**Northern Arizona University**

**Laboratory Chemical Hygiene Plan**

*[This is a template. Fill in all necessary blanks, and delete all highlighted areas when complete. Add any sections necessary for your laboratory]*

**Principal Investigator (PI):** Click here to enter text

**Principal Investigator Phone Number(s):** Click here to enter text

**Laboratory Safety Coordinator:** Click here to enter text

**Laboratory Safety Coordinator Phone Number(s):** Click here to enter text

**Department:** Click here to enter text

**Laboratory Locations with Hazardous Chemical Use/Storage:**

*[Under the Room Type column, enter the primary use of the space (i.e. wet lab, sample prep, storage, instrumentation, etc.). Delete any unused rows in the table.]*

|  |  |  |
| --- | --- | --- |
| **Building** | **Room** | **Room Type** |
| Enter building name | Enter room number | Enter primary use of room |
| Enter building name | Enter room number | Enter primary use of room |
| Enter building name | Enter room number | Enter primary use of room |
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| Enter building name | Enter room number | Enter primary use of room |
| Enter building name | Enter room number | Enter primary use of room |

**Summary of Changes:**

*[Summarize the changes to this Chemical Hygiene Plan since the last amendment. If this is the first Chemical Hygiene Plan for this PI, or if there have been no changes, enter N/A for this section.]*

**1.**

**2.**

|  |
| --- |
| **EH&S Use Only:****Amendment #:****Click here to enter text Amendment Date:** **Click here to enter text** |

**Electronic signature:** Sign by entering full name **Date:** Click here to enter date

1. **Introduction**
	1. **Purpose**

This Laboratory Chemical Hygiene Plan (LCHP) addresses the specific hazards and available control measures associated with the chemicals within Enter PI's name’s inventory for their Northern Arizona University (NAU) laboratories. The LCHP has been created to comply with the requirements of the Code of Federal Regulations, title 29 Section 1910.1450.

* 1. **Scope**

This LCHP provides information that is specific to Enter PI’s name’s laboratory and is not covered in the University Chemical Hygiene plan (UCHP). The LCHP is an addition to the UCHP, and shall not contradict the UCHP. In any instance where the LCHP contradicts the UCHP, either the UCHP shall be upheld, or approval for variance from the UCHP will be provided by the department of Environmental Health and Safety (EH&S).

The Principal Investigator (PI) must review this plan for completeness and accuracy at least annually. All laboratory workers in Enter PI’s name’s laboratory must read and affirm to this LCHP upon amendment. The PI or Laboratory Safety Coordinator (LSC) must also perform and document laboratory-specific training based of off this LCHP to all laboratory workers. A template for laboratory-specific training can be found on the EH&S website. Worker affirmation to this LCHP shall be emailed to EH&S or uploaded to the laboratory profile page in BioRAFT, and shall include affirmation that the worker has received adequate laboratory-specific training and had the opportunity to have all questions answered by the PI or LSC.

1. **Standard Operating Procedures**

All laboratory workers under Enter PI’s name’s Hazardous Chemical Approval must comply with all University Standard Operating Procedures (USOPs) found within the UCHP.

*[Delete one of the following paragraphs, depending on whether your hazardous chemical use requires the creation of a Laboratory Standard Operating Procedure]*

In addition to the USOPs, laboratory workers under this Approval must also adhere to the Laboratory Standard Operating Procedures (LSOPs) included in Appendix A of this plan.

*(OR)*

The use of hazardous chemicals in Enter PI’s name’s laboratories does not require additional Laboratory Standard Operating Procedures (LSOPs).

1. **Emergency Plans/Procedures**

**IN CASE OF AN EMERGENCY:**

*[Delete one of the following paragraphs, depending on whether your laboratories are located on the main NAU campus or a satellite location]*

**Call 523-3000 to contact the Northern Arizona University Police Department**

**(NAUPD)**

***(OR)***

**Call 911 to contact local Emergency Response**

* 1. **Emergency Preparedness**

The following emergency equipment is available in the laboratory for laboratory workers to use if they are appropriately trained. *[Ensure to account for each laboratory space listed on page 1.]*

|  |  |
| --- | --- |
| **Emergency Equipment** | **Location(s)** |
| Fire Extinguisher | Describe the location(s) of the equipment in or near the lab. |
| First Aid Kit | Describe the location(s) of the equipment in or near the lab. |
| Chemical Spill Kit | Describe the location(s) of the equipment in or near the lab. |
| Emergency Eye Wash | Describe the location(s) of the equipment in or near the lab. |
| Emergency Safety Shower | Describe the location(s) of the equipment in or near the lab. |

* 1. **Chemical Spill**

*[List any special procedures or steps involved with the spill of chemicals, or certain chemicals that are specific to your laboratory.]*

*(OR)*

*[Use the following paragraph to explain that no special procedures for spills exist for your lab.]*

There are no special procedures for the cleanup of a chemical spill in Enter PI's name’s laboratories. Laboratory workers will follow the procedures listed in Section 6.4 of the UCHP to respond to a chemical spill.

* 1. **Chemical Exposure**

Call 911 if a laboratory worker is exposed to a hazardous chemical and requires immediate medical attention. Perform first aid assistance described in Section 6.2 of the UCHP if you’ve been appropriately trained and if it is safe to do so. Notify Enter PI's name at Enter PI's phone number or Enter LSC's name at Enter LSC'S phone number as soon as it is practical. Inform Environmental Health and Safety of all chemical exposures.

If the chemical exposure does not require immediate attention, but the laboratory worker feels unwell, they should call the Arizona Poison and Drug Information Center at 800-222-1222 for further information and recommendations.

* + 1. **Chemical Exposure First Aid Assistance**

*[List any special procedures or steps involved with chemical exposure that are specific to your laboratory. For example, exposure to a hazardous gas could require hitting the emergency shutoff valve in the gas line. List any antidotes available for the hazardous chemicals in your laboratory (e.g. calcium gluconate for hydrofluoric acid, selegiline for MPTP, etc.).]*

*[If there are no special procedures involved with chemical exposure that are specific to your laboratory, delete this section]*

**Contact EH&S if your lab works with hydrofluoric acid, or any chemical requiring an antidote.**

* + 1. **Routine Medical Surveillance**

*[If there are no hazardous chemicals used or stored in your laboratories that require routine medical surveillance (as determined by EH&S), delete this section. If it is determined that your laboratory workers require routine medical surveillance, complete the paragraph below.]*

Medical surveillance may be required for the use of chemicals listed in 29 CFR 1910.1000-1053. This includes but is not limited to the following:

arsenic, benzene, chromium (VI) dichloromethane, formaldehyde, and mercury. All laboratory workers that may be exposed to these chemicals in Enter PI's name’s laboratory must contact EH&S prior to handling, as they may be required to participate in exposure assessments. Laboratory workers must inform Enter PI's name or Enter LSC's name of any potential exposure.

*Or*

*[No monitored chemicals are present in the laboratory]*

This laboratory does not possess or use hazardous chemicals that require assessment for staff enrollment into the Medical Surveillance program. Contact EH&S if medical surveillance chemicals (i.e. formaldehyde, arsenic, mercury, etc.) come into possession/use, as this may require exposure assessment/measurements and enrollment in the Medical Surveillance Program.

*[If monitored chemicals are stored in the laboratory but are not in use]*

Medical surveillance is NOT required for the Enter chemical(s) stored within Enter PI's name’s laboratory. Notify Enter PI's name or Enter LSC's name prior to any future use of Enter chemical(s), as this may require exposure assessments/measurements by EH&S and potential enrollment into the Medical Surveillance Program.

*[Examples, delete this section if it does not apply]*

Medical surveillance is NOT required for:

* Paraformaldehyde in Enter PI's name’s laboratory handled exclusively within a certified chemical fume hood. Notify Enter PI's and/or LSC's name and EH&S prior to any change in the use of paraformaldehyde, as this may require exposure assessments/measurements by EH&S and potential enrollment in the Medical Surveillance Program.
* Formaldehyde used in Enter PI's name’s laboratory when used/handled within a fume hood and centrifuge. The centrifuge lid must be closed for 15 minutes after centrifuging has completed. Notify Enter PI's and/or LSC's name and EH&S prior to any change of use with formaldehyde, as this may require exposure assessment/measurements by EH&S and potential enrollment into the Medical Surveillance Program.
* Sodium arsenite is used for cell culture (low concentration solutions used in small amounts infrequently) within Enter PI's name’s laboratory. Notify Enter PI's and/or LSC's name and EH&S prior to any change of use with sodium arsenite, as this may require assessment/measurements by EH&S and potential enrollment into the medical surveillance program.
	1. **Fire/Explosion**

In the case of an explosion or fire in the laboratory, assist any person in immediate danger if it can be accomplished without risk to you. Immediately evacuate the area and call 911 from a campus phone, or call 911 from a non-campus phone and inform the operator that the incident is on the NAU campus. If an alarm is not yet sounding, activate the fire alarm system by pulling a manual fire alarm.

After evacuation, meet your fellow workers at a pre-determined destination (muster point).

IF the fire is relatively small and contained, and a laboratory worker has been appropriately trained on the use of a fire extinguisher, they may attempt to extinguish the fire, following the instructions in Section 6.3 of the UCHP.

*[List any special procedures or steps involved with an explosion or fire emergency that are specific to your laboratory. This may include Class D fire extinguisher/sand use for pure metals (e.g. sodium, potassium, etc.) turning off heat sources if they are in use (e.g. for use of a Bunsen burner, hot plate, etc.) or evacuating the area regardless of the size of the fire if explosive or pyrophoric chemicals are involved or stored near the fire.]*

1. **Chemical Hazards and Controls**

The following chemical hazard classes represent the chemicals that may be used or stored in Enter PI's name’s laboratories according to the current chemical inventory. *[Delete any hazard classes that are not applicable to your lab]*

* Flammable
* Oxidizer
* Explosive/Highly Reactive
* Corrosive
* Harmful
* Health hazard
* Toxic
* Environmental hazard
* Compressed gases

Control measures specific to Enter PI's name’s laboratories to address these hazards are detailed in the following sections.

* 1. **Engineering Controls**

*[Use the following paragraph if the hazardous chemical inventory and the results of EH&S hazard assessment suggest no additional engineering controls are required to control the hazards presented by chemicals in your laboratory]*

Engineering controls should be used to control chemical hazards as described in Section 3.9 of the UCHP; no specific engineering controls are required for the use of hazardous chemicals in Enter PI's name’s laboratories.

*(OR)*

*[List the engineering controls that should be used by laboratory workers when working with specific chemicals or specific classes of chemical hazards in the laboratory. For example, you may require all pyrophoric chemicals to be handled inside a glove box, all inhalation hazards to be handled inside of a chemical fume hood, all highly reactive chemicals to be handled inside a chemical fume hood behind a blast shield, etc.]*

Engineering controls should be used to control chemical hazards as described in Section 3.9 of the UCHP; specific engineering controls are required for the use of the following hazardous chemicals in Enter PI's name’s laboratories.

[Discuss special procedures for your selected chemicals here]

* 1. **Work Practices**

*[List the work practices that should be used by laboratory workers when working with specific chemicals, or specific classes of chemical hazards, in the laboratory. For example, your may require that laboratory workers not work alone when handling highly reactive chemicals, or that all air reactive chemicals be stored under inert gas, etc.]*

Administrative controls and general work practices should be used to control chemical hazards as described in Section 3.9 of the UCHP; specific administrative controls and general work practices are required for the use of the following hazardous chemicals in Enter PI's name’s laboratories.

*[Discuss special procedures for the selected chemicals here]*

*(OR)*

*[Use the following paragraph if the results of the hazardous chemical inventory and EH&S assessment suggest no additional work practices are required to control the hazards presented by chemicals in your laboratory]*

Administrative controls and general work practices should be used to control chemical hazards as described in Section 3.9 of the UCHP; no specific work practices are required for the use of hazardous chemicals in Enter PI's name’s laboratories.

* 1. **Personal Protective Equipment**

Personal protective equipment should be used to control chemical hazards as described in Section 3.10 of the UCHP; specific personal protective equipment is required for the use of the following hazardous chemicals in Enter PI's name’s laboratories.

*[List the personal protective equipment that should be used by laboratory workers when working with specific chemicals, or specific classes of chemical hazards, in the laboratory. For example, you may require that laboratory workers wear double gloves or chemical-resistant gloves when working with a chemical that is toxic by skin contact, booties and hairnets or tyvek suits when working in a clean room, a respirator when working with a carcinogen outside of a chemical fume hood, etc.]*

*(OR)*

*[Use the following paragraph if the results of the hazardous chemical inventory and EH&S hazard assessment suggest no additional personal protective equipment is required to control the hazards presented by chemicals in your laboratory]*

Personal protective equipment should be used to control chemical hazards as described in Section 3.10 of the UCHP; no specific personal protective equipment is required for the use of hazardous chemicals in Enter PI's name’s laboratories.

1. **Designated Areas**

*[If there are no particularly hazardous chemicals used or stored in your laboratories, use the following paragraph and delete the table below]*

There are no particularly hazardous chemicals (i.e. select carcinogens, developmental/reproductive toxins, or chemicals that are fatal if inhaled, ingested, or come in contact with the skin) used or stored in Enter PI's name’s laboratories. Notify EH&S if the use of particularly hazardous chemicals commences, as this requires postings/signage and an LCHP update.

*[Or, delete the above paragraph and complete the following table]*

All particularly hazardous chemicals (i.e. select carcinogens, developmental/reproductive toxins, or chemicals that are fatal if inhaled, ingested, or come in contact with the skin) must be used and stored in areas designated for that purpose. Designated areas can be a piece of equipment (e.g. chemical fume hood), an area of a lab (e.g. a lab bench where ethidium bromide is used), or an entire lab itself (e.g. a dark room where particularly hazardous chemicals are used).

The following table describes all of the designated areas available for the use and storage of particularly hazardous chemicals in Enter PI's name’s laboratories.

|  |  |  |  |
| --- | --- | --- | --- |
| **Building**  | **Room** | **Description** | **Use/Storage** |
| Enter building name  | Enter Rm # | Describe designated area (bench, hood, etc.) | Select one |
| Enter building name  | Enter Rm # | Describe designated area (bench, hood, etc.) | Select one |
| Enter building name  | Enter Rm # | Describe designated area (bench, hood, etc.) | Select one |
| Enter building name  | Enter Rm # | Describe designated area (bench, hood, etc.) | Select one |
| Enter building name  | Enter Rm # | Describe designated area (bench, hood, etc.) | Select one |
| Enter building name  | Enter Rm # | Describe designated area (bench, hood, etc.) | Select one |
| Enter building name  | Enter Rm # | Describe designated area (bench, hood, etc.) | Select one |

1. **Laboratory Procedures Requiring Prior Approval**

*[If there are no chemicals that you want laboratory workers to obtain prior approval from you before working with them, as well as no procedures involving hazardous chemicals that you want to require prior approval for, delete this section entirely]*

Laboratory workers must obtain prior approval from Enter PI's and/or LSC's name prior to working with Enter names of all chemicals used in the laboratory that require prior approval from PI or LSC, or before performing any of the following procedures: Enter all procedures that require prior approval from the PI or LSC.

* 1. **Hazardous gases**

*[Use the following paragraph if the laboratory possesses highly hazardous gases (e.g. anhydrous ammonia, carbon monoxide, hydrogen chloride, silane, or any other gas specified in the UCHP Appendix TBD.]*

Laboratory workers must review all relevant safety information (i.e. UCHP, USOPs, LSOPs, etc.) and discuss experiments and procedures involving Enter the names of all hazardous gases you have in the lab before beginning any such experiments. The hazards presented by these gases, as well as the control measures in place to decrease the likelihood of exposure to these gases, have been evaluated by EH&S.

*[OR]*

*[Use the following paragraph if the results of the hazardous chemical inventory and EH&S assessment suggest no additional personal protective equipment are required to control the hazards presented by chemicals in your laboratory.]*

There are no hazardous gases in the laboratory (e.g. corrosive, toxic, or pyrophoric gases) that require approval by EH&S in your laboratory. Notify EH&S if the use of hazardous gases changes, as this may require hazard assessment/measurements by EH&S.

### 6.2 DEA Controlled Substances

*[Use the following paragraph if the laboratory possesses DEA Controlled Substances.]*

DEA-regulated controlled substances may be used during some research protocols. Before any laboratory worker may work with controlled substances, they must be listed on Enter the name of the DEA registrant’s DEA registration and receive relevant training. All laboratory workers must notify Enter PI's name or Enter LSC's name of any drug-related felonies. All laboratory workers listed as agents under Enter the name of the DEA registrant’s DEA registration must adhere to the DEA regulations as described in Section 7.1 of the UCHP.

*[OR]*

*[Use the following paragraph if the laboratory does not possess DEA Controlled Substances.]*

This laboratory does not utilize DEA-regulated controlled substances. Notify EH&S if you are interested in becoming a registrant for the use of DEA Controlled Substances.

###  6.3 ATF Explosive Materials

*[Use the following paragraph if the laboratory possesses AT- regulated explosive materials.]*

ATF-regulated explosive materials may be used during some research protocols. Before any laboratory worker may work with these explosive materials, they must be given relevant training by Enter the name of the ATF licensee. All laboratory workers that are given permission to use ATF-regulated explosive materials must adhere to the ATF regulations as described in Section TBD of the UCHP.

*[OR]*

*[Use the following paragraph if the results of the hazardous chemical inventory and RLSS assessment suggest no additional personal protective equipment are required to control the hazards presented by chemicals in your laboratory.]*

This laboratory does not utilize ATF-regulated explosive materials. Notify EH&S if the lab is interested in beginning work with ATF-regulated explosive materials.

# 7 Waste Disposal

*[Use the following paragraph to explain that no special procedures for waste disposal exist for your lab.]*

There are no special procedures for the disposal of chemical waste in Enter PI's name’s laboratories. Laboratory workers will follow the procedures listed in Section 4.14 of the UCHP to dispose of chemical waste.

*[OR]*

 *[List any special procedures or steps involved with the disposal of specific chemicals used in your laboratories. Common chemicals that require special disposal procedures include ethidium bromide gels, heavy metals, unlicensed radioactive materials, etc.]*

Laboratory workers will follow the procedures listed in Section 4.14 of the UCHP to dispose of chemical waste. Additional laboratory specific waste disposal procedures are listed below:

* Discuss special procedures for your selected chemicals here.

# 8 Additional Information

*[Use this section to add any chemical safety-related information specific to your laboratory that was not covered in Sections 1-7. If there is no further information you would like to add, delete Section 8 entirely.]*

# Appendix A: Laboratory Standard Operating Procedures

*[Delete this section if there are no LSOPs required for your laboratory.]*