Title:	***SAFE WORK PRACTICE #11:*** **LIMITATION OF EXPOSURE TO HAZARDOUS SUBSTANCES AND THEIR PRODUCTS IN RESEARCH ACTIVITIES**
SWP document #:	FSSC-SSWP-011-v1.1
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This Safe Work Practice is approved and maintained by the Faculty of Science Safety Committee. Please contact Leanne Lucas, Safety Advisor–Science Activities, with any questions or concerns (leanne.lucas@smu.ca)

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1. PURPOSE

This Safe Work Practice (SWP) provides advice to ensure and document that researchers and others are not exposed to unacceptable levels of hazardous chemicals, biologicals, or radiation.

2. SCOPE

2.1 Education to provide awareness of this SWP is the responsibility of the Safety Advisor, Science Activities. Enforcement of these instructions is the responsibility of the Department Chair and the Dean of Science.

2.2 It is the responsibility of the Supervisor/ Principal Investigator and Researchers to exercise these instructions for their respective duties.

2.3 These instructions apply to all Students, Staff, Faculty, and Visitors performing research and service activities in laboratories within the Faculty of Science.

3. HEALTH, SAFETY AND ENVIRONMENT

3.1 Undergraduate students conducting research must complete the **Undergraduate Hazard Identification and Risk Management Form**, and graduate students must complete the FGSR **Graduate Research Hazard Assessment**, prior to engaging in research activities.

3.2 If an experiment is to continue unattended OR outside of regular working hours (i.e. evening, overnight, weekends and holidays) the Researcher shall complete the **Experiment in Progress Form.** The form must be prominently displayed on the lab door outside of the research area. A duplicate copy of the form may also be posted on or near the equipment in

use (e.g. growth chamber door, fume hood, glove box). The form includes contact information for the Researcher and Supervisor, as they will be contacted if there is an issue with the experiment. If there is a concern about posting personal contact information publicly, a Teams phone number may be used and set to forward to a personal number. Students, staff, or faculty working alone during evenings or weekends should advise Security when they arrive and leave campus. Security will check on those working alone during their rounds, as part of the Lone Worker/Student program.

3.3 Substances or processes that use solvents, volatiles, or toxic substances, etc. or which produce volatiles, particulates, smoke, etc., require engineering controls as per the Safety Data Sheet (SDS) or hazard/ risk assessment. These substances or processes may only be used in laboratories equipped with fume hoods, fume extractors, glove boxes, or other necessary equipment as specified in the SDS or hazard/ risk assessment. Additional controls (elimination, substitution, administrative, PPE) for implementation may be identified during the hazard/ risk assessment. Chemical containers shall be covered or closed when not in use.

3.4 Supervisors are to complete a **Hazard and Control Assessment** prior to commencing work that is new or significantly different than previously performed (e.g. implementing a new procedure, using new or different equipment, working in a new location, etc.). On undertaking the work after completion of the hazard and control assessment, closely monitor the new work or procedure to ensure that exposure controls are operating as expected. Adjustments to the work procedure are to be made as needed. For more information on completing hazard assessments, please see **Chapter 3 of the Saint Mary's University OHS Program Manual**.

3.5 All substances used in an experiment must have their SDSs and any protocols present in the laboratory. These documents must be reviewed by those performing the work prior to use.

3.6 Exposure controls and/or monitoring devices recommended by the SDS or the manufacturer shall be present and used as required.

3.7 All substances, whether supplier manufactured and in-house synthesized, must be labeled with a WHMIS supplier or workplace label, as appropriate. The label shall specify the product name or contents, owner, safe handling procedures, and reference to the SDS, as applicable.

3.8 Laboratory wastes shall be collected and disposed of via **Work Instruction #13**.

3.9 It is the responsibility of the Laboratory Supervisor to ensure that their personnel are properly trained and to ensure that they, as Laboratory Supervisor, are competent in the activities that they, or their personnel, will be conducting.

3.10 All personnel associated with research and service labs shall be WHMIS trained and provided any other relevant information or instruction as appropriate.

3.11 Any use and/or encroachment of research or service activities into teaching laboratories requires approval of the Dean of Science.

4. DEFINITIONS

4.1 Harmful substances may be classified as: chemical, biological, and radiation (radiation generating substances or equipment).

4.2 The route of entry shall reflect those definitions provided by WHMIS https://www.ccohs.ca/oshanswers/chemicals/how_chem.html. Chemicals must first contact or enter the body to harm a person's health. There are four major routes in which a chemical may enter the body:

4.2.1 Inhalation (breathing)

4.2.2 Skin (or eye) contact

4.2.3 Swallowing (ingestion or eating)

4.2.4 Injection (skin penetration)

Use the hierarchy of controls to eliminate or reduce hazards.

4.3 A teaching laboratory shall be a room designated for the use of executing course laboratories detailed in the Academic Calendar.

4.4 Research and service laboratories shall be rooms designated for the purpose of research or service activities.

4.5 A Laboratory Supervisor is the Principal Investigator responsible for a research space, or Research Technician or Department Chair, where otherwise appropriate.

5. SAFETY EQUIPMENT AND SUPPLIES

5.1 Exposure controls and/or monitoring devices recommended by the SDS, manufacturer, or applicable regulatory body, shall be present and used as required. Where there is lack of recommended controls, an effort shall be made to identify "best practices".

5.2 Verify that safety equipment is in good working order before beginning laboratory work. Any Student, Staff, or Faculty member who identifies missing or faulty safety control equipment (e.g. fume hoods, biosafety cabinet, glove box, eye wash and emergency shower stations, fire extinguishers, first aid kit, etc.) within laboratories shall notify the Laboratory Supervisor immediately, who shall in turn notify the Safety Advisor, Science Activities. Persons who identify faulty or inadequate safety measures can file an incident report https://www.smu.ca/about/ohs-reporting-incidents-and-injuries.html. The incident report form may also be used to report injuries, incidents, and near misses.

5.3 The Laboratory Supervisor shall take every reasonable measure to report and correct deficiencies noted in section 5.2 in a timely manner.

5.4 The Laboratory Supervisor shall ensure proper housekeeping based on the known laboratory activities. The Laboratory Supervisor shall ensure that adequate personal protective equipment (PPE) and SDSs are available, and that substances are properly labeled.

5.5 All PPE required under this policy or by the Laboratory Supervisor shall be used. The Safety Advisor, Science Activities may be consulted in determining appropriate PPE requirements.

6. REFERENCES

6.1 Science Safety Documents:
Undergraduate Hazard Identification and Risk Management Form
Experiment in Progress Form
Hazard and Control Assessment
Work Instruction 13 Handling and Disposal of Laboratory Generated Wastes
https://www.smu.ca/faculty-of-science/science-safety-documents.html

6.2 FGSR Graduate Research Hazard Assessment https://www.smu.ca/fgsr/fgsr-current-forms.html

6.3 SMU Lone Worker/Student Program
https://news.smu.ca/news/2024/1/25/keeping-campus-safe-security-at-smu
https://www.smu.ca/webfiles/SMUEmergencyGuideMay2016V7.pdf

6.4 Saint Mary's University OHS Program Manual Chapter 3 – Hazard Identification, Risk Assessment, Risk Control https://www.smu.ca/about/ohs-programs.html

6.5 CCOHS Chemicals and Materials: How can chemicals enter my body?
https://www.ccohs.ca/oshanswers/chemicals/how_chem.html

6.6 Injury, incident, and near miss reporting at Saint Mary's University.
https://www.smu.ca/about/ohs-reporting-incidents-and-injuries.html

7. REVISION HISTORY

Date	Version	Summary of changes
2024-06-17	v1.0	Document conversion to SWP from Work Instruction 11 (Initially created 09/02/2004, approved 01/27/2006, last revised 05/20/2010 V25). Updated to define "Laboratory Supervisor". Defined roles and procedures to be followed. Removed form 11.1 and replaced with the Undergraduate Research Hazards form. Renamed form 11.2 to "Experiment in Progress Form" and revised to identify who to contact in the event of an issue with an experiment, and to ensure the supervisor is informed of unattended experiments.
2024-09-16	V1.1	Added additional situations in which. Included requirement for the Supervisor to perform a hazard/ risk assessment and procedures to mitigate risks when there is a change in work, new procedure, new equipment, or new location. Added References.