CHEMICAL HYGIENE PLAN

REVISED FEBRUARY 2026

Table of Contents

THE OSHA LABORATORY STANDARD (29 CFR 1910.1450)

The "Lab Standard" of the Occupational Safety and Health Administration (OSHA) is designed to keep employees aware of (and to reduce the exposures to) hazards associated with chemicals used in laboratories. It is an exception from the more universal OSHA Hazard Communication Standard for operations where chemicals are used in a non-routine, non-production manner by workers with at least some education and training in science. The "laboratory use" of chemicals is defined by the Standard as chemical procedures using small quantities of hazardous chemicals on a laboratory scale and not as part of a production process in an environment where protective laboratory practices and equipment are in common use. The Lab Standard also goes beyond the Hazard Communication Standard in requiring a designated responsible employee (the Chemical Hygiene Officer), requiring specific precautions for "particularly hazardous substances"; employer provided medical consultation, and a specific program for ensuring the effectiveness of engineering control measures.

CHEMICAL HYGIENE PLAN OBJECTIVES

1. To have in place a working Chemical Hygiene Plan applicable to the needs of all people involved in laboratory procedures utilizing hazardous chemicals including faculty, adjunct faculty, department technicians, other staff, and students.
2. To enhance the learning experience by promoting safe laboratory operations.
3. To reduce exposure to hazardous chemicals through a hierarchy of source reduction, engineering controls, administrative controls, and personal protective equipment.
4. To be prepared for emergency situations.
5. To properly collect and dispose of hazardous waste generated in laboratories.
6. To comply with the OSHA Lab Standard and other OSHA regulations pertaining to potential hazards found in the covered laboratories.

ACTIVITIES COVERED BY THIS CHEMICAL HYGIENE PLAN

This Plan covers all laboratory activities from the following disciplines. This specifically includes any course, research, or other work associated with:

1. The Chemistry and Biology Departments within the College of Arts and Sciences (COAS)
2. College of Engineering (COE)
3. The College of Pharmacy and Health Sciences (COPHS)

RESPONSIBILITIES

University President

The University President has ultimate responsibility for chemical safety within the institution.

Provost

The provost shall provide administrative and financial support for lab safety issues.

Deans and Department Chairs

Deans and Department Chairs work with the Chemical Hygiene Officer to support implementation of the CHP for affected laboratories under their management.

Chemical Hygiene Officer

The Chemical Hygiene Officer (CHO) fosters a culture of safety and compliance at Western New England University, ensuring that all academic laboratory operations in COAS, COE, and COPHS meet the highest standards of chemical hygiene and regulatory adherence. The CHO ensures that WNE is in compliance with relevant federal, state, and local regulations, including OSHA 29CFR 1910.1450 and those specific to Massachusetts. The CHO develops, implements, and maintains the institution's Chemical Hygiene Plan and supports research, teaching, and academic laboratory operations by promoting a safe environment for faculty, students, and staff.

The CHO is responsible for chemical safety within academic laboratories (as defined by OSHA 1910.1450). The CHO scope excludes campus-wide OSHA Hazard Communication and Blood Borne Pathogen standards. Chemical safety outside laboratories is managed by Facilities (Aramark) under the Hazard Communication Standard (1910.1200). The CHO is responsible for monitoring chemical waste disposal; the CHO position excludes biological waste disposal, which is managed by Facilities (Aramark).

- Chemical Hygiene Plan Management
    - Develop, implement, and regularly update the master copy of the University's Chemical Hygiene Plan in compliance with OSHA, EPA, and Massachusetts regulations.
- Laboratory Safety Procedures
    - Conduct regular laboratory inspections twice per semester using a short checklist and provide summary reports to provost and applicable dean within two weeks of each round of inspections.
    - Ensure compliance with chemical safety protocols and maintain accurate records of findings and corrective actions.
    - Assist and advise faculty and staff in establishing and maintaining safety procedures relevant to the CHP.
    - Provide guidance to faculty, staff, and students on chemical safety, handling, storage, and disposal procedures.
    - Serve as a resource for laboratory personnel regarding chemical hygiene, risk assessments, and emergency response procedures.
    - Provide supplementary training and resources as needed.
    - Ensure that instructors and/or staff provide laboratory safety training to students, compliance and corrective actions once per semester.
- Training
    - Determine training content needed and pass thresholds for faculty, staff, and student workers with rosters and test results archived.

    - Set academic-lab content standards and sign off that the content and completion meet OSHA Laboratory Standard and ABET or other accreditation expectations.
    - Evaluate training for academic lab users (once per semester) and use results to close the loop on training content updates.
    - Verify that lab personnel needing blood borne pathogens training have completed the training provided for the entire campus.
    - Provide supplementary training and resources as needed.
    - Track results of student training by instructors and departments.
- Safety Data and Documentation
    - Maintains the University's Safety Data Sheet (SDS) Master File and online E-Binder.
    - Audits SDS binders in labs once per semester.
    - Ensures all chemical containers in academic laboratories are properly labeled according to GHS and OSHA standards.
    - Provide an annual program report each June that summarizes training completion rates, inspection results, incidents, and recommended corrective actions for these or other concerns.
- Incident Review and Response
    - Review reported laboratory accidents and issue a memo archiving the incident and recommended corrective actions within 5 business days of the reported event.
    - Collaborate with General Manager of Facilities and Public Safety to coordinate emergency response procedures for chemical spills, contamination, fire, and injury.
- Chemical Inventory, Procurement, and Management
    - Support the maintenance of inventories of hazardous chemicals and ensure proper labeling, storage, and segregation according to regulatory requirements.
    - Ensure proper identification, labeling, and storage.
    - As needed, liaise with General Manager of Facilities to support disposal of hazardous and non-hazardous chemical waste.
    - Maintain security awareness regarding hazardous waste storage.
- Regulatory Compliance and Inspections
    - Stay current with changes in chemical safety regulations and best practices and communicate updates to the university community.
    - Represent the University during regulatory inspections of laboratory areas.
    - Evaluate compliance in relevant areas and functions assigned to General Manager of Facilities (Aramark), including waste disposal and management and annual training.
- Communication and Collaboration to Ensure Safety
    - Serve as primary liaison between Academic Affairs and General Manager of Facilities. Meet for an hour at least twice per semester to sync efforts and review rosters and lists, inspection trends, and upcoming audits.
    - Collaborate with faculty, technicians, and students to promote a culture of safety.

- Ensure lab-related safety concerns are addressed in Public Safety emergency handbook(s), guides, signage, etc.
- Update and augment Kodiak (or other) platforms as applicable with relevant resources.

Laboratory personnel are the faculty and staff members who are using or supervising the use of hazardous chemicals in the laboratory.

- Follow the policies and procedures of this Chemical Hygiene Plan in their laboratories.
- Assess the potential hazards of laboratory work (including research and or coursework) by considering all factors including the hazards of the stock chemicals, potential release of energy from a reaction, equipment hazards, and the hazards of chemicals created by the experiment.
- Select laboratory practices that reduce the risk of injury or chemical exposure.
- Chemical substitution, the use of smaller containers, the use of available engineering controls, and other techniques should be considered when selecting experiment procedures.
- Maintain original labels on chemicals and create new labels for non-original containers or other stock preparations of hazardous chemicals.
- Add additional precautionary labels to containers of chemicals listed on the "Particularly Hazardous Substance List".
- Instruct students at the beginning of each semester on the location and use of safety equipment in the laboratory.
- Inform staff, students, and visitors under their supervision of the specific hazards and required safety procedures associated with the work being performed.
- Arrange for immediate response to injuries or other emergencies in areas under their supervision or within their notice.
- Contact the Chemical Hygiene Officer for any unsafe conditions that cannot be immediately remedied.
- Ensure that students are verbally informed of the safety precautions detailed in the experiment instructions for each lab session.
- Collect hazardous waste in their work area and ensure proper labeling and compatible containers are used.
- Keep all hazardous chemicals stored in centralized chemical storage rooms, storage cabinets, or chemical storage refrigerators. Hazardous chemicals should not be stored in offices, lecture halls, or fume hoods.
- Prepare all necessary additional paperwork required as laid out in this plan when laboratory work involves "Particularly Hazardous Substances".
- Attend any required safety training given by the CHO.
- Report all accidents, spills or injuries to an immediate Supervisor, Public Safety Department, and CHO. This is to include arrangements for immediate response to injuries or other emergencies in areas under their supervision or within their notice.

Students

- Work in a safe and responsible manner.
- Follow directions for lab work as outlined by the supervising laboratory personnel.
- Wear proper protective equipment (i.e. safety glasses) as instructed by the supervising Laboratory personnel.
- Follow emergency procedures, report all spills or accidents to Laboratory personnel immediately.
- Follow other individual Departmental or laboratory specific requirements as communicated via use agreements and or written contracts.

TRAINING

Chemical Hygiene Plan training is required annually for all laboratory personnel. Updated training may be necessary if new hazards are present. Annual training will cover the contents of the CHP and may emphasize topics relevant to specific departments or disciplines.
Training may be conducted synchronously or asynchronously by the CHO. Quizzes will assess knowledge and provide proof of training. An attendance sheet may be used as proof of training for in-person training. Records of training will be retained by the CHO.
Hands on training, and training on laboratory specific items (i.e., specific SOPs for particular procedures or work with particular chemicals, symptoms of exposure to particular chemicals, use of emergency equipment, etc.) will be conducted by the laboratory supervisor. The CHO is available to assist with this training.

GENERAL SAFETY PRECAUTIONS WHEN WORKING IN A LABORATORY

It is important to understand the hazards present in the lab. Applying the following general safe work practices can help avoid incidents from occurring.

- Know where to find, and how to use, the safety equipment in the laboratory. Note the location of the emergency exits, fire blankets, fire extinguishers, first aid kits, drench hoses, eye wash stations, and emergency showers.
- Keep all laboratory work areas as uncluttered as possible.
- Eating, drinking, or smoking in any laboratory is not allowed.
- Report unsafe lab conditions and work practices immediately.
- Do not distract others in the lab with practical jokes or other inappropriate behavior.
- Wear appropriate clothing to protect skin from accidental spills.
- Determine the potential hazards of the experiment before you begin. Refer to the Safety Data Sheet for the relevant hazard and precautionary statements.
- Read all labels carefully to ensure the proper chemical is being used.
- Use all the personal protective equipment required for each chemical manipulation based on the potential hazards.
- Remove gloves and wash hands before leaving the lab.

Personal chemical hygiene

Minimize chemical exposure with good personal hygiene habits.

- Wash hands after contact with any hazardous material.
- Remove gloves and wash hands before leaving the lab.
- Secure long hair, loose jewelry, and loose clothing. These items can cause accidents by disturbing chemical containers, contribute to increased exposure by soaking up chemicals, or increase hazards by catching fire or reacting to chemicals.
- Clothing must be worn to protect as much skin as possible. This means shirts must cover the entire abdomen and NO sleeveless tops, crop tops, shorts or open-toed shoes (sandals) are allowed in lab.

Housekeeping

A well-organized workspace can prevent incidents and chemical exposure.

- Keep walkways clear to avoid tripping hazards.
- Keep safety equipment (fire extinguishers, safety shower, eyewashes, etc.) unobstructed so they can be easily accessed in an emergency.
- Store chemicals and waste in designated areas.
- Keep benchtops uncluttered to reduce the likelihood of spills and exposure.

Food and drink

- No food or beverages are allowed to be brought into any laboratory; this includes chewing candy or gum.
- Do not store food or beverages in refrigerators designated for chemical storage.

Basic chemical handling and storage

- Assume that all chemicals in the laboratory, regardless of state (liquid, powder, gas), may pose a potential hazard.
- Consult container labels and Safety Data Sheets to determine the hazards and develop appropriate procedures before beginning any new work.
- Use all the personal protective equipment required for each chemical manipulation based on the potential hazards.
- Label any chemicals transferred from the original container into a second container.
- Minimize the storage of chemicals in work areas (lab benches and fume hoods). Return chemicals to the appropriate storage area after using.
- Ensure chemicals in storage areas are properly segregated.

Working alone

Working alone in the lab is discouraged because, in the event of an accident, you may not be able to get immediate help.

- Determine the types of chemicals, procedures, and equipment that cannot be used while working alone when assessing the hazards before beginning any new work.
- Laboratory personnel who wish for students to work without supervision should assess the risks of the work and provide training before allowing students to work alone.

Unattended operations

It may be necessary to leave a laboratory operation unattended. Use these basic guidelines when preparing to leave an experiment unattended:

- Post a notice near the experiment (hood, lab door, etc.) with:
    - a brief description of the operation,
    - the identity of the chemicals and materials present, including hazards,
    - name and phone number of the person responsible.

Laboratory security

Laboratory personnel must ensure that labs remain secure when not in use.

- Close and lock laboratory doors when rooms are unoccupied.
- Report any suspicious activity to Public Safety.

HAZARD ASSESSMENT

Many chemicals pose hazards to employees and the environment. Understanding the hazards and developing a plan to control those hazards can prevent exposures and injuries. Hazardous chemicals are defined as those that exhibit either physical or health hazards to those utilizing them. Chemicals capable of producing physical hazards include explosives, flammables, oxidizers, peroxides, and other unstable materials. Chemicals capable of producing health hazards include toxins, irritants, corrosives, and carcinogens.

Classes of chemical hazards

Flammable and combustible liquids

Flammable and combustible liquids are classified based on their flash point, or the minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture in air. Flammable liquids have a flash point less than 37.8 °C (100 °F), while combustible liquids have a flash point greater than 37.8 °C (100 °F).

Three conditions must be met in order for a flammable or combustible liquid to ignite.

- The concentration of vapor above the liquid must be between the upper and lower flammability limits of the chemical;
- oxygen must be present; and
- there must be an ignition source.

Removing any one of these conditions greatly reduces the chances of a fire.

Working with flammable and combustible liquids

- When possible, the dispensing of flammable liquids is to be done under fume hoods.
- Keep containers of flammable liquids closed when not in use.
- Never use an open flame to heat flammable liquids. Flammable liquids should only be heated with a bath (sand, oil, or water) and with a Thermowell/heating mantle.
- Know the location of the nearest fire alarm pull station, fire extinguisher, and fire blanket.

The storage of flammable and combustible liquids is highly regulated by the Springfield Fire Department. A very specific quantity of each flammable liquid class is permitted within educational buildings. All flammable liquids must be stored within a specifically constructed “control area” on a particular building floor and within flammable liquid cabinets. Storage areas are included in laboratory inspections to ensure that flammable liquid storage is within regulations.

Pyrophoric and water reactive materials

Pyrophoric materials will ignite spontaneously in the presence of oxygen and water. Exposure to the atmosphere must be prohibited. Exposure of these reagents to air will result in spontaneous ignition that could cause burns or other injuries to the person handling the chemical or others in the immediate area. Equipment and property can also be damaged by fire.

Working with pyrophoric and water-reactive chemicals:

- Procedures to exclude air and water (glove box, cannula transfer, Schlenk system, etc.) must be developed before working with pyrophoric and water-reactive materials.
- Have an appropriate extinguishing material available in the immediate vicinity while using these materials.
- Do not wear synthetic clothing. It is best to wear a flame resistant lab coat.
- Remove all combustible materials from the area.

Reactive and unstable materials

Reactive or unstable materials may violently decompose, polymerize, or become self-reactive when initiated by shock, friction, temperature, pressure, light, or contact with other materials, causing a release of large volumes of gas or heat.

Working with reactive and unstable chemicals:

- Understand the conditions which cause the materials to become unstable.
- Store the chemical properly to maintain stability and prevent reactions with other chemicals.
- Do not use if product or container is degraded.
- Be aware of the shelf life and coordinate safe removal with the CHO and Manager of Facilities.

Oxidizers

Oxidizing materials are liquids or solids that readily give off oxygen They also include materials that react with combustible materials that increases the chance of a fire or explosion. This reaction may be spontaneous at either room temperature or may occur under slight heating. Oxidizing liquids and solids pose severe fire and explosion hazards.

Working with oxidizers

- Before mixing a strong oxidizer with an organic chemical, seek more specific information on the reactivity of the chemicals. Mixing incompatible oxidizers and organics can result in a violent reaction and fire.
- Use oxidizers in a chemical fume hood. Ensure the hood sash is lowered as a protective barrier if there is a risk of violent reaction.
- Do not return excess chemical to its original container. Contamination of the material could cause an unwanted and dangerous reaction.

Corrosives

Corrosive chemicals cause damage to skin and eyes by contact and to the respiratory system if inhaled and the gastrointestinal tract if ingested. Acidic and basic chemicals can be corrosive.

Working with corrosives:

- Corrosive chemicals that give off harmful vapors should be handled in a fume hood.

- Goggles should be worn when working with concentrated corrosive solutions. A face shield over goggles will provide even better protection from splashes.
- When diluting concentrated acids, always add the acid to water. Never add water to acid.
- Ensure there are spill cleanup materials for neutralization when working with corrosive materials.

Compressed gases

Any cylinder under pressure is considered hazardous. Even room air, compressed into a cylinder, has the potential to explode or propel the cylinder and cause considerable damage and injuries. Other gases will compound this fundamental danger by releasing gases that might be flammable, toxic, or an asphyxiant. When a gas is released from pressure the cooling effect may cause frostbite. And the weight of the cylinder, empty as well as full, can make it difficult to maneuver creating additional potential for injury or damage.

Working with compressed gases:

- As with any hazardous chemical, every gas cylinder must have a label identifying its contents and the associated hazard. This label should be visible at all times.
- Use a hand truck to move cylinders that cannot be easily carried.
- All cylinders must be chained or strapped.
- The valve protection cap will remain on the cylinder until it is in its final position and ready to use.
- Use a regulator that is designed for that gas and cylinder valve. Inspect the regulator and associated hoses prior to use.
- Regulator valves must be kept closed when not in use.

Cryogens

Cryogenic liquids pose a severe frostbite hazard for unprotected skin and eyes. A release of a cryogenic liquid results in rapid expansion of the gas making it an asphyxiation hazard.

Working with cryogens:

- A face shield should be worn while dispensing or transferring cryogens.
- Gloves specifically designed for cryogenic liquids must be used while dispensing.
- Cryogens should never be used in a confined space or a space without ventilation.
- All pressurized systems, including piping, must be equipped with pressure relief devices to prevent excessive pressure build-up.
- Do not transport liquid nitrogen dewars in elevators.

Particularly hazardous substances (PHS)

In addition to a general definition of "hazardous chemical", the OSHA Lab Standard identifies a more select group of chemicals that warrant more specific management practices. It is important to note that this list is subject to revision due to regulatory changes by OSHA or by a change in chemical status by other organizations.

Categories of Particularly Hazardous Substances

- "Select Carcinogens" is an attempt by OSHA to classify for special treatment (as cancer causing agents only) those chemicals for which there is formal corroborative evidence of this risk. It includes chemicals identified by OSHA and also chemicals identified by two outside agencies, both of which are continually testing and updating their findings. These agencies are the National Toxicology Program (part of the U.S. Centers for Disease Control), which publishes an annual report, and the International Agency for Research on Cancer, which publishes Monographs at the conclusion of a testing program for a particular chemical.
- "Reproductive Toxins" are chemicals which affect the reproductive capabilities including chromosomal damage (mutations) and effects on fetuses (teratogenesis).
- "Acute Toxins" are chemicals which may be fatal as a result of a single exposure or exposure of a short duration. This determination is based on published LD50 toxicological data for each chemical.

Procedures for use of Particularly Hazardous Substances

- Identifying: A list of particularly hazardous substances will be maintained on the Environmental, Safety, and Recycling Web Page. This is a list of PHSs meant to be a reference source when determining if a chemical is a particularly hazardous substance.
- Standard Operating Procedure
    - A Standard Operating Procedure must be completed before beginning any lab work. The SOP must be reviewed and approved by the CHO and Department Chair.
- Labeling
    - All containers containing any portion of a Particularly Hazardous Substance must be labeled with an additional label. These labels are required for:
        - Original containers when received
        - Non-original containers for the chemical or stock solutions containing the chemical
        - Waste collection containers
            - The labels must have the words "PARTICULARLY HAZARDOUS SUBSTANCE" and the specific type of PHS.

- This additional label does not have to be added to reaction vessels as long as these vessels are not left unattended and are in the control of the individual that transferred the chemical.

Sensitizers

A sensitizer can lead to an allergic reaction after exposure to the chemical. Sensitizers are especially problematic because, once an allergic reaction occurs, subsequent exposures require less of the chemical to cause increasing severe reactions.

Working with sensitizers:

- Minimize exposure by using hazard control measures (engineering and administrative controls and PPE)
- If an allergic reaction has occurred, consider substituting another chemical.

Irritants

Irritants pose a less severe hazard than corrosives but still cause inflammatory effects to the skin, eyes, and respiratory tract. Reddening is a common symptom of irritant exposure.

Working with irritants:

- Minimize exposure by using hazard control measures (engineering and administrative controls and PPE)

Nanomaterials

According to OSHA, nanotechnology is “the understanding and control of matter at the nanoscale, at dimensions between approximately 1 and 100 nanometers (nm)”. A nanometer is one billionth of a meter. Due to the small size, nanoparticles can become lodged in the respiratory tract causing inflammation and damage. Nanoparticles may also penetrate cell membranes and cause damage to cellular functions. Working with nanoparticles pose a risk of explosions and fires because the dusts may be combustible.

Working with nanomaterials:

- Minimize exposure by using hazard control measures (engineering and administrative controls and PPE)
- Develop emergency measures in the event of a nanomaterial release.

Safety Data Sheets

Safety Data Sheets (SDS) are prepared by the manufacturer or importer of hazardous chemicals or chemical products. These SDS are made available to purchasers of hazardous chemicals or chemical products by the manufacturer or importer. These purchasers must then make SDS sheets available to employees using these chemical or chemical products as part of their employment. These SDS sheets can contain upwards of 16 sections of information concerning the ingredients, physical and chemical properties, physical and chemical hazards, emergency handling, transportation, and disposal of chemical and chemical products. Reviewing these SDS sheets prior to use will ensure that employees understand not only how to use the product safely, but also how to respond in an emergency situation.

Most Safety Data Sheets are stored in binders near where they are used. The binder should be taken if there is an incident requiring evacuation of the lab.

Employees may also be able to access an SDS in the Western New England University E-Binder. This is accessible from the Environmental, Safety, and Recycling web page through the University's Home Page. The site can also be bookmarked at https://www1.wne.edu/facilities/environmental.cfm.

If an SDS is not found in the E-Binder for a chemical found on campus, notify the CHO at cho@wne.edu. An equivalent SDS may be on file or an internet search can be conducted to obtain the missing SDS.

Laboratory hazard assessment and mitigation

Recognizing and understanding hazards and taking all necessary precautions to reduce risk are key to working safely in the laboratory. Hazard assessments should be conducted for all new procedures. There are a variety of ways to conduct a hazard assessment, and a heavily prescribed method may not be useful in all situations. A good hazard assessment should scrutinize hazards and risks based on severity and probability of occurrence. Hazards that are simultaneously high severity and high probability of occurrence should be eliminated or undergo review by other Laboratory personnel, the Department Chair, and the CHO.

Minimizing an exposure may be accomplished using the hierarchy of controls; a combination of engineering controls, administrative controls and personal protective equipment.

Engineering controls

Engineering controls are the first line of defense in the hierarchy of controls to reduce exposure to hazards. Examples of engineering controls used in laboratories include general room exhaust, local exhaust ventilation (snorkels), fume hoods, glove boxes and ventilated storage cabinets.

Fume hoods

Fume hoods are an important engineering control in working with chemicals. The hoods serve to exhaust contaminated air away from the user. Use the following guidelines for safe use of fume hoods:

- All chemicals and equipment must be kept at least 6 inches back from the hood sash to prevent fumes coming out of the hood.
- Only keep the necessary chemicals and equipment needed for the experiment in the hood.
- Keep the hood sash as low as possible while working in the hood. The sash should always be a barrier between the user and the chemicals. If the sash panels move horizontally, place at least one panel between you and the work.
- Keep the baffles in the back of the hood clean and unobstructed.
- Keep equipment slightly elevated to allow airflow under the equipment.
- Lower the hood sash to the recommended position when not in use.

The following represents the hood types, inspections and problem reporting information that is applicable to the University.

- Laminar Flow Biological Safety Cabinets: One in the Biology department, one in the Biomedical Engineering department, one in the Neuroscience department and two in the School of Pharmacy. These cabinets are to be certified upon installation and then annually (or as moved) from there. The inspection will be by a certified cabinet inspector.
- Chemical Exhaust Fume Hoods: This includes four hoods in Sleith and the thirty-eight in the Center for Sciences and Pharmacy (CSP).

The following outlines who completes the inspection and at what timeframe:

- Sleith Units
    - Annually by a Third-Party Vendor
    - At the request of laboratory personnel
    - Following any major repair or renovation
- CSP Units
    - Annually by a Third-Party Vendor
    - At the request of a laboratory personnel
    - Following any major repair or renovation

All of the fume hoods in the CSP and Sleith are low flow/high efficiency. These hoods have been certified to ASHRAE 110 to confirm the following minimum performance is maintained.

- Average face velocity of 70 fpm at the full open sash position.
- Minimum of six readings equally spaced to determine the average with no reading more than 20% different than the average.
- Visual observation that determines an effective capture of indicator smoke at the countertop, upper level and from 6” in front of the hood opening.
- Tracer Gas testing to ensure leakage <.05 ppm.
- The General Manager of Facilities arranges for the third-party vendor to do the inspections.

Glove boxes

Glove boxes provide an atmosphere for chemicals that are air and water sensitive. A glove box may be needed to prevent chemical degradation or violent reactions. Use the following guidelines for working with a glovebox:

- Inspect windows, gloves, hoses, connections, pumps, and gas cylinders prior to use.
- Use disposable gloves on the glovebox gloves to protect them from deteriorating.
- Ensure there are emergency procedures in place in case of a leak or other unexpected event.

Administrative practices

Administrative practices are policies that limit exposure of laboratory personnel to hazardous chemicals. A few examples of administrative controls are:

- Good housekeeping
- Signs
- Labels
- Routine maintenance
- Training

See the GENERAL SAFETY PRECAUTIONS WHEN WORKING IN A LABORATORY section of the CHP for general polices. Standard operating procedures (SOPs) may also be developed for laboratory specific safety concerns.

Personal Protective Equipment (PPE)

Please note that a variety of PPE apparel and safety equipment are commercially available. Laboratory personnel must investigate the properties of each chemical he or she is working with in order to ensure they have the appropriate PPE. Note that PPE will always serve as the last line of experimental hazard defense and follow established administrative and engineering controls. The CHO is available to discuss or advise on appropriate PPE upon request. A variety of PPE is readily available for student and laboratory personnel use. Below are some of the more common items likely to be needed in the University laboratories:

Body protection

Clothing must be worn to protect as much skin as possible. This means shirts must cover the entire abdomen and pants that fully cover the leg. No sleeveless tops, crop tops, shorts or open-toed shoes (sandals) are allowed in labs.

Lab coats

A hazard assessment should be used to determine the necessity of a lab coat. Highly toxic, flammable and microbial agents are a few instances when lab coats may be warranted. Cotton lab coats are recommended for routine lab work and when working with flammables. However, a chemical resistant apron should be worn when working with large quantities of concentrated acids. Lab coats may be worn when going between laboratories, but should be removed when going to other spaces, such as offices.

Eye protection

- Safety Goggles: various types of safety goggles are available in the Department stock rooms. Others can be ordered directly from distributors. Goggles are intended for use when splashing or flying particles are a potential hazard.
- Safety Glasses: glasses are for use during routine laboratory operations. While glasses offer some protection against flying objects and splashes, goggles should be worn in conjunction with glasses when a splash is a likely occurrence.
- Face Shields: full face shields are required when there is a danger of violent chemical reaction, or splash work involving highly corrosive or caustic agents.

Hand protection

- Gloves: skin contact is a major source of exposure to toxic and corrosive chemicals. Proper gloves must be worn when such a hazard exists. Since gloves are made from a wide variety of materials, one must be careful to select the appropriate type for the material they are working with. Consult chemical permeation glove selection charts to choose the glove material that is appropriate for the chemicals being used.
- Remove gloves and wash hands before leaving the laboratory.

Respiratory protection

- Respiratory protection is not typically needed in most labs because of engineering controls. Respiratory protection may be needed if engineering controls are not present and operations involve volatile chemicals or particulates. All laboratory personel who require a respirator must be medically evaluated, fit-tested, and trained prior to using respiratory protection.

Standard Operating Procedures (SOPs)

SOPs are detailed procedures for the proper use of hazardous chemical or equipment. An SOP may be needed after doing a hazard assessment and a written procedure is deemed appropriate. SOPs can be developed for specific chemicals, classes of chemicals, or processes. Laboratory personnel are responsible for developing SOPs and training others working in the laboratory. They are also responsible for maintaining records of the SOPs and training. Periodic review of SOPs should be done to determine if the SOPs are needed and still adequately address the hazards present in the lab. An SOP template is available in Appendix B

INVENTORY, LABELING, AND STORAGE

Chemical procurement

Laboratory personnel who order chemicals should check the current inventory in their college, department, or discipline to minimize overstock and reduce future waste.

Chemical inventory

Each department is responsible for devising and implementing a mechanism for chemical procurement and inventory. Chemicals should be purchased as needed and should not be stored for long periods of time. Manufacturer guidelines for length and type of storage, when provided, must be followed. New work with highly hazardous materials should be discussed with the CHO before the work is started to ensure that proper control measures are in place. Chemicals should not be bought in bulk in order to save money as this might result in spending more on disposing of it as hazardous waste down the line.

Chemical labeling

Labels must be in place on every chemical container. This labeling must be done according to the following:

Original Containers:

All of the hazardous chemicals arriving at the University should be labeled by their manufacturer (or distributor) with the identity of the chemical(s) and the health or physical hazard associated with the product. Regardless of the format used, at a minimum, original manufacturer label will identify the following:

1. Source of the chemical – Manufacturer Name.
2. Product or chemical name.
3. A health and or physical hazard (i.e., Flammable, or corrosive or toxic, etc...) - prominently (usually in all bold or all caps or both) displayed in conjunction with a warning (hazard) statement (i.e., keep away from flame, may burn the skin, etc....) - to help further clarify handling and storage concerns.
4. A signal word (i.e., Danger or Warning, Caution, Notice –corresponding to the hazard statement).
5. A precautionary statement (also corresponding to the hazard statement);
6. One (or a series) of GHS pictograms. There are nine pictograms to choose from.

All six of these label elements work together to communicate the chemical hazard clearly.

Since the University maintains an inventory of chemical products it is very likely that laboratory personnel will find some manufacturer containers labeled with only 4 of the above elements. This can be attributed to the fact that the chemical product was in storage before the pictogram and other enhanced GHS label requirements (i.e., precautionary statement) took effect in 2015. Therefore, laboratory personnel should always pay close attention to the signal word and hazard statement elements of the label.

Non-original Containers:

If the label on an original container becomes unreadable, if the contents are transferred to another container, or if the chemical is used in a stock solution, a new label should be made. This plan establishes as a standard, a text label based on the original supplier's label or, if unavailable, on the Risk Phrase noted in the Packaging and Labeling section of the

International Chemical Safety Cards (U.S. National Version) from the International Programme on Chemical safety. These labels contain, at a minimum the:

- identity of the chemical (chemical name, not an abbreviation or formula)
- a signal word (Notice, Caution, Warning, Danger)
- hazard(s) associated with that chemical (such as poison, corrosive, etc.)
- and, if appropriate, route of entry (such as inhalation, skin absorption)

A chemical on the OSHA Particularly Hazardous Substance list will also be required to have an additional label noting the type of hazard. An additional pictographic warning should also be used where space allows.

It is preferred to use label makers for printing labels for secondary containers. However, any printed label can be used if printed with black text on yellow stock.

Reaction vessels:

The containers used for a chemical reaction do not need to be labeled if they are in use and under the control of the person who transferred the chemical into the container and if that person remains responsible for the container until its waste has been collected and the container cleaned. Titration setups or other stock preparations left unattended or for use by more than one lab section should be labeled.

Chemical storage and segregation

Properly storing chemicals is more than just ensuring they are located within a secured room and protected from extreme temperatures. Ensuring that there is no comingling of incompatible materials and that containers are properly labeled is vital to safe storage of chemicals. The following offers some simple guidance towards safe storage of chemicals:

- Store chemicals in designated storage rooms isolated from work areas
- Storage areas should not have direct sun exposure on bottles
- Ensure all bottles are properly capped (with caps tightened) at the time of storage
- Store chemicals on shelves that are firm and sturdy
- Keep inorganic materials separate from organic materials
- Separate acids from bases and provide secondary containment when necessary
- Store all flammable and combustible liquids in flammable cabinets

Perform an evaluation to determine if chemicals are still needed on a regular basis

Flammable and combustible liquids

Flammable liquids should be stored in flammable storage cabinets. Vent openings in flammable storage cabinets shall either be connected to an exhaust system or sealed with bungs.

An approved flammable material refrigerator or freezer must be used if flammable liquids need to be stored below room temperature. Standard household refrigerators and freezers may not be used for flammables storage because they contain internal ignition sources that could cause a fire.

The storage of flammable and combustible liquids is highly regulated by the Springfield Fire Department. A very specific quantity of each flammable liquid class is permitted within educational buildings. Furthermore, all flammable liquids must be stored within a specifically constructed “control area” on a particular building floor and within flammable liquid cabinets. The CHO routinely inspects storage areas to ensure that flammable liquid storage is within regulations. If there are any questions concerning the storage of flammable liquids, please contact the CHO.

Pyrophoric and water reactive materials

Store pyrophoric and water reactive materials in a desiccator or glove box to exclude air and moisture. Periodically check containers with an inert material such as mineral oil to ensure the reactive chemical is still submerged.

Oxidizers

Store oxidizers together in a cool, dry area away from paper, combustibles, and flammable liquids. Oxidizers should be placed in plastic trays labeled.

Peroxide formers

Store peroxide-forming chemicals with compatible chemicals away from light, heat, and moisture. Mark the containers with the date received and opened. Unopened containers should be disposed of within 18 months and opened containers within 12 months. Suspect materials can be tested for peroxide formation. Label the container with the test date if the test was negative for peroxides.

Corrosives

Store corrosives in a corrosives cabinet and below eye level. Secondary containment should be used in case a container breaks or leaks. Acids and bases need to segregated if both are stored in a corrosives cabinet.

Compressed gases

- Use a hand truck to move cylinders that cannot be easily carried.
- All cylinders must be chained or strapped.
- The valve protection cap will remain on the cylinder until it is in its final position and ready to use.
- Use a regulator that is designed for that gas and cylinder valve. Inspect the regulator and associated hoses prior to use.
- Stored cylinders must be segregated by hazard class.

Controlled Substances

Controlled substances are those compounds regulated by the Drug Enforcement Agency and or the Massachusetts Department of Public Health. These organizations have established a schedule for which compounds are further regulated. The more severe the side effects (i.e. dependency), the higher the compound is regulated on the schedule. The schedule or regulated substances includes…

Schedule I.	Heroin, Mescaline
Schedule II.	Cocaine, Morphine
Schedule III.	Pentobarbital, Testosterone
Schedule IV.	Valium, Ambien
Schedule V.	Codeine, Opium
Schedule VI.	Exempt Chemical Preparations for educational purposes

In order to purchase or maintain Controlled Substances, laboratory personnel must be registered and have a license with both the DEA and DPH. Local DEA and DPH officials will coordinate an inspection of controlled substance use locations prior to authorization. The laboratory personnel must ensure that while at the University the substance is secure (i.e. locked) in a room when not in use. These substances may not be used without the licensed laboratory person present at the time of use.

CHEMICAL WASTE DISPOSAL

In order to ensure proper disposal of chemical waste, a couple of decisions must be made as to whether or not the material is still hazardous. These decisions must include comparing properties of the particular chemical waste in hand to both Federal and State definitions and regulations. These definitions and regulations are included below…

How to Identify Hazardous Waste

Waste is material which has served its original purpose or is no longer needed and is being discarded. Hazardous Waste is defined by State and Federal regulations and must be collected for special disposal. There are two primary types of hazardous waste at the University:

Listed Wastes at the University:

- Most solvents including: acetone, benzene, toluene, xylene, and others
- Solvent mixtures containing the above such as "paint thinner" or "mineral spirits" or aqueous solutions thereof.
- Chlorinated solvents: methylene chloride, trichloroethylene, “laminate adhesive" and aqueous solutions thereof.
- Alcohols and ketones and aqueous solutions thereof.
- Restricted pesticides: chlordane, cresol, and others.

Characteristic Wastes at the University:

- Ignitable: Solutions with a Flash point less then 140°F. (Note: Flammables have flash points less than 100°F and Combustibles have flash points between 100°F and 200°F.). Ignitable also pertains to flammable solids (i.e. carbon), oxidizers (i.e. Nitrates) and some reactive materials.
- Corrosives: pH less than or equal to 2 or more than or equal to 12.5
- Reactivity: Unstable and readily undergoes violent changes, or reacts violently with water, capable of detonating with an initiating source.
- Toxic: Known to cause a health hazard including the toxic metals and pesticides mentioned above. This includes solutions or media contaminated with metals: lead, mercury, cadmium, chromium, and others as well as chloroform, benzene and other liquids with toxic characteristics.

Information used to determine whether or not a chemical is a hazardous waste can be found on bottle labels and or material SDS sheets. A hazard warning on the label will provide some initial information as to hazardous properties (i.e. Warning, Danger, and Toxic) for the material. Please contact the CHO for waste characterization guidance.

Non-Hazardous Waste

If the chemical waste does not fall under any of the categories outlined above, it is Non-Hazardous Waste. Non-Hazardous Waste must be compared with local Sewer (if liquid) and local Landfill (if solid) regulations in order to ensure it is acceptable for disposal. Please contact the CHO for sewer or trash disposal questions.

- Materials that CANNOT be disposed down the DRAIN:
    - Any Liquid or Solid Hazardous Waste (See Above)
    - Solid Material
    - Oils and or greases
    - Unknown materials
    - Solution with high organic load (i.e. glycol solution)
    - Solution with 5.5>pH>9
    - Solution with oil or grease sheen
    - Solution with high solids
    - Solution with trace amounts of lead, arsenic or other heavy metal
    - Solution with Copper, Nickel, Zinc

    - Solution with infectious material
    - Solution of Chlorinated Solvents

- Materials that CANNOT be disposed in the trash:
    - Any liquid or solid Hazardous Waste (See Above)
    - Solids laden with solvents and or oils (i.e. fail one drop test)
    - Aerosol cans that are not truly empty
    - Spill clean up materials.
    - Reactive Chemicals
    - Blood or Biologically laden material

Rules for Handling Hazardous and Non-Hazardous Waste

All materials must be placed in a container which is...

- Appropriate for the waste
- In Good Condition
- Remains tightly closed when not in use.
- Has labels visible and legible.

All containers must be labeled with...

- The words "Hazardous Waste"
- The Hazard of the material (i.e., Toxic, Ignitable, Reactive, Corrosive)
- The ingredients of the Waste
- The Date the waste was generated.

All labeled containers must be properly stored in

- Hazardous Waste Central Storage Areas
- Satellite storage - Only if the container is still in use (i.e. other sections will add to it)
- Contact the CHO with questions about proper storage of hazardous waste.

The General Manager of Facilities will move waste containers from satellite storage to the central storage area. Contact Nick Del Buono (nicholas.delbuono@wne.edu) to schedule waste removal. They will also arrange (through a third party) for the proper disposal of materials stored in these areas.

Security Awareness

The hazardous components of the University's hazardous waste could be used in a deliberate attempt of assault, environmental pollution or other illegal act. The room designated for central accumulation remain locked except when adding material. Threats to these precautions should be reported to Public Safety. If these threats create an immediate danger to individuals or University property, or the illegal use of a hazardous material is witnessed, contact Public Safety at their Emergency Extension, 1411.

Other waste management

Empty containers

A container is considered empty if no solids or liquids come out of the container when held upside-down nor can any further material be scraped out. The label must be defaced (removed or blacked out with permanent marker) and the cap removed before disposing of the container in the regular trash.

Certain chemical containers may not be disposed in the regular trash. Empty containers that held chemicals on the Environmental Protection Agency's P-list must be disposed of as hazardous waste. See the link in Appendix D.

Glass waste

Laboratory glass waste that is clean (broken glass, test tubes, Pasteur pipets, etc.) must be discarded in a dedicated glass disposal box lined with a plastic bag. When the box is full, securely tape the lid to the box and label as trash. Put in a work order for the box to be disposed of by facilities.

Sharps waste

Syringe needles and other sharps contaminated with hazardous chemicals must be disposed of in a dedicated sharps container with a hazardous waste label.

Controlled substances

Controlled substance disposal must be coordinated through the Drug Enforcement Agency. Any excess material that requires disposal must be approved by the DEA in advance of disposal.

EMERGENCY PLANNING

Emergency response requires planning. It is the responsibility of laboratory personnel to evaluate the hazards of the lab work being performed, and to determine appropriate emergency procedures. Laboratory personnel must make students aware of any emergency procedure prior to the start of any laboratory experiment. The following is a listing of emergency numbers.

Public Safety	X1411 (University phone) 413-782-1411 (Cell phone)
General Manager of Facilities (Nick DelBuono)	X1388 University phone) 413-782-1388 (Cell phone)

Chemical Hygiene Officer (Jon Leake)	X1617 (University phone) 413-782-1617 (Cell phone)

Emergency equipment and exits

Emergency equipment is essential to any response. The equipment (i.e. fire extinguishers, fire blankets, eyewash, and safety showers) must never be blocked. A quick check prior to the start of a laboratory experiment to ensure emergency equipment is readily available is good practice.

Egress in and out of laboratories must be maintained at all times. Aisle space must be adequately maintained in order to ensure proper evacuation.

Emergency communication and evacuation plans

Emergency response procedures have been established in the Western New England University Emergency Response Plan. The plan gives detailed response instructions to a variety of likely emergency scenarios on campus. Included with the procedures is an "Emergency Reference Map" which shows the Emergency Assembly Point (EAP) for individual University buildings. The emergency assembly point for each building is the reporting location for employees and students in the event of a building evacuation.

EMERGENCY PROCEDURES

Chemical Spills

Laboratory personnel must understand the chemicals (and their quantities) used in particular laboratories in order to plan for emergencies. This will help them understand the level of response potentially required in the event a substance spills; and also help them understand what types of emergency information will need to be communicated to students. All spills should be reported to Public Safety at x1411. Be cognizant of the location, material involved, and instructions given by Public Safety. If comfortable in doing so, use the following as guidance in assessing spills to public safety.

Incidental Spills

Spills that involve chemicals in types and quantities which can be absorbed or otherwise controlled by those in the immediate area. This spill control must take into account the safety of those responding and ultimately impose no safety or other hazard.

If you discover, or are involved in an incidental spill, ensure notification is made to a supervisor. Clean up the spill upon assurance that no safety hazards are imminent. Spill cleanup materials are available in the laboratory areas.

Emergency Spills

Spills that involve chemicals in types and quantities which are uncontrolled, to the environment, or pose significant health or physical hazards. These spills will likely require the services of emergency responders (i.e., fire, police, etc...) due to their location and or hazard potential.

If you discover, or are involved in an emergency spill, ensure the notification is made to a supervisor and the Public Safety Department. Evacuation of the lab should be coordinated.

Chemical Contamination

There are several paths for Chemical contamination. Injection, Inhalation, Absorption, and Ingestion are the primary sources of chemical contamination. In the event that a student or employee becomes contaminated with a chemical or biological substance the following steps should be followed:

1. Report to an eyewash, drench hose and or safety shower and flush affected areas with copious amounts of water.
2. Contact (or have someone contact) Public Safety x1411.
    a. Communicate contamination source.
3. Remove any contaminated clothing while continuing to shower.
4. Follow Public Safety instructions.

Fire

Discovery of a fire

If any employee or student detects smoke or other signs of fire, they should investigate only if it is safe to do so.
The appropriate response steps are: 1) Pull the fire alarm, 2) evacuate and 3) call Public Safety at x1411. Finally, go directly to the designated Emergency Access Point as indicated in the Emergency Response Plan.

All laboratory personnel should be familiar with the location, use, and classification of the extinguishers in their laboratory. Always ensure that the fire extinguisher being used is appropriate for the type of fire before attempting to extinguish any fire. Laboratory personnel are not required to extinguish fires that occur in their work areas and should not attempt to do so unless:

- The employee has received training, and the fire is small and contained.
- The exit is blocked and it is necessary to extinguish a fire to safely exit.

If a fire occurs in the laboratory and is extinguished by lab personnel, the fire alarm must be pulled, and Public Safety and the fire department must be contacted.

Hearing a fire alarm

If while working in the laboratory an employee or student hears a fire alarm, they should:

1. return any operating equipment to its off position
2. ensure everyone is out of lab and close door
3. exit building (using stairs if on upper levels)
4. report to designated EAP.

Injury

Upon an injury or discovery of an injured person, at least one person should stay with the injured person until emergency personnel can arrive on scene. Someone else should be sent to make the call to Public Safety.
Keep the injured person calm while avoiding contact with blood or other bodily fluids. Do not move the injured person unless they are in immediate danger (i.e. fire or spill).

Chemicals spilled on the body

Remove all contaminated clothing and wash the affected area under the faucet or safety shower. It is important to act quickly to remove the chemical from the skin to minimize skin damage or skin absorption. Wash the affected area with water for at least 15 minutes. Public Safety should be called immediately. Some safety showers will automatically notify Public Safety when activated, but Public Safety should be called immediately anyway.

Chemicals splashed into the eye

Immediately move to the eyewash station and activate the flow of water by pressing the handle down. Continue washing the eyes for at least 15 minutes. It is important to hold the eyelids apart to increase eye exposure. Do not remove contact lenses, the flow of water will safely remove the lenses. Some eyewashes will automatically notify Public Safety when activated, but Public Safety should be called immediately anyway.

Inhaled chemical vapors

If chemicals are inhaled, assist the person to get fresh air and immediately call Public Safety.

Sharps injury

Any sharps injury involving potential injection of hazardous chemicals should be immediately washed and Public Safety notified. In cases involving actual chemical injection, it is highly recommended that the Poison Control Center be contacted immediately: 800-222-1222.

Other emergencies

For emergencies not covered in the CHP, see the University's Emergency Response Plan.

EXPOSURE MONITORING AND MEDICAL SURVEILENCE

The Lab Standard requires that employee exposure monitoring be done if "the employee's exposure to any substance regulated by a standard which requires monitoring if there is reason to believe that exposure levels for that substance routinely exceed the action level (or in the absence of an action level, the permissible exposure limit)."

At the time of this CHP revision there are no apparent situations requiring exposure monitoring. However, this is due in part to the availability and efficiency of engineering controls, and the observance of administrative controls. Both of these factors comprise the bulk of this CHP.

The CHO will coordinate exposure monitoring in accordance with the OHSA Lab Standard:

- if potential exposure is suspected,
- at the request of laboratory personnel or,
- at the request of the University Health Services.

Medical examinations and consultations performed under this CHP will be done by the Center for Health and Well-Being unless the service is closed or emergency services are needed.

INCIDENT INVESTIGATION AND REPORTING

Incidents and near-misses (minor injuries and spills) must be reported to the CHO using the Laboratory Incident Report form (Appendix C).

LABORATORY INSPECTIONS

The CHO will conduct two inspections of all labs containing hazardous chemicals each semester. The checklist in Appendix A will be used to evaluate each lab. The results of each inspection will be shared with Department Chairs.
The following procedure will be followed for any issues identified:
If the CHO determines that a significant hazard exists, the CHO in conjunction with those working in the lab will immediately take measures to eliminate or reduce the hazard. If the issue is non-critical, the CHO will discuss relevant lab employees. Individuals will have 14 days to correct all non-critical issues identified during the inspections. If the issues are not corrected within the specified time, the Department Chair will be notified.

Appendix A Laboratory Inspection Checklist

Inspector: ________________________   Date: _____________Room:______________

College:___________________________   Department:___________________________________

Signage		Comments
Emergency action/building evacuation plan posted and up to date.	☐ n/a ☐ S ☐ U	
Emergency contacts posted on or above the phone.	☐ n/a ☐ S ☐ U	
Ice-machines labeled “Not for Human Consumption”.	☐ n/a ☐ S ☐ U	
Chemical refrigerators labeled “No Food or Drink”	☐ n/a ☐ S ☐ U	
All storage cabinets have the appropriate signage (e.g. flammable, corrosive, poison) with corresponding pictograms.	☐ n/a ☐ S ☐ U	
Emergency equipment labeled with highly visible signs.	☐ n/a ☐ S ☐ U	
Waste Management		**Comments**
Waste containers closed unless actively adding or removing waste.	☐ n/a ☐ S ☐ U	
Waste containers are in good condition (not leaking, rusted, bulging or damaged).	☐ n/a ☐ S ☐ U	
Each container is marked with the words “Hazardous Waste” and the specific type of waste (halogenated, aqueous, etc.).	☐ n/a ☐ S ☐ U	
Each container is marked with full chemical names identifying the contents stored inside (no abbreviations or formulas).	☐ n/a ☐ S ☐ U	

Secondary containment is in good condition (e.g., free of cracks, gaps and impervious to leaks)?	☐ n/a ☐ S ☐ U	
Safety Shower and Eyewash		**Comments**
Eyewash and safety shower accessible within 10 seconds and unobstructed (e.g., no closed doors).	☐ n/a ☐ S ☐ U	
Eyewash inspection up to date (monthly).	☐ n/a ☐ S ☐ U	
Safety shower inspection up to date (weekly).	☐ n/a ☐ S ☐ U	
Fume Hoods		**Comments**
Each fume hood has been tested within the last year.	☐ n/a ☐ S ☐ U	
Chemical fume hood vents are unobstructed.	☐ n/a ☐ S ☐ U	
Sash is lowered when fume hood is not in use.	☐ n/a ☐ S ☐ U	
Storage in the hood is minimized and containers are closed. Containers are at least 6 inches inside the fume hood.	☐ n/a ☐ S ☐ U	
Fume hood monitors are functioning.	☐ n/a ☐ S ☐ U	
Fire Prevention and Electrical Safety		**Comments**
Fire extinguishers are mounted and unobstructed.	☐ n/a ☐ S ☐ U	
Fire extinguishers fully charged with tamper indicator in place.	☐ n/a ☐ S ☐ U	

No excessive storage of combustible materials near any hot surface or equipment (e.g. paperwork, boxes, shipping containers).	☐ n/a ☐ S ☐ U	
No use of extension cords.	☐ n/a ☐ S ☐ U	
Compressed gas cylinders		**Comments**
Stored upright and secured.	☐ n/a ☐ S ☐ U	
Valve caps in place on cylinders not actively in use.	☐ n/a ☐ S ☐ U	
Cylinders in good condition and clearly marked.	☐ n/a ☐ S ☐ U	
Regulators always used, proper regulators used for type gas, pressure bled when not in use.	☐ n/a ☐ S ☐ U	
Cylinder inspection date is within the last 10 years.	☐ n/a ☐ S ☐ U	
Housekeeping and Miscellaneous Lab Safety		**Comments**
No food or drink in chemical refrigerators.	☐ n/a ☐ S ☐ U	
Spill control materials available.	☐ n/a ☐ S ☐ U	
Lab is maintained secure; door is locked when no one is in lab.	☐ n/a ☐ S ☐ U	
Lab benches and work areas free of clutter.	☐ n/a ☐ S ☐ U	
First aid materials available.	☐ n/a ☐ S	

	☐ U	
Broken glass box available and only contains approved items.	☐ n/a ☐ S ☐ U	
Aisles and passageways are clear and unobstructed (36 inches of clear aisle space throughout the lab).	☐ n/a ☐ S ☐ U	
Exits clearly marked and unobstructed.	☐ n/a ☐ S ☐ U	
No evidence of food or drink.	☐ n/a ☐ S ☐ U	
PPE		**Comments**
Personnel wear shoes that fully cover feet and full-length clothing to protect legs.	☐ n/a ☐ S ☐ U	
Long hair confined. Jewelry, lanyards and other loose articles are confined or removed.	☐ n/a ☐ S ☐ U	
Lab coats of appropriate material available and worn (when needed).	☐ n/a ☐ S ☐ U	
Appropriate gloves available and worn.	☐ n/a ☐ S ☐ U	
Eye protection (safety glasses, goggles, face shields) are of appropriate type and worn.	☐ n/a ☐ S ☐ U	

Chemical Storage		Comments
No flammable materials in a standard refrigerator.	☐ n/a ☐ S ☐ U	
Less than 10 gallons of flammable materials outside of flammable storage cabinets.	☐ n/a ☐ S ☐ U	
Chemicals stored by hazard class	☐ n/a	

(i.e. flammable, corrosive, oxidizer, poisons, etc.)	☐ S ☐ U	
Peroxide formers are dated when material received/opened. Materials are not expired.	☐ n/a ☐ S ☐ U	
No chemical storage on the floor.	☐ n/a ☐ S ☐ U	
Secondary chemical storage bottles are labeled with material name, the hazards, and the appropriate pictogram.	☐ n/a ☐ S ☐ U	
Containers are in good condition (e.g., labels intact, metal cans free of rust) and closed when not in use.	☐ n/a ☐ S ☐ U	
Containers properly segregated by hazard class (e.g., flammables away from oxidizers, acids separate from bases, incompatible acids separated).	☐ n/a ☐ S ☐ U	
Storage of chemicals above eye level is avoided.	☐ n/a ☐ S ☐ U	
Flammable liquids stored in OSHA/NFPA approved cabinets and safety containers.	☐ n/a ☐ S ☐ U	
Corrosives stored in acid cabinets or other appropriate cabinets.	☐ n/a ☐ S ☐ U	

Appendix B Standard Operating Procedure Form

Date:
Prepared by:
Department:
Building/Room(s) covered by this SOP:

Type
☐**Hazardous chemical**
Is this chemical classified as a particularly hazardous substance? ☐Yes ☐No
If yes, which type? ☐Select carcinogen ☐Acute toxin ☐Reproductive toxin
☐**Class of chemical**
☐**Process**

Process description or chemical use

Hazards

Engineering Controls

Personal Protective Equipment
Hand Protection:
Eye Protection:
Skin and Body Protection:
Respiratory Protection:

Special Handling and Storage

Spill and Accident Procedures

Waste

FOR PARTICULARLY HAZARDOUS SUBSTANCES ONLY (sign and date when approved)	
Lab Supervisor:	Date:
Dept. Chair:	Date:

CHO:	Date:

Training
I have read and understand the content of this SOP. Name: ____ Signature: ____ Date: ____

Appendix C Laboratory Incident Report Form

INSTRUCTIONS:

The Laboratory Incident Report Form should be used by anyone reporting an incident or near-miss that occurred in a lab. Complete the General Information and Incident Information sections and email the report to the Chemical Hygiene Officer at CHO@wne.edu. The CHO will conduct an incident investigation to further determine the circumstances contributing to the incident and work with the people involved and, if needed, the Department Chair and/or Dean to define appropriate corrective actions.

General Information	
Reporter Information	Name: Telephone #: Position:
Person(s) involved in incident	Name: Department: Telephone #: Email: Position:

Incident Information
Date of Incident: **Time of Incident:** **Location of Incident:**
Type of hazard involved in the incident (check all that apply) ☐ Chemical Chemical(s) involved: ☐ Physical Physical hazard involved: ☐ Biological Agent/sample involved: ☐ Radiological Radiation hazard involved: ☐ Other Other hazard involved:

Nature of the incident (check all that apply)

☐ Near Miss
☐ Injury
☐ Exposure
☐ Property Damage
☐ Spill
☐ Equipment Failure
☐ Failure to follow procedure
☐ Other:

Description of incident

Please provide a detailed description and timeline of the incident using the questions below for guidance.

- *What was the incident location (e.g. laboratory, vivarium, non-laboratory space)?*
- *What procedure(s) or activities were being performed at the time of the incident?*
- *Description of any hazardous materials being used or directly involved in the incident*
- *Who was involved in the incident, including others present at the incident location?*
- *Was there an equipment failure, uncontrolled material release or other catastrophic event?*

Description of emergency response

- *Describe the emergency procedure implemented during the incident, including a timeline*
- *Immediate actions taken to mitigate injury, property damage and/or environmental consequence*
- *Emergency personnel contacted and their phone numbers (e.g. EHS, ambulance, police, fire)*
- *Emergency personnel who responded to the incident and information provided to them*

Corrective Action

Appendix D Useful Links

P and U-listed wastes (EPA)

Particularly Hazardous Substances – Click on Laboratory Safety and then Particularly Hazardous Substances List

OSHA Laboratory Standard