash stations
- Snorkel ventilation
- Spill kit(s), depending on the work
- Specific first aid devices (such as calcium gluconate)
- Warning lights (e.g., for x-ray, radiation, laser hazards)
- Atmospheric sensors

Housekeeping

Housekeeping includes the organization, cleaning, waste disposal, and spill clean-up by lab users and supervisors in a laboratory. Tools, equipment, and machinery are less likely to cause injury if they are kept clean and well-maintained.

- Work areas are to be kept clean and tidy, including cleaning solids and salts immediately dispensed from the reagent container
- Access to emergency exits and to emergency equipment (e.g., fire extinguishers, emergency showers, eye wash stations, spill kits, and emergency shutoffs and panels) must be always kept free and clear
- Tools, equipment and material must not create a hazard (i.e., trip hazards) and should be kept in, and returned to, their proper storage areas
- Trash, scrap, and flammable materials must be kept in proper containers
- Pathways, stairways and exit areas must always remain clear to provide for free and unobstructed exit

This document does not address the independent requirements specific to each lab; however, laboratory users should follow the general housekeeping requirements listed in Appendix 1. Supervisors are to expand these general guidelines to suit their individual needs. The listed housekeeping requirements consider:

- Spatial awareness
- Proper use of laboratory resources

- Conducting experiments and performing work
- Leaving the laboratory

Permanently Vacating Laboratories

When permanently vacating a laboratory area, supervisors must ensure that the laboratory is appropriately decommissioned and left in a safe, tidy, hazard-free condition. The outgoing laboratory manager/supervisor has the most thorough knowledge of the work that occurred within the laboratory; therefore, this person is in the best position to mitigate any (potential) remaining hazards before the incoming laboratory manager/supervisor recommissions the lab.

Refer to the [Laboratory Decommissioning Procedure](#).

STEP 3 Provide laboratory-specific training to personnel

Main activities

- Identify the necessary laboratory safety training for personnel (based on their roles and activities) by referring to the [Laboratory Safety Training Framework](#); confirm that all necessary training is completed prior to conducting laboratory work.
- Ensure that proper approval and training is provided if one or more laboratory personnel may be working alone (refer to the [Working Alone Procedure](#) for details)

Contextual details

Supervisors must ensure that individuals working with laboratory materials or equipment are appropriately trained, based on the [Laboratory Safety Training Framework](#) provided by the OCRO. When a need for new training in a particular subject matter or newly introduced process is identified, the laboratory training framework shall be updated accordingly.

Supervisors shall ensure that individuals are informed and educated on the appropriate safety procedures and the relevant safety devices for the proposed laboratory work.

Working Alone

Working alone in a laboratory is not a safe practice and is strongly discouraged; however, if a worker must work alone in a laboratory due to the nature of the work, the supervisor must implement appropriate measures to ensure that others are aware that they are doing so. Supervisors must ensure that another person will be checking in with the person working alone at regular intervals, either in person or by telephone.

Refer to the [Working Alone Procedure](#) for additional details and requirements for working alone.

STEP 4 Ensure proper procurement, storage, use, and disposal of materials and equipment

Main activities

- Ensure that materials are handled properly, in accordance with the list of minimum requirements
- Review the appropriate equipment safety sheet, based on scope of work

Contextual details

Laboratory Materials

Supervisors must ensure that materials are properly handled, from procurement to use to disposal, and that those working in the laboratory undertake the following actions:

- Ensure that materials are properly stored when not in use
- Ensure that chemicals have a current Safety Data Sheet (SDS) affixed prior to work
- Familiarize themselves with departmental rules and policies on chemicals
- Use a minimum quantity to minimize risks
- Dispose of waste in the approved way as identified by the supervisor, including taking special disposal methods for powders, glass, needles, chemical products, products with odours, etc.

Additional details on hazardous, radioactive, and biological materials are found in the [Hazardous Material and Waste Management Procedure](#), [Radiation Safety Program Manual](#), and [Biosafety Program Manual](#), respectively.

Laboratory Equipment

Individuals working with laboratory equipment should check with the supervisor regarding the safe use and operation of the various tools and equipment in the workplace. Individual organizational units may develop guidelines on the use and management of specific tools and equipment, such as safety sheets to be shared with other organizational units. A repository of previously developed resources is available from the OCRO and may be referred to and reviewed. Contact the appropriate HRSM, who will communicate with the OCRO, to access and upload documents. Below is a list of some of the equipment currently covered by safety sheets:

- Hand tools, including:
 - Wrenches
 - Pliers
 - Hammers
 - Screwdrivers
 - Utility knives/blades
- Portable power tools, including:
 - Portable grinders
 - Portable drills
 - Portable belt or disk sanders
 - Circular saws
 - Reciprocating saws
 - Jigsaws or sabre saws
 - Drill presses
- Pneumatic tools, including:
 - Compressed air or gas
 - Pneumatic impact wrench
 - Air chisels or hammers
- Lifting devices (refer to [Mobile Equipment Management Procedure](#))
- Metal Inert Gas (MIG) welding equipment
- Ladders and scaffolding (refer to [Working at Heights Procedure](#))

STEP 5 Inspect and document materials and equipment at regular intervals

Main activities

- Conduct documented monthly inspections of the laboratory using the list below as a minimum requirement
- Report problems that cannot be addressed to the appropriate leadership (supervisor, facility manager, or HSRM)
- Identify and maintain proper records of laboratory materials and equipment

Contextual details

Supervisors, PIs, laboratory managers, or a delegated competent person must conduct, document, and retain records of regular safety inspections of the laboratory at least once a month or more frequently if necessary. Those conducting the inspection should report any problems they cannot address to the supervisor, facility manager, or the HSRM. The following items must be checked:

- Fire extinguishers
 - Check that the fire extinguisher:
 - Is in its proper location and is accessible
 - Has an up-to-date inspection tag
 - Is equipped with a pin, which is secured with a clip or breakable tie-wrap
 - If the fire extinguisher is deficient, contact Protection Services at ext. 5499 to have the extinguisher immediately replaced
- Chemical storage compartments
 - Check that the contents, including hazardous waste, are organized by chemical compatibility
 - Check that expired products are removed and properly disposed of
 - Liquid chemicals stored outside of storage compartments must have secondary containers
 - If the compartment is vented, check for consistent, proper airflow, and make sure the cabinet is undamaged and working properly
- Tubing (water, vacuum, or gas)
 - Check that connections are appropriately secure and that there are no leaks
 - Regularly check for cracks in rubber tubing
- Glassware
 - Periodically check a random selection of glassware
 - Cracking, stars, chips, etc. are all indications that the glassware should be removed from service and repaired or replaced
- Emergency devices
 - Emergency devices need to work in the event of an emergency. Periodically check that the following emergency devices operate properly:
 - Emergency call (panic) buttons - both fixed and mobile; notify Protection Services in advance of any test
 - Emergency stop buttons – both operator-activated and lab/workshop-activated

- Eye wash stations – tested weekly or monthly for functionality depending on the type
 - Emergency showers – tag should indicate the most recent inspection
- Fume hoods and ventilation
 - Fume hoods shall be tested annually
 - Lab ventilation systems shall be tested annually
 - Should the proper testing not be complete, Facilities shall be contacted for support

Records (either electronic or hardcopy records) of inspections and inventory must be kept to ensure that:

- Inventory is accurate and regularly updated
- Waste is disposed of through proper methods
- Users have the required laboratory-specific training

The following records must be kept by each laboratory manager/supervisor/PI, as detailed in Appendix 2:

- Inventory records
- Waste records
- Documentation review
- Inspections
- Investigations

3. Emergency Procedures

Immediately report all emergencies to Protection Services at ext. 5411 or 613-562-5411. Incidents, accidents, or near misses require the completion of the proper reporting through the [Accident, Incident, Occupational Illness or Near Miss Report form](#) (refer to the [Incident Management Procedure](#) for details on reporting incidents).

Campus landlines are preferred because they allow Protection Services to identify a caller's location.

If first aid treatment is required, report to the first aid station nearest you or call Protection Services at ext. 5411.

Civil authorities (i.e., 911) may also be contacted for assistance; however, the 911 dispatcher may not be familiar with uOttawa property, building addresses, or campus vernacular (such as building names), which could cost precious time in an emergency. Protection Services has thorough knowledge of the University's layout and is equipped to provide first aid, including oxygen therapy and automated external defibrillation (AED). Protection Services will also escort civil authorities to the scene while providing assistance at the scene.

First aid and medical emergencies

In the event of any medical emergency, contact Protection Services at ext. 5411.

Basic knowledge of first aid is highly recommended for anyone working where there is a significant risk of accidents, such as in laboratories and workshops. [Standard first aid](#) workshops are offered (at a cost) by the Office of the Chief Risk Officer.

Designated individuals in your work area must be qualified in first aid, CPR and AED training. Refer to the uOttawa [Workplace First Aid Program](#), identified by a green first aid sign throughout the building, or contact the Health, Safety and Risk Manager or Office of the Chief Risk Officer for information.

Faculties, departments and researchers can purchase supplemental first aid kits. Recommended kits are basic large (for low-risk environments) or intermediate large (for medium-high risk environments).

Initial first aid assessment

- Assess the safety of the scene for yourself and the casualty. If required, remove hazards or remove the casualty from danger (if possible and safe to do so)
- Assess the cause of the accident. Quickly determine how the situation may have occurred, if possible. If you suspect a neck or spinal injury, do not move the casualty if the area is secure
- Identify yourself and offer to provide assistance
- Instruct the casualty to lie still (if conscious); offer reassurance and support
- If a person(s) is found unconscious or unresponsive in a lab, do not enter the space and call Protection Services (ext. 5411) immediately with the concern that the environment may be toxic or oxygen deficient
- Assess the casualty
 - Check the level of consciousness
 - Is the airway open? Is the casualty breathing?
 - Does the casualty have a pulse? Is there severe bleeding?
- Request help. Designate someone to go for help and have them return to the scene and report to you. Provide the following information to the designated person:
 - Your name and role/position
 - Description of the suspected circumstances
 - Exact location of emergency
 - Number of casualties
 - Type(s) of injuries
 - Condition of casualty
 - Direct phone number where you can be reached, if applicable
- Contact Protection Services at ext. 5411 if necessary

Critical injuries or fatalities

- Immediately contact Protection Services at ext. 5411. Indicate that there has been a critical injury or fatality
- Describe the emergency and the location. Provide any necessary first aid within your capabilities. Do not move the injured person unless they are in immediate danger
- Remain with the injured person until help arrives

- Do not further alter the scene except to:
 - Save life, relieve human suffering, maintain essential public utility or transportation services, prevent unnecessary damage, or comply with instructions from an authority having jurisdiction (i.e., an inspector from the Ministry of Labour, Immigration, Training and Skills Development)
- Await the arrival of Protection Services; remain available in a safe location in case further information is required

Chemical contact or burns to the skin

- Remove contaminated clothing. If the contaminant is in a powdered form, brush it off clothes and skin while limiting contact with uncontaminated surfaces as much as possible
- Rinse the affected area thoroughly with copious amounts of cool, running water. Use an emergency shower if necessary. Rinse the area with running water for at least 15 minutes
- Do not apply ointment unless specifically designed for the substance(s) involved
- Do not apply water to burns from any reactive metals (such as sodium, potassium, magnesium, and aluminium, etc.)
- Seek medical attention and have an individual aware of the name and nature of the chemical accompany the injured person

Chemical contact with eyes

- Immediately proceed to the emergency eye/face wash station and activate
- Hold lids apart and flush the eye(s) with copious amounts of running water for at least 15 minutes. If using a tap or hose, direct the water flow on the bridge of the nose so that water runs into the eyes
- Seek medical attention and have an individual aware of the name and nature of the chemical accompany the injured person

Asphyxiation

- If an audible alarm is activated and there is an unconscious person(s), do not enter the room without supplied air respiratory protection
- If safe to do so, remove the casualty from the area
- Loosen tight-fitting clothing
- A person trained in CPR should monitor the victim's airway and vital signs
- Seek medical attention

Cuts and animal bites

- Apply pressure to the wound with a sterile pressure dressing. In circumstances where there is an object protruding from the wound, apply pressure around the wound
- If possible, staunch the flow of blood, and then clean and dress the wound
- Seek medical attention for cuts (including small cuts) and bites, based on the level of risk
- Notify medical staff if a known infection or pathogen (i.e., animal, virus, etc.) was present

Major fire emergencies

A major fire is a fire that spreads to multiple sources outside of a fume hood and that is not extinguished by a fire extinguisher.

- In the event of a major fire beyond your control, shout "FIRE, FIRE, FIRE" and pull the nearest fire alarm. Pull stations are usually located in the corridor near an exit/stairway
- If safe to do so, attempt to rescue persons in immediate danger while exiting. Do not endanger yourself
- Major fires shall be addressed by emergency services
- Do not use elevators and do not go against the flow of traffic
- Close doors but do not lock them. Leave the building according to the appropriate emergency exit pathway and proceed to the muster point
- Do not re-enter the building until it is safe to do so
- Call Protection Services at ext. 5411. Provide information about the situation, including the location and details of the fire
- Remain available in a safe location in case further information is required

Small fire emergencies

- Determine if the fire can be safely extinguished
- Alert lab users of the fire
- Identify an exit
- If fighting a fire, do not cross the fire to get to a fire extinguisher. Ensure that an exit is behind you and there is safe access to it
- If safe to do so, fight a small fire with the appropriate fire extinguishers or suffocate it with sand (or the equivalent), water or cover
- If the fire escalates, retreat. Follow procedure for major fire emergency
- Ensure that the fire is properly extinguished by trained personnel. Notify Protection Services, the facility manager, and/or building wardens
- Remain available in case further information is required

Clothing fires

- If wearing a lab coat, remove the coat immediately to smother or extinguish the fire
- Stop (where you are); drop (to the floor); roll (to smother the flames)
- Shout for help
- Avoid using fire extinguishers on people as much as possible. If a fire extinguisher is absolutely necessary, use a CO₂ extinguisher (extinguisher without pressure gauge) and try to avoid the person's face. After the fire has been extinguished, proceed to the nearest emergency shower and cool the burned areas with a copious amount of water
- Seek medical attention and have an individual aware of the name and nature of the chemical (where applicable) accompany the injured person

Spills

In most cases, users working with hazardous materials can safely and efficiently clean a small spill. Users are required to know the hazardous properties of the materials they use prior to using them and shall be prepared for potential spills; as a result, users are the most qualified to address the spill. Users and laboratories are equipped with basic spill kits for small spills (i.e., maximum 4 L liquid spill). Major spills are detailed below.

Users of more hazardous materials, such as mercury and hydrofluoric acid, require specialized spill kits, which are provided directly to users and/or are available in centralized locations on campus. Spills of greater volume may require additional interventions, as well as larger kits.

For hazardous material spills, determine if you can safely contain, control and clean the spill.

- If unsure or if the situation is unsafe, call Protection Services at ext. 5411. Do not activate the fire alarm unless there is a fire
- If the chemical enters a floor or sink drain, immediately block the drain (if safe to do so) and contact Protection Services at ext. 5411. Floor drains can be protected using the granulated absorbent material in the spill kit. Do not allow any hazardous materials (including hazardous waste) to enter laboratory sinks at any time
- If hazardous materials enter sinks, contact Protection Services at ext. 5411 to inform them about the nature of the spill
- If hazardous vapours that could escape the local area are present, alert people in the affected area and contact Protection Services at ext. 5411

When reporting a spill to Protection Services, provide your name, a contact phone number, and exact details of the spilled material, namely:

- Whether anyone has been injured or exposed
- Name of the spilled material (include spelling) and/or CAS number
- Phase of the material (liquid, solid, gas)
- Identifying properties (colour, odour, etc.)
- Location(s) of the spill
- Quantity or volume of spill
- Properties of the spilled material, including (if applicable/known):
 - Concentration
 - Vapour pressure
 - Flash point
 - LEL / UEL
- Associated hazards
- First aid measures taken for those exposed

The caller shall remain available in a safe location so that Protection Services can contact them if they require further information. While not recommended, if you need to leave the scene of the spill scene for any reason, place signs to warn others of the nature of the spill, specifying your name, direct telephone number, and time you will return.

Once the spill has been absorbed, place the clean-up material (including disposable protective equipment) in the disposal bag found with the spill kit. The contents of this container will be considered hazardous waste. Apply a uOttawa hazardous waste label to the container. The user shall both complete the form that is attached with the spill kit and submit an [Accident, Incident, Occupational Illness or Near Miss Report](#) (refer to the [Incident Management Procedure](#)).

Formal [Spill Response Training](#) is available from the Office of the Chief Risk Officer.

Major spills

Major spills are defined as spills that are:

- Greater than 4L
- Any spill in a public space
- Any spill of volatile, highly toxic substances (i.e., compounds containing cyanide)
- Large spill of fuming acids
- Any spill of unknown compounds

Major spills should not be handled by the lab; the lab must be evacuated and entry into it must be prevented. The purge/emergency button must be activated and Protection Services must be called to alert them of the situation. Special PPE is required.

If users do not have the proper (or functional) PPE for dealing with any spill, Protection Services must be contacted; they will hire an external contractor to manage the situation.

Chemical spills

1. If it is a major spill, alert all personnel present and evacuate the room and follow the steps for a major spill, as listed above. Highly acidic or basic spills should involve a supervisor since the steps may deviate from the ones here below:
2. Minimize the spread of the spill as much as possible. Do not remove contaminated material from the spill area. Close the door and post a warning sign that states your name, direct telephone number, date and time, and the following message “no entry – chemical spill”
3. Engage the emergency button (usually a red button near the room entrance) to increase ventilation in the room
4. Restrict access to the area to those involved in cleaning the spill
5. Ensure that all those who are cleaning the spill are wearing appropriate personal protective equipment, which may include respiratory protection, gloves, protective eyewear and clothing, etc. The spill kit contains rubber gloves that can be used to clean up spills of common chemical
6. If flammable material is involved, remove all heat sources (including burners, hotplates, etc.); however, if potentially flammable or explosive vapours are present, do not switch any electrical equipment on or off
7. Ensure that the fume hood sash (where applicable) is open to capture or direct the flow of gases and vapours
8. Quickly block or contain the size and spread of the spill by using appropriate absorbing powder found in the spill kit. Use the absorbent pads to absorb the bulk of the material

9. Once the spill has been absorbed, place the absorbent pads (including disposable protective equipment) in the disposal bag provided in the spill kit. The contents will be handled as hazardous waste. Apply a uOttawa hazardous waste label to the container
10. Sweep the absorbent powder into the center of the spill and then sweep the powder used into the previous disposal bag
11. Clean the spill from its outer perimeter and address obstacles (such as broken glass, physical objects, etc.) as you clean toward the centre. Use forceps or tongs to handle broken materials. A final surface decontamination may be required
12. Inform the supervisor/principal investigator responsible for the laboratory/research project
13. Complete an [Accident, Incident, Occupational Illness or Near Miss Report](#) (refer to the [Incident Management Procedure](#)) and a [Hazardous Materials Technical Services Regular Collection Request](#)
14. Remain available, in a safe location, to answer questions if further information is required

Mercury spills

1. Alert everyone in the room and evacuate the room. Minimize the spread of the spill to the greatest extent possible. Do not remove contaminated material from the spill area. Close the door and post a warning sign that states your name, direct telephone number, date and time, and the following message “no entry – mercury spill”
2. Restrict access to the area to only those cleaning the spill
3. Quickly block or contain the size and spread of the spill by using appropriate absorbent material
4. If the mercury spill is large or releasing vapours (i.e., the mercury is in contact with a hot surface), contact Protection Services at ext. 5411
5. If the mercury spill is small (i.e., the amount in a broken thermometer), use an aspirator bulb, medicine dropper or mercury sponge to pick up droplets. If available, use a mercury spill kit, available from the Health, Safety and Risk Manager or the Office of the Chief Risk Officer. Everyone cleaning the spill shall wear appropriate respiratory and protective clothing. Clean from the perimeter of the spill inwards; use forceps or tongs to handle broken materials. Place the mercury in a container, cover it with water and/or oil, and seal the container. Label the container for disposal as hazardous waste
6. If the mercury has broken into many droplets, or if droplets have worked into cracks or other hard-to-clean areas, sprinkle the droplets with sulphur powder or commercial products that will form an amalgam when in contact with mercury, as provided by a supervisor. Leave the area for several hours and then collect and place the solid waste into a container, seal it, and label it for disposal as hazardous waste
7. Complete an [Accident, Incident, Occupational Illness or Near Miss Report](#) (refer to the [Incident Management Procedure](#)) and a [Hazardous Materials Technical Services Regular Collection Request](#)
8. Remain in a safe location so that you can answer questions if further information is required.

The University of Ottawa runs a mercury thermometer replacement program. For more information, contact the Health, Safety and Risk Manager.

Appendix 1: Laboratory Housekeeping Requirements

Spatial awareness

- Be aware of campus emergency procedures and how uoAlert notifies you and provides information about emergencies on campus
- Be familiar with the locations and operation of safety equipment and emergency facilities, such as:
 - Fire extinguishers
 - Fire alarm pull stations
 - Fire hose cabinets
 - First aid kits, including AEDs
 - Spill kits
 - Emergency wash facilities (eyewashes, showers, etc.)
 - Emergency communication devices, including telephones, panic buttons (stationary and remote)
 - Emergency exit routes - both primary and secondary
 - Emergency shutoffs
- Be aware of conditions in the workplace, including unsafe conditions that may develop
- Promptly report unsafe conditions, accidents, incidents, near misses and concerns to your supervisor
- Complete mandatory training (including job-specific training)
- Ensure that entry signage (i.e., signs that specify hazards within the lab, responsible party, required personal protective equipment, etc.) is present on doors to the lab

Proper use of laboratory resources

- Keep workspaces clean and free of clutter (including chemical products, specimens, etc.)
- Ensure proper attire is worn in labs
- Ensure that there is no smoking, eating, drinking or gum-chewing in laboratories or workshops
- No running, horseplay, or inappropriate use of lab materials or equipment is allowed
- Keep clear the exits, passageways, and accessways to emergency equipment (including eye/face wash stations, emergency showers, fire extinguishers, first aid kits, spill kits and electrical panels) at all times
- Keep lab doors closed; this is for security reasons and to ensure that engineering controls (i.e., ventilation, fume hoods, etc.) operate as intended.

Conducting experiments and performing work

- Unauthorized work, preparation, or experimentation is prohibited
- Prepare and update written experiment protocols to include applicable health and safety information, e.g., identify the special measures needed to mitigate hazards (i.e., “work inside a fume hood”)
- Read and understand a material’s safety data sheets (SDS) before using it. Work with materials only if you are fully aware of their hazardous properties (flammability, reactivity, toxicity, etc.),

handling and storage requirements, their interactions with other substances, and the associated emergency procedure(s)

- Check equipment for damage prior to setting up experimental apparatus
- Select a suitable location for the experiment. Conduct experiments involving hazardous materials within a vented fume hood or other suitable containment system
- Notify other users sharing your lab spaces that hazardous experiments are in progress
- Never leave an experiment unattended. If you must be absent, post suitable warning signs that state your name and the phone number to contact you directly. If an emergency involving or affecting your experiment occurs, uOttawa will try to notify you of the situation; however, University responders will prioritize people, property, and the environment
- Label reagents and samples in accordance with WHMIS legislation
- Check the expiry properties (i.e., condition, date, etc.) of hazardous materials
- Keep the inventory of lab chemicals updated. Do not remove chemicals from the laboratory without updating the chemical inventory (including materials disposed of as hazardous waste)
- Store hazardous materials according to chemical compatibility
- Store hazardous materials in appropriate locations (i.e., flammable/corrosive storage cabinets).
- Do not store reagent bottles – empty or full – on the floor or in the sink
- Use secondary carriers or special transport carts to move hazardous chemicals or chemical waste
- Do not pipette by mouth
- Conduct your work in an area that is equipped to mitigate the hazardous properties of the material(s) you are handling
- Clean up spills immediately in accordance with the spill response and recovery procedure applicable to the material. Ensure that clean-up materials are available prior to starting work. If the spill is too large (or unsafe) to handle, or if you are unsure of how to proceed, contact Protection Services at ext. 5411
- Wear and use applicable personal protective equipment and safety devices (refer to the Safety Devices Information Sheet for additional information)

Leaving the lab

- Clean your work area before you leave. Return equipment and materials to their proper storage locations
- Ensure that emergency contact information is up to date
- Perform a safety check at the end of each experiment or end of each workday. Ensure that gas, water, electricity, vacuum lines, air, heaters etc. have been turned off/secured
- Lower sashes on fume hoods
- If not leaving to go to another lab, remove and leave your protective equipment (including gloves and lab coats) in the lab
- Wash your hands

Appendix 2: Record Management Details

Inventory records

Inventory records may include purchase orders, transfers, and use and disposition forms for laboratory materials and equipment. These records must be maintained for at least three (3) years.

Waste records

Each PI/supervisor of a laboratory must keep waste logs within the central system provided by OCRO until the waste is disposed of.

Documentation review

Inventory and disposal records are used to address laboratory performance: by reviewing the completeness and accuracy of such records, PI/supervisors can detect trends and possible oversights, so such reviews are usually conducted by a PI/supervisor.

Inspections

Inspections can also be used to assess laboratory performance. The way the laboratory safety program is implemented in each laboratory may vary; some laboratories identify specific individuals who are delegated to monitor and ensure compliance, while in other labs the responsibility is shared. Each system has strengths and weakness, which must be assessed. Note that one visit to a laboratory may not accurately reflect the performance of the lab. The purpose of inspections is to identify those laboratories having the greatest difficulty reaching and maintaining a state of program and legislative compliance, and provide these labs with the support they need to help them identify root causes and the necessary corrective actions.

Investigations

Periodically, a specific incident (e.g., spill, exposure, etc.) needs to be investigated; these opportunities also serve to address root causes of incidents and other influencing factors. As a result, laboratory performance may be examined in greater detail through an investigation.