University of Alabama in Huntsville

Template for Laboratory-Specific Chemical Hygiene Plans

Office of Environmental Health & Safety

Instructions for Completing the Laboratory Chemical Hygiene Plan Template

This template is designed to provide an organizational framework for ensuring compliance with the OSHA Laboratory Standard. The template covers all the laboratory-specific elements of the Lab Standard and should be used in conjunction with the UAH Campus Chemical Hygiene Plan and the Laboratory Safety Manual. The UAH OEHS allows other formats to be used as long as they contain the necessary elements outlined in this document. Upon request, the Laboratory Chemical Hygiene Plan (Lab CHP) must be submitted to the OEHS. Contact the OEHS for questions or assistance at 824-2171.

The Principal Investigator (PI) has the primary responsibility for ensuring the health and safety of their staff and for overall compliance with safety regulations, including the completion of the laboratory-specific CHP. The PI can, however, delegate health and safety responsibilities to a trained and knowledgeable individual (referred to as the Laboratory Chemical Hygiene Officer).

Filling out the Template

Below are detailed instructions for completing each section of the template. The template is a fillable PDF file which can be saved to your computer and submitted directly to the OEHS. Additional stand-alone SOP templates are also available and work in a similar manner. This will allow you to generate and save multiple SOPs without having to save the information for the other sections.

Certification Page:

The name of the PIs (or other indication of where this plan applies) should be placed on the top of this page (in the box). The PI and the Laboratory Chemical Hygiene Officer (if one has been appointed) must sign this page. Updates to the plan should be made whenever required by changes to the laboratories operations. Use the latest version of the template (found at the OEHS website) when performing updates. The Lab CHP must be reviewed annually, at a minimum. If no changes are required then the plan should be signed and dated by the reviewer (the PI or Lab).

Section 1:

Key safety personnel should be identified in Section 1.1. The Principal Investigator may assign the role of Laboratory Chemical Hygiene Officer (Lab CHO), an individual delegated the responsibility for implementing the provisions of this plan, to a member of his laboratory staff. The Lab CHO must be qualified by training or experience to provide technical guidance. You may also include other knowledgeable staff members, the building manager, or other departmental personnel under this section.

All individuals covered by this plan should be listed in Section 1.2. This should include all staff and students working in the indicated labs under the direction of the PI.

Section 2:

This section provides space for identifying the locations where operations identified in the Laboratory CHP are performed. The template allows for multiple buildings and rooms within

buildings. Rooms can be lumped together on a single line for each building. A check mark should be placed under the "Room Assigned to the PI?" or "Shared Facility?" headings, as appropriate.

Section 3:
The Campus CHP outlines university policies related to the laboratory use and storage of hazardous chemicals. Principal Investigators may implement their own policies for the laboratories under their control (as long as they are consistent with university policy). Section 3 provides a section to document these laboratory-specific policies. Some examples may include "No working alone after 10:00 p.m." or "Lab Coats must be worn at all times in the lab regardless of whether work is being performed".

Section 4:
This is the most important part of Lab CHP and includes specific safety procedures required in the laboratory for operations involving hazardous chemicals. It is broken up into two parts – the Procedure Form and the Task Table.

The Procedure Form: This is best utilized to describe safety requirements for multi-step procedures and for procedures involving carcinogens, reproductive toxins, and highly toxic materials (i.e., Particularly Hazardous Substances). It is not expected that the procedure itself be described in this form but only the safety aspects. Any written SOPs for the actual research procedure should be attached. While most Lab CHPs will include numerous Procedure Forms to cover all their SOPs, a single form can often be used to describe the safety aspect of similar SOPs. Below is some guidance for completing the form:

Prior Approval: As stated in the Campus CHP, a Principal Investigator (PI) can determine whether the procedure needs approval by the PI before an individual can perform the procedure. The prior approval requirement can be indicated by checking the appropriate box. Note: Section 7 provides a location to document an individual's approval to perform the procedure. The PI can determine how long approval is valid for, though typically once approved an individual can continue to perform the procedure.

Particularly Hazardous Substance (PHS): Indicate whether this procedure involves the use of a PHS and the category it falls under. Appendix B of the Campus CHP provides information helpful in determining if a chemical is a PHS.

Brief Description of Procedure: A brief description should be provided. Limit this to a few sentences. If the procedure is not attached it is appropriate to provide a reference to the procedure.

Hazardous Chemicals Involved: Provide a list of chemicals and the hazards they pose (such as highly toxic, flammable, water reactive). It is not necessary to include all chemicals since many (such as buffers) do not pose a significant risk.

Other Hazards: In this portion include other hazards associated with the procedure, e.g., thermal hazards from hot plates or Bunsen burners, electrical hazards, laser hazards, to name a few.

Exposure Control: This portion of the form allows you to input the Personal Protective Equipment (PPE) and engineering controls needed for this procedure. This is a master list of controls for this SOP. The additional line can be used to describe other controls or for clarifying the controls that have been checked. For multistep procedures you will have the option of breaking this down into the various tasks (see *Task Hazard Control Table* below.)

Administrative Controls: Administrative controls are changes in routine work procedures implemented to reduce the duration, frequency, and severity of exposure to hazardous chemicals or situations. Provide a list of administrative controls specific to this SOP. Examples include requiring two people to be present during the procedure or not allowing the procedure to be performed at night.
Task Hazard Control Table: For some procedures that have multiple steps you can break this down into the controls required for each of the steps. If the PPE and engineering controls are the same throughout the procedure then this can be left blank.
Waste Disposal: Indicate how the hazardous waste is handled.
Accidental Spills: Each procedure should include a description of how to handle a chemical spill. The type of spill kit used and the location of the spill kit should be included.
Decontamination Procedures: In this section provide information on how to handle personnel exposure including any first aid measures that may be necessary. Laboratory staff should be trained in handling common exposures. This section allows you to add some chemical-specific procedures (e.g., for hydrofluoric acid skin exposures rinse and apply calcium gluconate). You can also provide information on equipment decontamination. *Training:* This portion allows you to indicate what training is needed prior to any laboratory staff performing the SOP. Include both in-lab training and training from OEHS or other sources.
Principal Investigator Approval: The SOP must be signed and dated. Due to the importance placed on lab SOPs it is highly encouraged that the PI sign these, though Lab Chemical Hygiene Officer can be delegated this authority.

The Task Table: This table allows you to itemize routine tasks that are performed in the laboratory and indicate the types of controls which are needed. This table is similar to the "Task Hazard Control Table" found in the "Procedure Form" but is best used to describe the hazards and controls needed for the numerous small (and often unrelated) tasks where the use of chemicals is limited. For example:

Task	Hazard Description	Required PPE and Engineering Controls
Pouring Cryogenic liquid from one container to another	• Frostbite due to extreme cold • Asphyxiation due to oxygen deficient environment	• Thermal protective gloves • Eye and face protection with face shields and safety glasses • Lab Coats • Point of use ventilation system

It is not appropriate to use this table for high-hazard operations, such as procedures involving highly toxic materials, explosive compounds, or highly flammable or pyrophoric materials.

Section 5:
This section provides an area to document that staff have received orientation on the basic regulatory requirements, laboratory procedures, and emergency practices. An orientation checklist

should be completed for all new laboratory workers and signed by the worker and PI (or the lab CHO). There is space allotted for the addition of laboratory-specific health and safety features and resources. Additional items are optional but can include such items as special engineering controls (such as monitors and alarms) and resources (location of reference books).

Section 6:
This section provides space for documenting the training that is required for working in the laboratory. There are two parts to this:

The Master List of Required Training: This part of Section 6 provides a location for listing all the training that is required in order to work with hazardous chemicals in the laboratory. It is not assumed that everyone needs all the training listed. Individual training requirements should be based on work assignments so some individuals will require more training than others. The training listed can be general (such a proper handling of compressed gas cylinders) or very specific (such as performing a specialized lab procedure) and should include training provided in-lab and from other sources (such as training provided by EH&S). Additional pages of this can be completed if there is not enough room to list the training.

Documentation of Training: This part of Section 6 provides a place to document individual safety training. Typically this is used to document in-lab training since training taken outside the lab is often documented elsewhere. A brief description should be provided that includes how the training was performed (was it hands-on, PowerPoint presentation, group discussion?). While this should be used to document the in-lab training described in the *Master List of Required Training*, it can also be used to document training such as annual laboratory safety refreshers or to document discussion of safety issues that occur during laboratory staff meetings.

Section 7:
As described above in the instructions for Section 4, as well as in the Campus CHP, some procedures need prior approval from the Principal Investigator before an individual can perform the procedure. Document the required approval in this section. A sheet should be prepared for every procedure which requires prior approval. It is up to the Principal Investigator to determine whether approval is required every time the procedure is performed or whether approval is for all subsequent execution of the procedure.

Section 8:
A number of regulations, including OSHA standards and the fire code, require that Material Safety Data Sheets (MSDSs) be maintained and readily accessible for all hazardous chemicals. Paper copies and electronic copies are both acceptable. If electronic copies are used these are best stored on a hard drive, flash drive, intranet or other similar local source. Simply having the ability to search the internet on-demand is not an acceptable method of maintaining compliance with the regulations since this method limits the accessibility of the MSDSs.

In addition to the MSDS's, the Campus Chemical Hygiene Plan requires that inventories be maintained for certain categories of hazardous chemicals above specified amounts (see Section 6.3 of the Campus CHP). Indicate in this section the location of the MSDS storage as well as where and how chemical inventories are maintained.

Section 9:
The purpose of exposure monitoring must be described if exposure monitoring is required for any laboratory operation. The results must be available to all lab workers. Provide the location where exposure monitoring results are kept. Contact the OEHS (824-6053) if you have any questions concerning personnel monitoring.

Section 10:
This section provides a convenient place to list or attach references related to chemical or laboratory safety related to procedures used in the lab. These can be articles or guidance documents or even links to relevant websites. This is optional but highly recommended.

University of Alabama in Huntsville
Laboratory Chemical Hygiene Plan

For

Certification and Annual Review and Updates

By signing and dating here, the Laboratory Chemical Hygiene Officer and Principal Investigator certify that this Laboratory-Specific Chemical Hygiene Documentation is accurate and that it effectively provides for the chemical safety of employees and students in this laboratory.

Principal Investigator:

Signature	Printed Name	Date

Laboratory Chemical Hygiene Officer (if other than PI):

Signature	Printed Name	Date

By signing and dating here, the Laboratory Chemical Hygiene Officer certifies that the required annual review (and update, if needed) of the Laboratory-Specific Chemical Hygiene Documentation has been completed, and that this document continues to be accurate and to effectively provide for the chemical safety of employees in this laboratory.

Reviewed by:		Review Date:	
Reviewed by:		Review Date:	
Reviewed by:		Review Date:	

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Section 1: Personnel

1.1 Safety Personnel

List the names of key safety personnel. In addition to indicating the individual in charge of the laboratory (i.e. the P.I. or lab manager) and the Laboratory Chemical Hygiene Officer the names of key staff such as building manager or other important individuals should be included.

Name	Position	Phone
	Principal Investigator	
Rani Jacob	University Chemical Hygiene Officer	824-2171
UAHPD Dispatch	Emergency	911
UAHPD Dispatch	Non-Emergency (UAHPD has access to OEHS for after-hour situations.)	824-6596

1.2 Laboratory Staff/Students

List all individuals who work with hazardous chemicals in the labs and are therefore subject to this plan.

Name	Name	Name

Section 2: Laboratory Room Locations

List all rooms in which use of hazardous chemicals will occur:

Building	Room	Room Assigned to the PI (Y/N)	Shared Facility (Y/N)

Section 3: Laboratory-Specific Policies

Include below all laboratory-specific policies instituted by the Principal Investigator (e.g., eye protection must be worn in the lab at all time, no working alone, etc.). This space provides the opportunity to place in one location and document the lab's safety policies related to the use of hazardous chemicals.

Section 4: Laboratory SOPs – Procedure Form

Title of Procedure:

Principal Investigator (PI):

Prepared By: **Revision Date:**

Prior Approval: This procedure is considered hazardous enough that prior approval is needed from the Principal Investigator: ☐ Y ☐ N

Involves Use of Particularly Hazardous Substance (PHS)? ☐ Y ☐ N

Carcinogen Reproductive Toxin High Acute Toxicity

Does this procedure require medical surveillance? ☐ Y ☐ N

Does this require use of a fit-tested respirator? ☐ Y ☐ N

Brief Description of Procedure (*100 words or less***):**

Location: *List the locations (buildings/rooms) where this procedure may be performed. For use of a PHS indicate a more precise location within the room, if appropriate, as the designated area.*

Chemicals Involved:

Chemical	Physical or Health Hazard (e.g., carcinogen, corrosive)

Other Hazards: *Include other hazards, other than chemical, that may be present during operation of the procedure.*

Exposure Controls: *(check all that apply)*

PPE: ☐ Safety Glasses ☐ Face shield ☐ Chemical Splash Goggles

☐ Chemical apron ☐ Gloves (type):

☐ Lab coat ☐ Respirator (type):

☐ Other

Engineering Control:

☐ Fume hood ☐ Biosafety cabinet ☐ Glove box ☐ Vented gas cabinet

☐ Other (include controls as pressure relief valves, intrinsically safe hot plates, automatic shut-offs):

Administrative Controls: *List any specific work practices needed to perform this procedure (e.g., cannot be performed alone, must notify other staff members before beginning, etc.).*

Task Hazard Control Table: *For procedures involving numerous steps it may be convenient to indicate specific requirements for individual tasks in the table below:*

Task	Required PPE and/or Engineering Controls

Waste Disposal: *Describe any chemical waste generated and the disposal method used.*

Accidental Spills: *Describe procedure for handling small chemical spills that may occur during this procedure. Note that for large spills it may be appropriate to call 911.*

Decontamination Procedures (required for PHS use): *Describe the procedure for decontamination of personnel and equipment.*

Training: *Describe any training needed prior to performing this procedure. Include training performed in-lab and any required demonstrations of competency.*

Principal Investigator Approval: I have reviewed this procedure and approved it for use. Note: Modifications to the procedure may require update to this form.

Name	Signature	Date

Section 4: Laboratory SOPs – Task Table

Prepared By: | **Revision Date:**

*For many procedures a simple description of the tasks, the associated hazards, and the PPE required to mitigate risks is acceptable. This table is **not appropriate** for work involving Particularly Hazardous Substances or for use of chemicals that pose a high risk due to reactivity or other properties. This table is appropriate for describing safety requirements for miscellaneous tasks performed in a laboratory.*

Task	Hazard Description	Required PPE and Engineering Controls

Section 5: Orientation Checklist:

A checklist for all laboratory personnel listed in Section 1 must be filled out.

As part of my orientation with the laboratory operation I have read and am familiar with the contents (and location) of:

- ☐ The OSHA Laboratory Standard
- ☐ The UAHuntsville *Laboratory Safety Manual*
- ☐ MSDSs for lab chemicals
- ☐ The UAHuntsville Campus CHP
- ☐ The Laboratory CHP

I have been instructed on:

- ☐ The chemical hazards in the lab
- ☐ Laboratory-specific policies
- ☐ The relevant exposure limits [PELs (OSHA), TLVs (ACGIH), etc.]
- ☐ The signs and symptoms associated with exposures to hazardous chemicals used in the lab
- ☐ The physical hazards of the laboratory (heat, electrical, mechanical, etc.)

Reviewed the laboratories emergency procedures, including:

- ☐ Emergency phone numbers
- ☐ Evacuation routes
- ☐ Review location and use of chemical spill kits
- ☐ Laboratory exhaust failure procedure
- ☐ Procedures for uncontrolled releases
- ☐ Safety equipment failure procedures

The location of emergency equipment:

- ☐ Fire extinguishers
- ☐ Safety showers
- ☐ Eye wash stations
- ☐ First-aid supplies

I have been made familiar with routine operations of the laboratory, including:

- ☐ Lab cleaning and maintenance rules
- ☐ Proper use of PPE
- ☐ Chemical storage policies for the lab
- ☐ Waste handling procedures
- ☐ Chemical procurement practices
- ☐ The proper use of chemical fume hoods

In addition, I have been made familiar with the following lab-specific health and safety features and safety resources:

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

I have completed orientation of all the above items

Name: Date:

Signature:

PI (or Lab CHO) Signature:

Section 6: Laboratory Safety Training
Master List of Required Training

List the training required in order to work with hazardous chemicals in your laboratory. This list should include training provided by the university, outside sources, and hands-on training of tasks and procedures provided in-lab. It is understood that the training below does not apply to all students or staff but will be based on each individual's work assignments.

Training Title	Description/Purpose

Section 6: Laboratory Safety Training
Documentation of Training

Track required training using the table below. A separate sheet should be used for each training course and/or training session.

Title of Training:

Training Performed by:

Description of Training:

Name (print)	Signature	Date

Name (print)	Signature	Date

Section 7: Prior Approvals

This section of the lab-specific CHP allows the PI to document approval for individuals to perform specific Standard Operating Procedures (as indicated in the SOP description).

Standard Operating Procedure Title:

Name of Approved Individual	PI Authorization Signature	Date of Authorization

Section 8: MSDSs and Inventory of Hazardous Chemicals

A number of regulations require that Material Safety Data Sheets (MSDSs) be maintained and readily accessible for all hazardous chemicals. The Campus Chemical Hygiene Plan also requires that inventories be maintained for a certain categories of hazardous chemicals above specified amounts (see Section 6.3 of the Campus CHP). Provide a description of where the MSDSs are stored and how inventory records are maintained.

Material Safety Data Sheets

Location of MSDSs:

Format of MSDS (electronic, hard copy, etc):

Chemical Inventory

Method of Maintaining Inventory:

Location of Inventory Records:

Section 9: Exposure Monitoring Records

In rare instance it may be necessary to perform personnel exposure monitoring when working with a hazardous chemical. This can occur when chemical exposure levels approach or exceed the Permissible Exposure Limit (PEL) of OSHA and the Threshold Limit Value(TLV) of ACGIH (see Section 12 and Appendix A of the Campus CHP for details). Initial monitoring is required if there is reason to believe that the action level (or PEL if there is no applicable action level) for a substance is routinely exceeded. If the initial monitoring discloses employee exposure over the action level or PEL an exposure monitoring program may be initiated. Employees must be notified of the results within 15 working day after the receipt of the results by posting in an accessible location.

Describe any exposure monitoring requirements for laboratory operations:

Location of Exposure Monitoring Records:

Section 10: References

This section can be used to include chemical or laboratory safety information relevant to the operations of the laboratory. The references can either be appended to the end of this section or references can be cited below.

References: