

## Chemical Hygiene Plan Preparer's Guide

This document is designed to assist Department, Laboratory, Center or Institute (DLCI) staff plan for and develop their customized Chemical Hygiene Plan based on the MIT Chemical Hygiene Plan Template document. It contains information and guidance on certain aspects of the Chemical Hygiene Plan where prior planning may be needed. In addition, some information contained in this document previously was included in the Template text but was moved out of the document to better serve the intended reader of the Plan, the laboratory worker.

### 1. TEXT REQUIRING CUSTOMIZATION

In the Template document, text that is highlighted in blue indicates areas in the Plan Template where the Chemical Hygiene Plan writer needs to add customized text and/or specific requirements. The highlighted text should be replaced with your Department, Laboratory, Center or Institute's specific information.

Examples of texts requiring customization:

- [Note: Insert Your Chemical Hygiene Officer's Name Here].
- DLC EHS Coordinator and/or CHO should enter any DLC-specific PPE requirements in the table above.
- There are two basic options for addressing the eye protection requirement. Examples of language are given to assist the CHO with describing their DLCI process.

To facilitate CHP development, the *Table of Contents* section in the Template document is generated automatically using the References - Table of Contents function in Microsoft Word. Paragraphs formatted with paragraphs "CHP1", "CHP2", "CHP3" are currently included in the *Table of Contents*. If you add new sections with similarly formatted text or remove entire sections, use "Update Table" function to update the page numbers and section titles in *Table of Contents*. If you prefer to manually create a Table of Contents, simply select the existing one and delete it. For more information on this feature, consult MS Word Help, under "Table of Contents."

### 2. ASSIGNING A CHEMICAL HYGIENE OFFICER

To best align the objectives of the Chemical Hygiene Plan with the EHS Management System, the EHS Office suggests that the role of the Chemical Hygiene Officer (CHO) be assigned to the DLCI EHS Coordinator. It is the intention of this dual role assignment to enhance organizational efficiency and support improved integration of the objectives and tasks of the Plan into the daily routines of each laboratory.

However, it is recognized that each DLCI needs to assign the role of its Chemical Hygiene Officer in a manner that works best for them to establish a strong chemical safety program. If a DLCI wishes to assign the role of Chemical Hygiene Officer to someone other than their EHS Coordinator, please discuss this intention with the EHS Office so they can provide guidance to ensure the most effective assignments.

To best clarify the specific responsibilities of the Chemical Hygiene Officer, distinct duties for both the Chemical Hygiene Officer and EHS Coordinator are defined separately in the Chemical Hygiene Plan Template in Part I, Section 2. If your DLCI has assigned the role of the Chemical Hygiene Officer to the EHS Coordinator, then that EHS Coordinator will assume all functions as outlined in Part I, Section 2.2 in the Template document for the Chemical Hygiene Officer. Your DLCI may reassign the specific assignments identified in the Template to different roles, but each listed responsibility must be assigned.

## **3. PROCESS FOR CHP PREPARATION, APPROVAL, REVIEW AND UPDATE**

### **Plan Preparation**

The Chemical Hygiene Officer will oversee the preparation of the Chemical Hygiene Plan for the DLCI. They are responsible for seeing that the Plan meets requirements set forth in 29 CFR 1910.1450. Additional assistance in creating the Chemical Hygiene Plan can be provided by the MIT Environment, Health and Safety (EHS) Office. The Template may be used in preparation of the Plan, or the CHO may write a separate plan. If the CHO writes a separate Plan, it must include all requirements of the OSHA standard referenced above, as well as all the requirements outlined in Parts I.-IV. of the Template. A Chemical Hygiene Plan content checklist (see Appendix) has been developed by the EHS Office to assist in the preparation of a complete and compliant Plan.

### **Initial Plan Approval**

The Chemical Hygiene Officer is responsible for ensuring that the Chemical Hygiene Plan is approved by EHS Office Industrial Hygiene Program (IHP). Once the CHO completes the initial Plan, they must submit the Plan to IHP for review. Plans can be submitted electronically to the EHS Office through the on-line form at <https://ehs.mit.edu/chemical-safety-program/chemical-hygiene/>.

An IHP representative will review the Plan against the requirements of the OSHA standard, the EHS Office, and the EHS Management System (EHS-MS) and will provide comments when needed. The CHO must incorporate comments and resubmit the Plan for final approval. When a Plan meets all requirements, the IHP will provide a notice of approval to the CHO. The CHO must ensure the Plan is distributed or made available to all in the DLCI who are impacted by the Plan. One copy of the CHP will be provided electronically to the MIT EHS Office for reference use and to facilitate the annual update process.

### **Annual Plan Review and Update**

On an annual basis, the IHP will notify the CHO when it is time to review and update the Plan. At this time, the IHP will also notify the CHO of any changes that must be incorporated into the Plan due to changes in EHS operations, the MIT EHS-MS, or changes in regulatory requirements. The changes are listed as “old” and “new” wordings

in the Template Updates document and highlighted in **yellow** in the CHP Template document.

The Chemical Hygiene Officer will review, update, and submit the Plan through the on-line form at <https://ehs.mit.edu/chemical-safety-program/chemical-hygiene/> with any changes required to the EHS Office by the deadline specified by the IHP. The CHO should make sure that the Plan reflects changes in DLCI operations as well as the revisions requested by the IHP. The IHP will review the Plan and provide the CHO comments when needed. When comments are received, the CHO must incorporate them and resubmit the plan. Once the IHP considers the Plan complete, they will provide a letter of approval to the CHO. Upon receipt of the letter of approval, the Plan is considered final for the year. The Chemical Hygiene Officer will see that the Chemical Hygiene Plan and updates are distributed to or made available to those who are affected by it. Annually, one copy of the Chemical Hygiene Plan and all updates will be provided electronically to the MIT EHS Office.

## 4. INFORMATION REQUIREMENTS

Information that must be provided or made available to laboratory personnel includes:

- a. A copy of the OSHA Laboratory Standard and its Appendices. This information is provided in the Appendix of the CHP Template document. Paper copies could be made available to laboratory personnel if you wish.
- b. The location and availability of the Chemical Hygiene Plan.
- c. **How to access** the Permissible Exposure Limits (PELs) for OSHA-regulated substances and the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) for hazardous substances not given OSHA PELs. These lists are provided via a web link in the CHP Template document.
- d. Signs and symptoms associated with exposure to hazardous substances used in the laboratory. General information is integrated into the CHP Template document.
- e. The location and availability of known reference materials on hazards, safe handling, storage, and disposal of hazardous chemicals found in the laboratory. This information is provided in the CHP Template document. The location of these and all reference material for your laboratories should be included in your CHP if more specificity is required than what is included in the CHP Template document.

## 5. DEPARTMENT, LABORATORY, OR CENTER-BASED PRIOR APPROVALS

It is recommended that DLCIs establish a program for requiring prior approvals before work with certain hazardous materials can commence. The process should require researchers to obtain prior approval from the DLCI Head/Director or EHS Committee for work with any specifically listed chemical. This list of restricted chemicals should be

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developed by each DLCI and may be unique to that DLCI. A recommended list is provided below.

## *Recommended Restricted Chemicals Requiring Prior Approval*

Dimethylmercury	Fluorine
Hydrogen cyanide	Hydrogen fluoride (anhydrous)
Nickel carbonyl	Arsenic trioxide
Chlorine	Nitrous oxide
Phosgene	Potassium cyanide
Sodium arsenate	Sodium cyanide
Unregulated biological toxins	
Toxic Metal Hydrides (e.g. Arsine, Diborane, Germane, Hydrogen Selenide, Phosphine)	
Chemicals with low threshold reporting quantities on the list of chemicals of interest (COI) from the Department of Homeland Security (DHS).	
* See <i>Chemical Hygiene Plan Part IV Appendix 10.2</i> for more details.	

Researchers intending to work with any of the restricted chemicals must prepare a plan to ensure safe use, including the development of standard operating procedures. The SOP template included in Part III should be used in developing the SOPs. Subsequently, these SOPs must be available in the laboratory. If your DLCI chooses to implement a prior-approval program, the details of the program should be included in the Chemical Hygiene Plan in Part IV, Section 2.1.

## Appendix 1: Chemical Hygiene Plan Review Checklist

This checklist outlines essential components to include in the Chemical Hygiene Plan (CHP) to comply with the requirements set forth in 29 CFR 1910.1450 and meet the needs of the DLCI. Chemical Hygiene Officers and Industrial Hygiene Program (IHP) reviewers are encouraged to utilize this checklist during preparation and review processes.

The Chemical Hygiene Officer shall review and evaluate the effectiveness of the Chemical Hygiene Plan at least annually and update it as necessary. IHP reviewers should look for evidence that the CHP is updated annually, not just resubmitted annually.

Chemical Hygiene Plan Element	Yes	No	N/A	Comments/Notes
<b>EHS Management System</b>				
<ul style="list-style-type: none"> <li>Integration with the EHS-MS boiler plate language</li> </ul>				
<b>Roles and Responsibilities</b>				
<ul style="list-style-type: none"> <li>Chemical hygiene officer</li> </ul>				
<ul style="list-style-type: none"> <li>EHS Coordinator</li> </ul>				
<ul style="list-style-type: none"> <li>Principal Investigator</li> </ul>				
<ul style="list-style-type: none"> <li>EHS Rep</li> </ul>				
<ul style="list-style-type: none"> <li>Employees, staff, students and visitors</li> </ul>				
<b>Training</b>				
<ul style="list-style-type: none"> <li>Training needs assessment</li> </ul>				
<ul style="list-style-type: none"> <li>Registration</li> </ul>				
<ul style="list-style-type: none"> <li>Chemical hygiene training</li> </ul>				
<ul style="list-style-type: none"> <li>Lab specific training</li> </ul>				
<ul style="list-style-type: none"> <li>Refresher training</li> </ul>				
<b>Safety Data Sheets and Information</b>				
<ul style="list-style-type: none"> <li>OSHA Laboratory Safety Standard</li> </ul>				
<ul style="list-style-type: none"> <li>Chemical hygiene plan</li> </ul>				
<ul style="list-style-type: none"> <li><b>How to access</b> Permissible Exposure Limits/Threshold Limit Values</li> </ul>				
<ul style="list-style-type: none"> <li>Signs and symptoms of exposure</li> </ul>				
<ul style="list-style-type: none"> <li>Safety data sheets</li> </ul>				
<ul style="list-style-type: none"> <li>Other reference materials</li> </ul>				
<ul style="list-style-type: none"> <li>Physical and health hazards</li> </ul>				
<ul style="list-style-type: none"> <li>Chemical containers labelling</li> </ul>				
<ul style="list-style-type: none"> <li>Detection of hazardous chemicals</li> </ul>				

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<b>Procedures for Working with Hazardous Chemicals</b>				
• SOPs for hazardous chemicals				
• Criteria to determine and implement control measures				
• Emergency procedures				
• Safety equipment				
• Fume hood				
• Personal protective equipment				
• Respirators – medical clearance, fit test, care and maintenance				
<b>General Safety and Housekeeping</b>				
• General requirements				
• Prohibition of smoking, food consumption and cosmetics use				
• Working alone policy				
• Unattended experiments				
• Proper dress guidelines				
• Security				
<b>Chemical Handling and Storage</b>				
• Chemical compatibility				
• Flammable chemicals and flammable storage cabinets				
• Corrosive chemicals				
• Peroxidizable chemicals				
• Shock sensitive chemicals				
• Pyrophoric and water reactive chemicals				
• Compressed gases (including cryogenic gases)				
• Use of refrigerators for chemical storage				
<b>Particularly Hazardous Substances</b>				
• Classes of particularly hazardous substances				
• Designated area				
• Containment devices (e.g. glove boxes and fume hoods)				
• Decontamination procedures				
<b>Spills and Accidents</b>				
• Spill response procedures				
• Emergency equipment (e.g. showers, eyewashes, fire extinguishers, fire blankets, spill kits)				
<b>Waste Disposal</b>				
• Hazardous waste				

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<ul style="list-style-type: none"> <li>Procedures for safe removal of contaminated waste</li> </ul>				
<b>Shipping Hazardous and Dangerous Materials</b>				
<ul style="list-style-type: none"> <li>Shipping hazardous and dangerous Materials</li> </ul>				
<b>Prior Approvals</b>				
<ul style="list-style-type: none"> <li>Activities require prior approval</li> </ul>				
Instructions for obtaining prior approval				
<b>Medical Surveillance, Medical Consultation and Medical Exams</b>				
<ul style="list-style-type: none"> <li>Entitlement of medical evaluation</li> </ul>				
<ul style="list-style-type: none"> <li>Information to provide to the physician</li> </ul>				
<ul style="list-style-type: none"> <li>Physician's Written Opinion</li> </ul>				
<ul style="list-style-type: none"> <li>Other steps to seek medical care</li> </ul>				
<b>Exposure Assessment</b>				
<ul style="list-style-type: none"> <li>Exposure assessment (initial, periodic and termination of monitoring)</li> </ul>				
<ul style="list-style-type: none"> <li>Notification of monitoring results (within 15 working days after the receipt of monitoring results)</li> </ul>				
<b>OSHA Record Keeping</b>				
<ul style="list-style-type: none"> <li>Records will be kept in accordance with 29 CFP 1910.1020 (Monitoring data, medical records, chemical lists, SDSs)</li> </ul>				
<b>Audit and Inspections</b>				
<ul style="list-style-type: none"> <li>Audit and inspections</li> </ul>				
<b>Other Regulations</b>				
<ul style="list-style-type: none"> <li>Hazard Communication program for non-laboratory areas</li> </ul>				
<ul style="list-style-type: none"> <li>Toxic Substances Control Act (TSCA)</li> </ul>				
<ul style="list-style-type: none"> <li>SARA Title III Inventory reporting requirement</li> </ul>				