monroe one
EDUCATIONAL SERVICES

**Daniel T. White**
*District Superintendent*

# Chemical Hygiene Plan 2019-2020

## I. Overview

This Chemical Hygiene Plan is intended to:

1. Protect employees from health hazards associated with laboratory chemicals.
2. Keep chemical exposures below established OSHA permissible exposure limits.
3. Define responsibilities for chemical hygiene management.

This Chemical Hygiene Plan is intended to be readily available to employees. A copy of this plan is posted on the Monroe One BOCES website under Notices & Procedures Directory, Health & Safety: Written Plans and Information.

## II. Annual Update

A. The Director of Sustainability shall solicit comment from each appointed Chemical Hygiene Officer for this plan's updates.

B. The Director of Sustainability shall send this updated plan to The Genesee Valley Educational Partnership Health, Safety and Risk Management Office (GV BOCES HSRM) to have it reviewed for compliance with current state regulations.

C. The updated plan shall be sent to the Chair of the Monroe One BOCES Health and Safety Committee for approval, so that the updated plan will be ready for the start of the next school year.

## III. Monroe One BOCES Responsibilities

A. **The District Superintendent** has the ultimate responsibility to ensure institution wide compliance with this Chemical Hygiene Plan and therefore requires:

1. Recording all employee exposures to hazardous chemicals including:
    a. Use of monitoring instruments to gather data if there are routine chemical exposures that are close to the permissible exposure level (PEL) by OSHA standard.
    b. Follow up of recorded chemical exposures with medical evaluation and examination.
    c. Maintenance of exposure records, including medical records, for the duration of an employee's employment plus thirty years.
    d. Employee access to all records regarding hazardous chemical exposure, which shall be provided through the Monroe One BOCES intranet.
2. Training options to be provided to employees through the GV BOCES HSRM to:
    a. Understand the hazards of the laboratory chemicals they use:
        i. Safety data sheets,
        ii. Permissible exposure limits of hazardous chemicals.

b. Recognize signs and symptoms associated with overexposure to hazardous chemicals.
c. Properly use personal protective equipment such as fume hoods, gloves, goggles, etc.
d. Follow good laboratory procedures to avoid chemical exposure.
e. Understand the content of this Chemical Hygiene Plan.

B. **Program Administrators** are responsible to:
   a. Annually approve the list of laboratory chemicals to be used in their program with consideration of:
      i. Requiring specific notification of any chemical's use if it is an Appendix A listed chemical and encouraging the use of lesser hazard chemicals whenever possible.
      ii. Authorize purchasing the volume for any material that is no more than one fiscal year's predicted use per year.
      iii. Authorize the proper disposal of chemicals at year end of the school year.
      iv. Maintain employee accountability for the proper storage of chemicals.
   b. Appoint a Chemical Hygiene Officer for their program, using the following criteria, listed in order of importance:
      i. Currently teaching a Chemistry course so that inspection of the Chemical Storage Room is a daily and routine task.
      ii. If Chemistry is not a subject taught under the program administrated, then the appointed person should be whoever works within the subject area that uses the greatest number of chemicals.
   c. Ensure the appointed Chemical Hygiene Officer has training resources, which are available online with this Chemical Hygiene Plan, under Notices & Procedures Directory, Health & Safety: Written Plans and Information.
      i. This Plan
      ii. The Genesee Valley Educational Partnership Health, Safety and Risk Management Office Chemical Hygiene Officer Training Power Point of April 27, 2011
      iii. The School Chemistry Laboratory Safety Guide of October 2006.
   d. Enforce or enact safety suggestions made by the Chemical Hygiene Officer.
   e. Record all employee exposures to hazardous chemicals with incident reports that detail:
      i. Chemical or chemicals involved in the incident
      ii. Times and dates of the exposure
      iii. Duration of the exposure for each individual
      iv. Names of employees and students exposed
      v. Exact locations of the exposure
      vi. Circumstances of the exposure

vii. Immediate remediation taken

f. Understand the content of this Chemical Hygiene Plan.

C. **Chemical Hygiene Officers** are responsible to:

a. Define which spaces shall be called laboratories and provide that list to their Program Administrator.

b. Maintain the Master Chemical Storage Inventory for their program area(s), from records provided by each teacher of their area(s), for the current year plus a three year history.

c. Work with peer Chemical Hygiene Officers of Monroe One BOCES to perform the Annual Update to this plan (II. Annual Update.)

d. Inspect laboratory areas and provide the program administrator lists of safety violations that need correction.

e. Inspect chemical storage areas and provide the program administrator lists of safety violations that need correction.

f. Maintain the records of eyewash and safety shower tests and the contact user list for all the laboratories of the program area(s) for the current year plus a three year history. (Fume hoods are not used in our programs.)

g. Review the chemicals required by the program curricula and alert the Program Administrator as to the Appendix A status of chemicals specified.

h. Manage the proper disposal of hazardous materials and waste from their area. If needed, see Monroe County CESQS form 7 attached and its procedure or http://www.monroecounty.gov/File/DES/CESQG%20form7.pdf online. When filled out, please send the form to Director of Sustainability, F-1 in Bldg 1,2,3 and she will contact Monroe County, coordinate with other disposal needs, receive the cost estimate and make the appointment for disposal, provide the purchase requisition information and write the work order for disposal. Material will not be picked up until the day of the disposal appointment with Monroe County and a purchase order for the cost of disposal has been approved and issued. Note that some disposal request may require the Director of Sustainability to ask The Genesee Valley Educational Partnership Health, Safety and Risk Management Office to package the material for safe transport to the Monroe County Facility.

i. Understand the content of this Chemical Hygiene Plan.

**D. Teachers** are responsible to**:**

1. Alert the Chemical Hygiene Officer for their Program Administrator to any changes in their lesson plans or curriculum that impacts chemicals and chemical safety.
2. Maintain a Chemical Inventory for their areas and classrooms and copy that inventory to the Chemical Hygiene Officer. There is a worksheet available online.
3. Provide the Chemical Hygiene Officer with a list of any hazardous materials which are surplus or otherwise need disposal. This chemical disposal list be a table headed by

Building, Room and location with the room followed by a list with the following headings:

- Chemical
- Amount
- Quantity
- Container Material Type.

4. Make sure that each chemical with their areas is properly labeled with:
    a. Chemical name
    b. Concentration (molarity or strength if a chemical solution)
    c. Hazard information statement
    d. Name and address of the manufacturer or person who prepared solution
    e. Date of acquisition or preparation
5. Maintain a list of students who wear contact lens in the labs they teach so that the lens might be removed quickly in the event of a chemical exposure. A Contact Lens User List form is included online and should be updated whenever there is a new student and sent to the Chemical Hygiene Officer quarterly.
6. Train students in chemical safety such that they know:
    a. How to use all safety devices in the laboratory (eyewash, fire extinguisher, etc.) and how to quickly find these safety devices.
    b. Understand the risks of wearing contact lens while working with chemicals.
    c. To use protective safety equipment to reduce potential exposure, especially when working with concentrated acid solutions (gloves, goggles, masks, fume hood, etc.).
    d. Appropriate procedures in the event of a power failure.
    e. Where and how to use master utility controls to shut off the gas supply to the classroom.
    f. The hazards of the chemicals being used in the classroom as stated in the safety data sheets or on the container label.
    g. Smelling or tasting of chemicals is never permitted.
    h. To read all chemical labels prior to use.
    i. To notify the teacher if they wear contact lens.
    j. Unauthorized laboratory experiments are prohibited.
7. Test the eyewashes in their areas weekly, flushing them for three minutes to prevent the eye infection contaminate from Acanthamoebae, documented on the form online.
8. Complete an inspection and test, using the forms included online, of the safety showers and other equipment in their areas every three months and provide records of these tests, which includes acknowledgement of completion of the weekly eyewash test, to the Chemical Hygiene Officer.
9. Maintain their personal training status as appropriate for their area through professional development and attendance at meetings.
10. Follow lab safety regulations.

11. Understand the contents of the Chemical Hygiene Plan

## IV. Standard Operating Procedures

A. Minimize chemical exposures to employees and students.
B. Evaluate chemical hazards without underestimation.
C. Read chemical labels prior to use. Study hazards and precautions for protection before using any chemical.
D. If an explosion or implosion might occur, use a safety hood, safety shield or an outdoor demonstration area.
E. Avoid skin contact with chemicals.
F. Require goggles to be worn during all laboratories which involve chemicals, glassware or heat.
G. Use protective safety equipment to reduce potential exposure, especially when working with concentrated acid solutions (gloves, goggles, masks, fume hood, etc.).
H. Flammable liquids are not used near any source of ignition, spark or open flame.
I. Promptly discard chipped, etched or cracked glassware, to reduce breakage hazard when heated or handled.
J. Do not operate electrical equipment with wet hands.
K. Do not run in laboratory or chemical prep or storage areas.
L. Chemical demonstrations are practiced in front of other instructors prior to performance in front of a class.
M. Avoid working alone in laboratories, chemical storage or preparation areas.
N. Unauthorized personnel are not allowed in the chemical storeroom.
O. Chemicals are not stored above, underneath, or in a sink.
P. Proper storage methods for chemicals are used.
Q. Proper spill cleanup and waste disposal for chemicals are followed.
R. Proper procedures for transportation of chemicals are followed.
S. Maintain appropriate levels of training.
T. Understand the contents of this Chemical Hygiene Plan.

## V. General Laboratory Facility Standards

A. Work areas shall be clean and well maintained.
B. First Aid Procedure shall be posted in each lab and in each chemical storage area:

**Report all exposures to hazardous chemicals to**
**Nurse's Office, 383-6416**
**In Emergency: Poison Control (800) 222-1222**
**Medical Emergency 911**

C. Each chemistry laboratory shall be well ventilated, having at least 8 air changes per hour. Air for laboratory ventilation shall flow from non-laboratory areas and out to the exterior of the building. Ventilation must be checked a minimum of every 3 months.

D. A telephone or some means of emergency communication is in each chemical laboratory, chemical storage areas and chemical prep area.
E. Tri-class ABC fire extinguisher is mounted in the lab. (Carbon Dioxide fire extinguishers are inappropriate.)
F. Class D fire extinguisher, such as a bucket of sand, is available when working with flammable solids.
G. Fire extinguishers are inspected monthly with the other building fire extinguishers.
H. A fire blanket is mounted in every chemical laboratory and within 25 feet of the chemical stores area.
I. Fire Safety rules are maintained:
    1. Fire exits are not blocked.
    2. An alternative evacuation route is identified, in the event your primary route becomes blocked.
    3. The emergency plan is drilled.
    4. Aisles are clear.
    5. Emergency equipment and master utility control access is continually maintained.
J. General spill procedures:
    1. Clean up spills immediately and thoroughly.
    2. Follow approved spill cleanup procedures.
    3. Spills should only be cleaned up by teacher or aid trained in chemicals use.
    4. Neutralizing chemicals, such as a spill kit, dry sand, kitty litter, and other spill control materials should be readily available.
K. Laboratories must have eyewash capable of treating both eyes continuously for 15 minutes with copious quantities of tepid (defined by the 2014 ANSI/ISEA Z358.1 as the range between 60 -100 degrees F), potable water. Eyewash effectiveness and operation must be tested weekly and should be inspected every three months. Promptly repair any eyewash which does not meet the water flow requirements of ANSI 358.1.
L. Safety showers or body drenches should be provided. Showers should be tested every three months. Promptly repair any shower or body drench which does not meet the water flow requirements of ANSIZ358.1.
M. If fume hoods become included in our program, currently no fume hoods are used, they must be operational at the level of 70-100 linear feet per minute as measured by a velometer, and be tested annually. These tests may be scheduled through a request to GV BOCES HSRM office.
N. Discontinue laboratory work upon safety equipment failing quarterly inspections or when reported to be out of order at any time, until such time as the equipment is repaired and is returned to good order.

## VI. Personal Hygiene Guidelines

A. Food for consumption shall not be stored in the laboratory, chemical prep or storage area, *including* refrigerators in those areas.

B. Eating, drinking or chewing gum in the laboratory is prohibited.
C. Cosmetics may not be applied in areas where laboratory chemicals are present.
D. Drinking from lab glassware or other lab vessels is prohibited.
E. Pipet by mouth suction is prohibited – use a pipet bulb or other approved suction device.
F. Never smell chemicals directly; testing for odors may be done by wafting toward the nose.
G. Wash thoroughly after any chemical exposure or before leaving the laboratory.

## VII. Protective Clothing Requirements

A. Eye protection must be worn.
    1. Chemical splash goggles must meet ANSIZ87.1 Standard.
    2. Face shields must be worn when working with corrosive liquids, (i.e. full strength acids and bases).
    3. Common eye protection must be sterilized between uses with not less than 10 minutes of UV exposure or thoroughly cleaned with not less than a 70% ethanol solution.
B. Gloves, of the type to offer protection for the laboratory work to be done, must be worn.
    1. Every time before using, gloves must be tested for holes.
    2. After using, gloves must be properly removed using sanitary procedure to avoid transferring material to the skin.
C. Shoes that are closed toe and low heeled must be worn with socks.
D. Clothing must not be loose, such as balloon sleeves, flowing collars or capes that could be dragged into the laboratory work or caught on fire. Similarly:
    1. Tie back long hair.
    2. Remove hanging jewelry.
    3. Remove long or loose necktie or scarf.
    4. Remove watches and bracelets.
E. Respirators should not be used unless the employee is provided with proper training, medical surveillance and fit testing in accordance with the OSHA Respiratory Standard 29 CFR 1919.134. If appropriate ventilation cannot be provided through the use fume hoods or other mechanical ventilation, the chemical should not be used in the classroom or by classroom teachers.
F. Inspect all protective safety equipment before use. If defective, do not use.

## VIII. Housekeeping Rules

A. Store chemicals in locked cabinets, inaccessible to students, areas.
B. Chemicals that are moved into student accessible areas for a lab must be returned to their proper storage location at the end of the day's laboratory periods.
C. Waste materials are placed into proper containers with proper labels.
**D.** Fume hoods may not be used as storage areas.

## IX. Chemical Storage Rules and Procedures

A. Establish separate, secure, locked storage areas for chemicals.
    1. Avoid storing chemicals on shelves above eye level.
    2. Shelving above any work area, such as a sink, should be free of chemicals or other loose miscellany.
    3. Shelving sections should be secured to walls or floor to prevent tipping of entire sections.
    4. Shelves should be equipped with lips to prevent containers from rolling off.
    5. Chemical exposure to heat or direct sunlight should be avoided.
    6. Storage areas, cabinets must be labeled to identify the hazardous nature of the products stored within, to allow emergency personnel to quickly identify hazards.

B. Keep an updated inventory of all chemicals, their amounts and location. This Chemical Hygiene Plan is based on the proper updated inventory always being available.

C. Stored chemicals must be examined annually for usefulness, replacement, deterioration and chemical integrity.
    1. Store the minimum amount of chemicals needed.
    2. Store corrosives in appropriate corrosives cabinets.
    3. Always use safety cans to store flammable liquids, even when placed in flammable material storage cabinets.
    4. Label all chemical solutions with the identity of the contents, date, concentration, hazard information and name of person creating the mixture.

D. Incoming shipments of laboratory chemicals are to be opened and transported only by qualified teachers.
    1. Date label all chemicals with the purchase date, for proper aging of inventory.
    2. The special, expensive shipping containers used are frequently discarded and would prove valuable for chemical storage. If possible, keep certain items in the original shipping package, e.g., acids and bases in their Styrofoam cubes.

## X. Storage Requirements

A. Compressed Gas Handling Instructions
    1. Compressed gases should be handled as high energy sources, and therefore, as potential explosives.
        a. Gas cylinders must be chained and secured in place.
        b. Cylinder valve stems must be protected.
        c. Never lubricate, modify, force or tamper with a cylinder valve.
        d. Avoid exposure of cylinders to heat, including direct sunlight.
    2. Cylinders of toxic, flammable or reactive gasses should be used only under a fume hood.
    3. Do not extinguish a flame involving a combustible gas until the gas is shut off – otherwise it can reignite and possibly causing an explosion.

B. Flammable Chemicals Handling Instructions
    1. Store all flammables in dedicated flammables cabinet.
    2. Keep flammables cool at all times, between 55°F and 80°F.
    3. Store flammables away:
        a. Sources of ignition.
        b. Oxidizers
        c. Direct sunlight
    4. Never store flammables in refrigerators, unless the refrigerator is explosion proof.
C. Corrosive Materials Handling Instructions
    1. Store corrosives in dedicated corrosives cabinets.
    2. Inspect all shelf clips in corrosive cabinets every three months. Sound shelf clips prevent a collapsed shelf.
    3. If possible, keep certain items in the original shipping packages, e.g. acids and bases in the special Styrofoam cubes.
    4. Wear chemical splash face shield when handling corrosive materials.
D. Chemicals shall be stored in areas labeled as to family type below, according to type, keeping organics and inorganics as widely spaced as possible and providing a divider or at least 3" of shelf space between each family.

## XI. Procedure Specific Safety Rules and Guidelines (for extremely hazardous chemicals)

A. Use a fume hood when:
    1. The PEL, permissible exposure limit, for a chemical is less than 50 ppm as indicated on the chemical safety data sheet.
    2. Using carcinogens, mutagens, teratogens and allergens.
    3. Handling toxic, corrosive, flammable and noxious chemicals.
B. Use only very small quantities of flammable solids, such as sodium, potassium, lithium.
C. Use a safety shield when igniting flammable solids.
D. Store water reactive solids such as sodium metal, potassium metal, etc. under dry oil.
E. Use extreme caution when handling finely divided, dust-like material to avoid explosive mixtures with air.
F. Dispose of open cans of ether, ethyl ether, after use. Do not store once opened.
G. Rely on expiration dates to dispose of materials.
H. Glycerin should be available only to the instructor.

## XII. Prior Approval Procedures

Appendix A chemicals may only be ordered with the explicit, written approval of the program administrator.

## XIII. Exposure Evaluation

Monroe One BOCES will investigate suspected chemical overexposure in a prompt and timely fashion by documenting all chemicals and circumstances involved. This information

will be accessible to employees within two weeks of the incident. This information may be used to further improve lab safety.

Signs of overexposure include:

1. Accidental breakage of hazardous material container.
2. A skin rash or irritation occurring because of contact with a chemical.
3. Caustic splash to eyes, face, or body.
4. Symptoms such as nausea, dizziness and others.

## XIV. Medical Evaluations

A. Monroe One BOCES will make results of any chemical exposure medical consultation and examination available to employees when:
   1. Signs or symptoms of overexposure to a chemical are present.
   2. Monitoring indicated an overexposure to a chemical occurred.
   3. There was a spill or uncontrolled release of chemical fumes.
B. Monroe One BOCES will provide the physician with the names of the chemicals used, circumstances of the exposure and all signs and symptoms of the exposure.
C. Monroe One BOCES will:
   1. Retain the results of the medical examinations dealing with chemical overexposure
   2. Notify other employees working under the same conditions.
   3. Make the file accessible by other employees working in this area.
D. Monroe One BOCES will provide medical examinations and consultations by a licensed physician without cost to the employee, without loss of pay.

## XV. Monitoring

A. There are currently no substances in use by Monroe One BOCES that require monitoring.
B. Monitoring is necessary for exposure levels for substances that routinely exceed the PEL for that substance. If there is no cause to suspect a hazard or and exposure, no monitoring is necessary.
C. If monitoring is performed and shows no evidence of exposure, monitoring may be discontinued.
D. If initial monitoring indicates an exposure, steps must be taken immediately to reduce the exposure to permissible limits. Monitoring must then be performed periodically to verify that the steps to reduce the exposure have been effective. Monitoring may be terminated after complying with the applicable standard for the hazardous material.
E. All monitoring results and activities shall be fully accessible to employees.

## XVI. Emergency Evacuation Plan

If necessary:

1. The teacher determining that evacuation is necessary will immediately notify the teacher in closest proximity to them.
2. That notified teacher will then notify the Program Administrator.
3. An evacuation shall proceed in as if there was a fire drill evacuation: Everyone shall go to predetermined fire evacuation areas and then attendance shall be taken to make sure everyone is out of the building.

## XVII. Monroe One BOCES Chemical Hygiene Plan Contacts:

The O'Connor Academy, eSTART Program, and the Bird- Morgan Campus share David Thompson, david_thompson@boces.monroe.edu, Bldg 1,2,3 C-9, (585) 249-7855 as their Chemical Hygiene Officer.

The Eastern Monroe Career Center, Multi-Occupational/FOCUS, and High School TASC share Sean Reinhardt, sean_reinhardt@boces.monroe.edu, Bldg 1,2,3 Rm C-14, (585) 249-7283 as their Interim Chemical Hygiene Officer. Nita Milillo, nita_milillo@boces.monroe.edu, Bldg 1,2,3 Rm C-14, (585) 383-6697 is currently on leave.

**Appendices**

These are available online, through Monroe One BOCES website, Health & Safety Written Plans and Information, Chemical Hygiene Plan:

1. OSHA's Appendix A to 1910.119 - Process Safety Management Standard List of Highly Hazardous Chemicals, Toxics and Re-actives
2. Sign: Report all exposures . . . call 911
3. Sign: MSDSonline Poster 2017
4. Monroe County Household Hazardous Waste Form
5. Contact User List
6. Worksheet Teacher's Lab or Shop WEEKLY Safety Inspection Report
7. Worksheet Teacher's Lab or Shop, QUARTERLY Safety Inspection Log
8. Worksheet Chemical Inventory ANNUAL
9. Chemical Hygiene Officer Training PowerPoint
10. School Chemistry Laboratory Safety Guide
11. Chemical Labels
12. Chemical Label Symbols