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INTRODUCTION

A. Purpose

The purpose of this Chemical Hygiene Plan is to assure safe and responsible use and handling of hazardous chemicals, and to minimize occupational exposures in laboratories. This plan is intended to comply with OSHA's regulations regarding Occupational Exposure to Hazardous Chemicals in Laboratories ([29 CFR 1910.1450](#)).

Augustana College is committed to operating laboratories that provide a safe working environment; we believe employees have a right to know about health hazards associated with their work. This Chemical Hygiene Plan includes policies, procedures, and responsibilities designed to develop an awareness of potentially hazardous chemicals in the workplace and to train employees in appropriate, safe working conditions. We expect that employees will use this information to make knowledgeable decisions about any personal risks of employment.

The Chemical Hygiene Plan is intended to safely limit laboratory workers' exposure to OSHA-regulated substances. Laboratory workers must not be exposed to substances in excess of the permissible limits (PEL) specified in OSHA rule 29 CFR 1910, Subpart Z, Toxic and Hazardous Substances. PELs refer to airborne concentrations of substances and are averaged over an eight-hour day. An employee's workplace exposure to any regulated substance must be monitored if there is reason to believe that the exposure will exceed a PEL. If exposure to any regulated substance routinely exceeds a PEL there must also be employee medical exposure surveillance.

B. Scope and Application

This standard applies where "laboratory use" of hazardous chemicals occurs. Laboratory use of hazardous chemicals means handling or use of chemicals in which all of the following conditions are met:

- 1) The handling or use of chemicals occurs on a "laboratory scale", that is, the work involves containers which can easily and safely be manipulated by one person,
- 2) Multiple chemical procedures or chemical substances are used, and
- 3) Protective laboratory practices and equipment are available and commonly used to minimize the potential for employee exposures to hazardous chemicals.

C. Responsibilities

At a minimum, this definition covers employees (including student employees, technicians, supervisors and researchers) who use chemicals in teaching, research and clinical laboratories at Augustana College. It is also our policy that students, while not legally covered under this standard, will be given training commensurate, or equal, with the level of hazard associated with their laboratory work.

Each department that engages in the laboratory use of hazardous chemicals will identify at least one Departmental Laboratory Safety Officer to serve as a focal point for laboratory health and safety activities within the department. This person will:

- 1) Work with the Department Chair and the Office of Human Resources to assess risks of all operations
- 2) Assist the Department Chair and Office of Human Resources in identifying, reviewing and approving non-routine laboratory operations, activities and procedures
- 3) Assist in developing and implementing training programs
- 4) Review the Chemical Hygiene Plan with everyone to whom it applies
- 5) Read the Chemical Hygiene Plan annually and notify the Office of Human Resources of any changes.

Each department is required to develop a training program for the benefit and protection of their laboratory employees. Training will explain the best way to handle hazardous chemicals and protect employees from hazards of chemicals in laboratories.

The immediate supervisor in each laboratory will:

- 1) Implement the Chemical Hygiene Plan in their laboratory,
- 2) Schedule time for employees to attend designated training sessions,
- 3) Assure that potential hazards of specific projects have been identified and addressed before work is started,
- 4) Obtain approval for non-routine operations, activities and/or procedures
- 5) Enforce safe work practices, and
- 6) Report hazardous conditions to the departmental laboratory safety officer.

All employees will have access to the written Chemical Hygiene Plan and pertinent safety information through their supervisory staff. Each employee is responsible for attending safety training sessions, following safety guidelines applicable to the procedures being carried out, assuring that required safety precautions are in place before work is started, and reporting hazardous conditions as they are discovered. All employees who handle chemicals/hazardous materials should be aware of the hazards associated with the materials they work with, as well as how to manage any spills of these materials. All employees must also have access to the Safety Data Sheet (SDS) before starting any procedure. Employees who have significant responsibility for directing their own laboratory work are responsible for assuring that potential hazards of specific projects have been identified and addressed before work is started. The people who work in any given laboratory are best able to detect potential hazards in either the facility or in work procedures. When safety concerns arise, employees are encouraged to contact their supervisor.

The Office of Human Resources is responsible for preparing and updating Augustana College's Chemical Hygiene Plan, and for distributing it to departments who will implement the plan. The Department Safety Officer will monitor the progress of the department toward achieving compliance. The entire department will participate in providing resources for the department in the development of their individual health and safety programs.

The contacts for the departments affected by this plan are as follows:

Department	Chair / Phone	Safety Officer / Phone	Lab Mgr / Phone
Biology	Jason Koontz/3442	Rebecca Ague / 8858	Rebecca Ague/ 8858
Chemistry	Greg Domski / 3482	Sally Burgmeier / 3466	Jeanette O'Leary / 3475
Geology	Mike Wolf / 7304	Mike Wolf / 7304	Mike Wolf / 7304
Mechanical	David Baker/7802	Ralph Aria / 7165	Ralph Arias / 7165
Physics	Nathan Frank/3402	William Peterson / 3425	William Peterson / 3425
Art	Rowen Schusheim-Anderson / 7490	Eric Mathis / 8114	Eric Mathis / 8114

STANDARD OPERATING PROCEDURES

Because few laboratory chemicals are without hazards, general precautions for handling all laboratory chemicals have been adopted to minimize exposure. Individuals will follow these procedures when working with chemicals:

A. General Requirements

- 1) Assume that any mixture of hazardous chemicals is more toxic than the most toxic component.
- 2) Seek information and advice about hazards from the SDS and staff, plan appropriate protective procedures, and plan positioning of equipment before beginning any new operation.
- 3) Do not allow release of toxic substances in cold rooms and warm rooms, since the atmosphere in these areas is contained and re-circulated.
- 4) When operations are left unattended, operators will leave the lights on, place an appropriate sign on the door, and provide for containment of toxic substances in the event of failure of a utility service (such as cooling water).
- 5) Keep the work area clean and uncluttered, with chemicals and equipment properly labeled and stored; clean up the work area on completion of an operation or at the end of each day.
- 6) Be aware of unsafe conditions and see that they are corrected when detected.

B. Individual behavior

- 1) No food or beverages are allowed in the laboratory. Do not store, handle or consume food or beverages in laboratories or chemical storage areas. Lab refrigerators may not be used for storage of food or beverages intended for human consumption. Glassware and utensils used for laboratory operation may not be used to store, serve, or consume food or beverages.
- 2) Eating, drinking, smoking, gum chewing, or applying cosmetics or lip balm in areas where laboratory chemicals are present is not allowed. Wash hands before conducting these activities.
- 3) Wear shoes at all times in the laboratory. Do not wear sandals or perforated shoes. Legs should be covered at all times in the laboratory.
- 4) Confine long hair, loose clothing and remove dangling jewelry.
- 5) Avoid practical jokes or other behavior that might confuse, startle, or distract another worker.
- 6) Read relevant SDSs before using chemicals to ensure awareness of handling, storage, disposal, over-exposure and first aid requirements.
- 7) Do not use mouth suction for pipetting or starting a siphon.
- 8) Do not smell or taste chemicals.
- 9) Do not remove chemicals from the building.
- 10) Do not make up "new experiments," or otherwise use chemicals or equipment for unauthorized purposes.

- 11) Dispose of hypodermic needles, lancets and broken glass in appropriate sharps containers, not in receptacles designed for routine trash.
- 12) Notify supervisors and/or instructors immediately if chemicals contact bare skin, or if you believe you may have been over-exposed to a chemical.
- 13) Wash areas of exposed skin thoroughly before leaving the laboratory.

C. Personal Protective Equipment

- 1) Wear PPE as discussed later in this plan.

D. Equipment Management

- 1) Use equipment only for its designed purpose.
- 2) Handle and store laboratory glassware with care to avoid damage; do not use damaged glassware.
- 3) Use extra care with Dewar flasks and other evacuated glass apparatus; shield or wrap them to contain chemicals and fragments, should implosion occur.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Each department will provide and maintain personal protective equipment (PPE) appropriate to the hazards present in the respective labs. Hazards may include chemical, thermal, electrical, splash, flying particles, etc. Departments will have PPE available for all students, and will require the use of such equipment at appropriate times. PPE may include, but is not limited to:

A. Safety Glasses & Goggles

Eye protection will be worn in all laboratories. Appropriate eye protection shall be worn by everyone, including students and visitors, in areas where chemicals are stored or handled, or where physical hazards are present. Safety goggles will be worn when there is a splash hazard. Safety glasses may be worn if there is no splash hazard. Individuals using face shields must wear goggles at the same time.

B. Footwear

Bare feet, sandals, canvas, open-toed or perforated shoes are not permitted in any laboratory setting where lab coats and gloves are required. Legs should be covered.

C. Gloves

Employees will wear gloves made of appropriate material to protect the hands and arms from thermal burns, cuts, or chemical exposure that may result in absorption through the skin or reaction on the surface of the skin. Gloves are also required when working with hazardous substances where possible transfer from hand to mouth must be avoided. Employees are required to wear gloves when the employees have the potential for direct skin contact with blood, hazardous chemicals, and infectious materials.

Gloves should be carefully selected using guides from the manufacturer. Glove-resistance to various chemical materials will vary with the manufacturer, model and thickness. Review the glove-resistant chart from the manufacturer you intend to buy from, before purchasing gloves. A glove chart is available in the office of the Safety Officer of the Chemistry Department. Gloves should be inspected before use, and replaced as needed. Gloves that are reused should be washed between wearing, to eliminate the prospect of cross contamination.

D. Lab Coats

Lab coats, or other similar clothing protectors, are required for all laboratory personnel. They are to be worn only in the laboratory area and are to be buttoned to protect the employee's clothing.

In areas where chemical splashes are great (e.g., histology, power plant), impervious protective clothing in material appropriate for the task must be worn.

E. Respirators

Respiratory protection is generally not necessary in the laboratory setting and must not be used as a substitute for adequate engineering controls. Availability of respiratory protection for emergency situations may be required when working with chemicals that are highly toxic and highly volatile or gaseous. If a protocol requires exposure above the PEL that cannot be reduced, respiratory protection will be required and the individual will be part of the Augustana College Respiratory Protection Plan. The Office of Human Resources must be contacted to schedule an initial physical exam, respirator selection and annual fit testing.

Respirators will be inspected before each use and equipped with cartridges suitable to the hazard. Individuals who have not been fit-tested and trained to use respirators will not use them.

CHEMICAL HANDLING AND STORAGE REQUIREMENTS

A. Housekeeping

Floors are cleaned regularly by Building Services. All employees of the Building Services department are trained in the risks associated with working in the laboratory. The Department Chair and Department Safety Officer will train the laboratory assistants in risks associated with working in the laboratory.

The Building Services Supervisor conducts a quarterly inspection of the lab areas to assess whether:

- 1) Stairwells and hallways are free of obstructions
- 2) Waste is deposited in appropriate receptacles and properly removed from the laboratory
- 3) Chemical spills are cleaned according to established protocol
- 4) Proper storage is accomplished to minimize clutter

B. Chemical Inventory

A chemical inventory is taken at least annually, listing all the hazardous chemicals in the laboratory. Chemicals listed are those classified as hazardous by the Department of Transportation (DOT), the Environmental Protection Agency (EPA), or display a 2 or greater number in any section of the National Fire Protection Association (NFPA) diamond.

Chemicals are listed alphabetically, by section, according to the most commonly used name (e.g., bleach). A catalog number may be required by some manufacturers for an SDS. The average quantity in storage on a monthly basis is included. The NFPA hazard classification, if known, is listed along with the manufacturer's name and complete address (which is on each SDS). A comment section is provided to further identify the chemical's location (e.g., room location, under the sink, third shelf in the safety cabinet, etc.).

Inventories are computerized to provide the capability of sorting according to name and/or location. A complete chemical inventory is located in the department and is accessible to all employees and students via Augie Campus Net on Augie web site (via the [SDS page](#)) and hard copy.

C. Chemical Storage

Storage of laboratory chemicals presents an ongoing safety challenge. To minimize hazards associated with chemical storage areas, laboratory operators will follow these basic requirements:

- 1) Minimize the amount stored. Order chemicals in the smallest practicable container.
- 2) Do not accept "donations" of chemicals from outside sources.
- 3) Do not order chemicals from "free" suppliers such as NAEIR.
- 4) Restrict the use of lab refrigerators for chemicals and specimens / cultures. Don't allow storage of food in lab refrigerators.
- 5) Store flammables and corrosives in designated storage cabinets designed for that purpose.
- 6) Store pressured cylinders upright, and strapped either to the wall or bench. Cap cylinders when not in use.
- 7) Store toxic chemicals, particularly carcinogens, in ventilated, secured storage areas.
- 8) Supervise students using toxic chemicals.
- 9) Use carts to carefully transport chemicals from storage to classrooms or laboratories.

Chemical Storage Areas

Department	Current Usage	Long Term Usage	Used/Recycled
Chemistry	Each Laboratory 3rd Floor Storeroom 4th Floor Storeroom	Basement	Basement (Separate Room)
Biology	Each Laboratory (Under Hood) Micro Lab (Under Hood)	Prep Room	Ecology Lab

Geology	Each Laboratory Geochemistry Lab	Sedimentary &	Sedimentary Petrology Lab (Under Hood)
Physics	Science, Rm 113	Science, Rm 113	Science, Rm 113 (Separate Storage Area)

D. Labeling

The 29 CFR 1910.1200 contains [specific labeling requirements](#). All hazardous chemicals used in the workplace must be labeled according to the following operating requirements:

- 1) Labels will not be removed or defaced.
- 2) Labels that are inadvertently removed or defaced will be replaced.
- 3) Labels will be checked for:
 - i) Identity of the hazardous chemical
 - ii) (GHS) Pictogram
 - iii) Route of entry (e.g., eyes, nose, mouth, skin)
 - iv) Health hazard
 - v) Physical hazard
 - vi) Target organ affected
 - vii) Name and address of the manufacturer.
- 4) Departmental Safety Officers will ensure that all containers used in their work area are labeled with identity and hazard warnings.
- 5) Employees will not remove or deface existing labels on incoming containers of hazardous substances.

Exceptions to Labeling Requirements

Labels are not required if a chemical is transferred to a portable container and this container is intended only for *immediate use* by the employee who performs the transfer. The employee will add a label to the container if it still holds a chemical when the employee relinquishes possession. "Relinquishing possession" means that the employee loses control of the container, including giving the container to another person, leaving the container to go to lunch, attending classes or meetings, or setting the container down with the intention of using it again the next day. The container must be labeled by the person who made the original chemical transfer.

Extensive labeling is not required on small test tubes or other containers used for testing or analytical purposes. Instead, the instructor may put codes on the tubes to identify the contents, and then maintain a written list of explanatory captions that translate the code into a precise description of the contents. This list must be kept, in writing, in close proximity to the area where the coded tubes or specimens are kept.

WASTE MANAGEMENT

A. Waste Minimization

In an effort to reduce the volume of waste generated, the following guidelines should be followed:

- 1) Only purchase what is needed for a three to six month supply.
- 2) Choose the least hazardous chemical that will accomplish the intended purpose.
- 3) If a chemical is still useful, recycle it by finding an associate that could use the remainder of the chemical.
- 4) If the material can be safely neutralized at the point of use, then do so.
- 5) Maximize the opportunity to recycle waste by segregating it into classes – for example, solvents, corrosives, and so on. Label waste containers to avoid inadvertent mixing of incompatible waste.

B. Hazardous Waste Management

Augustana College strives to operate as a small quantity hazardous waste generator under the Resources, Conservation, and Recovery Act (RCRA). This classification requires that we:

- 1) Identify our hazardous waste streams.
- 2) Limit the rate of hazardous waste generated to 2,200 pounds per month. (This represents about 200-250 gallons).
- 3) Label our containers with the words "Hazardous Waste" and a description of the contents.
- 4) Keep hazardous waste containers closed, except when adding or removing waste.
- 5) Inspect hazardous waste containers at least weekly, and document these inspections with written inspection forms.
- 6) Limit the time containers of hazardous waste are kept on campus to 180 days or less.
- 7) Post the following emergency information next to the phones:
 - i) Name and telephone number of the emergency coordinator, and
 - ii) The locations of fire extinguishers, fire alarms, and spill control equipment,
 - iii) The telephone number of the fire department, unless the College has a direct alarm.
- 8) Train employees to be familiar with emergency procedures and container management standards.
- 9) Comply with other RCRA requirements regarding recordkeeping, training, manifesting and disposal.

Since this limit applies to the College as a whole and includes other hazardous waste streams from the Art, Structural, Motor Pool and Facilities departments, we coordinate our disposal activity through the Office of Facility Services.

There are two ways waste may become regulated as a hazardous waste. It may either be included on a list of chemicals that are presumed hazardous by the federal government, or it may exhibit a characteristic of a hazardous waste. The lists of hazardous wastes are presented in our hazardous waste training materials and RCRA regulations. Waste with one or more of the following characteristics is also hazardous by definition:

Ignitable: The waste is easily flammable. It is a liquid with a flash point of less than 140 degrees Fahrenheit or a solid capable of causing a fire at standard temperature and pressure.

Corrosive: The waste dissolves metals or burns skin. It has a pH less than or equal to 2.0, or greater than or equal to 12.5.

Reactive: The waste generates toxic gasses, vapors or fumes when mixed with water, reacts violently with water or is capable of exploding at standard temperature and pressure.

Toxic: A waste that is capable of leaching any of the contaminants listed in the following table at levels above maximum concentration limits.

Maximum Concentration of Contaminants for the Toxicity Characteristic

EPA Code	Contaminant	CAS number	Level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0
D024	m-Cresol	108-39-4	200.0
D025	p-Cresol	106-44-5	200.0
D026	Cresol		200.0
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.40,4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5

EPA Code	Contaminant	CAS number	Level (mg/L)
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

Disposal of HAZARDOUS WASTE into sinks, drains, commodes or other sewage disposal channels is unlawful and strictly prohibited.

C. Disposal Procedure

Small containers of waste may be stored in the lab until they become full. While in the lab, the containers should be labeled to indicate the contents of the container. When the container is full, it should be closed, dated, and labeled with the words "Hazardous Waste." Full containers should be moved to the hazardous waste storage area in the basement of the Science Building. Lab staff may contact their Department Safety Officer to request assistance in moving waste containers into the accumulation area. This area is locked and restricted to authorized personnel only. People adding waste to the inventory should note this on the posted waste inventory sheets to ensure they are included in the weekly inspections. Incompatible waste should be physically separated.

Satellite waste accumulation containers (which is waste accumulated by a specific operator at the point of generation) may hold up to 55 gallons of a hazardous chemical before it must be sealed and placed in the waste accumulation area. Only one pound of an acutely hazardous chemical can be accumulated at any one time.

Inspections will be completed (and documented in writing) by the Department Safety Officer or their designated replacement. Inspections should note any condition which requires remedial action; this would include spills, leaking containers, containers that are hot, bulging or show other signs of impending failure or chemical incompatibility, etc. Completed forms will be kept in the Science Building by the Department Safety Officer.

Waste collection occurs twice during the school year, usually in December after the conclusion of the first term, and again in May or early June near the conclusion of the school year. Waste disposal does not typically occur during the summer months, since most laboratory operations are suspended and the volume of waste generated across campus is extremely low. Approximately 30 days prior to each waste collection event, an electronic form is sent by the Office of Facility Services to all department safety officers to request disposal of excess materials or waste. The electronic form is returned to the Office of Facility Services, who in turn contacts the disposal company and supervises the manifesting and packaging of the waste for shipment. Manifests are kept in the Office of Human Resources.

Containers of hazardous waste that are not labeled in accordance with this policy will not be removed from the area until such label is affixed to the container. If the contents of the container are unknown, please indicate this on the label.

RIGHT TO KNOW

A. Safety Data Sheets (SDS)

All chemicals used on campus must have a current (no more than 5 years old) Safety Data Sheet (SDS) filed with the College. The College relies on this information to determine whether or not chemicals are hazardous, and to provide training and safety information to staff and students. The Office of Human Resources manages an on-line database that provides SDS to users at the College. Visit the [SDS web site](#) to access the database. Most SDS in the database have been digitized and are viewable by using Adobe Acrobat software. Contact the Office of Human Resources for additional assistance in using this on-line system.

The Office of Human Resources also coordinates maintenance of 1 (one) hard copy collection, located in Room 101 of the Science Building. These collections may be used by individuals for research purposes or as a backup to the electronic system. Instructional materials explaining how to read SDSs are available at each of these locations and online.

Department Safety Officers are responsible for informing Human Resources when they change their chemical inventory, either by adding or discontinuing items. If they add a new chemical to the inventory, they are responsible for providing one copy of this document (either .pdf or hard copy) to the HR Office. This document should indicate where the information should be linked into the database, and provide other guidance information to database administrators.

Departments are urged to replace chemicals with a health hazard greater than 2 with a less toxic product.

B. Training

Training is a necessary and important part of the Chemical Hygiene Plan. All employees are trained by their supervisor at the time of the employee's initial assignment to a work area where hazardous chemicals are present and before assignments involving new exposure situations. All training records are stored electronically via the Moodle system. Records can be accessed by Department Safety Officers or the Office of Human Resources.

1) OBJECTIVES

Upon completion of the Chemical Hygiene Training Program, the employee will know and understand:

- a) How to detect the presence or release of a hazardous chemical in the workplace.
- b) The physical and health hazards associated with the chemicals and materials produced, used, or stored in the workplace.
- c) How to use the different components of the Chemical Hygiene Plan to protect themselves from the hazards associated with the chemicals and materials in the workplace.

- d) The terminology used on labels and on Safety Data Sheets to define the hazards associated with the materials and chemicals they use.
- e) The regulatory requirements (OSHA 29 CFR 1910) related to hazardous materials and chemicals' activity which they are normally involved in, as well as any known potential emergency situations.
- f) The labeling systems used to identify hazardous materials and chemical containers.
- g) Where to obtain and how to use (location and availability) the list of hazardous materials and chemicals and information found on the Safety Data Sheet.
- h) Where to obtain and how to use (location/availability) the information in the Chemical Hygiene Plan.
- i) How to use appropriate work practices and personal protective equipment.

2) DOCUMENTATION

Employees and students are required to electronically sign an acknowledgement of training, and complete a small quiz as appropriate. For students this information is housed in moodle and is managed by the department. Employee information is retained electronically in Everfi and is managed by Human Resources.

ENGINEERING CONTROLS

A. Fume Hoods

The laboratory fume hood is designed to capture fumes, vapors or dust that escape from containers or apparatus and remove them from the laboratory environment before they can be inhaled. In deciding whether to use a fume hood, operators will consider the characteristics of the chemical: including its physical state, volatility, toxicity, flammability, eye and skin irritation, odor, and the potential for producing aerosols. As a rule of thumb, operators will use a hood or other local ventilation device when working with any appreciably volatile substance. They will also use hoods when a proposed chemical or procedure exhibits any one of these characteristics to a degree that:

- 1) Airborne concentrations might approach the action level or permissible exposure limit (PEL),

- 2) Flammable vapors might approach the tent of the lower explosion limit,
- 3) Materials of unknown toxicity are used or generated, or
- 4) The odor produced is annoying to laboratory occupants or adjacent areas.

Hoods will be operated in the following way:

- 1) Confirm that the available ventilation system is appropriate for the chemicals and/or procedure to be performed.
- 2) Confirm the hood is operating properly.
- 3) Keep hood closed at all times except when adjustments within the hood are being made.
- 4) Keep materials stored in hoods to a minimum, and do not allow materials to block vents or air flow.
- 5) Leave the hood "on" when it is not in active use if toxic substances are stored in it or if it is uncertain whether adequate general laboratory ventilation will be maintained when it is "off."
- 6) Vent apparatus that can discharge toxic chemicals (vacuum pumps, distillation columns, etc.) to local exhaust devices.
- 7) Inspect all fume hoods semi-annually (Sept & March).
- 8) Remove from service any hood that does not pass inspection, and ensure it is not used again until it passes inspection.

B. Eyewash Fountains and Showers

Eyewash fountains and showers are available in all laboratories, and should be used by staff and students as needed. Departments will inspect this equipment weekly, flush it as necessary, and maintain records of inspections in the departmental offices. It is important that no objects be placed in the pathway where they would obstruct and delay an unassisted, potentially blinded person who needs to reach these emergency facilities. Lab operators must prevent students from advertently blocking these areas with furniture, equipment, or other items. The water temperature supplying these systems must be consistently maintained at room temperature. Maintenance of this equipment will be coordinated with Facilities Services

C. Fire Extinguishers

The Office of Facility Services oversees the maintenance of all campus fire extinguishers. Inspections are conducted monthly by custodial staff and annually by a local contractor who also oversees the replacement plan. All records are maintained in the Office of Facility Services.

ACCIDENTAL EXPOSURE AND SPILL RESPONSE

A. Accidental Exposure

- 1) Read the Safety Data Sheet (SDS) for appropriate first aid recommendations.
- 2) Use eyewash fountains and showers, available in all laboratories, as needed. Do not store items in front of the eyewash fountains or in other ways block immediate access to this equipment.
- 3) Remove laboratory coats, or all other clothing, immediately upon significant contamination.
- 4) Absent contrary instructions on the SDS, respond to specific exposures as follows:

- i) **Eye contact:** Chemicals can be concentrated under contact lenses and will interfere with eye flushing. In case of a chemical splash to the eyes, contacts should be removed immediately. Promptly flush eyes continually with tepid water for at least 15 minutes and seek medical attention. If it is available, bring the SDS for the chemical of exposure with the victim when seeking medical attention.
 - ii) **Ingestion:** Encourage the victim to drink large amounts of water and seek medical attention at Trinity Medical Center, accompanied by the SDS for the chemical of exposure.
 - iii) **Skin contact:** Promptly flush the affected area with water for at least 15 minutes and remove any contaminated clothing; use a safety shower when contact is extensive. If symptoms persist after washing, seek medical attention.
 - iv) **Clothing Fires:** Douse victim in safety shower or smother fire with lab coat to extinguish flame. Seek medical attention.
- 5) Individuals sent to a clinic or hospital with an injury related to chemical exposure will be sent with the appropriate Safety Data Sheet (SDS). If the SDS is not immediately available, it will be faxed or e-mailed to the appropriate clinic or hospital as soon as it becomes available.
 - 6) If medical attention does not seem necessary at the time of exposure, individuals exposed to a chemical will be provided with a printed copy of the SDS to take with them before they leave the laboratory. This should be retained by the exposed individual and provided to the physician in the event that the individual seeks after-hours medical care.

B. Spill Response

- 1) Promptly clean up spills, using appropriate protective apparel, equipment and proper disposal methods, as recommended by the SDS.
- 2) Notify Public Safety Dispatch at extension #7711 to clean major spills.
- 3) Each department is responsible for implementing the College's evacuation plan relevant to their portion of the Science Building, and for notifying affected students and staff of the requirements of this plan.

FIRST AID & MEDICAL CONSULTATIONS

A. Managing Injuries

Injuries requiring off-site clinic or emergency care will be managed in the following way:

- 1) Either the injured party or an immediate supervisor will notify Public Safety by dialing extension 7711. If the incident requires either police, ambulance or fire department personnel, Public

Safety will provide back-up care, and escort incoming First Responders to the location of the incident.

- 2) Either the injured party or an immediate supervisor will immediately notify both the Office of Public Safety and Human Resources department of the event. These offices will contact either the clinic or ER and provide authorization for billing, identification of the incoming patient, and other event-specific information (such as e-mailing or faxing SDS).
- 3) Supervisors present during the incident will assist as needed in shutting down equipment, providing crowd control, and completing an [Incident Report Form](#). The Incident report Form will be directed to the Office of Human Resources.
- 4) Inquiries by the press or other public organizations will be directed to the Communications and Marketing department at extension #7721.

B. Contacts

- 1) ***Employees, students, or visitors requiring non-critical care during regular business hours should report to the following location:***

Concentra Urgent Care Clinic
 (Conditions not requiring ER care)
 555 Valley View Dr,
 Moline, IL 61265
 Phone: 309-764-9675

DIRECTIONS:

Take 38th Street south
 Turn left on 18th Avenue
 18th Avenue (Rock Island) turns into 19th Avenue (Moline)
 Turn right on 7th street
 Turn right on Valley View Dr.

- 2) ***Employees, students, or visitors requiring non-critical care after regular business hours or need critical care should report to the following location:***

UnityPoint Health, Trinity Rock Island (Hospital)
 2701 17th St,
 Rock Island, IL 61201
 Phone: 309-779-5000

DIRECTIONS:

Take 38th Street south
 Turn right on 18th Avenue
 Turn left on 17th Street
 The Hospital is located on the left, just past Rock Island High School

C. Policy

- 1) Employees will receive medical examinations and consultations will be provided without cost to the employee, without loss of pay, and at a reasonable time and pace. They will be performed by or under the direct supervision of a licensed physician. A board-certified physician in occupational medicine is used whenever possible. The examinations and consultations are performed in accordance with the following requirements and those specified in hazard specific standards in 29 CFR 1910.1000 Subpart Z.
- 2) Employees will be sent for medical evaluation:
 - a) Whenever signs and symptoms associated with a hazardous chemical develop.
 - b) When environmental monitoring reveals an exposure level routinely above the action level.
 - c) Whenever an event takes place in the work area such as a spill, leak, or explosion resulting in hazardous chemical exposure.
- 3) The Laboratory Supervisor will provide the following information to the physician and Office of Human Resources:
 - a) Identity of the hazardous chemical(s) to which the employee may have been exposed.
 - b) A description of the conditions under which the exposure occurred, including quantitative exposure data (if available).
 - c) A description of the signs and symptoms of exposure.
 - d) A copy of the SDS for each of the chemical(s) involved.
- 4) The physician provides a written opinion that will not reveal specific finding of diagnosis unrelated to the exposure but will include:
 - a) Any recommendation for further medical follow-up
 - b) Results of the medical examination and any associated tests
 - c) Any medical conditions that may be revealed in the course of the examination that may place the employee at increased risk as a result of exposure to a hazardous chemical found in the workplace
 - d) A statement by the physician that the employee has been informed of the consultation/examination results and any medical condition that may require further examination or treatment. All records are kept, transferred, and made available in accordance with 29 CFR 1910.20.
- 5) Records related to employee exposure will be sent to Human Resources for maintenance in the employee's file. HR will also coordinate follow-up with the insurance carrier and other relevant service providers.

RECORDKEEPING

The laboratory has established and maintained an accurate record for each employee of environmental monitoring, medical consultations, and examinations, including tests or written opinion required.

- Incident Report records are written and retained by Human Resources.
- Inventory and usage records for high-risk substances are maintained by each Department.
- Training records are maintained electronically via the Moodle or Everfi system. Records are maintained by the Department Safety Officer or Office of Human resources and made available in accordance with [29 CFR 1910.20, 1910.1200, 1910.1450](#).

Fume Hood Inspection Procedure:

Personnel designated to check fume hoods in the Science Building are trained by the Science Building Safety Officer. The fume hoods are checked quarterly and recorded in the safety log book. A vaneometer is used to check for linear feet per minute air flow. The air flow is checked at 12 different spots within each fume hood. The range of air flow should be between 60-110 lfpm. The position of the fume hood sash is designated by a black arrow on the side of the fume hood. The fume hood monitors are also checked quarterly at this time. The monitor on each fume hood will show a green light if it is operating properly. It will show a red light and give an audible alarm if the air flow falls below 50 lfpm. If the red light is on and the audible alarm sounds, employees are instructed to completely close the fume hood sash and vacate the area if they are working with harmful substances within a fume hood. Any problems with fume hoods are reported to the Augustana facilities department, using a work order. Any fume hood that is not functioning properly or is turned off will have a "do not use" sign affixed to it.