SOP	Eyewash and Showers
Approved by	JHSC
Date approved	March 21, 2013

EMERGENCY EYEWASH AND SHOWER STATION PROCEDURE

1.0 Introduction

The Ontario Tech University (OTU) is committed to providing a safe environment for all university related activities. To this end, the OTU recognizes that accidental exposure to chemicals, biological and other physical hazards (herein referred to as hazards), can occur with the potential to cause injury to the eyes and/or other body parts. Whenever practicable, these hazards will be minimized or eliminated through the use of replacements, engineering controls or personal protective equipment. In the event of accidental exposure to hazards after control measures have been implemented, emergency eyewash stations and showers must be readily available to provide immediate emergency decontamination.

2.0 Purpose of Standard Operating Procedure

The purpose of this Standard Operating Procedure is to outline the requirements for the use, inspection, repair and maintenance of Emergency Eyewash Stations and Safety Showers at OTU.

3.0 Scope

This Standard Operating Procedure applies to all OTU owned or leased facilities. All individuals at OTU who are at risk of exposure to hazards must be familiar with and follow this procedure.

4.0 Applicable Legislation and Responsibilities

This Standard Operating Procedure outlines the requirements for emergency eyewash stations and safety shower equipment at OTU and is adapted from the:

1. American National Standards Institute (ANSI) Standard Z358.1-2014
2. "Emergency Eyewash and Shower Equipment" as referenced in the Canadian Biosafety Standards and Guidelines (CBSC); and
3. The Occupational Health and Safety Act (OHSA) Industrial Regulation, 851, sections 124 and 125.

It is the collective effort and responsibility of the lab occupants, the faculty/department, the health and safety representatives, and Facility Services to ensure all requirements are being met.

It is the responsibility of the Laboratory supervisor and the Research supervisor to ensure that all persons working in a hazardous environment have been trained in this procedure and are familiar with the location and operation of the nearest emergency eyewash station and safety shower.

5.0 Definitions

Emergency Eyewash Station: A safety device designed to irrigate and flush the eyes and face only. The units installed by the University can maintain an uninterrupted supply of tepid water of up to 15 minutes.

Emergency Safety Shower: A deluge shower that is designed to sustain a water cascade over the entire body while the hands are free.

Hazardous Material: Any substance or compound that has the capability of producing adverse effects on the health and safety of humans (chemical, biological etc.).

Laboratory Personnel: Includes faculty members, staff, students and visitors or anyone utilizing laboratory space at the University.

Personal Eyewash: A supplementary eyewash that supports plumbed or self-contained eyewash equipment by delivering immediate flushing for less than 15 minutes.

Plumbed Eyewash: An eyewash unit permanently connected to a source of water.

Tepid: Moderately warm, lukewarm to the touch. Tepid water is generally between the temperatures of 16 and 38 °C.

6.0 General Procedures

Emergency eyewash stations and safety showers must be operational and in good repair at any given time to offer first response decontamination to the eyes, face and body. The frequency at which inspections of the eyewashes and showers should be conducted is dependent on the risk assessment of the lab practices and hazards in the lab. Specific hazardous work should include an eyewash station check as part of a start-up procedure (Routine checks, section 6.2). Similarly, the safety showers should be checked during a start-up procedure where showers are located within the laboratory. Laboratories which are not in use, or seldom frequented, must conduct an inspection of the emergency eyewash stations and showers prior to any work with hazardous material. Only if the eyewashes and showers are found to be functional, and certified, should work in the lab commence.

6.1 Procedure for the Use of an Emergency Eyewash Station and Safety Shower

Following accidental contact with harmful hazardous material, immediate and proper use of the emergency eyewash and safety showers is needed to minimize the effect of the injury due to contact.

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 MSDS 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 research or lab 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 MSDS 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. 2400.
- Once the emergency has subsided, notify the research or lab supervisor of the accident/incident/injury.

6.2 Procedure for Routine Emergency Eyewash and Shower Checks Performed by Lab Designate

Routine checks are a key element to ensuring the proper function of the eyewash station and shower. The responsibility for performing regular checks falls under the lab supervisor and lab personnel. The importance of these checks is to engage the mixing valves, test the consistency of the eyewash nozzle protective covers to properly engage during activation of the unit, verify the availability of the flushing fluid after prolonged activation through the system, and check for proper water temperature and pressure. This will test the functionality of the safety equipment and assist in identifying any problems with the temperature and pressure that would require servicing. Furthermore, frequent activation of the eyewashes and showers will assist in clearing the supply line of sediments caused by still or sitting water that can lead to microbial contamination within the plumbed lines. Equally important is the verification of adequate access to eliminate barriers, for example temporary storage of other lab equipment, directly in front of the eyewashes and showers. Emergency showers should be checked for proper clearance/ access and visible signs of equipment damage on a regular basis. Testing of eyewash stations should be performed on no less than a weekly basis, but may be performed more frequently if warranted by the workplace hazard.

The following steps outline the requirements for the Weekly Emergency **Eyewash** plumbed station inspections and check:

- Lab supervisors should delegate a responsible person for inspecting and operating/activating the emergency eyewash station weekly.
- Weekly checks should include activating the eyewash for approximately 3-5 minutes.

- Upon activation, nozzle covers should automatically disengage from the nozzle.
- The water should begin to flow from both nozzles within 1 second with equal pressure.
- If the unit does not operate as required, tag the unit "out of service" and contact Facilities Management for repair (section 6.3).
- The temperature should reach a tepid range within the first minute. If unsure if the temperature of the water is acceptable, inform the laboratory supervisor.
- If the temperature is too hot or cold, tag the unit as "out of service", contact the laboratory supervisor and Facilities Management (section 6.3).
- The eyewash should remain active until the lever is released or the handle is returned to the shut off position.
- If the eyewash does not remain active, inform the laboratory supervisor and contact Facilities Management (section 6.3).
- If the water does not turn off, immediately contact Facilities Management (section 6.3) and inform the laboratory supervisor.
- The eyewash station should be unobstructed and easily accessed.
- If the access is obstructed, contact the laboratory supervisor and arrange for immediate clearing of the obstruction.
- Verify the tag for the semi-annual inspection date. If nearing the due date, contact Facilities Management or the Faculty representative to arrange for the semi-annual inspection.
- The Eyewash and Shower Station Weekly Inspection Check List (e.g., Appendix A) should be filled in with the date of inspection and the initials of the inspector.

The following steps outline the requirements for the Weekly Emergency **Shower** inspection:

- Emergency showers should be checked for proper access and visible signs of equipment damage.
- If the access is obstructed, contact the laboratory supervisor and arrange for immediate clearing of the obstruction.
- Verify the tag for the semi-annual inspection date. If nearing the due date, contact Facilities Management or the Faculty representative to arrange for the semi-annual inspection.
- The shower should NOT be activated unless the shower is within the laboratory and the lab supervisor has the proper equipment to perform an activation check.
- For labs with internal safety showers, the shower should be activated for 3-5 minutes.
- The water should begin to flow from the shower head within 1 second and with adequate pressure.
- The temperature should reach a tepid range within the first minute. If unsure if the temperature of the water is acceptable, inform the laboratory supervisor.
- If the temperature is too hot or cold, tag the unit as "out of service", contact the laboratory supervisor and Facilities Management (section 6.3).
- The shower should remain active until the lever is released or the handle is returned to the shut off position.
- If the shower does not remain active, or the unit does not operate as required, tag the unit "out of service" and contact Facilities Management for repair (section 6.3).
- If the water does not turn off, immediately contact Facilities Management (section 6.3) and inform the laboratory supervisor.

- The Eyewash and Shower Station Weekly Inspection Check List (e.g., Appendix A) should be filled in with the date of inspection and the initials of the inspector.

Check lists should be available in the lab for verification during routine safety compliance inspections. Refer to **Eyewash and Shower Station Weekly Inspection Check List (Appendix A)**.

6.3 Procedure for the Repair of Emergency Eyewash and Shower Equipment

When an emergency eyewash station or safety shower is out of service or non-functional, repair of the equipment should not be delayed. In the event that a laboratory is without a proper functioning eyewash, a portable eyewash station or equivalent must be available if work with hazardous materials cannot be delayed. Repair procedures should follow the manufacturer's installation/operation manual.

Repair required

- If any checked item for an eyewash station or shower did not meet requirements, contact the laboratory supervisor for assistance in preparing a work order.
- The work order should be submitted to Facilities Management by sending an e-mail to the Service Desk at servicedesk@dc-uoit.ca.

Maintenance required

- If the tag shows that the eyewash station or the shower will need a semi-annual inspection within the next 30 days, contact the laboratory supervisor and send an e-mail to Facilities Management (servicedesk@dc-uoit.ca) to request a semi-annual inspection.
- Other maintenance issues which do not affect the immediate operation or safe use of the eyewash station or shower, for example a dripping valve, should be reported to the laboratory supervisor, and a work order submitted to Facilities Management by e-mail to servicedesk@dc-uoit.ca.

7.0 Semi-Annual Inspection Performed by Facilities Management Staff

Preventative maintenance inspections should be performed semi-annually to check for problems such as adequacy of fluid volume, valve leakage and clogged lines. Semi-annual checks are the responsibility of Facilities Management due to the nature of testing skill needed to certify the units. The eyewash and shower station must bear a tag indicating the date of last verification. If the certification is not current, the eyewash/shower must not be used. The procedure for conducting a semi-annual inspection should follow the manufacturer's installation/instruction manual (if applicable) and the ANSI Z358.1-2014 standard. Facilities Management staff should refer to the standard for the inspection parameter requirements. A guidance document checklist for the Semi-annual Preventative Maintenance inspections can be found in Appendix B.

8.0 Other General Guidelines

All individuals who are at risk of exposure to hazards must receive training on the proper use and location of emergency eyewash and shower equipment. Training may be performed by any qualified individual, but it is the responsibility of the laboratory supervisor to ensure that their laboratory personnel are adequately trained.

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Personal Eyewashes (squeeze bottles) SHOULD NOT be used as a primary eyewash station. They are only to be used in areas where plumbed eyewashes are not available, or as a supply of immediate flushing fluid to be used before proceeding to the plumbed eyewash station. Any eyewash solution remaining after use should be discarded. Eyewash bottle solutions should be changed in accordance with the expiry date provided by the supplier.

If the certification on an emergency eyewash or shower is not current, the eyewash/shower should not be used. Contact the Service Desk by sending an email to servicedesk@dc-uoit.ca to arrange recertification.

If an eyewash station or emergency shower is not operational for any reason, a work order must be submitted promptly to servicedesk@dc-uoit.ca and the unit must be marked “out of service” and all laboratory personnel notified and provided with emergency backup procedures.

APPENDIX A

Eyewash and Shower Station Weekly Inspection Check List

REQUIREMENT
Is there easy unobstructed passage and access to the eyewash AND shower station? †
ACTIVATE EYEWASH – let flow for approximately 3 minutes. Showers are lab dependent – run for 3 minutes.
Are eyewash nozzles equipped with protective covers which automatically remove upon activation?
Does the eyewash/shower unit activate in less than 1 second? Only test showers located within the laboratory.
Does the eyewash spray pattern deliver a simultaneous flow of water from both nozzles? From shower head?
Is the water temperature constant and tepid? (16-38°C)
Does the flow remain until the unit is returned to its resting position?
If you have answered 'No' to any of these requirements, please contact the service desk for a service order request and repair of the deficiency: servicedesk@dc-ontariotechu.ca

Supervisor Name:

Building:			**Room:**		
DATE	**INITIALS**	**COMMENT**	**DATE**	**INITIALS**	**COMMENT**

† Emergency showers should be checked for proper access and visible signs of equipment damage only. Showers should only be activated and tested weekly or as a pre-start procedure when they are located in the laboratory. Adapted from the ANSI Z358.1-2014 Emergency Eyewash and Shower Equipment standard.

APPENDIX B

Guidance Checklist for Semi-Annual Inspections Performed by Facilities Management Staff

This procedural guide does not replace the ANSI Z358.1-2014 standard. The emergency eyewash stations and safety showers should be activated and run for at least the minimum specified time to verify all test requirements. Any deficiencies found in the "no" column should be addressed before the unit is signed back into operation.

Name of Individual conducting inspection:
Date of inspection:
Type of Inspection (circle): Eyewash or Shower
Location of Inspection:

REQUIREMENT	Yes	No
ACCESS		
Is there an unobstructed passage and easy access to the eyewash/shower station?		
Is the area well lit and easily visible?		
Is there enough room to allow the user to stand in front of the eyewash station nozzles and maintain their eyes open, or to stand below the flushing fluid[1] stream of a shower?		
Is the eyewash/shower located within 10 sec (55 feet) from potential hazardous materials?		
Is the eyewash/shower location identified with a highly visible sign?[2]		
EMERGENCY UNIT		
Are eyewash nozzles equipped with protective covers?		
Are the covers automatically removed upon activation of the eyewash?		
Is the eyewash/shower unit easily activated?		
Does the unit activate in less than 1 second?		
Once activated, does the unit remain operational without the use of the hands?		
Does the unit allow for a continuous flow of flushing fluid for more than 15 minutes?		
Are there any signs of corrosion to the unit?		
WATER FLOW		
Does the eyewash spray pattern deliver a simultaneous flow of water to both eyes?		
Does the shower spray pattern deliver a continuous flow of water with a diameter of at least 50 cm at 152 cm from the floor?		
Does the eyewash water flow at a volume not less than 1.5 litre/minute for 15 minutes?		
Does the shower water flow at a volume not less than 75 litre/minute for 15 minutes?		
Is the flow rate at a low velocity to be non-injurious to the user?		
Is the water temperature constant and tepid? Temperature range: 16-38°C		
Is the flushing liquid clear?		
Does the flow remain until the unit is returned to its resting position?		
Does the water drain properly from the basin/sink?		

[1]Flushing fluid refers to any potable (drinking) water, preserved water or buffered saline solution
[2]Signage for emergency eyewash stations and showers should be easily recognizable and understandable. Recommended signs and/or symbols as provided by ANSI Z358.1-2014: