SAFE WORK PROCEDURE:
EMERGENCY EYEWASH AND SAFETY SHOWERS

PREAMBLE:
The procedure for Emergency Eyewash Stations and Safety Showers was developed by the Department of Environmental Health & Safety in accordance with the University’s Policy Statement on Health and Safety and to ensure compliance with the Occupational Health and Safety Act, Regulation and Code.

The purpose of this Safe Work Procedure (SWP) is to outline the requirements for the installation, inspection, use and repair of Emergency Eyewash Stations and Safety Showers.

LEGISLATIVE REQUIREMENTS

“If a worker is present at a work site where chemicals harmful to the eyes or skin are used, the employer must ensure that the worker has immediate access at the work site to emergency baths, showers, eye wash equipment or other equipment appropriate for the potential level of exposure.”

Occupational Health and Safety Code 2009, Part 4, Section 24


SCOPE:
This Safe Work Procedure applies to the Mount Royal University Community

RESPONSIBILITIES:

DEPARTMENT OF ENVIRONMENTAL HEALTH AND SAFETY

- Communicate responsibilities under this SWP and Mount Royal Universities: EH&S Roles and Responsibilities.
- Review this SWP periodically and update as required.
- Assist Building Operations and departments with the review and placement of new safety equipment during construction.
- Maintain an accurate record of the locations of the emergency eyewash stations and showers.
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- Provide equipment required to perform testing and flushing.
- Conduct audits to ensure that inspections and activations are occurring at the frequency required by this SWP and that equipment is in good working condition.
- Provide inspection tags to record flushing/testing activities for emergency eyewash and safety shower equipment.
- Provide and arrange for the annual inspection and testing of emergency showers and eyewashes.
- Coordinate modifications, maintenance, repair and new equipment needs with Facilities Management of safety equipment including safety showers and eyewash stations.

MANAGERS, DEPARTMENT CHAIRS, SUPERVISORS

- Ensure that employees, and students are aware of their responsibilities in this SWP.
- Ensure that all employees and students have received training in the operation of emergency eyewash stations and safety showers.
- Ensure that the Department of Environmental Health & Safety are notified of the addition or removal of any eyewash or shower stations.
- Ensure that the necessary emergency eyewash and safety shower equipment called for in this SWP is provided or that any work requiring the availability of the equipment is not performed until the equipment is available.
- Ensure that each unit has an inspection tag to document activation and inspections.
- Ensure that emergency eyewash stations within the lab are activated weekly and safety showers are activated at prior to the start of each semester.
- Request immediate repair for malfunctioning equipment through the Laboratory Safety Specialist.
- The supervisor must complete an Incident Report and submit to Intelex within 24 hours of any emergency requiring the activation of safety equipment.

STAFF AND STUDENTS

- Follow the requirements of this SWP.
- Be familiar with the location and operation of the nearest emergency eyewash and safety shower equipment.
- Use emergency eyewash and safety shower equipment as trained.
- Report incidents that require the use of emergency equipment to supervisory personnel/instructors as soon as the emergency has been controlled.

INSTALLATION / LOCATION REQUIREMENTS:

Each university facility must have emergency eyewash and safety shower equipment when there is a reasonable potential for injury due to contact with a hazardous material. If personnel are at a site where corrosive or other chemicals harmful to the eyes, or skin, are used in any
process at that site, then facilities must be immediately available to cleanse contaminated body areas.

Installation of equipment must be as specified in ANSI Z358.1-2014 and only equipment that is certified by the manufacturer meeting the performance specifications may be placed in new facilities or renovations.

Emergency drenching and/or flushing equipment must be reached within 10 seconds from the area(s) where there is a reasonable potential for injury due to contact with a hazardous material. The safety equipment will be located on the same level as the hazard and the path of travel shall be free of obstructions. Equipment performance specifications, height, and clearance distances should be as stated in ANSI Z358.1-2014.

Off-site/remote locations must have drenching/flushing equipment available when work involves the use of hazardous materials and where there is a reasonable potential for injury due to contact. Plumbed units that are maintained by the owner/controller of an off-site facility may be used, or self-contained units can be purchased. When a self-contained emergency safety shower or eye/face wash is installed, its installation will be in accordance with manufacturer’s instructions. A water hose supplying potable water and equipped with a proper face and body wash nozzle can be used at off-site locations where the possibility of exposure to injurious hazardous materials is very low and when proper personal protective equipment is used.

The temperature of the flushing fluid for emergency drenching and flushing equipment should be tepid (lukewarm). A means of controlling the temperature to be between 16 - 38 °C (60 - 100 °F) must be included in tempered flushing fluid systems. Freeze protected equipment is required where the possibility exists. Flushing fluid shut off valves serving the emergency equipment should be tagged to indicate that turning off the valve would turn off the supply to the equipment.

Emergency safety showers and eye/face wash stations shall be constructed of materials that will not corrode and must be located in a well-lit area that is identified by highly visible signage.

The following are specifications from ANSI Z358.1-2014.

PLUMBED AND SELF-CONTAINED EMERGENCY SHOWERS:

- Plumbed and self-contained emergency showers must supply at least 75.7 litres per minute (20 gpm) of flushing fluid at a velocity low enough to be non-injurious to the user.
- At least a fifteen minute supply of flushing fluid must be available.
- The flushing fluid supply valve must stay open without the use of the operator's hands and should operate in less than one second upon its activation.
- Shower head height must be between 208.3 cm (82 in) and 243.8 cm (96 in) from the user's standing surface.
- With the valve in the fully opened position, the diameter of the spray pattern shall be a minimum of 50.8 cm (20 in) at 152.4 cm (60 in) above the standing surface. The flushing fluid shall be substantially dispersed throughout the pattern.
- The center of the shower spray pattern should be located at least 40.6 cm (16 in) from any obstructions, protrusions, or sharp objects.
- Shower enclosures (if used) require a minimum unobstructed diameter of 86.4 cm (34 in) to provide adequate space for the user.

**PLUMBLED AND SELF-CONTAINED EYE/FACE WASH:**

- Plumbed and self-contained eyewash units must supply at least 1.5 litres (0.4 gpm) of flushing fluid and at a velocity low enough to be non-injurious to the user.
- At least a 15-minute supply of flushing fluid must be available.
- Eyewash units must supply flushing fluid to both eyes simultaneously.
- The flushing fluid supply valve must stay open without the use of the operator's hands.
- Nozzles must be protected from airborne contaminants. Nozzle protective device removal must be automatic (not require a separate motion by the user) when the unit is turned on.
- Eyewash units must be placed between 83.8 cm (33 in) and 134.6 cm (53 in) from the user's standing surface and at least 15.3 cm (6 in) from the nearest wall or other obstruction.
- Benchtop installations must be easily accessible while standing in front of the bench.

**HAND-HELD DRENCH HOSES:**

- Drench hoses shall provide a controlled flow of flushing fluid to a portion of the body at a velocity low enough to be non-injurious to the user.
- Hand-held drench hoses provide support for emergency shower and eyewash units but they are not intended to replace them.
- A drench hose may be considered an eyewash or eye/face wash if the device meets or performance requirements of Section 5 and/or Section 6 of ANSI Z358.1-2014.
- Benchtop installations must be easily accessible while standing in front of the bench.

**COMBINATION UNITS:**

- Combination unit components shall be positioned so that the components may be used simultaneously by the same user.
• Connected to a system capable of supplying adequate flushing fluid to meet the requirements of each component as outlined in Sections 4, 5 and 6 of ANSI Z358.1-2014 when all components are operated simultaneously.

PERSONAL EYEWASH EQUIPMENT:

• Personal eyewash equipment, such as bottles and small portable units, are designed for immediate flushing of the eyes without being injurious to the user. Personal eyewash equipment supports plumbed and self-contained units, but it does not provide adequate replacement.
• Operator instructions must be maintained on personal eyewash equipment.
• Must be kept clean, and in good working condition and be within the expiration date specified on the product.

USE OF EMERGENCY EYEWASH AND SAFETY SHOWER

Immediate and the proper use of emergency eyewash and safety showers is essential to minimizing injury. The following guidelines should aid in minimizing injury due to contact with hazardous materials:

The following steps outline the proper use of emergency eyewash stations:

• Without delay, make your way to the nearest eyewash station, activate and flush eyes and/or skin for a minimum of 15 minutes.
• Hold eyelids open with the hands to fully irrigate the entire eye.
• Seek assistance from any other lab personnel in flushing the eyes or body.
• If an assistant is available, have the SDS reviewed for any further first aid requirements for the hazardous material involved.
• Seek medical attention following flushing of the affected area (at least 15 minutes).
• Once the emergency has subsided, notify the Supervisor of the accident/incident/injury.

The following steps outline the proper use of emergency safety shower stations:

• Without delay, make your way to the nearest safety shower and activate.
• Flush skin or affected area for a minimum of 15 minutes and remove contaminated clothing.
• Seek assistance from any other lab personnel in flushing the affected area or removal of clothing.
• If an assistant is available, have the SDS reviewed for any further first aid requirements for the hazardous material involved.
If an assistant is available, use an uncontaminated article of clothing or fire blanket to shield the affected individual to provide privacy and to offer body coverage.

Seek medical attention following flushing of the affected area (at least 15 minutes). If injury is severe, call ext. 5900 or 9-1-1.

Once the emergency has subsided, notify the Supervisor of the accident/incident/injury.

FLUSHING AND INSPECTION

Routine function testing helps ensure emergency eyewashes and safety showers in the workplace are operational and ready to use in the event of an emergency.

Annual flushing and routine inspections shall be conducted on emergency eyewashes and safety showers on campus to ensure that they are:

- in proper working condition,
- ensure that Provincial Occupational Health and Safety requirements are being met,
- are in compliance with current ANSI standards, and
- to identify areas for improvement.

The annual flushing and inspections will be provided by the Department of Environmental Health & Safety.

The following procedure outlines the steps for the function testing of emergency eyewash and shower stations. Emergency eyewash station and safety showers must be activated by the personnel responsible for the given space, or a designated alternate, weekly to verify operation and ensure flushing fluid is available. If you have questions about this procedure, please call the Laboratory Safety Specialist at 403-440-7793

EMERGENCY EYEWASH FUNCTION TESTING PROCEDURE

1. **Look for any obstructions** (e.g. boxes, chairs, laboratory equipment) that may impede individuals from accessing or using the safety eyewash. Ensure that any, and all, obstructions are removed.

2. **Perform a visual inspection** look for plugged nozzles, broken eyewash caps, cracked bowls, broken levers, etc. Record any deficiencies observed in the log sheet provided.

3. **Slowly activate the eyewash** until the water streams are at an adequate height to flush both eyes. The water should rise to approximately equal heights no more than 20 cm (8 in) from the top of the spray heads.
The water streams from both nozzles should be symmetrical and sufficient to flush both eyes simultaneously. If one stream flows stronger or weaker than the other, or the overall pressure appears too low or too high, record this information on the log sheet.

4. **Test the temperature** of the water. It should be tepid, approximately 16-30° C. If it feels too hot or too cold, and/or if it is not clear and colorless, then record this information on the log sheet.

5. **Run for two or three minutes**, shut off the eyewash. Use a timer if desired. This will help ensure the valves in the system do not become calcified.

6. **Replace the covers**. Record the date, condition and initial the log sheet (not on hanging tag meant for inspections only). A sample log sheet is found near the end of this procedure.

**If deficiencies are observed, then notify the Laboratory Safety Specialist (403-440-7793)**

- Whenever an eyewash station is non-functional (does not meet ANSI standards), supplemented flushing fluid, or a portable eyewash station, or equivalent must be available. If the work with injurious hazardous materials cannot be delayed.

- If the equipment is unavailable, Employees must stop work requiring the availability of the equipment until the equipment is available, or reassign the work to another suitable location with the required safety equipment to mitigate the hazard.

- Supplemented flushing fluid needs to be reviewed during each formal inspection to make sure that the flushing solution has not passed its expiration date. Verify that bottles with seals/tamper indicators are sealed, replacing those that are not.

**EMERGENCY SAFETY SHOWER FUNCTION TESTING PROCEDURE**

**Equipment Required**

- **Shower Testing Kit** (*If kit is incomplete or broken contact EH&S*)
  
  - Heavy duty approx. 20 L Bucket/Pail
  - Watertight, Funnel with handle to direct the water into the bucket/pail.

1. **Look for any obstructions** (e.g. boxes, chairs, laboratory equipment, garbage receptacles) that may impede individuals from accessing or using the safety shower. Ensure that any, and all, obstructions are removed.

2. **Perform a visual inspection** look for broken levers, dripping, etc. Record any deficiencies observed in the log sheet provided.
3. **Align bucket and water** collection cone under Emergency Shower

4. **Engage safety shower** by pulling handle

5. **Test the temperature of the water**. It should be tepid, approximately 16-30° C. If it feels too hot or too cold, then record this information on the log sheet.

   Let the shower run for 10 seconds, shut off the shower. Use a timer if desired. This will help ensure the valves in the system do not become calcified.

   To stop flow of water, push handle back to the upward position

6. **Record** the date, condition and the initials of the tester on the log sheet (not on hanging tag meant for inspections only). A sample log sheet is found near the end of this procedure *(Appendix A)*.

   If **deficiencies are observed**, then notify the **Laboratory Safety Specialist (403-440-7793)**

   - Whenever a safety shower is non-functional (does not meet ANSI standards), a portable shower or equivalent must be made readily available if the work cannot be delayed.

   - If equipment is unavailable, Supervisors must stop work requiring the availability of the equipment until the equipment is available, or reassign the work to another suitable location with the required safety equipment.

### REPAIRS

Each department is responsible for ensuring that eyewash and safety shower equipment is repaired promptly. When emergency eyewash and safety shower equipment is non-functional, it must be **clearly tagged/signed as being out-of-service**.

Anyone removing emergency eyewash and safety shower equipment from service must notify the Department of Environmental Health & Safety and the affected department beforehand. This includes periods when the main or branch water lines serving safety showers and emergency eyewash equipment are turned off.
APPENDIX A: EYEWASH AND SAFETY SHOWER INSPECTION LOG

Location: ______________________  ☐ Eyewash  ☐ Shower  ☐ Combo Unit

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DEFINITIONS:

*Combination Unit*: means an interconnected assembly of emergency equipment that is supplied by a single source of flushing fluid.

*EH&S*: means the Environmental Health and Safety program

*Emergency (Deluge) Shower*: means a device specifically designed and intended to deliver flushing fluid in sufficient volume to cause the fluid to cascade over the entire body while the hands are free.

*Employee*: means volunteers or individuals who are engaged to work for the University under an employment contract, including faculty, staff, exempt Employees, and Management Employees.

*Employer*: means a person who:

(a) employs one or more workers
(b) a person designated by an Employer as the Employer’s representative, or
(c) a director or officer of a corporation who oversees the occupational health and safety of workers employed by the corporation.
(d) is self-employed in an occupation

*Eye/Face Wash*: means a device used to provide fluid to irrigate and flush both the face and the eyes simultaneously.

*Eyewash*: means a device used to provide tepid fluid to irrigate and flush both eyes simultaneously at a velocity low enough not to be injurious to the user.

*Hand-Held Drench Hose*: means a flexible hose connected to a water supply that is used to provide fluid to irrigate eyes, face and body area.

*Hazardous Material*: means any substance or compound that has the capability of producing adverse effects on the health and safety of humans.

*Personal Protective Equipment (PPE)*: means protective clothing, helmets, goggles, or other garments or equipment designed to protect the wearer's body from injury or infection. The hazards addressed by protective equipment include physical, electrical, heat, chemicals, biohazards, and airborne particulate matter.

*Personal Eyewash*: means a supplementary eyewash that supports plumbed or self-contained eyewash equipment by delivering immediate flushing to the eyes or body.

*Plumbed Eyewash*: means an eyewash unit permanently connected to a continual source of potable water.

*Student*: means any individual who maintains an affiliation as a learner in the University educational community. Students are not workers, but receive credit(s), grade(s) and fulfills tasks as a requirement of graduation. Work experience and Co-op students are treated as "workers".

*Supervisor*: means a person who has charge of a workplace, or authority over a worker.
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Tepid: means a flushing fluid temperature conductive to promoting a minimum of 15 minute irrigation period. A suitable range is 16 – 38°C (60 - 100°F)

University: means Mount Royal University

Worker: means any paid or unpaid Employee, or volunteer

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