CHEMICAL HYGIENE PLAN for _____

Policy Statement
Chemical Hygiene Officer Appointment

In compliance with the Federal Laboratory Standard and DoDEA Regulation 4800.4, we acknowledge our responsibility for the protection of our staff and students. We hereby institute the enclosed Chemical Hygiene Plan to assist us in our safety program. We hereby appoint to be our Chemical Hygiene Officer. We acknowledge the Chemical Hygiene Officer has the knowledge and authority to implement and enforce our Chemical Hygiene Plan.

CHO	Date
Principal	Date
District Superintendent	Date

General Science Agreement:

As science instructors, we know that it is vital to ensure the safety of students and staff at our school. We pledge to follow the guidelines within this Chemical Hygiene Plan to assure that we maintain a safe classroom and working environment.

Science Instructor	Date
Science Instructor	Date
Science Instructor	Date
Science Instructor	Date

Purpose

This document is designed to provide the framework for an appropriate Chemical Hygiene Plan for the Department of Defense Education Activity (DoDEA). DoDEA encourages and supports all programs, which promotes safety, good health and well-being of school faculty, staff and students. is committed to providing a safe and healthy work environment for all members of the school community and to reducing injuries and illnesses to the lowest possible level.

To assist our academic institution in enhancing the safety of laboratory personnel, the Occupational Safety and Health Administration (OSHA) published standard 29 CFR 1910.1450 "Occupational Exposure to Hazardous Chemicals in Laboratories". This regulation, known as the "Laboratory Standard", is designed to protect laboratory personnel from potential hazards associated with the use of laboratory chemicals.

DoDEA Regulation 4800.4, Chemical Hygiene Safety Program establishes the DoDEA requirement for hazard communication and chemical hygiene as well as addressing responsibilities. All staff should be familiar with this regulation.

The Chemical Hygiene Plan is designed to identify the safety practices that should be implemented when working with common hazardous chemicals found in the laboratory. These safeguards will protect laboratory workers from unsafe conditions in most situations. There are instances, however, when the physical and chemical properties, proposed use, quantity used, or toxicity of a substance will be such that controls need to be modified. Professional judgment is essential in these instances in order to meet specific uses or operational needs.

Chemical Hygiene Plan Overview

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CHEMICAL HYGIENE PLAN

I. Standard Operating Procedures (SOPs)

A) General Employee Rules and Procedures

1. Our SOPs address:

☐ Hazard Assessment
- Prior to initiation of new experiments or procedures, an assessment of potential hazards is performed**.**
- Appropriate protective measures, including personal protective equipment and engineering controls, are identified in the Safety Data Sheet and implemented.
- Process, or experiment specific guidelines and protective procedures are developed.

☐ Minimizing Chemical Exposures
- General precautions for chemical handling and storage are implemented in all laboratories
- Use of less hazardous materials is reviewed and exercised
- Engineering controls are implemented whenever necessary
- Personal protective equipment is utilized to avoid contact with chemicals

☐ Avoiding Underestimation of Risk
- All substances, even those with no known significant hazard, are handled to minimize exposure
- All substances of unknown toxicity are considered hazardous

☐ Experiments using chemicals not required as part of the curriculum
- All experiments not required by the curriculum are reviewed and approved by the school principal
- All safety barriers and equipment are available, in good working condition and utilized

All SOPs developed by the school are attached at the end of this Plan.

B) Roles and Responsibilities

All roles and responsibilities are provided in Enclosure 1 of the DoDEA Instruction 4800.04, "DoDEA Hazard Communication and Chemical Hygiene Program". All staff shall familiarize themselves with the contents of this reference.

C) Laboratory Control Measures

1) First Aid and Emergency Contact Numbers:

- Emergency Medical:
- Fire Department:
- Environmental Compliance Office

NOTE: Emergency Contact Numbers are posted near the telephone and on the outside of the door of the laboratory/chemical storage area.

- All personnel working in school laboratories have reviewed the first aid policy at the beginning of the school year. CHO shall have documentation of this review.

- Signs and symptoms of chemical exposure are reviewed in the SDSs
  - The First Aid section in the SDS is highlighted for quick reference

- Emergency First Aid for chemical exposure to:

  - **Eyes** - Immediately flush eyes for 15 minutes – seek medical attention.

  - **Skin** – Immediately flush area for 15 minutes – seek medical attention

  - **Clothing** – Immediately remove clothing and flush area for 15 minutes – seek medical attention

2) Curriculum Oversight

All experiments which are not part of the current curriculum are reviewed and approved by the school principal to ensure the safety of staff and students are addressed. These experiments shall be reviewed and approved prior to being allowed to be conducted in the school. All questions or concerns are addressed with the District CHA or Safety. CHO shall document the review and keep record of the recommendation.

3) Chemical Fume Hoods

Chemical fume hoods are engineering controls which are the primary barrier for protecting personnel from overexposure to chemical hazards. Chemical fume hoods require annual maintenance to verify they are operating efficiently and effectively.

☐ Our laboratory does not have a chemical fume hood
- No experiments are conducted requiring a chemical fume hood
- No volatile chemicals are in inventory

☐ Chemical fume hood is available
- Quantity:
- Location(s):
- Tested annually by ☐ Maintenance or ☐ Host Installation Industrial Hygiene Department

    - Date of last inspection:
- Airflow to be between 80 and 100 linear feet/minute
    - Airflow is checked prior to each use
    - Unit is placed out of service when airflow is outside of these parameters and Maintenance is notified.
- Sash height for safe operation is identified on the hood
    - Sash is positioned at the lowest practical position while working
    - Vertical sashes panels are positioned to keep the panel between the body and the work area while allow reaching around the panel work
- Baffles are unobstructed
- Hood is not used for storage
    - Hood is free of clutter which can adversely affect airflow or create eddies allowing vapors to escape
- Hood is located in an area with limited foot traffic or subject to activity which can adversely impact airflow

☐ School uses a canopy hood or other device in lieu of a chemical fume hood

- Type: Canopy
- Quantity:
- Location:
- Tested annually by ☐ Maintenance or ☐ host installation Industrial Hygiene Department
    - Date of last inspection:
- Airflow is sufficient to exhaust chemical vapors at the work surface
    - Airflow is checked prior to each use
    - Unit is placed out of service when airflow is outside of these parameters and Maintenance is notified.

4) Ventilation

The laboratory is well-ventilated and provides a minimum of eight air changes per hour).

- Current airflow exchange rate is changes/hour
- Dedicated exhaust system is in place
- Laboratory is under slightly negative pressure so air for laboratory ventilation shall flow into the laboratory from non-laboratory areas and out to the exterior of the building.
- Ventilation is checked a minimum of every three months. CHO shall have documentation/records of this.

D. Hazard Identification

1) Safety Data Sheets (SDS)

SDS's are documents prepared by chemical manufacturers, which provide the information necessary to work safely with the product. Every science teacher and student is instructed on how to access and understand SDSs.

SDSs for our chemicals can be found:

☐ In this laboratory, located:

☐ Conveniently located and accessible near the Main Office
- Location:
- Master File which is available for all staff and emergency response personnel

☐ On a computer network accessed at:

2) Container Labeling

Read all labels carefully—the names of many chemicals look alike at first glance. Chemical container labels are a good source of information on chemical hazards.

All containers of chemicals must have labels attached. This also applies to chemicals which are aliquot into other containers other than the original. Labels must contain:

- Common name of the chemical
- Concentration
- Appropriate hazard warning including target organs
- Cautionary statements
- Pictogram

NOTE: Unlabeled products or unknown chemicals are processed for disposal through the Host Installation

E. Emergency Equipment and Personal Protective Equipment (PPE)

1) Emergency Equipment

☐ Emergency eyewash station present
- Visible and placarded
- Meets the ANSI Z358.1 standard.
- Immediately accessible within 10 seconds (25 feet) of chemical storage/preparation areas.

- Hard plumbed and capable of flushing both eyes simultaneously.
- Tested weekly to ensure flow rates are sufficient to meet 4/gallons per minute requirement.
    - Repaired promptly when water flow requirements are not met.
- Date tested is documented ☐ logbook ☐ inspection card attached to the unit

☐ Emergency shower present

- Visible and placarded
- Meets the ANSI Z358.1 standard.
- Immediately accessible within 10 seconds (25 feet) of chemical storage/preparation areas.
- Emergency showers are tested every three months to ensure operation.
- Date tested is documented ☐ logbook ☐ inspection card attached to the unit

NOTE: All staff and students are taught how to use the eyewash quickly in case of an emergency.

2) Personal Protective Equipment

- Appropriate eye protection is required to be worn by teachers, students, and visitors when in the lab either working or observing experiments
- Chemical splash goggles are required any time chemicals, glassware or heat are used in the laboratory.
- All eye protection must meet ANSI Z87.1 Standard.
- In addition to splash goggles, face shields are required when dealing with extremely corrosive liquids, (i.e., full strength acids and bases).
- Goggles are cleaned/disinfected between uses.
    - Ultraviolet lights are changed frequently to ensure proper wavelength for disinfection
    - If soap and water are used, goggles are allowed to air dry
- Gloves made of ☐ Nitrile ☐ Rubber ☐ Latex ☐ Vinyl are used in the lab to protect against chemical hazards
    - Gloves are checked for pinhole leaks before being worn
- Full-length lab coat or a chemical-resistant apron are worn when performing experiments, preparing chemical solutions, and during cleanup in the lab.
- All protective safety equipment is inspected before use. If defective, it is removed from service.
- PPE is not worn outside the laboratory unless it is required (i.e. transport)

F. Fire Protection

1) Fire extinguishers are readily available.
   - Located:
   - Type: ☐ ABC ☐ D ☐ Other(explain)
     - ABC dry chemical fire extinguishers are appropriate for laboratories
     - Carbon dioxide fire extinguishers are not appropriate for laboratories.
     - Class D fire extinguisher should be available when working with flammable solids.
   - Fire extinguishers are visually inspected monthly and maintained every months. (Per local fire codes.)

2) A 100% wool fire blanket available for fire suppression.
   - Located:

3) All aisles are to remain clear and uncluttered.

4) Access to exits, emergency equipment, and master utility controls are clear
   - Life Safety Codes requires these to be clear and never to be blocked.

5) The alternative evacuation route from the laboratory is:

6) Emergency plans are practiced every month as part of the fire evacuation drill.

G. Chemical Spill Response

1) Remember "NEAR"
   Notify—Call for help.
   Evacuate—Get everyone to a safe location.
   Assemble—Assemble and take attendance of all students and employees.
   Report—Fill out a detailed accident report after the emergency is over.

2) Clean up spills immediately and thoroughly. Follow approved spill cleanup procedures— spills should only be cleaned up by approved personnel.

3) A bucket of dry sand should be available to aid in providing traction on a slippery floor after a spill.

4) To make it easier to clean up, transport, and dispose, an absorbing agent, such as Kitty Litter, should be used to absorb a liquid spill.

5) Neutralizer for both acid and base spills should be available in the event of a chemical spill.

H. Signage

1) All emergency exit signs are clearly visible and in good working condition.

2) Signs identifying the location of the emergency cutoff valves, eyewash station and showers are present and clearly visible.

3) The following special or unusual hazards exist

☐ No special or unusual hazards exist.

I. Personal Hygiene and Prudent Practices

The following prudent practices and procedures apply in our laboratories:

- All accidents or near accidents (close calls) should be carefully analyzed with the results distributed to all who might benefit.
- Do not apply cosmetics, eat, chew gum, or drink in the laboratory.
- Do not pipet by mouth—always use a pipet bulb or other appropriate suction device.
- Clean work area thoroughly before leaving the laboratory.
- Wash hands thoroughly after any chemical exposure and before leaving the laboratory.
- Never smell chemicals directly; always waft the odors to your nose using your hand.
- Foodstuffs, opened or closed, become part of your chemical supplies when brought into the laboratory, chemical prep, or storage area.
- Never taste any substance to determine its identity.
- Secure all loose or baggy clothing—especially long sleeves.
- Secure a long or loose necktie.
- Tie back long hair.
- Avoid the use of contact lenses in the laboratory. If contact lenses must be worn, the science teacher must be informed so special precautions can be taken.
- Do not wear hanging jewelry.
- Do not wear an absorbent watchstrap.
- Do not drink from lab glassware or other lab vessels.
- Do not run in the laboratory.
- No horseplay, practical jokes, or pranks are allowed in the laboratory.
- Do not operate electrical equipment with wet hands.
- Thermometers must never be used as a stirring rod.
- Do not use chipped, etched or cracked glassware. Glassware, which is chipped or scratched, presents a serious breakage hazard when heated or handled.

I. Housekeeping Rules

1) All hazardous or potentially hazardous chemicals are secure and locked in the chemical prep and storage area.
   - When chemicals are moved to the classroom for lab, they are required to be returned to their proper storage location at the end of the day's laboratory periods.

2) Waste materials are stored in proper containers and labeled.

3) Chemicals are prohibited from being stored on the floor.

4) The chemical fume hood is not used for storage.
   - The storage of items in the fume hood is a fire hazard and decreases the efficiency of the fume hood.

5) Dustpan and brush are required to pick up broken glass.
   - **Bare hands are not used to pick up broken glass**

6) All spills are cleaned up properly and promptly.
   - Small spills (<50 mL) may be cleaned up by school personnel depending on the toxicity of the material and the level of training
   - Spills over 50 mL require notification of the fire department for clean up

7) Work and floor surfaces are required to be cleaned daily and kept free of clutter.

K. Chemical Waste Disposal

1) All chemicals are disposed of through the Host Installation
   Disposal is scheduled: ☐ Weekly ☐ Monthly

2) **Pouring of any chemical down the drain is prohibited unless authorized by the host installation environmental compliance office.**

3) Appropriate carboys are used for storing waste chemicals.
   - All waste are recorded on the label to avoid generating unknown solutions

4) Chemical fume hood are not used to dispose of volatile chemicals.

L. Chemical Storage Rules and Procedures

Chemical inventory are completed semi-annually (Before September 30th and by June 30th). Quantities of chemicals will be kept at a minimum to reduce the risk of

spills and disposal issues. Chemicals are stored:

- According to chemical compatibility
- In approved Storage cabinets
  - Flammables – Flammable storage cabinet
  - Corrosive – Corrosive cabinet
  - Highly reactive chemicals (e.g. Nitric Acid) may require segregation
  - Explosion proof refrigerators will be used when storing flammable material under refrigeration
- Away from sinks
- In such a manner to prevent accidental spills
- So they are secure
- So they comply with current safety regulations

M. Procedure—Specific Safety Rules and Guidelines for Chemicals Requiring Special Precautions (per SDS)

☐ Chemicals requiring special precautions **are not** used

☐ Chemicals requiring special precautions **are** used

- Only when their use is of educational value.
- Used in a chemical fume hood when indicated on the chemical's SDS.
- Flammable liquids are not exposed to open flame, sparks, heat, or any source of ignition, except under controlled laboratory conditions.
- Flammable solids (sodium, potassium, lithium, etc.) are used in very small quantities.
  - Safety shield are used when igniting flammable solids.
  - Excess materials are not stored/present in the immediate area
- Water-reactive solids (sodium metal, potassium metal, etc.) are stored under dry oil.
- Extreme caution is used when handling finely divided (dust-like) material.
  - Finely divided materials may form explosive mixtures with air.

N. Prior Approval Procedures

There may be some procedures which require prior approval before an instructor attempts to perform them. These procedures must be determined by cooperation and communication between the Science Department, Chemical Hygiene Officer and the School Principal. These procedures and appropriate signatures are attached to this document as a separate enclosure.

II. Employee Training

The school level CHO will provide training sessions to staff, principal and science instructors as appropriate. All training must be documented and placed in the employee's training record. At a minimum, the training includes:

- Content and location of this Chemical Hygiene Plan and The Laboratory Standard.
- Potential hazards involved in using chemicals.
- Signs and symptoms of overexposure to chemicals and how to detect potentially harmful exposures before they are harmful.
- Location and availability of chemical SDS.
- Understanding of the permissible exposure limits (PELs) used in the school.
- The proper use and location of all safety equipment.
- The proper storage and labeling of laboratory chemicals.
- Actions to take in the event of a chemical spill

III. Exposure Evaluation

It is the communicated policy of to investigate all suspected overexposures to chemicals in a prompt and timely fashion. In the event of an overexposure, after the immediate event, all chemicals and circumstances involved in the overexposure will be documented. This information should then be used to change safety practices to further improve lab safety. It is the school's obligation to maintain these files and make them accessible. Signs of overexposure are numerous. Some common symptoms may include:

- Respiratory distress from inhalation
- Skin rash or irritation resulting from contact with a chemical
- Neurological deficit
- Nausea, dizziness, and headache

If monitoring of the air is determined to be necessary, the results of the monitoring will be made available. Occupational medical monitoring is requested through (the host installation) and the results are forwarded to DoDEA Headquarters, Office of Safety and Security via the District Superintendent as part of the Accident/Injury Report (AIR).

IV. Medical Evaluations

It is the policy of to have the employee seek medical advice and assistance whenever any sign or symptom of an overexposure to a chemical is present. Medical attention should be sought through the host installation Occupational Health when work related chemical exposures occur.

V. Monitoring

Monitoring will be necessary for substances regulated by a standard only if there is reason to believe that exposure levels for that substance routinely exceed the PEL for that substance. If you have no cause to suspect a hazard or an exposure, no monitoring is necessary. If monitoring is performed and this initial monitoring shows no evidence

of exposure, the monitoring may be discontinued. 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.

All requests for monitoring will be through the host installation Industrial Hygiene or Bioenvironmental (Air Force) Office.

The Point of Contact is:

VI. Emergency Evacuation Plan

The emergency evacuation plan for this school is attached.