SACRAMENTO STATE

Chemical Hygiene Plan Evaluation Annual Report

Academic Year 2022-2023
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California State University, Sacramento
Environmental Health and Safety
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Executive Summary

The regulation pertaining to the laboratory use of hazardous chemicals requires an annual review of the effectiveness of the program. The Office of Environmental Health and Safety (EH&S) determines the effectiveness by using indicators including, but not limited to, employee training compliance, reports of spills and incidents and findings in annual inspections.

The campus has returned to its most active period yet following the COVID Pandemic, and research and courses have returned more-or-less to prior levels and have grown in some areas as the campus enrollment has increased. This makes the evaluation of the effectiveness and utility of the Chemical Hygiene Plan all the more important.

Overall, the campus Chemical Hygiene Plan is effective in identifying how chemicals are used, stored and managed in laboratories.

Recommendations for improvement include the following:

Section 7, Standard Operating Procedures

- The NSM Safety Manager and CHO are continually in the process of creating new SOPs for general and more specific processes that will improve understanding of hazards and appropriate methods of control. As they are developed, they should continue to be made available on the website of the College of NSM.

Section 15, Hazardous Waste Management

- The campus continues to look for ways to further minimize hazardous waste streams. Now that campus has returned to normal laboratory activities Risk Management is in the process of identifying these opportunities for reduction.

Appendix F, General Lab Self-Inspection Checklist

- The self-inspection checklist that is available in Appendix F of the CHP should be edited to more closely align with the current checklist being used by NSM while remaining general enough to function for the whole campus. The checklist used by NSM more closely aligns with the Hazard Assessment from the Risk and Safety Solutions software that is currently used by NSM and is being rolled-out to other departments across campus.

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I. Introduction and Scope

The Chemical Hygiene Plan (CHP) provides guidance to all campus faculty, staff, students and volunteers who work with hazardous chemicals in a laboratory setting in compliance with California Code of Regulations, Title 8 §5191, *Occupational Exposure to Hazardous Chemicals in Laboratories*. The "laboratory use" of hazardous chemicals is defined as activities where the work is "laboratory scale", e.g., work performed by one person using standard laboratory safety equipment, with multiple chemicals and procedures, not as part of a production operation. Chemical use in shops, art studios and facility operations is performed in accordance with the campus Hazard Communication program, Title 8 §5194, *Hazard Communication*, and not included in this review.

The campus CHP includes a requirement for the Executive Safety Committee to review the University's efforts to minimize hazardous waste. This information is provided in Part XI of this report.

This evaluation is the result of observations made by the Chemical Hygiene Officer (CHO) during routine visits and inspections of laboratory spaces, review of department and college safety committee meeting minutes as well as discussions with the Safety Manager for the College of Natural Science and Math. Recommendations are provided at the end of the evaluation of each section of the CHP.

II. Section 4, Purpose

This document has been designed to:

- Protect all employees involved in the laboratory use of hazardous chemicals from exposure to chemicals.
- Comply with California Occupational Health and Safety Administration, Title 8, Section 5191, Occupational Exposure to Hazardous Chemicals in Laboratories.

Recommendations: None.

III. Section 6, Responsibilities

The CHP identifies specific responsibilities as summarized in the table below.

Title	Responsibility
University President	• Ultimate responsibility for all risks: financial, business, reputational, legal and hazard
Executive Safety Committee	• Develop and recommend policy • Review efforts to minimize waste • Review the annual report of the Chemical Hygiene Officer • Review laboratory accident reports
Office of Environmental Health and Safety	• Provide support on hazard assessment and controls to prevent exposure • Provide training and maintain records • Complete inspections of all laboratory spaces and safety equipment
Chemical Hygiene Officer	• Advise all employees on matters of chemical hygiene • Investigate accidents and incidents • Maintain currency on regulatory matters • Facilitate the medical surveillance program • Provides safety training
Deans, Directors, and Department Chairs	• Identify all laboratories and employees who work with hazardous chemicals • Monitor training compliance in their unit
Laboratory Supervisor	• Ensure appropriate procedures and personal protective equipment are identified and employed to prevent exposure • Inspect labs at least once/semester • Maintain chemical inventory and assure SDSs are available
Laboratory Workers	• Understand and act in accordance with the CHP • Participate in training programs • Report all incidents to supervisor • Review SDSs to ensure an understanding of the hazards in the laboratory.

Section 6.1 The Executive Safety Committee met on three occasions in the Fall 2022 semester, and on three occasions in the Spring 2023 semester (all via ZOOM). The committee will review effectiveness of the CHP during the Fall 2023 semester.

Recommendations: None

Section 6.2 The Office of Environmental Health and Safety has continued to support the faculty and staff using chemicals. Hazardous waste is routinely removed from the laboratories and disposed in accordance with regulatory requirements. Employee training statistics have been provided to department chairs and instructor-led and computer based training were made available.

Recommendation: None

Section 6.3 Chemical Hygiene Officer provided support on issues related to chemical safety. The CHO participated in Chemistry department and NSM safety committees.

Recommendation: None

Section 6.4 Deans, Directors, and Department Chairs worked with EH&S to identify laboratories and responsible parties for each, reviewed training records and promoted safety in each department.

Recommendation: None

Section 6.5 Laboratory Supervisors supported the roll-out of the new inventory program purchased by campus. Many faculty also began using the assessment tool which assists in identifying hazards and personal protective equipment. Laboratory self-inspections were completed as required.

Recommendation: Clearly indicate in the CHP that the instructor of record for each laboratory class section is the Laboratory Supervisor for the students enrolled in that section.

Section 6.6 Laboratory Workers maintained compliance with training obligations and reported spills and incidents in a timely manner. Where applicable, they also participated in the Medical Surveillance Program.

Recommendation: None

Section 6.7 Employee Stop Work Authority. All Faculty, Staff, Volunteers, and Visitors involved in the use of hazardous materials have the authority to temporarily stop their work, at any time, if there is reasonable belief that there is a safety concern to the extent that performing work may lead to injury or illness to themselves or others.

Recommendation: None.

IV. Section 7 Standard Operating Procedures

Section 7 includes general standard operating procedures for housekeeping, hygiene unattended operations, protective clothing and categories of chemical hazards. The assessment under this section is based on observations of the CHO as well as the annual inspection.

In general, laboratories were in compliance with the requirements of this section. Housekeeping, particularly related to materials spilled on balances or in fume hoods were addressed appropriately. Personal protective equipment was consistently worn by faculty and staff and the policy was enforced for students.

Recommendations:

- The NSM Safety Manager and CHO are continually in the process of creating new SOPs for general and more specific processes that will improve understanding of hazards and appropriate methods of control. As they are developed, they should continue to be made available on the website of the College of NSM.

V. Section 8 Control Measures and Equipment

Observations by the CHO confirm that hazardous operations are performed in laboratory fume hoods. All fume hoods were tested during the spring semester and deficiencies were resolved quickly by Facilities Management. Emergency eyewashes and showers were present where required. Eyewashes and safety showers are inspected by EH&S and Facilities Monthly.

Recommendations: None.

VI. Section 9: Medical Consultation and Monitoring

The use of proper personal protective equipment and engineering controls will eliminate exposure to hazardous chemicals and medical surveillance is not required for most laboratory workers. Although Instructional Support Technicians in Chemistry follow proper procedures, it is recognized that they have an increased risk of exposure due to the tasks they perform. All Chemistry ISTs are participating in the Medical Surveillance Program at no cost to the employee. All exams are performed during the employee's regular shift and records are maintained by Kaiser on the Job, the campus provider.

Recommendation: None

VII. Section 10: Particularly Hazardous Substances

Particularly hazardous substances include carcinogens, reproductive toxins or substances with a high degree of acute toxicity. When working with these chemicals procedures for reducing exposure, warning signage and establishment of designated work areas must be in place. The current CHP does not clearly state the requirement for completion of an SOP to document hazard controls and emergency response procedures, but does include the need for completion of an Assessment using the RSS software, a tool used to assist in identifying appropriate PPE and control measures.

Recommendation: None.

VIII. Section 11: Training

EH&S is responsible for providing general laboratory safety training to students, faculty and staff on a 3 year refreshed frequency. The laboratory supervisor is responsible for training students and staff on laboratory-specific processes.

EH&S has provided the required training in instructor-led and computer-based formats and laboratory specific training is being completed by the responsible party.

Recommendation: Add a new sub-section to Section 11 that enumerates the required information for the Student Safety Training Acknowledgement Forms (SSTAFs) for courses that require PPE. This will aid in meeting regulations and completing audits for the SSTAFs. Required information shall include:

- Students Printed Full Name
- Student Identification Number
- Course Identification Code (i.e. CHEM 1E)
- Course Section Number (i.e. 02)
- Current Semester (i.e. Fall 2023)
- Instructor Name
- Student Signature (or equivalent digital method)
- Date Signed

IX. Section 12 Approval Procedures

Approval is required for particularly hazardous substances when there is a risk of exposure or when a chemical exposure is likely to exceed the Permissible Exposure Limits established by Cal/OSHA. In addition to chemical exposures exceeding the established occupational exposure limits, this section should also require the development of SOPs and the approval of the CHO and/or the NSM Safety Manager where chemicals or procedures may result in a physical hazard.

Recommendation: None.

X. Section 13 Procurement and Gifts

This section provides general guidance on the procurement of chemicals with very few prohibitions or additional controls. By establishing clear procedures for procurement and approval of highly hazardous chemical agents campus significantly reduces the potential for an exposure, injury or property damage. A revised review process has been implemented in the past year that reduces the cumbersome nature of the previous process.

Recommendation: None

XI. Section 14 Accidents and Chemical Spills

This section was completely revised by Risk Management and NSM representatives in spring 2018. The revision clearly describes the difference between an incidental or "simple" spill which can be managed by trained campus employees and a "complex" spill which required

assistance from emergency responders.

Recommendation: None

XII. Section 15 Hazardous Waste Management

EH&S is responsible for the removal of hazardous waste from collection areas on campus and managing the disposal of wastes through our hazardous waste management contractor. Waste has been managed appropriately and there have been no regulatory violations during this review period.

- **Recommendation:** The campus continues to look for ways to further minimize hazardous waste streams. Now that campus has returned to near-normal laboratory activities Risk Management is in the process of identifying these opportunities for reduction.

XIII. Section 16: Records and Recordkeeping

EH&S has maintained records in accordance with this document. Workers' Compensation maintains injury records.

Recommendations: None

XIV. Section 17: Changes to the Chemical Hygiene Plan

This section identifies the process for updating the CHP.

Recommendations: None

XV. Section 18: Definitions

Terms used in the CHP

Recommendations: None

XVI. Appendices

The appendices give useful information on types of carcinogens and toxins, exposure limits, chemical compatibility, and self-inspection checklist criteria.

- **Recommendations:** The self-inspection checklist that is available in Appendix F of the CHP should be edited to more closely align with the current checklist being used by NSM while remaining general enough to function for the whole campus. The checklist used by NSM more closely aligns with the Hazard Assessment from the Risk and Safety Solutions software that is currently used by NSM and is being rolled-out to other departments across campus.

XVII. Summary

The present Chemical Hygiene Plan was originally written in 2003, with the exception of the spill chapter which was revised in January 2019, and addition of the COVID-19 Safety Chapter in 2020. This includes the recommendations provided in the previous annual report

on effectiveness. Although training completion records, the absence of significant spills, and minor non-compliant conditions noted during inspections indicate overall program effectiveness, there are opportunities to improve the document and improve the safety culture. With support from college and department level safety committees, NSM and Risk Management Services should consider the recommendations provided and revise the existing document.