Emergency Eye/Face Wash and Safety Shower Program

Office of Environmental Health and Safety

Department of Facilities Management

June 2023

Contents

Purpose and Scope

The purpose of this program is to ensure that all eye/face wash and safety showers on the University of Arkansas campus meet compliance with OSHA 29 CFR 1910.151, ANSI Z358.1, and University Policies and Procedures. The goal is to protect students and University personnel by having proper emergency flushing equipment readily available in case of an accident. This program describes procedures for emergency use, selection, application, installation, placement, guidelines for activation, inspection, testing and maintenance of emergency eye/face wash and shower equipment.

Requirements

The Occupational Safety and Health Administration (OSHA) regulation that applies to emergency eye/face washes and safety showers is applicable to all facilities that require this equipment as a form of first aid. Regulations — 29 CFR 1910.151 (c), 29 CFR 1926.50(g), Medical Services and First Aid — state that: "Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use." This regulation specifies where and when emergency eyewash and shower equipment must be available.

Injurious corrosive materials are defined as chemicals that have the GHS classification of serious skin/eye damage and serious skin/eye irritation. Generally speaking, corrosive materials have a very low pH (acids) or a very high pH (bases). Strong bases are usually more corrosive than acids. Examples of corrosive materials are sodium hydroxide (lye) and sulfuric acid. Employers should review Sections 2, 4 and 8 of the Safety Data Sheet (SDS) to help determine if an eye/face wash or shower is required.

"*Exposure*" or "*exposed*" means that an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (*e.g.,* accidental or possible) exposure. "Subjected" in terms of health hazards includes any route of entry (*e.g*., inhalation, ingestion, skin contact or absorption.)

The OSHA regulation regarding emergency equipment is quite vague, in that it does not define what constitutes "suitable facilities" for drenching the eyes or body nor does it specify minimum operating requirements, installation requirements, or maintenance requirements. In order to provide specific requirements to employers, the American National Standards Institute (ANSI) has established a standard covering emergency eye/face wash and shower equipment for the emergency treatment of the eyes or body of a person who has been exposed to hazardous materials. This standard — ANSI Z358.1 — is intended to serve as a guideline for unit selection, certification, performance, installation, operation and maintenance of emergency equipment to meet/exceed OSHA requirements.

The Office of Environmental Health and Safety (EH&S) can and should help guide this process for new and existing labs.

Definitions

Combination Unit: A unit that has any combination of the following equipment: emergency shower, eyewash, or eye/face wash. An interconnected assembly of emergency equipment supplied by a single source of flushing fluid.

Emergency Shower: A device specifically designed and intended to deliver flushing fluid in sufficient volume to cause that fluid to cascade over the entire body.

Eyewash: A device used to provide fluid to irrigate and flush the eyes.

Eye/Face Wash/Drench Hose: A supplemental device consisting of a flexible hose connected to a flushing fluid supply and used to irrigate and flush face and body areas. Areas that require eye/face washes can only utilize drench hoses models, if a plumbed or self-contained eyewash is also available in that area, or if the drench hose model is designed to meet the definition of a plumbed or self-contained eye/face wash.

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

Flow Pressure: The pressure in the water supply pipe near the water outlet while the faucet or outlet is fully open and flowing.

Flushing Fluid: Fluid that is either water or else a sterile buffer solution designed specifically for eye/face wash and shower units.

Flushing Fluid Flow: The stream of water delivered from the unit that is measured for height, velocity, and pattern.

Flushing Fluid Pattern (column): The dispersion pattern of flushing fluid which is created by an emergency shower and meets the standard's prescribed coverage requirements. This pattern can be achieved by a variety of design configurations.

Hazardous Material: Any substance or compound that has the capability of producing adverse effects on the health and safety of humans. Emergency eye/face washes and showers are not a substitute for the use of personal protective equipment (glasses, goggles, gloves, aprons, etc.).

Plumbed: A term used to describe equipment that is connected to a continual source of potable water.

Tepid: A flushing fluid temperature conducive to promoting a minimum 15-minute irrigation period. A suitable range is 16 - 38° C (60 -100° F).

Roles and Responsibilities of Key Personnel

Department Chairperson or Director

The responsibilities of the Department Chairperson or Director include, but are not limited to, the following:

1. Assumes responsibility for personnel engaged in the laboratory use of hazardous chemicals.
2. Ensures that emergency eye/face washes and showers are provided for laboratories and other areas as required by this program document.
3. Ensures that emergency eye/face washes and showers located in all areas associated with the department including laboratories, corridors or common areas are tested and inspected as specified in this program document. This includes weekly testing and inspection of eye/face washes and showers.

Principal Investigators/Lab Managers

The responsibilities of the PI/lab manager include, but are not limited to, the following:

1. Ensures that all individuals working under his/her direction are informed and familiar with the location and operation of the emergency eye/face wash and shower equipment, routes of egress, and the specific safety rules and requirements for each applicable lab.
2. Works with department head to ensure that emergency eye/face washes and showers are provided for laboratories and other areas as required by this program document.
3. Ensures that emergency eye/face washes and showers installed in their areas are tested and inspected weekly as specified in this program document.
4. Trains students and employees who may be exposed to hazardous materials on the location and proper use of the equipment."
5. Reports any deficiencies to the FAMA Service Center (Phone: 575-5050) for repairs and to EH&S.

Facilities Management (FAMA)

The responsibilities of facilities management include, but are not limited to, the following:

1. Ensures proper installation and repair of emergency eye/face washes and showers.
2. Performs detailed annual conformance inspections of the eye/face wash and shower units and any maintenance needed for each lab.
3. Assist in the development and maintenance of the campus program for emergency eye/face washes and showers.
4. Ensures that architects, building designers, facilities and planning staff, and contractors apply the latest version of ANSI Z358.1 and consult with EH&S on issues regarding emergency equipment.
5. Ensures that all new construction and remodeling shall meet the requirements of ANSI Z358.1, which may go above the minimum requirements described in this Program document.

Office of Environmental Health and Safety (EH&S)

The responsibilities of the UA Office of Environmental Health and Safety (EH&S) include, but are not limited to, the following:

1. Develops and supports implementation of the campus program for emergency eye/face washes and showers.
2. Assists campus personnel with the selection and installation of emergency eye/face washes and showers that meet the requirements of the campus program.
3. Works with Departments, PIs, FAMA, staff, and students to make sure everyone has the tools and resources available to them to ensure the campus conforms to the ANSI standard for weekly and annual inspections.
4. Verifies that emergency eye/face washes and showers in a given area meet the requirements of this campus program during EH&S audits.
5. Evaluates whether a given area requires emergency eye/face washes and showers.
6. Provides assistance to employees on the purpose and conduct of the program.
7. Assist FAMA on ANSI compliance and the proper use and testing of the equipment.

Application

Emergency Eye/Face Washes

A plumbed or self-contained eyewash shall be provided in all work areas where faculty, staff or students are exposed to a potential hazard of injury to the eyes or face due to contact with hazardous/corrosive chemicals, biological materials of BSL-2 or greater, or radioactive materials. Such work areas include, but are not limited to:

- Laboratories, storerooms and other work areas where chemicals that are corrosive, irritating to mucous membranes, or toxic are stored and/or used including but not limited to: bleach, formaldehyde, phenol, liquids with pH equal to or less than 2 or greater than 12.5, biotoxins and organic solvents
- Laboratories or other areas where work with biological materials that are at BSL 2 or greater is occurring
- Laboratories using radioactive materials
- Pesticide storage or mixing facilities

Emergency Showers

An emergency shower shall be provided in all work areas where faculty, staff or students are exposed to a potential hazard of injury to the skin due to contact with a corrosive, severely irritating or toxic chemical. Such work areas include, but are not limited to:

- Laboratories, storerooms, and other work areas where corrosive, severely irritating or toxic chemicals are stored and/or used including but not limited to bleach, formaldehyde, phenol, liquids with pH equal to or less than 2 or greater than 12.5, and organic and flammable solvents
- Laboratories using radioactive materials
- Pesticide storage or mixing facilities

Combination Units

A combination unit should be placed in work areas that require to have both an eye/face wash and shower if possible. A combination unit must be connected to a system capable of supplying adequate flushing fluid (20 GPM for 15 minutes) to meet the requirements of each component as outlined in ANSI Z358.1.

Exception

Existing facilities without the capability of installing an emergency shower should install an eye/face wash/drench hose unit if all the following criteria are met:

1. The work area is not being remodeled.
2. All containers of corrosive, severely irritating and toxic chemicals that are stored or used in the work area are one liter or less in size.
3. The work area supervisor provides documentation of the chemical inventory including container sizes for that work area to EH&S to verify that the area qualifies for this exception.

Installation

All emergency eye/face wash and shower equipment installed must comply with ANSI Z358.1 that includes but is not limited to:

1. The equipment shall be connected to a system capable of supplying adequate flushing fluid.
2. Shall have a fluid pressure in the line supplied to the units of >30 PSI but <55 PSI.
3. Deliver tepid flushing fluid. The water delivered by emergency equipment must be "tepid". Tepid water is generally defined as a temperature between 60- and 100-degrees Fahrenheit.
4. In circumstances where chemical reaction is accelerated by flushing fluid temperature, EH&S should be consulted for the optimum temperature for each application.
5. Valves on emergency eye/face washes and showers shall be designed so that the flushing fluid remains on without requiring the use of the operator's hands. The valve should be designed to remain activated until intentionally shut off.
6. The equipment shall be in unobstructed and accessible locations that require no more than 10 seconds for the injured person to reach along an unobstructed pathway from the source of the hazard. ANSI states "Emergency eyewash and shower equipment should be available for immediate use, but in no instance should it take an individual longer than 10 seconds to reach the nearest facility. A door is considered to be an obstruction. Where the hazard is not corrosive, one intervening door can be present so long as it opens in the same direction of travel as the person attempting to reach the emergency eyewash and shower equipment and the door is equipped with a closing mechanism that cannot be locked to impede access to the equipment".
7. The equipment shall be located such that accessing the equipment should not require going up and down stairs or ramps. A single step up into an enclosure where the equipment can be accessed is not considered to be an obstruction.
8. EH&S can be consulted whenever an eye/face wash, drench hose, or shower is to be installed to ensure proper installation and testing of the unit.

Emergency Eye/Face Washes

1. Have a controlled flow of flushing fluid that is provided to both eyes simultaneously which is not injurious to the user.
   a. Eyewashes shall be installed so that they can deliver to the eyes a minimum of 0.4 GPM of flushing fluid for 15 minutes (1.5 liters per minute).
   b. Facewashes shall be installed so that they can deliver to the eyes and face a minimum of 3 GPM of flushing fluid for 15 minutes (11.4 liters per minute).
2. Eye/Face washes shall be installed with the water nozzles 33-45 inches from the floor and 6 inches minimum from the wall or nearest obstruction.
3. If eye/face washes are installed mounted on a counter, they should be mounted within 6 inches of the front edge of the lab sink to allow the eyes to be placed in the path of water by simply standing near the unit. There should be minimal reaching, bending, stretching, or contorting to reach the eye/face wash. Adequate overhead clearance should be allowed to accommodate the presence of over counter cabinets as not to create an additional hazard that could be encountered when using the equipment.
4. Nozzles shall be protected from airborne contamination. Whatever means is used to afford such protection, its removal should not require a separate motion by the operator when activating the unit.
5. Units shall be installed to meet ADA accommodations, if needed.
6. Units shall be plumbed to a waste line if possible.
7. Units shall not be installed on a faucet spout.
8. The equipment location should be identified with a highly visible sign. See Appendix H
9. The area of the equipment should be well-lit.

Emergency Showers/Combination Units

1. Safety showers shall be installed so that they can deliver a minimum of 20 GPM of flushing fluid for 15 minutes (75.7 liters per minute).
2. There must be 3 feet of free area (e.g., 3 x 3.5 ft) directly under the showerhead around all shower/combo units and area taped off if possible.
3. Emergency showerheads shall be designed so that a flushing fluid column is provided not less than 82 inches and not more than 96 inches in height from the surface on which the user stands.
4. The spray pattern shall have a minimum diameter of 20 inches at 60 inches above the surface on which the user stands.
5. The showerhead shall not be mounted flush or recessed with any constructed surfaces or partitions and the center of the spray pattern should be located at least 16 inches from any obstruction.
6. The manual actuator triangle pull shall not be located more than 69 inches above the surface on which the user stands. The manual actuator should be free from obstruction for 18 to 24 inches in most directions.
7. Units shall be installed to meet ADA accommodations, if needed.
8. The equipment location should be identified with a highly visible sign. See Appendix H
9. The area of the equipment should be well-lit.
10. While drains are not required, they should be considered in those cases where they can be readily incorporated into the design/modification and are not prohibited based on area use (e.g., certain biological and chemical labs).

Inspections and Testing

The ANSI standard states that the emergency equipment, "shall be activated (flushed) weekly for a period long enough to verify operation and ensure that flushing fluid is available" (Z358.1 Sections 4.6.2, 5.5.2). It further states that "all eye/face washes/safety showers shall be inspected annually to assure conformance with the requirements of this standard" (Z358.1 Sections 4.6.5, 5.5.5).

Activations and inspections should be done by laboratory occupants weekly and annual conformance inspections performed by FAMA. The following procedures are established to facilitate testing of all campus emergency eye/face washes and safety showers.

Weekly Inspection of Eye/Face Wash

Emergency eye/face washes should be activated weekly for a period long enough to verify operation and ensure that flushing fluid is available. This helps clean out any rust, scale deposits, or bacteria that may accumulate. At a minimum, the weekly inspections should include the following:

1. Check if the location of the emergency equipment is well-lit and identified with a highly visible sign.
2. Make sure the area around the unit is clear and free of obstruction. At least 6" of clearance and no obstruction. Ensure that access to the eyewash is unobstructed.
3. Flush eye/face wash for at least 30 seconds.
4. Check if the water is clear.
5. Check if there is even and continuous flow from all spouts. All spigots should be delivering evenly.
6. Check that the unit can be activated without having to hold on (hands-free) and adjust the flow. Check that sufficient flushing height is provided (e.g., flow not trickling out).
7. Check to see if the caps open (pop off) without assistance when fully activated. If not, then this is an indication of low flow.
8. Check if the caps are damaged, need to be replaced or need to be cleaned due to dirt and debris.
9. Check if the plumbing is free of leakage.
10. Promptly clean up any water that is spilled on the floor as a result of this process.
11. Any water collected during the process can be emptied at the most convenient location such as a sink, custodial floor sink or a floor drain.
12. Date and initial the weekly inspection log.
13. Contact the FAMA Service Center (Phone: 575-5050) immediately if the equipment has any issues such as low or injurious flow or if the water color is a dirty, rusty color (refer to test failure section below).

Inspection of eye/face washes and safety showers is a big part of the audit procedure to ensure compliance with OSHA 29 CFR 1910.151, ANSI Z358.1, and University Policies and Procedures. The emergency equipment is inspected during audits to ensure that it is accessible, functional, and properly maintained and flushed weekly by lab personnel.

Departments conducting weekly tests also serve to facilitate training, make personal aware of locations and ease apprehension of use when needed.

Labs should display and retain the inspection log for 5 years. See Appendix A for eye/face wash weekly checklist.

Weekly Inspection of Shower

Emergency showers should be activated weekly by lab personnel for a period long enough to verify operation and ensure that flushing fluid is available. This helps clean out any rust, scale deposits/sediment buildup, or bacteria that may accumulate and could prevent fluid from being delivered to the head of the device. At a minimum, the inspections should include the following:

1. Check if the location of the emergency equipment is well-lit and identified with a highly visible sign.
2. Check if access to the shower is free of obstructions from all areas of the laboratory or hallway.
3. Flush shower for length of time needed to ensure it is operating. The shower distributes 20 gallons per minute so 10 seconds will be sufficient if using a 5- gallon bucket to collect the water.
4. Check if the water is clear.
5. Check if there is adequate flow.
6. Check if the unit is hands free and will stay on after activation. i.e., does the water continue to flow until the pull handle is turned off?
7. Check if the plumbing is free of leakage.
8. Promptly clean up any water that is spilled on the floor because of this process. Any water collected during the process can be emptied at the most convenient location such as a sink, custodial floor sink or a floor drain.
9. Date and initial the weekly inspection log.
10. Contact the FAMA Service Center (Phone: 575-5050) immediately if the equipment has any issues (refer to test failure section below).

Labs should display and retain the inspection log for 5 years. See Appendix B for shower weekly checklist.

Annual Conformance Inspection

Annual inspections: ANSI states “All eyewashes/safety showers shall be inspected annually to assure conformance with the requirements of this standard” (Z358.1 Sections 4.6.5, 5.5.5). The thorough annual conformance inspection will be performed by designated FAMA employees. The designated testing team for FAMA shall be familiar with the requirements of the ANSI standard and this program. Refer to Appendix D for the annual conformance inspection checklist. The inspections should include the following:

1. Ensure areas are well-lit, properly signed, and free from obstructions to and around the units.
2. Ensure there is "simple on/off with no requirement to adjust the flow".
3. For eye/face washes, check the flushing fluid flow (i.e., height and coverage of the eyes and face) using an eyewash gauge during full activation (i.e., when the paddle is pressed in all the way). The flushing fluid should cover both inside and

outside line when the gauge is lowered no more than 1.5 inches below the fluid peak.

4. For eye/face washes, measure the flushing fluid flow pattern by measuring the height of the stream (should be 33" to 53" above floor at full activation).
5. For showers, observe and record the flushing fluid flow velocity. Check to ensure the temperature is correct and the flow pattern (if practicable) is correct.
6. Combo units will be tested for simultaneous use of both the eye/face wash and shower to test for no loss in temperature or flushing fluid velocity when both are fully activated.
7. Ensure all units are delivering the proper amount of water.
8. Test all units for 15 minutes if practicable.
9. Check the shut off valve on the supply line. Ensure it is not accessible or capable of being adjusted by the user and that only authorized personnel can adjust it. Ensure it works properly by turning it off and on several times. All person(s) locating shut off valves in ceiling areas must have undergone asbestos awareness training.
10. Promptly clean up any water that is spilled on the floor because of this process.
11. Any water collected during the process can be emptied at the most convenient location such as a sink, custodial floor sink or a floor drain.
12. Completely fill out the inspection form (See appendix D).
13. Repair any failures promptly.

Method used to test flushing fluid flow/flow pattern/velocity/amount of water

1. Fully activate units to test flow.
2. The flushing fluid flow of eye/face washes is measured using an eyewash gauge. The water stream should have even and continuous flow from both spouts and should cover the areas between the interior and exterior lines of a gauge at some point less than 8" above the eyewash nozzle.
3. The flushing fluid flow pattern of eye/face washes should be 33"-53" from the floor.
4. The flushing fluid flow velocity of eye/face washes should be observed to be low enough as to be non-injurious to the user.
5. Showers should have a flushing fluid flow pattern 20" wide when measured at 60" above the floor.
6. Use a bucket/drum to capture the water. Mark the drum level for the amount of water collected. Run the water for a time interval capable of confirming the units meet the standard: (eyewashes should deliver 0.4 gallons per minute, facewashes should deliver 3 gallons per minute, showers should deliver a minimum of 20 gallons per minute).

Method used to test temperature

Use a bucket/drum to capture the water. Let the water flow for several minutes where achievable or until the temperature stabilizes. Use a thermometer to test the temperature of the water in the drum. Ensure the temperature range is (Tepid) – above 60 F (16 C) and below 100 F (38 C).

Equipment for Testing

The following tools will be required for each lab to test their eye/face washes and shower:

Shower Tester Kits

- Vinyl funnel that fits around shower head to direct the water
- 5-gallon plastic bucket to catch the water
- Kit available through Grainger

Eyewash Tester Gauge

- Available through Grainger.

Other equipment that may be helpful

- Lab coats and protective eyewear
- 30-gallon plastic drum with spout for draining on wheels
- Sponge mop
- Paper towels
- Supplies to clean and disinfect

Test Failures, Malfunctions, and Deficiencies

Corrective actions must be performed when deficiencies are noted by any personnel at any time. Malfunctions or deficiencies noted during weekly activations, inspections, or normal daily activities must be reported immediately. Work request can be initiated by contacting FAMA Service Center (Phone: 575-5050).

Training

ANSI states "employees who may be exposed to hazardous materials shall be instructed in the location and proper use of the equipment." Training to perform weekly activations and maintain minimum performance requirements for eye/face wash and shower equipment should be completed and documented by all laboratory occupants. See Appendix E for the eye/face wash shower training log sheet.

Training must include:

- Discuss situations that would trigger use of the emergency equipment
- Discuss the type and functionality of the equipment
- Review the inspection checklist that contains details on how to inspect the equipment
- Activate emergency equipment in use on site
- Demonstration by person(s) being trained to activate emergency equipment
- Judge whether emergency equipment is operating correctly

- Submit work order if emergency equipment is not working correctly

Training can be provided to laboratory personnel by other lab members who are trained, by the EH&S auditors during safety inspections in the lab or workplace, or upon request by the Department or PI.

Emergency Procedures

For accidents involving the eyes or face (Follow the Safety Data Sheet Instructions)

1. Assist the victim to get to the eye/face wash. Sight may be impaired.
2. Activate the unit using the hands-free valve.
3. Hold the eyelids open with the fingers if necessary.
4. Place the eyes in the stream of water.
5. Flush for 15 minutes.
6. Get medical attention.

For accidents involving the body (Follow the Safety Data Sheet Instructions)

1. Assist the victim to the shower or drench hose. Do not let them slip and fall.
2. Activate the unit using the hands-free valve.
3. Put modesty aside. Remove contaminated clothing first if possible. (Rinsing contaminated clothing will wash chemicals out of the clothing and onto the skin). If this is not possible, remove contaminated clothing during the flushing process.
4. Flush for 15 minutes.
5. Get medical attention.

Assisting the victim may also involve

1. Shielding them using fire blankets if necessary.
2. Providing them with alternative clothing (lab coats, hospital scrubs, fire blankets can be used as necessary).

Cleanup

1. The contaminated water from an eye/face wash or shower should be very dilute. Use standard housekeeping precautions when cleaning the area.
2. Direct water to floor drains if applicable.

References

Information/resources regarding the content of this program are available upon request.

Manufacturers of Emergency Eye/Face Wash Equipment

- Guardian
  http://www.gesafety.com/
- Speakman
  https://www.speakman.com/
- Acorn
  https://acornsafety.com/
- WaterSaver
  https://wsflab.com/
- Bradley
  https://www.bradleycorp.com/
- Haws
  https://www.hawsco.com/

Appendix A

Emergency Eye/Face Wash Weekly Inspection Checklist

UNIVERSITY OF ARKANSAS
ENVIRONMENTAL HEALTH & SAFETY

Emergency Eye/Face Wash Station
Weekly Inspection Checklist

How to Test:

1. Is the location of the emergency equipment well lit and identified with a highly visible sign?
2. Is the area around the unit clear and free of obstruction? At least 6" of clearance around the unit and no obstruction.
3. Flush eye/face wash for at least 30 seconds.
4. Is the water clear?
5. Is there even and continuous flow from all spouts/spigots?
6. Can the unit be activated without having to hold on (hands-free) and adjust the flow. Check that sufficient flushing height is provided (e.g., flow not trickling out)?
7. Do the caps open (pop off) without assistance when fully activated? If not, this is an indication of low flow.
8. Are caps damaged, need to be replaced or need to be cleaned due to dirt and debris?
9. Is the plumbing free from leakage?
10. Promptly clean up any water that is spilled on the floor as a result of this process. Any water collected can be emptied at the most convenient location such as a sink, custodial floor sink or a floor drain.
11. Date and initial the weekly inspection log below.

How to obtain assistance:

Questions, training information: Environmental Health and Safety: 575-5448
Maintenance requests: Service Desk: 575-5050
Emergencies: Hold eyes open and flush for at least 15 minutes. CALL 911 and seek medical assistance.

Date	Initials	Comment		Date	Initials	Comment		Date	Initials	Comment

Appendix B

Emergency Shower Weekly Inspection Checklist

UNIVERSITY OF ARKANSAS
ENVIRONMENTAL HEALTH & SAFETY

Emergency Shower Station
Weekly Inspection Checklist

How to Test:

1. Is the location of the emergency equipment well lit and identified with a highly visible sign?
2. Is access to the shower free of obstructions from all areas of the laboratory or hallway?
3. Is the area around the unit clear and free of obstruction? At least 3' around the shower head.
4. Flush shower for a few seconds to ensure it is operational. Place a 5-gallon bucket underneath the safety shower and a sleeve around the shower head and inside the bucket to catch all the water.
5. Is the water clear?
6. Evaluate for adequate flow.
7. Does the water continue to flow until the pull handle is turned off?
8. Is the plumbing free from leakage?
9. Promptly clean up any water that is spilled on the floor because of this process. Any water collected can be emptied at the most convenient location such as a sink, custodial floor sink or a floor drain.
10. Date and initial the weekly inspection log below.

How to obtain assistance:

Questions, training information: Environmental Health and Safety: 575-5448
Maintenance requests: 575-5050
Emergencies: Immediately stand in the water stream and flush the affected area for 15 minutes. Remove contaminated clothing while showering and not before. CALL 911 and seek medical assistance.

Date	Initials	Comment		Date	Initials	Comment		Date	Initials	Comment

Appendix C

Emergency Eye/Face Wash Shower Weekly Inspection Checklist

UNIVERSITY OF ARKANSAS
ENVIRONMENTAL HEALTH & SAFETY

Emergency Eye/Face Wash Shower Station Weekly Inspection Checklist

How to Test the Eye/Face Wash and Shower:

1. Is the location of the emergency equipment well lit and identified with a highly visible sign?
2. Is access to the eye/face wash and shower free of obstructions from all areas of the laboratory or hallway?
3. Is the area around the unit clear and free of obstruction? At least 6" of clearance around the eye/facewash and 3' around the shower head.
4. Flush the eye/face wash for at least 30 seconds and the shower for a few seconds to ensure it is operational. Place a 5-gallon bucket underneath the safety shower and a sleeve around the shower head and inside the bucket to catch all the water.
5. Do the caps to the eye/face wash open (pop off) without assistance when fully activated? If not, this is an indication of low flow.
6. Are caps to the eye/face wash damaged, need to be replaced or need to be cleaned due to dirt and debris?
7. Is the water clear?
8. Evaluate for adequate flow.
9. Does the water continue to flow until the handle is turned off?
10. Is the plumbing free from leakage?
11. Promptly clean up any water that is spilled on the floor because of this process. Any water collected can be emptied at the most convenient location such as a sink, custodial floor sink or a floor drain.
12. Date and initial the weekly inspection log below.

How to obtain assistance:

Questions, training information: Environmental Health and Safety: 575-5448
Maintenance requests: 575-5050
Emergencies: Immediately stand in the water stream and flush the affected area for 15 minutes. Remove contaminated clothing while showering and not before. CALL 911 and seek medical assistance.

Date	Eyewash	Shower	Comments	Initials		Date	Eyewash	Shower	Comments	Initials

Appendix D

Emergency Eye/Face Wash Shower Annual Conformance Inspection Checklist

Emergency Eye/Face Wash and Safety Shower Annual Conformance Inspection Form

Date: Building and Lab: Asset Number:

Equipment type: Manufacturer: Model Number:

Last Inspection Date:

Items Inspected

	Y	N	N/A
1. Is the location of the emergency equipment well-lit and identified with a highly visible sign?			
Comments:			
2. Is the area to and around the unit clear and free of obstruction? At the unit, is there at least 6 inches of clearance for eye/face wash heads and 3 feet of clearance (16" diameter from center) around the shower heads. Note: the eyewash is not considered an obstruction on combo units.			
Comments:			
3. Is the shut off valve on the supply line accessible or capable of being adjusted by the user? If shut off valves are installed in the supply line for maintenance purposes, provisions shall be made to prevent unauthorized shut off. Ensure it works properly by turning it off and on several times.			
Comments:			
4. Activate the eye/facewash fully. After full activation, does the flow remain on without the use of the operator's hands. The valve shall be simple to operate, involve one step to activate, and go from "off" to "on" in one second or less. Does it provide a means of controlled flow to both eyes simultaneously at a velocity low enough to be non-injurious?			
Comments:			
5. For eye/face washes, is the flushing fluid flow pattern within range? Measure the flushing fluid flow pattern by measuring the height of the stream (should be 33" to 53" above floor at full activation and shall cover the areas between the interior and exterior lines of a gauge at some point less than 8 inches above the eye/facewash nozzle).			
Comments:			
6. Does the unit deliver the proper amount of water? Eyewash must deliver minimum of .4 gallon (1.5 L) per minute. Facewash equipment must deliver minimum of 3 gallons (11.4 L) per minute. Showers must deliver 20 gallons per minute.			
Comments			

7. Does the eye/facewash have caps capable of protecting the unit from airborne contaminates. Do the caps need replacement due to rust or damage?	Y	N	N/A
Comments			

8. Is the showerhead and actuator at the proper heigth? The showerhead must be 82 to 96 inches above the surface floor of user. The actuator must be no more than 69 inches from the surface floor of the user?	Y	N	N/A
Comments:			

9. Activate the shower fully. After full activation, does the flow remain on without the use of the operator's hands. The valve shall be simple to operate and go from "off" to "on" in one second or less.	Y	N	N/A
Comments:			

10. For showers, is the flushing fluid flow pattern within range? If practicable, measure the flushing fluid flow pattern by measuring the width of the stream (should be a column of water 20 inches wide at 60 inches above the surface floor of user).	Y	N	N/A
Comments:			

11. For combo units, are the components capable of operating simultaneously and are the eye/facewash and showerhead positioned so that the components may be used simultaneously by the same user? When the eye/facewash and shower are activated simultaneously, does flushing flow remain withing range of pattern and velocity?	Y	N	N/A
Comments:			

12. Does the water collected meet the criteria for tepid fluid temperature range – above 60° F and below 100° F? If possible, test temperatures at their worst rather than during ideal weather to uncover any issues or if there is a need for mixing valve installation.	Y	N	N/A
Comments:			

13. Are the units protected from freezing or excess heat? Where the possibility of freezing conditions exists, the unit shall be protected from freezing or freeze-protected equipment shall be installed.	Y	N	N/A
Comments:			

14. Effort should be made to assure all units can provide full flow for 15 minutes. This should be achievable on plumbed eye/face washes. For showers and combo units, run for 15 min if practicable. If multiple showers are hooked up to the same supply line it can be assumed the other equipment on the same line will also run for a full 15-minutes.	Y	N	N/A
Comments:			

Appendix E

Emergency Eye/Face Wash Shower Training Log

UNIVERSITY OF ARKANSAS
Office of Environmental Health and Safety

Emergency Eye/Face Wash and Safety Shower Training Log

Building and Room#: _____ PI: _____

Equipment Covered

- ☐ Eyewash Station
- ☐ Eye/Facewash Station
- ☐ Emergency Shower
- ☐ Drench Hose
- ☐ Combination Eyewash/Shower
- ☐ Combination Eye/facewash/Shower

Summary of Training (site specific) Training to perform weekly activations and maintain minimum performance requirements for eye/face wash and shower equipment should be completed and documented by all laboratory occupants. Training must include:

- Discuss situations that would trigger use of the equipment
- Discuss the types of equipment
- Review the inspection checklist with trainee(s)
- Activate emergency equipment in use at this site
- Demonstration by person(s) being trained to activate emergency equipment
- Judge whether emergency equipment is operating correctly
- Submit work order if emergency equipment is not working correctly

Training Log **Record Retention:** Keep this log with the units inspection records.

Trainer	Trainee	Signature of Trainee	Date

Appendix F
Types of equipment

Figure 1 Eyewash with Eyewash bowl and paddle activation

Figure 2 Shower/Eyewash combination unit

Figure 3 Sink eye/facewash swing out activation

Figure 4 Eyewash (deck mounted) with drench house capability

Figure 5 Eye/facewash with foot activation

Figure 6 Eyewash gauge

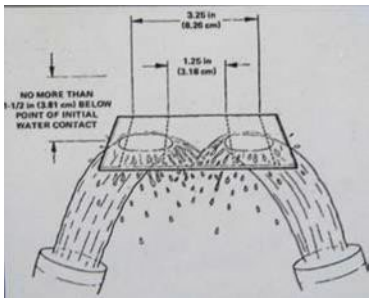


Figure 7 Instructional diagram on correct use of eyewash gauge

Figure 8 Eye/Face wash with bowl and paddle activation

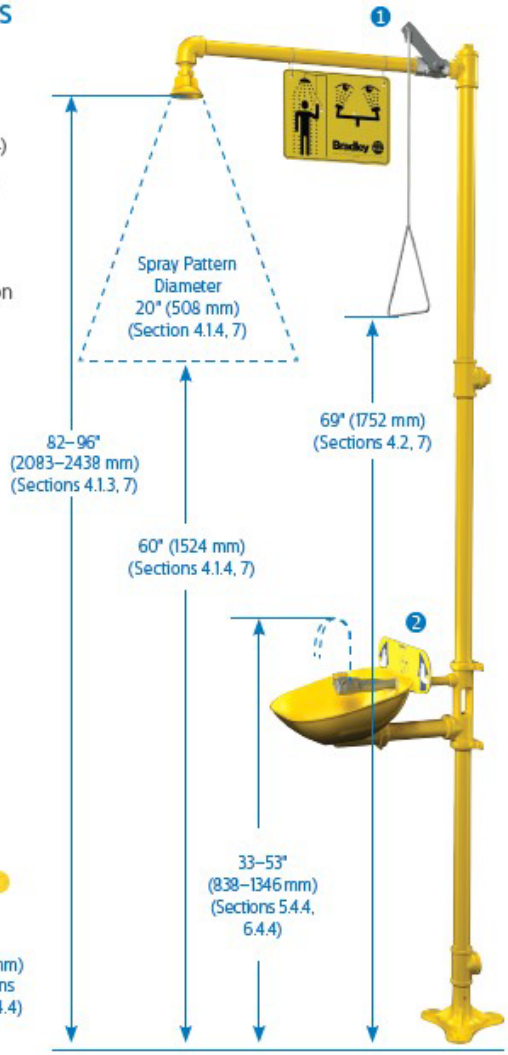
Figure 9 Recessed eye/face wash shower combo

Figure 10 Shower Test Kit

Appendix G
Illustrations

Combination Drench Shower, Eye and Eye/Face Washes

- Valve mechanism opens in one second or less; it stays open until manually closed. (Sections 4.2, 5.2, 6.2, 7.1.1, 7.1.2, 7.1.3) ❶
- Drench shower and eye or eye/face wash must operate simultaneously. (Section 7.4.4)
- Supply with flushing fluid ("potable water, preserved water, preserved buffered saline solution or other medically acceptable solution…"). (Definitions, Sections 4.1.1, 4.4.1, 5.1.1, 6.1.1, 7.1.2, 7.1.3)
- Locate 10 seconds or 55' (16.8 m) from contaminants or hazardous materials. Locate on same plane as the hazard, free of obstructions. (Sections 4.5.2, 5.4.2, 6.4.2, 7.1.1, 7.1.2, 7.1.3, 7.4.2, Appendix B5) ❷
- Must resist corrosion in the presence of flushing fluid (Sections 4.1.5, 5.1.5, 6.1.5, 7.1.1, 7.1.2, 7.1.3)
- Protect eye and eye/face wash heads from contaminants. (Sections 5.1.3, 6.1.3, 7.1.2, 7.1.3)
- Flow Rates: **Eyewash** unit delivers a minimum of .4 GPM (1.5 L-MIN) for 15 minutes. (Section 5.1.6) **Eye/face wash** unit delivers a minimum of 3.0 GPM (11 L-MIN) for 15 minutes. (Section 6.1.6)
- Use flow meter to check flow rate; use test gauge to test flow pattern. (Sections 5.1.8, 5.3.1, 6.1.7, 6.3, 7.1.2, 7.1.3)
- Environmental conditions often require freeze or scald protection equipment. (Sections 4.5.5, 5.4.5, 6.4.5, 7.1.1, 7.1.2, 7.1.3)

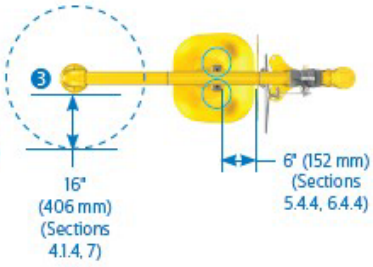


Top down view

Requires a 16" (406 mm) radius from the center of the drench shower spray pattern to be free of obstructions. (Sections 4.1.4, 7.1.1) ❸

Required to be free of obstructions a minimum of 6" (152 mm) from the outside of the eye or eye/face wash sprayheads. (Sections 5.4.4, 6.4.4, 7.1.2, 7.1.3)

Use a Bradley test gauge (Model 269-1444) to check flow pattern. ❹



Appendix H

Examples of signs