Paterson Public Schools

90 Delaware Avenue
Paterson, New Jersey 07503

Written Chemical Hygiene Plan

In Compliance with:

Occupational Exposure to Hazardous Chemicals in Laboratories Standard
Title 29 Code of Federal Regulations
Part 1910.1450

As Adopted by:

OSHA/NJ-PEOSH Occupational Exposure to Hazardous Chemicals in Laboratories Standard (29 CFR 1910.1450)

Prepared By:
Garden State Environmental, Inc.

Finalized On:
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I. Background / Introduction

The US Department of Labor, Occupational Safety and Health Administration (OSHA) Occupational Exposure to Hazardous Chemicals in Laboratories standard, Title 29 Code of Federal Regulations, Part 1910.1450 (29 CFR 191

0.1450) became effective on May 1st, 1990. This regulation, commonly referred to as the "Laboratory Standard," was designed specifically to apply to employees engaged in laboratory use of hazardous chemicals.

The New Jersey State Public Employees Occupational Safety and Health (NJ-PEOSH) Program has adopted this federal standard to protect public sector workers, primarily science teachers and other District employees that might work in the District's science laboratories or chemical storage areas. A copy of this standard appears at the end of this document in Appendix J.

The goal of the Laboratory Standard is to protect all affected workers with regard to health and safety issues in laboratories. The Paterson Public School District (hereinafter the "District") has the responsibility to protect science teachers and special education teachers who teach science as well as students in laboratories where hazardous chemicals are used and/or stored.

It is the policy of the District that all chemical handling and related operations are required to be performed in a safe and responsible manner, including maintaining exposure to chemical agents within acceptable established limits. This policy further requires that exposures to hazardous chemicals be minimized by the use of hazard elimination, engineering controls, administrative controls, and personal protective equipment.

To that end, the standard requires this written Chemical Hygiene Plan (CHP), a Chemical Hygiene Officer (CHO) and the recommended appointment of a Chemical Hygiene Committee (CHC) to administer the chemical hygiene program for the District.

II. Safety Policy / Mission Statement

Since safety must always come first in all that we do, the District strives to ensure a safe educational environment for teachers, staff, students and visitors. This safe environment will be achieved by continually monitoring and assessing the District's laboratory facilities, staff training, employing safe work practices and the latest developments in health and safety legislation.

This CHP will serve as the basis for establishing, implementing and monitoring an effective district-wide chemical hygiene/science safety program in their science classrooms/laboratories and associated spaces. By constantly monitoring all safety issues, such as, chemical storage, room and equipment safety, general safety, and laboratory safety procedures, the science teachers will help to ensure this mission.

III. Distribution of Chemical Hygiene Plan

The following table shows the names and/or titles of everyone who will receive a printed or electronic copy of this CHP. All recipients are responsible for filing their copy in an accessible 3-ring binder or file cabinet drawer, or on a readily accessible District computer and making it available for review to any District employee or governmental regulatory compliance inspector at their request.

On receipt of a copy of this Plan, the recipient will make a copy of this page, sign and date it and return a signed copy to the Science Department Coordinator.

#	School Name	Name of Recipient	Title	Recipient's Phone # / Email
1	East Side High School	Yesid Campo (Day) Diego Jativa (Night)	Chief Custodian	973-321-2487 chiefehsday@paterson.k12.nj.us chiefehsnight@paterson.k12.nj.us
2	Alonzo "Tambua" Moody Academy @PS#11	Carlos Hincapie	Chief Custodian	973-321-0110/ chiefps11@paterson.k12.nj.us
3	STEAM High School	John Ramos	Chief Custodian	973-321-0560 chiefbuild@paterson.k12.nj.us
4	International High School	Kevin Alvarez	Chief Custodian	973-321-2282 chiefihs@paterson.k12.nj.us
5	John F. Kennedy Educational Complex	Daniel Bustillos (day) Tim Gradzki (night)	Chief Custodian	973-321-0500 chiefjfkdays@paterson.k12.nj.us chiefjfknight@paterson.k12.nj.us
6	Paterson P-Tech	Jose Santos	Chief Custodian	973-321-2290 chiefpanther@paterson.k12.nj.us
7	Rosa L. Parks Arts High School	Alberto Mendoza	Chief Custodian	973-321-0520 chiefrosaparks@paterson.k12.nj.us
8	PACE/Silk City Academy	Felix Ortiz	Chief Custodian	973-321-0760 chiefsage@paterson.k12.nj.us
9	School 20	Andres Villanova	Chief Custodian	973-321-0200 chiefps20@paterson.k12.nj.us
10	School 4 - Dr. Frank Napier	Jayson Harris	Chief Custodian	973-321-0040 chiefps4@paterson.k12.nj.us
11	Alexander Hamilton Academy	Carlos Vargas	Chief Custodian	973-321-0320 chiefaha@paterson.k12.nj.us
12	Joseph A. Taub (JAT)	Billy Moses	Chief Custodian	973-321-0700 chiefjat@paterson.k12.nj.us
13	Dr. Martin Luther King (School 30)	Sejhan Bajromov	Chief Custodian	973-321-0300 chiefps30mlk@paterson.k12.nj.us
14	School 10	Julio Lopez	Chief Custodian	973-321-0100 gmandara@paterson.k12.nj.us

#	School Name	Name of Recipient	Title	Recipient's Phone # / Email
15	New Roberto Clemente	Kishaun Morgan	Chief Custodian	973-321-0240 chiefnrc@paterson.k12.nj.us
16	Norman S. Weir	Efrain Gonzales	Chief Custodian	973-321-0750 chiefnsweir@paterson.k12.nj.us
17	School 13	Kleo Papadatos	Chief Custodian	973-321-0130 chiefps13@paterson.k12.nj.us
18	School 12	Raheem Vauters	Chief Custodian	973-321-0120 chiefps12@paterson.k12.nj.us
19	School 16	Andres Villanova	Chief Custodian	973-321-0200 chiefps20@paterson.k12.nj.us
20	School 18	Isaac Yabar	Chief Custodian	973-321-0180 chiefps18@paterson.k12.nj.us
21	School 2	Eusobio Bavilonia	Chief Custodian	973-321-0020 chiefps2@paterson.k12.nj.us
22	School 21	Davis Colon	Chief Custodian	973-321-0210 chiefps21@paterson.k12.nj.us
23	School 25	Rafael Rodriguez	Chief Custodian	973-321-0250 chiefps25@paterson.k12.nj.us
24	School 24	Rafael Ortiz	Chief Custodian	973-321-0160 jnaveira@paterson.k12.nj.us
25	School 28	Luis Velez	Chief Custodian	973-321-0280 chiefps28@paterson.k12.nj.us
26	School 26	Seljajdin Memish	Chief Custodian	973-321-0260 chiefps26@paterson.k12.nj.us
27	School 3	Franklyn Tapia	Chief Custodian	973-321-0030 chiefps3@paterson.k12.nj.us
28	School 6	Emmanuel Rodriguez	Chief Custodian	973-321-0060 chiefps6@paterson.k12.nj.us
29	School 8	Joshua Rivera	Chief Custodian	973-321-0080 chiefps8@paterson.k12.nj.us
30	School 7	Jose Gomez	Chief Custodian	973-321-0070 jfgomez@paterson.k12.nj.us
31	School 9	Edwin Galiano	Chief Custodian	973-321-0090 chiefps9@paterson.k12.nj.us
32	Young Men's Academy	Georgina Castillo	Chief Custodian	973-321-2380 chiefstpauls@paterson.k12.nj.us
33	Paterson BOE	Lakisha Kincherlow	Supervisor of Science	973-321-0717 ext. 10717 lkincherlowwarren@paterson.k12.nj.us
34	Paterson BOE	Dorothy Daniello	Supervisor of Science	ddaniello@paterson.k12.nj.us
35	Paterson BOE	Michael Kleeman	Supervisor of Science	973 321 2554 ext. 12554 mkleeman@paterson.k12.nj.us

#	School Name	Name of Recipient	Title	Recipient's Phone # / Email
36	Paterson BOE	William Mirra	Supervisor of Science	Wmirra@paterson.k12.nj.us
37	Garden State Environmental	Richard Lester & Tara Ekiert	Industrial Hygienists / Environmental Consultants	201-652-1119 rlester@gseconsultants.com tekiert@gseconsultants.com

IV. Chemical Hygiene Plan (CHP)

The purpose of this CHP is to provide guidance to all effected District employees, students, contractors, visitors and guests for the safe handling, use and storage of hazardous materials in laboratories and associated classrooms and laboratory storage areas.

A. Chemical Hygiene Officer (CHO)

The **CHO for the District is Garden State Environmental, Inc**. In accordance with the OSHA/NJ-PEOSH Laboratory standard, the CHO must be specifically "qualified by training or experience to provide technical guidance in the development and implementation of the provisions of the Chemical Hygiene Plan."

CHO duties include but may not be limited to:

- Working with administrators, teachers and other employees to develop and implement appropriate chemical hygiene policies and practices.
- Constantly seeking ways to improve the chemical hygiene program.
- Establishing, maintaining, and annually updating the CHP.
- Monitor procurement, use and disposal of chemicals used in the laboratories.
- Ensure that appropriate audits are conducted and maintained on a yearly basis in all science laboratories, chemical storage rooms and preparation rooms. Use audit reports to guide ongoing improvements in safe laboratory operations.
- In concert with the Chemical Hygiene Committee, establish standardized procedures for purchasing lab chemicals, including ordering the least hazardous chemicals available and ordering only the quantities needed for experiments during one school year (to avoid storage of large quantities of chemicals).
- Establishing safety policies, rules and procedures for the safe handling of all hazardous materials.
- Ensuring that all science teachers are knowledgeable about the CHP and required safety procedures for laboratory operations.
- Ensuring that all engineering controls, safety equipment and emergency response items are in place and operating properly. Examples include, having laboratory fume hoods tested annually, doing weekly/monthly activation checks for eye wash stations and safety showers, proper placement and testing of fire extinguishers, gas shut off valves, etc.

- Maintain a high level of knowledge regarding current regulatory standards regarding hazardous chemicals.

B. **Chemical Hygiene Committee (CHC)**

The District may establish a Chemical Hygiene Committee (CHC) in accordance with the Chemical Hygiene standard's recommendation.

The duties and responsibilities of the CHC shall include:

- Assisting in the implementation and enforcement of the CHP.
- Meeting on a quarterly basis (more often, if required) to discuss current health and safety issues, review annual lab safety audit reports and CHP updates, and develop corrective actions to resolve problems and improve safety
- Document all meetings with minutes that are distributed to all members and maintained in a CHP file.

The CHC shall consist of the Director of Science, Science Subject Matter Leaders from various schools, the Chemical Hygiene Officer and optionally a representative of District Buildings & Grounds and/or administration. The following table shows the present composition of the District's CHC.

Chemical Hygiene Committee		
Name	Position	Contact Email
Dr. Elizabeth Caccavella	Director of STEAM	ecaccavella@paterson.k12.nj.us
Lakisha Kincherlow	Supervisor of Science, Central Office	lkincherlowwarren@paterson.k12.nj.us
Dorothy Daniello	Supervisor of Science, P-Tech, RP HS	ddaniello@paterson.k12.nj.us
Michael Kleeman	Supervisor of Science, JFK	mkleeman@paterson.k12.nj.us
William Mirra	Supervisor of Science, Eastside HS	Wmirra@paterson.k12.nj.us
Dr. David Scala	Supervisor of Science, STEAM	dscala@paterson.k12.nj.us
Maureen Bruins	Teacher Coordinator of Science	mbruins@paterson.k12.nj.us
Nakeia Wimberly	Teacher Coordinator of Science	nwimberly@paterson.k12.nj.us

Name	Position	Contact Email
Neil Mapp	Chief Officer of Facilities	nmapp@paterson.k12.nj.us
Pedro Cespedes	Sector 1 Supervisor	pcespedes@paterson.k12.nj.us
Anthony Vasquez	Sector 2 Supervisor	avasquez@paterson.k12.nj.us
Javier Valle	Sector 3 Supervisor	vallej@paterson.k12.nj.us
Gjylten Ramadan	Sector 4 Supervisor	gramadan@paterson.k12.nj.us
Richard Lester & Tara Ekiert	Garden State Environmental, Inc. Environmental Consultants	rlester@gseconsultants.com tekiert@gseconsultants.com

V. Emergency and Non-Emergency Assistance Telephone Numbers

ORGANIZATION	CIRCUMSTANCE	TELEPHONE NUMBER
Paterson Public School District Services		
Paterson Publics School District Facilities Office Neil Mapp	**Information and Assistance**	**(Office)** 973-321-0912 **(Mobile)** 973-725-3451
POLICE SERVICES		
Police Department	**Emergency Only**	**9-1-1**
Police Department	**Non-Emergency**	973-321-1111
FIRE SERVICES		
Fire Department	**Emergency Only**	**9-1-1**
Fire Department	**Non-Emergency**	973-321-1111
MEDICAL SERVICES		
Volunteer Ambulance Unit	**Emergency Only**	**9-1-1**
Volunteer Ambulance Unit	**Non-Emergency**	
Hospital: St. Joseph's University Medical Center		(973) 754-2000
Poison Control Center		(800) 222-1222

VI. Goal of Chemical Hygiene Plan

The general intent of the Chemical Hygiene Plan for the District is:

- To protect Science Teachers, any other laboratory employees, custodians, maintenance, Buildings and Grounds workers, students, other building occupants, and contractors from health hazards associated with the storage, use and disposal of hazardous chemicals in laboratories.
- To prevent Science Teachers, any other laboratory employees, custodians, maintenance and Buildings and Grounds workers from being exposed to substances in excess of the permissible exposure limits (PEL) adopted by New Jersey Public Employees Occupational Safety and Health Program (PEOSH) [29 CFR 1910 subpart Z].

This plan will be reviewed annually by the CHC/CHO and updated as necessary.

VII. Identification of Hazards, Risks & Controls

The first step toward working safely with or around hazardous chemicals, chemical products or hazardous conditions is to understand the nature of hazards and the potential risks they pose. It is only when we recognize hazards that we can begin to control them.

A hazard may be simply defined as anything that can hurt us. In addition to people, animals, property, and the environment can be harmed. There are four categories of hazard types:

Hazard	**Definition**	**Hazard Example**
Physical Hazard	Are those caused by direct interaction with the mechanics of our environment	Slipping, Tripping and Falling**,** Cuts, Lacerations, Scratches and Scrapes**,** Noise & Vibration**,** Heat & Cold Stress**,** Nuisance Dust**,** Electric Shock**,** Falling Objects.
Chemical Hazard	Are brought about by exposure to substance that can cause us harm in different ways and to different extents.	Flammability, Combustibility**,** Irritation, Corrosively**,** Poisoning, Asphyxiation**,** Reactivity, Explosivity, Allergic Response, Sensitization**,** Genetic & Reproductive Effects.
Biological Hazard	Are those caused by other living organisms	Fungi (mold), bacteria, viruses, parasites**,** Venomous and non-venomous insect and animal bites, Poison ivy, poison oak, poison sumac and other harmful vegetation.
Radiological Hazard	Are caused by the ionizing radiation energy given off by certain atoms or special instruments	Lower Strength: radio, TV, microwave ovens, radar, infrared, visible and ultraviolet light spectra Higher Strength: X-rays, gamma rays, alpha particles, beta particles.

Risk Assessment:

Risk is defined as the probability or likelihood of a hazard actually causing you harm. Risk assessment is based on the degree of hazard and the potential for exposure. For example, if there is a high degree of hazard and a strong possibility of exposure, there will be a high risk of harm.

Hazard Control

There are three widely recognized ways to control hazards. The preferred hierarchy of hazard control recommended by OSHA is:

Engineering controls	• Considered the first line of defense because they can isolate or eliminate the hazard. • Substitute less hazardous materials, equipment or processes. • Use of mechanical devices such as ventilation or making structural changes to the work environment.
Administrative controls	• Involves the use of policies, guidelines, standard operating procedures (SOPs), safe work practices, and job rotation to minimize the potential risk of exposure to hazards.
Personal Protective Equipment (PPE)	• Used as a last resort since the primary goal is to eliminate the risk of exposure in the laboratories. • PPE is only protective if it is used properly, is designed specifically for the hazardous exposures of concern, not damaged, worn out or otherwise compromised. • Examples of PPE are safety goggles, splash shields, impermeable or chemically resistant gloves, lab aprons/coats, dust masks, respirators, hard hats and safety shoes. Respirator use requires prior medical clearance, training, and respirator fit testing which is not currently offered by the District.

VIII. General Safety Polices to help avoid Exposure and Accidents:

- All science teachers must comply with all District laboratory safety procedures and actively encourage safe work habits among staff and students avoid exposures to hazardous chemicals.

- Appropriate engineering controls (e.g., laboratory fume hoods), personal protective equipment (e.g., chemical splash goggles, impermeable gloves, etc.) and safe work practices must be followed to prevent or minimize chemical exposures. Engineering controls and safety equipment should always be inspected before each use.

a. The following safety policies apply to all High Schools and Middle Schools within the District that use and/or store hazardous chemicals. For School-Specific policies which are in place for the safe handling of chemicals in each laboratory; see Standard Operating Procedures (SOPs).

- Choose the least hazardous chemicals available for all experiments. If only high hazard chemicals are available for a specific experiment, that experiment should be replaced in consultation with the CHO.

b. Eating, Drinking Smoking, Application of Cosmetics, etc.:

- Storing, handling or ingestion of food, beverages or gum and the application of cosmetics of any kind in laboratories, chemical storage rooms or preparation areas is prohibited for all school staff and students. Food and beverages, regardless of packaging, can never be stored where chemicals are kept, such as, in chemical cabinets, refrigerators, or freezers.

c. Equipment and Glassware:

- Handle and store all laboratory equipment, glassware and reagent bottles with care to avoid damage. Damaged equipment or glassware should not be used in the laboratory and should be reported to the Science Department Coordinator. Broken glass must be cleaned up via broom/dust pan or other methods that avoid direct skin contact and must be disposed in puncture-proof broken glass containers.

d. Entering and Exiting:

- All entry and egress from laboratories, chemical storage rooms and preparation areas must be by normal entryways and exits. In case of emergencies, follow the School's Emergency Evacuation Plans and leave the problem area by taking the nearest safe exit.

e. Horseplay:

- Practical jokes, horseplay or other behaviors that might confuse, startle or distract a teacher, staff member or a student and increase the potential for an accident, are strictly prohibited.

f. Mouth Suction:

- Do NOT ever use mouth suction for pipetting or starting a siphon. Use a Pipet bulb or other appropriate suction device.

g. Personal Apparel:

- Long hair and loose clothing must be tied back; do not wear loose or balloon sleeves.
- Do not wear shorts; wear long pants.
- Do not wear finger rings, hanging jewelry or a long or loose necktie around laboratory equipment with moving parts.
- Do not wear any cloth or other absorbent watchstrap.
- Proper low-heeled shoes should be worn at all times in laboratory spaces. Sandals, open toe or perforated shoes are prohibited. Always wear socks in the laboratory.
- When working with chemicals, contact lenses should be avoided and goggles should be worn.

h. Housekeeping:

- For specific District information and explanations regarding proper housekeeping, refer to SOP-1: Housekeeping.

i. Planning:

- Teachers should seek information and advice from the CHO, SDSs and this CHP about any potential chemical, physical or other type of hazards in the laboratory. If hazardous materials or processes are to be used, teachers should plan appropriate control measures, select suitable personal protective equipment and set up the proper positioning of equipment. This requirement must be included in teachers' lesson plans.

j. Prohibited Chemicals:

- The Science Department Coordinator and/or CHO will periodically monitor and update the list of chemicals that are prohibited from use in the school system because they are known to be severe poisons and/or carcinogens. Likewise, they may possess other dangerous properties or are strongly suspected of being carcinogenic, mutagenic, or teratogenic.
- The use of the following hazardous materials is strongly discouraged. But if usage is absolutely necessary due to requirements of the curriculum and lack of safer alternatives, prior written approval by the CHO and the Science Dept. Coordinator is required prior to use.

Asbestos	Ethyl ether
Benzene	Hydrofluoric Acid
Benzyl peroxide	Mercury metal (elemental mercury)
Beryllium salts	Methylene Chloride
Carbon disulfide	Nitrobenzene
Carbon tetrachloride	Organic peroxides
Chloroform	Perchloric acid and its salts
Chlorofluorocarbons (Freons)	Phosgene
Cyanide salts	Picric acid
Diethyl ether	Pyrophoric Chemicals
Diisopropyl ether	

k. Unattended Operations:

- There should be no unattended chemical operations in any laboratory, classroom, and storage room or preparation area. A teacher or trained laboratory representative must always be present.

l. Vigilance

- Teachers and other staff members should be constantly alert for any unsafe conditions. When problems are discovered, they must be corrected as soon as possible after detection. Place "Out of Order" signs on any faulty equipment. See Appendix E1 for a defective fume hood sign and Appendix E2 for an out of order sign for all other equipment.

- Uncorrected and unsafe conditions must be immediately reported in writing to the Science Department Coordinator and/or the CHO.
- Copies of reports concerning both corrected and uncorrected safety problem should be sent to all members of the CHC, including the CHO, so that they may review the problems and take necessary actions to correct them.

m. Working Alone

- Teachers or other staff members are not allowed to work alone in laboratories, chemical storage or preparation areas.
- Students are not permitted to conduct experiments alone or work in a classroom laboratory after normal school hours in the absence of a qualified faculty member.
- Staff members are not permitted to prepare chemical reagents, solutions or mixtures for future laboratory activities after normal school hours without the knowledge and presence of other certified staff members in the building. All after-hours preparation must be approved by the Building Principal and the Department Chairperson in advance, and in writing.

n. Corrosives

- The most common corrosive chemicals are strong acids and bases, which have very low or very high pH properties in water. Other corrosives are strong dehydrating agents and strong oxidizers. Examples of these are:
  a. Acids: nitric acid, sulfuric acid, hydrochloric acid, hydrofluoric acid, phenol.
  b. Bases: Sodium hydroxide, potassium hydroxide, ammonia.
  c. Dehydrating agents: phosphorus pentoxide, calcium oxide.
  d. Oxidizing agents: concentrated hydrogen peroxide, chlorine gas, bromine liquid.

– Corrosive liquids are the most important category of corrosive substances in that they are the most common cause of corrosive injuries, especially where external injury is concerned. The primary sites of contact by corrosive liquids are the skin and the eyes. Mineral acids, organic acids, solutions of strong bases and certain organic solvents are classified as corrosive liquids. There is a danger of corrosive vapors escaping from some corrosive solutions, i.e. ammonia, nitric acid, bromine and others.

– Corrosive gases. The most serious hazard associated with corrosives is from materials in the gaseous state. In this state, corrosives are readily absorbed into the body by dissolution in skin moisture and by inhalation. Gaseous corrosives are usually grouped by solubility and the effect on the respiratory system. Some examples of corrosive gases common to the medical laboratory are ammonia, hydrogen chloride, hydrogen fluoride and formaldehyde.

– Corrosive solids are the least hazardous of the corrosive substances. The effects of corrosive solids are largely dependent on their solubility in respiratory moisture and the duration of contact. Some compounds do have a specific ability to penetrate the skin even though their solubility in water is relatively low. Of these, phenol and salicylic acid are the most common in medical laboratory settings. Phenol is a very weak organic acid, and salicylic acid is a stronger organic acid. Besides the intrinsic

corrosive properties of solids, the heat of solution is often an important factor in damaging tissue.

o. <u>Storage of corrosive chemicals:</u>

Strong mineral acids, such as sulfuric acid, nitric acid, hydrochloric acid, etc., must be stored by themselves in under the counter metal cabinets, glass or ceramic trays or sand boxes or on wooden shelving.

Alternatively, approved corrosive storage cabinets may be used. Storage trays or sand boxes must be of sufficient volume to contain all the acid from the bottles if all the bottles were to break. The storage area or cabinet must be labeled to identify the agents stored therein and the hazards present, along with decontamination and first aid instructions. Hydrofluoric acid must be stored in plastic trays non-reactive to the compound.

- Always store acids separately from bases and flammables in lockable storage cabinets since many acids are also strong oxidizers.
- Do not work with corrosives unless a continuous flow eyewash and an emergency shower are within fifty (55) feet or ten (10) seconds from the work area.
- Always add strong acids or bases to water. **Never** add water to strong acids or bases, as the generation of excessive heat from mixing the two (2) substances can cause splashing.
- **Never** store corrosives above eye level. Store them on a low shelf or in a lockable cabinet.
- It is a good practice to store corrosive chemicals in a tray or bucket to contain any leakage or in case of bottle breakage.
- It is best to store corrosives within a lockable cabinet that has a corrosion-resistant lining.
- Always use a rubber or plastic safety bottle carrier when transporting containers of corrosive materials back and forth between storage rooms and class room laboratories (seen in pictures below).
- In case of contact with skin on hands, arms or face, thoroughly wash off the material with soap and water for at least one to two continuous minutes. Follow up with an immediate visit to the School Nurse. Exposure to the neck, back, legs and other parts of the body may warrant removal of clothing and jewelry and drenching in an emergency shower for about fifteen (15) minutes, followed by a medical evaluation.
- In the event of eye contact, immediately irrigate the eyes and lids with running water from the eye wash fountain for a minimum of fifteen (15) minutes. Proceed to the School Nurse and get prompt follow-up medical attention. Be prepared to identify the specific chemical involved to the healthcare provider.

p. <u>Electrically Powered Laboratory Apparatus</u>:

- All laboratory equipment and tools with metal housings are already supplied with 3-prong plugs. Teachers must ensure that all electric cords do have 3-prong plugs and are in good condition with no fraying or other visible damage. Damaged or improperly grounded cords must be immediately taken out of service, labeled as “Out of Order” and written up for repair or replacement.

q. Fires and Explosions

- Activation of the school fire alarm signals immediate evacuation of the building by students, teachers, other staff and visitors alike. While fire drills are conducted periodically, every time the alarm sounds, all school occupants must treat the situation as though is an actual fire emergency.
- Fires and even explosions unfortunately do occur in chemical laboratories. Consequently, every precaution must be taken to prevent accidental spills and releases of flammable and combustible liquids, as their vapors can create highly flammable and/or explosive conditions.
- To minimize the possibility of creating hazardous accumulations of flammable or explosive vapors, always use a properly operating fume hood to handle flammable liquids.

r. Pressurized and Vacuum Operations

- No laboratory experiments can be conducted at pressures greater than one atmosphere.
- Work with vacuum systems poses a substantial danger of injury to the operator from flying glass pieces which can be released during an implosion. As a result, a protective shield must always be placed around evacuated systems.
- Vacuum operations, such as filtration, desiccation, evacuation or solvent stripping require the use of mechanical vacuum pumps or water aspirators. Belt-driven mechanical pumps must be equipped with protective guards to enclose the moving belts.
- Safety glasses and/or face shields must be worn at all times when working with evacuated systems.
- Filter flasks or other glass vessels used in vacuum operations must be visually checked for cracks, scratches or etching prior to use. Preferably, the glassware should be inspected with polarized light. Glassware having any of these imperfections must be disposed of in a glass disposal container.
- A suitable cold trap, filter, liquid trap with a backflow check vavle, etc. must be used in solvent stripping vacuum operations.

IX. Employee Information and Training

Each science department employee covered by the Laboratory Standard will be provided with information and training so that they are apprised of the hazards of chemicals present in their work area. This training will be provided by a qualified trainer at the time of initial assignment to work in the district that may involve exposures to hazardous materials.

The training/information sessions shall include:

1. The contents of 29 CFR 1910.1450 and its Appendices.
2. The availability and location of the written Chemical Hygiene Plan.
3. The physical and health hazards of chemicals in laboratory work areas.
4. Routes of Exposure
5. Absorption
6. Work Practices

7. Information on PEOSH Permissible Exposure Limits (PELs) where they exist and other recommended exposure limits.
8. General Safety Policies (as stated above in section VIII).
9. Signs and symptoms associated with exposure to hazardous chemicals in laboratories.
10. Location of reference materials, including all MSDS/SDSs and NJ Hazardous Substance Fact Sheets, and documentation on the safe handling of chemicals in laboratories.
11. Methods to detect the presence or release of chemicals (i.e., monitoring, odor thresholds, etc.)
12. Measures to protect employees from these hazards including:
    - Site Specific Standard Operating Procedures
    - Work practices
    - Emergency procedures
    - Personal protective equipment
13. Details of the chemical hygiene plan.
14. Employee concerns.

- Garden State Environmental, Inc. is responsible for conducting the training for the District. Each session will consist of a lecture, power point presentation, other audio-visual materials and handouts.
- An example attendance form documenting which science staff members have successfully completed training can be found in Appendix A.
- Post District training each year, all training materials will be kept in the office of the Science Supervisor.

X. Medical Consultation and Examination

The District shall provide medical attention to any affected employees including follow-up examinations which worker's compensation determines is necessary under the following circumstances:

- Whenever an employee develops signs and symptoms associated with a hazardous chemical to which he/she may have been exposed.
- Where exposure monitoring reveals an exposure level routinely above the OSHA Action Level (AL), or in the absence of an Action Level, exposure above the OSHA PEL for PEOSH regulated substances for which there are medical monitoring and medical surveillance requirements. In that case, medical surveillance shall be established for all impacted employees.
- Whenever an event takes place in the work area, such as a spill, leak, explosion or other occurrence resulting in the likelihood of a hazardous exposure.
- All medical examinations and consultations are provided by a licensed physician, or qualified medical professional supervised by a licensed physician at a medical facility selected by the District. Examinations are provided without cost to the employee, without loss of pay, and at a reasonable time and place.
- The Science Department Coordinator, CHO or Principal will provide the following information to the physician:
    a. Identity of the hazardous chemical to which the employee may have been exposed.
    b. A description of the conditions of the exposure including exposure date if available.

c. A description of signs and symptoms of exposure that the employee is experiencing (if any).

- The written opinion that the employer receives from the physician shall include:
    a. Recommendations for future medical follow-up.
    b. Results of examination and associated tests.
- Any medical condition revealed which may place the employee at increased risk as the result of a chemical exposure.
- A statement that the employee has been informed by the physician of the results of the examination/consultation and told of any medical conditions that may require additional examination or treatment.
- NOTE: All personal medical information obtained during the medical evaluation (beyond the employee's ability to work and any recommended occupational precautions) must remain confidential between the medical provider and the employee.

A written report of the event shall be filed by the teacher in charge and shall be submitted to the Science Department Supervisor and the CHO. Refer to Appendix B for the District's Accident / Incident report.

XI. Standard Operating Procedures (SOPs):

Site specific SOPs are designed to assist the District with complying with the OSHA Laboratory Standard. The following information should be used as a guide to maintain a safe laboratory environment at each District School.

SOP NUMBER	TITLE	REVISION DATE
SOP- 1	**Housekeeping**	
SOP-2	**Personal Protective Equipment**	
SOP-3	**Safety Equipment**	
SOP-4	**Emergency Situations / Accidents**	
SOP-5	**Proper Chemical Labeling and Warning**	
SOP-6	**Chemical Handling, transport and Storage**	
SOP-7	**Flammable Chemicals**	
SOP-8	**Corrosive Chemicals**	
SOP-9	**Oxidizers, H_2O Reactive, Pyrophoric, Peroxidizable, Light Sensitive, Unstable Materials**	
SOP-10	**Hazardous Waste Disposal**	
SOP-11	**Microbiological Sanitation and Disposal**	

SOP-1: **Housekeeping**

Safety and organization of the laboratory follows from good and routine housekeeping practices. Use the following guidelines to maintain an orderly laboratory:

1. Work areas should be kept clean and uncluttered with chemicals, equipment and supplies, personal belongings, and miscellaneous items at all times.
    a. Upon completion of an operation, experiment, demonstration, or non-chemical day to day activities each day, the work areas **must** be cleaned and organized before leaving.

2. Chemicals, equipment, and supplies must be properly labeled in accordance with OSHA Hazard Communication and NJ Right to Know regulations, and stored in designated locations.

3. If chemicals are moved to the laboratory from the chemical storage room, preparation area, or designated location within the laboratory, they must be returned to their proper storage location and secured at the end of the day.

4. Never block access to exits or emergency equipment, such as fire extinguishers, fire blankets, and safety showers and eyewash stations.

5. Do not block exits, emergency controls, or use hallways and stairways as storage areas.

6. Counter top and floor surfaces (including within fume hoods if applicable) must be cleaned regularly and kept free of boxes, laboratory equipment and supplies, papers, and other miscellaneous items.

7. Containers of chemicals must never be stored on the floor, even for a very short period.

8. Never store chemicals above eye level.

9. When storing equipment and other miscellaneous items, store the heaviest items on the bottom shelves or cabinets.

10. Always use a stepladder when reaching for equipment and other items that are stored overhead.

11. When chemicals are not in use, keep the containers closed.

12. Dispose of waste as per the Paterson City Public School Hazardous Waste Management Plan, available in the main office of each building and the Chief Custodian’s Office.

13. A separate waste receptacle must be designated for non-contaminated glass. Clean spills immediately and thoroughly, as per the Basic Steps for Emergency and Spill Response located I SOP-4: Emergency Situations & Accidents.

14. Assure hazardous chemicals are properly segregated into compatible categories as per SOP -6: Chemical Handling, Transport, and Storage.

SOP-2: Personal Protective Equipment (PPE)

Protective equipment, (PPE) for eyes, face, head and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used and maintained by District Science Teachers in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact (29 CFR 1910.132(a)).

Use and Maintenance of Eyewear

- Safety eyewear should be as comfortable as possible, fit snugly over the eyes and around the face, and not interfere with the movement of the wearer. Safety glasses must be appropriate for the task.
- Safety glasses must always be worn in laboratories where hazardous materials are stored or used. Glasses should be available for visitors if visitors are allowed into the lab.
- When it is appropriate, signs should be posted outside the door stating that eye protection is required before entering the room.
- Eye safety equipment must be capable of being cleaned and disinfected.
- Eye protection must always be kept in good condition. Staff must wash the goggles in warm soapy water and/or follow the manufacturer's guidelines. Goggles and safety glasses are to be stored in a cool dry place.
- The type of eye protection required depends on the hazard. Where there is a danger of splashing chemicals or a flying particle hazard, goggles with side shields are required. For more hazardous operations, a combination face shield and safety goggles may be required.

Contact Lenses

Laboratory staff, whose vision requires the use of corrective lenses, should wear safety eye protection of one of the following types:

- Prescription safety glasses with protective lenses. These glasses must have safety frames and side shields.
- Safety eye wear that can be worn over prescription glasses without disturbing the adjustment of the glasses.

Laboratory personnel who must wear contact lenses while performing laboratory work should be aware of the following potential hazards:

- It is virtually impossible to remove contacts from the eyes following some chemical splashes affecting the eye area.
- Contact lenses will interfere with emergency flushing procedures.
- Contacts may trap and collect fumes and solid materials on the eyes.
- If chemicals contact the eye area and the laboratory worker is unconscious, rescue personnel may be unaware that contact lenses are present.
- Certain gaseous environments can cause contact lenses to adhere to the eye.

Use of contact lenses should be considered carefully. If contact lenses are to be worn in laboratories where chemicals are used, safety goggles must always be worn over them. In a gaseous atmosphere, non-vented goggles must be worn.

Protective Clothing

1. Lab Coat

- The lab coat is designed to protect the clothing and skin from chemicals that may be spilled or splashed. It should always be properly fitted to the wearer and should cover at least the knees. There are several different types of lab coats for different types of protection.
- Lab coats or other protection outer wear (scrubs) should be worn at all times while working in laboratories where hazardous chemicals, biological agents, and radioactive materials are used.
    - Cotton - protects against flying objects, sharp or rough edges, and offers some protection against minor chemical splashes.
    - Wool - protects against splashes of molten materials, small quantities of acid, and small flames.
    - Synthetic Fibers -- protect against sparks, infrared and ultraviolet radiation. However, synthetic fiber lab coats can adversely magnify the effects of some laboratory hazards. For instance, some solvents may dissolve particular classes of synthetic fibers, thereby diminishing the protective ability of the coat. In addition, on contact with flames, some synthetic fibers will melt and adhere to the skin. This molten material can cause painful skin burns and release irritating fumes.
    - Aluminized and Reflective Clothing -- protect against radiant heat.
    - Pyrolon - fire retardant material; good chemical resistance; this material, however, is not breathable, so it tends to keep your body quite warm and is very uncomfortable over long periods of time unless the atmosphere is quite cool.

2. Apron

- An apron provides an alternative to the lab coat. It is usually made of plastic or rubber to protect the wearer against corrosive materials and irritating chemicals.

3. Hand Protection

- It is a good idea to always get into the habit of wearing protective gloves in the laboratory. Aside from acting as a shield between hands and hazardous materials, some gloves can also absorb perspiration and protect the hands from temperature extremes as well as cuts, abrasions, etc.
- Certain glove types can dissolve when in contact with solvents, it is important to take extra care in matching the protective glove with the nature of the job. Before use, always check to make sure the gloves are in good condition and free from holes, punctures, and tears. Remember that no one glove material will protect you from all types of chemicals - choose the glove for the material being handled.

  Glove types:
  Gloves should be selected on the basis of the material being handled and the particular hazard involved. No one glove material protects against all types of chemicals.

- Latex - not recommended for use with chemicals; used mostly in medical labs; provides light protection against irritants (some people can have an allergic reaction to latex which can lead to a serious medical condition).
- Nitrile - offers good protection for many common laboratory chemicals; the 8 mil disposable and heavy-duty nitrile should be used for more toxic chemicals and chemicals that easily penetrate the skin.
- Natural Rubber - protects against light corrosive material and electric shock.
- Neoprene - for working with solvents, oils, or light corrosive material.
- Cotton - absorbs perspiration, keeps objects clean, provides some fire retarding properties; provide **no** chemical protection.
- Zetex - when handling small burning objects. These are a good replacement for asbestos gloves.

When working with extremely corrosive material, wear thick gloves; take extra precaution in checking for holes, punctures, and tears.

For more information, use the attached hyperlink to access a "Chemical Resistant Gloves" guide/chart that will assist the District in choosing the proper gloves to use during experiments.
Ansell-chemical-glove-resistance-guide.pdf (mscdirect.com)

4. Foot Protection

Foot protection is designed to prevent injury from corrosive chemicals, heavy objects, and electrical shock, as well as giving traction on wet floors. If a corrosive chemical or heavy object were to fall on the floor, the most vulnerable portion of the body would be the feet. For this reason, shoes that COMPLETELY COVER AND PROTECT the foot are **required**. Fabric shoes, such as tennis shoes, absorb liquids readily. If chemicals happen to spill on fabric shoes, remove the footwear immediately.
When selecting footwear for the lab, choose sturdy leather shoes that cover the foot. These will provide the best protection.
The following shoe types **may not** be worn in the laboratory:

- Sandals, flip flops, high heels and any other shoes that exposure the foot in any manner.

5. Head Protection

Unrestrained long hair can be hazardous. The use of caps, elastic bands, or hair nets will prevent the hair from coming in contact with instrument/machinery parts or a flame-producing source.

6. Respiratory Protection

Because certain laboratory procedures can produce noxious fumes and contaminants, respiratory protection may be required in some laboratory work environments if the exposure exceeds the OSHA PELs. Hazardous substances requiring the use of a respirator have been removed from the District. As a result, respiratory protection is not currently required in any of the laboratories.

Lab personnel who suspect airborne exposures to hazardous chemicals based on their experiments in the laboratory should contact their immediate supervisor and/or the CHO to report their concerns.

SOP-3: Safety Equipment

Inspection testing records for all safety equipment can be found in Appendix I below.

Safety Showers, Eye Wash Stations, and Drench Hoses:

- These devices are used if the eyes and/or skin of a person become exposed to an injurious corrosive material. A quick drenching or flushing shall be provided for emergency use.
  - All safety showers and eyewashes must be in accessible locations free from obstruction.
  - Each device is inspected by the Chief Custodian.
  - Testing and documentation of this safety equipment must be completed as followed:

Safety Shower:

Activation Requirements: (monthly)

1. Identify the room number you are in and establish an identification number for the device.
   a. Example: Room ESHS-SS-01
2. Place a bucket under the shower head.
3. Flush the system for 15 to 30 Seconds.
4. Dump the bucket of water in the sink.
5. Complete form (see below).

Inspection Requirements: (annually)

1. Water supply should be sufficient enough to supply at least 20 gallons of water per minute for 15 minutes.
2. Device must be hands free after pulling the valve.
3. Height of water column must be between 82" and 96" above the floor.
4. Water temperature should be tepid; between 60 and 100 degrees Fahrenheit.
5. Device must be 10 seconds (55 feet) from the work stations.
6. Device must be easily accessible and free from obstructions

Eye Wash Stations/Drench Hoses:

Activation Requirements: (monthly)

- Identify the room number you are in and establish an identification number for the device.
  a. Example: ESHS -EW-01
  b. Example: ESHS-DH-01
- Remove lids (if present)
- Turn on device and flush for 15 – 30 seconds.
  c. Make sure water is clean and flowing at a controlled, low velocity.
- Turn off device and replace the spout lids.
- Complete Form (see below).

Inspection Requirements: (annually)

1. Water flow should be sufficient enough to supply 0.4 gallons of water per minute for 15 minutes.

2. Water flow should be high enough to allow the user to hold their eyes open while rinsing but should not exceed 8".
3. Device must be hands free after pushing the valve.
4. Device must be 10 Seconds (55 Feet) from the work stations and free from obstructions.
5. Height of eye wash should be positioned 33" to 53" from the floor and at least 6" from the wall.
6. Temperature of the water should be tepid; between 60 and 100 degrees Fahrenheit.

Ground-Fault Circuit Interrupters (GFCIs)

- GFCIs are designed to prevent electrocution, and are mandated when electrical circuits are installed near water sources.
- The testing of GFCIs in each lab and/or prep room will be inspected by the Chief Custodian. Turn off the power to the circuit and cause the RESET button to pop up. Once these two things happen, the RESET button needs to be pushed and testing will be completed.
  - Buildings and Grounds employees should inspect/test the GFCIs monthly. Documentation of testing should be maintained and kept in an accessible location (See Below). Each GFCI should have an ID number for easier access; Example: ESHS-GFCI-01

Ventilation Controls/Fume Hoods:

Laboratory Fume Hoods are enclosed metal structures with mechanical fans and ducts designed to capture, contain and exhaust harmful or dangerous fumes, vapors and particulate matter generated by procedures conducted with hazardous chemicals.

Certain types of fume hoods are not designed for the use of hazardous chemicals. If a fume hood's capabilities are not fully understood, check the manufacturer's specifications before using hazardous chemicals in the system.

To determine ventilation requirements, read applicable SDSs. Some SDS terminology, as listed below, may indicate a need for special ventilation considerations beyond general exhaust ventilation:

- use with adequate ventilation
- avoid vapor inhalation
- use in a fume hood
- provide local exhaust ventilation

Proper Use of Fume Hoods:

- Conduct all operations which may generate air contaminants at or above the appropriate Permissible Exposure Limits (PEL) or the Threshold Limit Values (TLV) inside a fume hood.
- Keep all apparatus at least 6 inches back from the face of the hood and keep the slots in the hood baffle free of obstruction by apparatus or containers. Large equipment should be elevated at least two inches off the base of the fume hood, to allow for the passage of air underneath the apparatus.
- Do not use the hood for hazardous waste storage or storage of miscellaneous materials/equipment.
- Minimize foot traffic and other forms of potential air disturbances past the face of the hood.
- Keep the hood sash closed at all times except when the hood is in use.

- Do NOT store chemicals, equipment, books, supplies or projects in the hood.
- Do not have sources of ignition inside the hood when flammable liquids or gases are present.
- Use sash as a safety shield when boiling liquids or conducting an experiment with reactive chemicals.
- Prior to use, check the air flow in the hood using a continuous monitoring device or another source of visible air flow indicator. If air flow has changed, contact the Chemical Hygiene Officer for repair.
- **Never** work with hazardous chemicals if the required ventilation/fume hood system is not working or if there is no current test certification sticker visible.

All laboratory fume hoods must be inspected, tested and certified (in accordance with Z9.5) by a qualified professional. The adequacy of face velocity will be determined using a hand held VelociCalc or equivalent measuring device

- The face velocity of air being drawn into the hood at maximum sash height is measured quantitatively in feet per minute (fpm) by a thermo Anemometer (a hot wire). One measure is taken per square foot of face space and averaged. Hoods must have an average face velocity of 80 to 120 fpm, depending on their design, with 100 fpm being the ideal average face velocity.
- Optimum sash height is from 12 to 18 inches from the base of the sash opening.

- If the exhaust system does not pass the face velocity test and/or has excessive turbulence, it will be posted as "failed" by the inspector and a warning sign Appendix E1shall be placed at a prominent location on the sash of the fume hood, indicating that it should not be used. The lab instructor must contact Supervisor of Science to have the system repaired and re-inspected before hazardous chemicals can be used in the hood.
- If the exhaust system does pass, the inspector will post the date of inspection and will mark the hood to indicate proper sash position for optimum hood performance. The hood sash should be set at this point for procedures which could generate toxic aerosols, gases or vapors. In general, the sash height should be set at a level where the operator is shielded to some degree from any explosions or violent reactions which could occur and where optimum air flow dynamics are achieved.
- If a fume hood has no markings regarding sash height or inspection dates, you must contact the Chemical Hygiene Officer to arrange for an inspection.
- Proper use of Ductless Ventilation Systems: Ductless, or portable fume hoods, which employ filtration media, may be an alternate option to conventional fume hoods. The Chemical Hygiene Committee must approve these systems prior to installation. All such equipment must be UL and ANSI approved.

SOP-4: Emergency Situations & Accidents

Emergency situations require immediate action. The following are considered emergency situations:

1. Accidents and chemical exposures requiring first aid or medical evaluation
2. Spills
    a) Basic – Less than 4 Liters
    b) Emergency - Greater than 4 Liters
3. Fire in the laboratory (possible extinguisher use by trained personnel for small controlled flames)
4. Power outages
5. Injury and illness requiring first aid or medical evaluation

Basic Steps for Emergency and Spill Response:

Releases of hazardous substances that pose a significant threat to health and safety or that, by their nature, require an emergency response regardless of the circumstances surrounding the release are emergency situations.

The following definitions designate an emergency situation:

1. The spill of an unknown chemical is unclear to the person causing or discovering the spill.
2. The release of a hazardous chemical requires immediate evacuation of everyone.
3. A chemical release that can lead to:
    a. Fire, suspected fire, explosion or other imminent danger
    b. Conditions that are Immediately Dangerous to Life and Health (IDLH)
    c. High levels of exposure to toxic substances.
4. The person(s) in the work area is (are) incapable of handling the severity of the hazardous release which could easily exceed OSHA Permissible Exposure Limits (PELs).

Basic Steps for Spill Response:

Releases that do not pose significant safety or health hazards to anyone in the immediate vicinity or to the ones cleaning up the releases, do not have the potential to become emergencies within a short time frame and are not emergency situations.

The following situations **ARE NOT considered emergency situations:**

1. The person causing or discovering the release understands the properties and can make an informed decision as to the exposure level.
2. The release can be appropriately and safely cleaned up by the lab personnel, who have been trained, using authorized (certified) spill kits
3. The materials are limited in quantity, exposure potential, or toxicity and present minor safety or health hazards to persons in the immediate work area or those assigned to clean up the activity.
4. Incidental releases of hazardous substances that are routinely cleaned up by trained custodians from outside the immediate release area.

Non-Emergency Situation – Spill: If the spill is less than four liters and the chemical involved is of low toxicity and a low flammable hazard, handle it in the following manner:

1. Locate the spill kit.
2. Wear the proper protective equipment (gloves, goggles and a lab coat/apron, etc.).
3. Confine or contain the spill.
4. Dispose of contaminated materials in accordance with District policies

For Non-Reactive spills:

1. Cover liquid spill with spill kit absorbent and scoop into a plastic disposal bag.
2. Sweep solid materials into a dust pan and place in a sealed container.
3. Dispose of waste as normal trash as long as substance is non-volatile and non-hazardous.
4. Turn on fume hood fans or open windows for ventilation.

For Reactive or potentially reactive Spills:

1. Cover liquid spill with spill kit absorbent and scoop into an appropriate disposal container.
   a. Wet mop dry substances to avoid spreading hazardous dust, provided it is non-water reactive. 3. If spilled chemical is a volatile solvent, transfer disposal bag to a hood for evaporation of solvent.
   b. Turn on fume hood fans or open windows for ventilation.

If there are questions about proper spill response techniques, call the Supervisor and/or Chemical Hygiene Officer.

Emergency Situation – Spills:

If the spill is of high toxicity, is flammable, or you are incapable of handling the spill or the spill is greater than four liters, execute the following when it is possible to do so safely:

2. Evacuate personnel from the spill area and alert neighbors to the spill.
3. Call 9-1-1 from an outside line or cell phone. 3. Isolate the spill area and close doors to the room where the spill occurred.
4. Remove ignition sources and shut down equipment.
5. Establish exhaust ventilation to the outside of the building only.
6. Open windows.

Evacuation of the building is mandatory if chemicals or contaminants could enter the air circulation system of the building or in the case of fire.

Accidents may include falls, slips, cuts and inhalation of airborne chemicals, chemical contact to the eyes or skin, or chemical ingestion. If chemical exposure has occurred, take the following steps:

Emergency Situations for a Victim of Body Splash:

1. Remove person(s) from spill area to fresh air only if attempt to rescue victim(s) does not present a danger to the rescuers.
2. Remove contaminated clothing while under an emergency shower.
3. Flood affected area with cold water for at least 15 minutes or longer if pain persists.
4. Wash skin with mild soap and water - do not use neutralizing chemicals, unguents, creams, lotions, or salves.
5. Call 9-1-1 or direct a bystander to call.
6. Contact the Chemical Hygiene Committee and inform what chemical(s) is involved.

Emergency Situation for a Victim with an Eye Splash:

1. Remove victim(s) from spill area to fresh air only if attempt to rescue victim(s) does not present a danger to the rescuers.
2. Lead the victim(s) immediately to an emergency eye wash facility.
3. Hold eye lids open.
4. Flush eyes for at least 15 minutes or longer if pain persists.
5. Call 911 or direct a bystander to call.
6. Contact Chemical Hygiene Committee and inform what chemical(s) is involved.

Spill Kits:

Ready access to a chemical spill kit is required in laboratories that work with hazardous chemicals. The kits are typically stored in a five-gallon plastic pail.
Usually, a kit may contain:

- Splash resistant goggles
- Chemical resistant gloves
- Disposable apron
- Chemical Resistant boots, non-skid
- Plastic bags
- Multi-chemical sorbent (enough for 1-gallon spill)
- Scooper
- Tongs
- Small socks to contain the spill
- Chemical absorbent pads
- Hazard Waste Labels

Most spills greater than 4 liters in volume require assistance from trained personnel. Including the CHO or his designee or an outside emergency response agency.

Some sorbents are chemically specific. The best sorbents are those which can be used to clean up multiple types of chemical spills. Check absorbents in spill kits for their absorbency range. Each laboratory's spill kit should be kept in a readily accessible location and each employee should be trained on how to use the spill kit.

Power Outages:

Evacuate the building after the following steps have been taken:

1. Place lids on all open containers of volatile chemicals.
2. Lower the sash on chemical fume hoods.
3. Shut down all equipment (leaving cooling water and purge gases on, as necessary).
4. Turn off ignition sources.
5. Secure or isolate reactions that are underway (boiling liquid on a hot plate, distillations).
6. Close fire doors.
7. Take your books, coats, purse/wallet, keys, etc. with you.
8. Lock the outside door to the lab.
9. Have a flashlight conveniently located or other emergency lighting.

10. Make sure that all emergency contact numbers on the door are accurate and updated.

Emergency Situation – Fire Procedure to Follow:

All employees who have been trained in the proper use and handling of fire extinguishers may use a hand held fire extinguisher for small contained fires.
If you have not been trained you may **NOT** use a fire extinguisher.
All employees should make themselves familiar with the locations of fire extinguishers, fire blankets and fire alarms.
NEVER put yourself at risk with extinguish a fire. The following steps are basic protocol for handling a fire or fire-related emergency situation in the laboratory:

1. Pull the fire alarm.
2. Evacuate
3. Call 9-1-1 from a safe location.
4. Notify the building administrator from a safe location.

If you are trained to use a fire extinguisher, make sure it is the correct type of extinguisher approved for the laboratory fire occurring.

All Laboratories contain a laboratory correct/approved ABC/BC fire extinguisher, which are updated monthly by custodians and inspected annually by the Federal Fire Protection.

All extinguishers present within the labs must be in compliance with the OSHA Standard [29 CFR 1910.157(c)(2)].

Injury and Illness:

Notify the CHO / Science Supervisor of any injury during laboratory operating hours.

The supervisor or CHO must ensure that the appropriate injury forms are completed. The forms are available from the Human Resource Department. If you have any questions regarding injury and illness procedures, contact your supervisor, principal, vice principal or the CHO.

Minor First Aid (Kits):

First Aid Kits should only be used on minor injuries, cut, scrapes, etc. Anyone providing first aid must be properly trained.

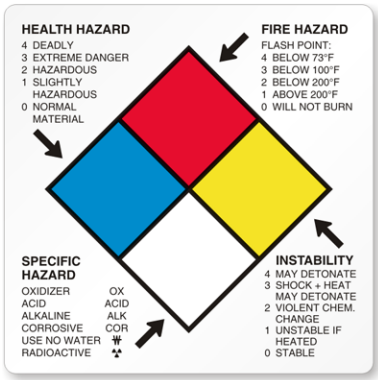
Do not put any ointments or creams on wounds or burns. Use cool water. The chemical-specific SDS contains specific first aid information for a given chemical, but further treatment from the School Nurse or Emergency Room is recommended.

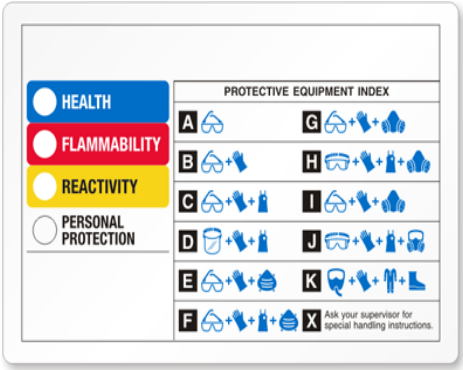
SOP-5: Labeling

All hazardous and non-hazardous laboratory chemicals must be labeled in accordance with New Jersey Right to Know (RTK) Standards and OSHA Hazard Communications Globally Harmonized Standards (GHS).

- Primary labels must show the product identity, hazard warnings and the manufacturer's name, address and phone number.). **Never** mark up, remove or deface container labels.
- In March, 2012, OSHA modified its Hazard Communication Standard (HCS) to align with the provisions of the United Nations Initiative, "Globally Harmonized System for Classification and Labeling of Chemicals" (GHS). Consequently, chemical manufacturers and importers are now required to provide labels that include a product identifier, signal word, one or more pictograms, hazard & precautionary statements for each hazard class and category, and manufacturer information; including: name, address and telephone number. The following is an example of a GHS compliant label.
- Pictograms may be found at: https://www.osha.gov/Publications/HazComm_QuickCard_Pictogram.html

- There are many examples of secondary labels, as the only requirement is to identify the hazardous chemical in the container and to provide a hazard warning. Commonly used secondary labels are exemplified below:





- In addition to OSHA required GHS-compliant labels for hazardous chemicals, the NJ-PEOSH Program also requires specific labeling under the Right to Know (RTK) Act. This **Act** requires listing of the 5 top ingredients with the highest weight percent composition on the label, along with their Chemical Abstract Service (CAS) Numbers (regardless of degree of hazard). In addition, any other hazardous ingredients, not among the top 5, must also be shown on the label.

  Example of a typical RTK label:

NAME	**CAS #**
Hydroquinone	123-31-9
Paraformaldehyde	30525-89-4
Sodium Methanal Bisulfate	870-72-4
Triethylene Glycol	112-27-6
Water	7732-18-5
Sodium Sulfite	7757-83-7

If the information above, required by NJ-RTK is included in the GHS or Manufacturer's label, a separate RTK label is not required.

SOP -6: Chemical Handling, Transport and Storage

The use of hazardous chemicals must include a commitment to handle the chemical properly from initial receipt to disposal.

1. Information on proper handling, storage and disposal of hazardous chemicals and access to related SDS must be made available to all laboratory employees prior to the use of any hazardous chemical.
2. Always purchase the minimum amount necessary to maintain operations.
3. Chemical containers with missing or defaced labels or that violate appropriate packaging regulations must not be accepted.
4. Chemicals utilized in the laboratory must be appropriate for the laboratory's ventilation system.
5. Chemicals must not be stored on high shelves above eye level and large bottles should be stored no more than two feet from floor level.
6. Chemicals shall be segregated by compatibility.
7. Chemical storage areas must be labeled as to their contents.
8. Storage of chemicals at the lab bench or other work areas should be kept to a minimum.
9. Any chemical mixture shall be assumed to be as toxic as its most toxic component.
10. Substances of unknown toxicity shall be assumed to be toxic.

Transferring Chemicals:

When transferring chemicals between areas within the same school:

Transferring one (1) to two (2) chemical container(s):

- Place the chemical container into a secondary containment device, such as a rubber bucket or pail with handles.
- If the chemical is still in the original packaging from the chemical company, that may be the container used to carry the chemical directly to a designated room.

Transferring several chemical containers or heavy substances

1. Use a cart with side rails and shelves that are at least two (2) inches deep to avoid spillage.
2. Never use the stairs and if possible, avoid using a crowded elevator.

3. Ensure the chemicals being transferred are properly labeled in accordance with New Jersey Hazard Communication Standards (NJ HazCom) & OSHA Globally Harmonized Systems (GHS).
   a) The employee is not required to label secondary containers if they are the only person using the chemical and it is used during their work shift (but some type of identification is recommended so chemicals are not mixed up).
   b) Full NJ RTK & GHS labels are required on secondary containers if the container lasts longer than the work shift, is given to another employee, or is transferred to a different room; then the label from the original container must be added or the employer may use signs, placards, process sheets, batch tickets, or other written materials in lieu of affixing labels; as long as the method conveys information from the original label.

When transferring chemicals between different schools:

When transporting hazardous chemicals from one facility to another, proper transport labels must be used, and many requirements and guidelines must be followed under The Department of Transportation (DOT).

The District falls under one of the exemptions of the DOT, which reduces the requirements needed for transporting hazardous materials. This exemption is known as “materials of trade” (MOT), which applies to the transport of small quantities of hazardous materials that are part of a business (Prudent Practices 5.F.1 Materials of Trade Exemption). An example of an exempt business includes; Education Demonstrations: exempting chemicals used for public school outreach education programs; i.e. chemicals being used for educational/classroom purposes.

Under this exemption, the District may transport their own hazardous materials from one facility to another, as long as the following labeling requirements are met:

The packaging must be the manufacturer’s original packaging or a package of equal or greater strength and integrity.

The packaging must be marked with a common name or a proper shipping name, proper identification of the hazard class and the chemical identification UN number (UN # - United Nations # used to identify

hazardous chemicals). All of this information can be found from the DOT link below and/or section 14 of the products (Material) Safety Data Sheet.

49 CFR 172 – Hazardous Materials Table https://www.govinfo.gov/content/pkg/CFR-2011-title49-vol2/pdf/CFR-2011-title49-vol2-part172.pdf
(Material) Safety Data Sheet example: Hydrochloric acid 6.0M, Scholar Chemistry

Section 14:	**Transport Information**		
DOT Shipping Name:	Hydrochloric Acid.	**Canada TDG:**	Hydrochloric Acid.
DOT Hazard Class:	8, pg II .	**Hazard Class:**	8, pg II.
Identification Number:	UN1789 .	**UN Number:**	UN1789 .

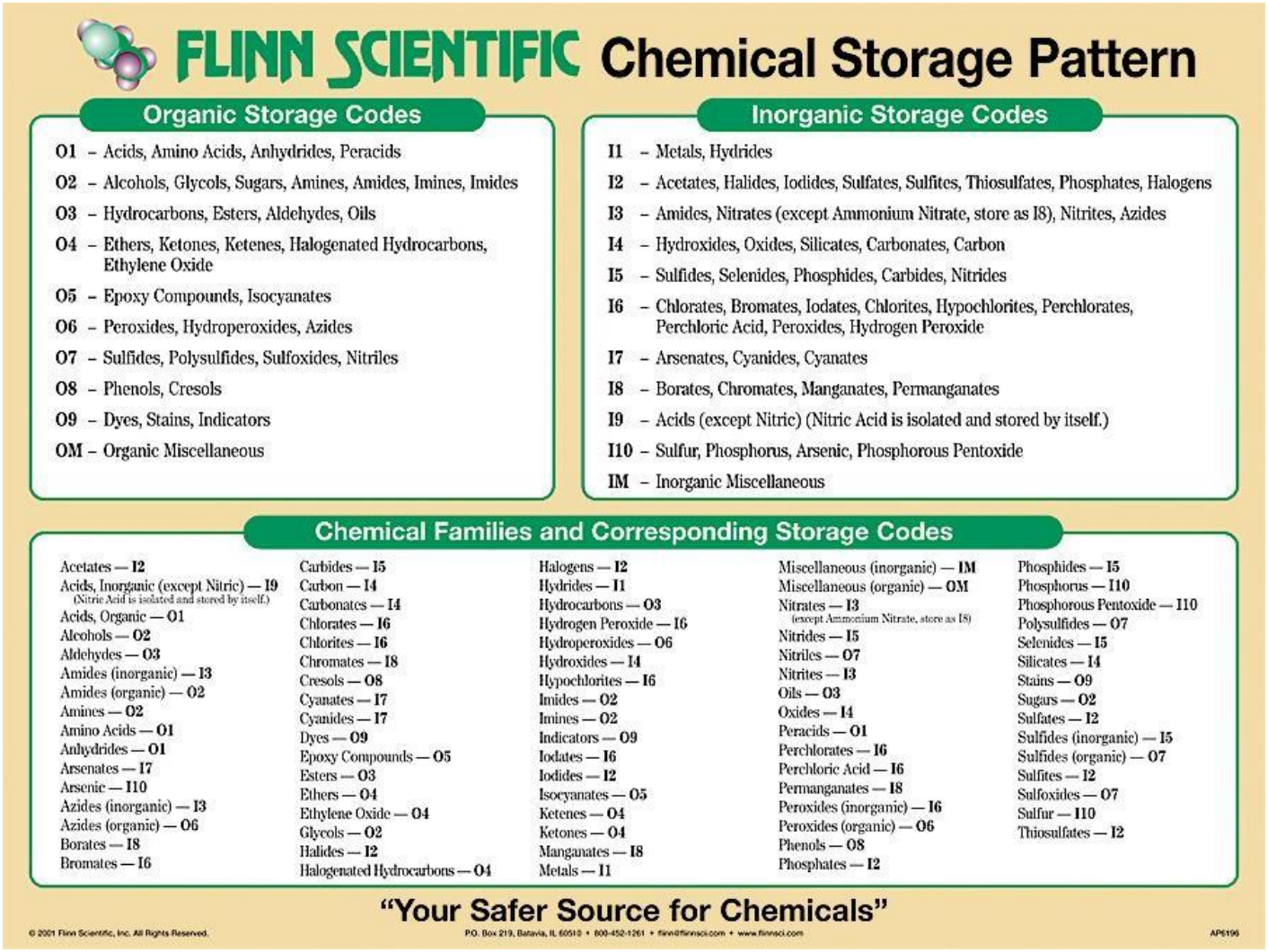
Other transport requirements include:

- There is no recommendation of who must transport the chemicals; however, we recommend delegating persons from the Facilities/Building & Ground Department, with District vehicles, to transport any hazardous chemicals.
- All packages for solids must be sift-proof and packages for liquids and gases leak tight.
- All packages must be secured against movement, protected against possible damage and securely closed.
- Keep chemical packages in compartments, cages, boxes or bins; ensure compatible chemicals are being stored together
- The package must be labeled "RQ" if it contains a reportable quantity of a hazardous substance (the RQ of each substance can be found below).
  https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/docs/172_101_appa.pdf
- Keep chemicals stored in the trunk during transport.
- Do not keep chemicals unattended or stored in the vehicle for extended periods of time.
- Bring a well maintained spill kit in case of any spillage.

All products being transported from one school to another must have a complete GHS label and the designated SDS.

Chemical Storage

All chemicals must be stored by proper compatibility to avoid possible reactivity. The School District uses the Flinn **Scientific Chemical Storage Pattern to properly store chemicals,** as seen below.



Reference: https://www.flinnsci.com/flinn-chemical-storage-pattern-poster/ap6196/

SOP-7: Flammable Chemicals

General information:

The vast majority of flammable chemicals used by laboratories are flammable liquids or organic solvents, whose vapors can form ignitable mixtures with air.

Flammable liquids are classified by their flash points. A flash point is defined as the lowest temperature at which a fuel-air mixture present above the surface of a liquid will ignite if an ignition source is introduced. The dangers of ignition of these liquids can be particularly insidious because they generate vapors with densities greater than air. The vapors tend to be immiscible in air and remain on the surface, maintaining their flammability. Ignition of vapors at a remote source can trigger a flashback along the vapor trail to the liquid source.

It is important to remember that the ignition sources **do not** have to be in the form of a spark or flame, high temperature alone can trigger ignition depending on the flash point of the chemical.

Three ***signal words*** are used to describe the degree of hazard posed by flammable liquids:

DANGER! (Highest degree of hazard)
Class 1A & B flammable liquids - flash point is less than 73 F.

WARNING! (Intermediate degree of hazard)
Class 1C flammable liquid flash point is at or above 73 F but below 100 F.

CAUTION! (Lowest degree of hazard)
Class II flammable liquid - flash point is at or above 100 F but below 140 F.

Storage of flammable and combustible liquids:

- NO bulk quantities of flammable and combustible liquids will be stored.
- Working supplies of flammable or combustible liquids within laboratory areas will be stored in NFPA-approved flammable liquid safety storage cabinets when not in use.
- Working supplies of flammable or combustible liquids outside of approved safety cabinets shall not exceed 25 gallons.
- The volume of flammable and combustible liquids stored in ALL flammable safety cabinets shall not exceed the quantities specified in Table 1. The maximum size of individual containers shall not exceed the volume specified in Table 2.
- Flammable or combustible liquids shall not be stored in any refrigerator other than an Underwriter Laboratory (UL) approved, explosion-proof refrigerator. All other refrigerators and freezers shall be labeled "CAUTION! - NOT SUITABLE FOR STORAGE OF FLAMMABLES".
- Flammable and combustible liquids must be isolated from oxidizers, chemicals capable of spontaneous heating, explosives, materials reacting with air or moisture to liberate heat, and ignition sources.
- Previously opened ether cans must be stored in an area ventilated enough to prevent buildup of vapor.

TABLE 1:

Maximum Quantities (Gallons) of Flammable & Combustible Liquids Allowed in Laboratories

	Sprinkled Flammable or Combustible Liquid Class		**Un-Sprinkled Flammable or Combustible Liquid Class**	
Square Feet of Laboratory	Flammable (Class I Liquids)	Total Flammable and Combustible	Flammable (Class I Liquids)	Total Flammable and Combustible
100	4	8	2	4
200	8	16	4	8
300	12	24	6	12
400	16	32	8	16
500	20	40	10	20
600	24	48	12	24
700	28	56	14	28
800	32	64	16	32
900	36	72	18	36
1000	40	80	20	40
1500 & larger	60 = max	120 = max	30 = max	60 = max

TABLE 2:

Maximum Allowable Container Capacity

	Flammable Liquids			**Combustible Liquids**	
Container Type	**IA**	**IB**	**IC**	**II**	**IIIA**
Glass	1pt	1qt	1 gal	1 gal	5 gal
Metal or Approved Plastic	1 gal	5 gal	5 gal	5 gal	5 gal
Safety Cans	2 gal	5 gal	5 gal	5 gal	5 gal

- In teaching laboratories, no container for Class I or II liquids shall exceed a capacity of 1/2 gal. Except that safety cans may be of 2-gal capacity.
- Glass containers as large as 1 gal (3.785 L) shall be permitted to be used if needed and if the required purity would be adversely affected by storage in a metal or an approved plastic container, or if the liquid would cause excessive corrosion or degradation of a metal or approved plastic container.

Control measures for safe use of flammable and combustible liquids:

- Transfer flammable and combustible liquids in a functioning fume hood.
- Eliminate sources of ignition (i.e. open flames, hot plates, etc.) from work areas where flammable and combustible liquids are used.

- Ethers shall be used ONLY in a working fume hood from which all possible ignition sources have been removed.
- Dry chemical fire extinguishers or CO_2 extinguishers can be used to fight a flammable or combustible liquid fire. The dry chemical extinguisher is the best choice.

SOP-8: Corrosive Chemicals

- Corrosive liquids are the most important category of corrosive substances in that they are involved in the most common types of corrosive injury, especially where external injury is concerned. The primary sites of attack by corrosive liquids are the skin and the eyes. Mineral acids, organic acids, solutions of strong bases and certain organic solvents are classified as corrosive liquids. There is a danger of corrosive vapors escaping from some corrosive solutions, i.e. ammonia, nitric acid, bromine and others.

- Corrosive solids are the least hazardous of the corrosive substances. The effects of corrosive solids are largely dependent on their solubility in respiratory moisture and the duration of contact. Some compounds do have a specific ability to penetrate the skin even though their solubility in water is relatively low. Of these, phenol and salicylic acid are the most common in medical laboratory settings. Phenol is a very weak organic acid, and salicylic acid is a stronger organic acid. Besides the intrinsic corrosive properties of solids, the heat of solution is often an important factor in damaging tissue. Dusting of corrosive solids presents the greatest danger. Caustic alkalis, because of their frequent use, present the greatest hazard. Corrosive solids include the caustic alkaline hydroxides, sulfides and carbonates, elements such as sodium, potassium, lithium, phosphorous, magnesium and chromium and certain of their salts.

- Corrosive gases. The most serious hazard associated with corrosives is from material in the gaseous state. In this state, corrosives are readily absorbed into the body by dissolution in skin moisture and by inhalation. Gaseous corrosives are usually grouped by solubility and the effect on the respiratory system. Some examples of corrosive gases common to the medical laboratory are ammonia, hydrogen chloride, hydrogen fluoride and formaldehyde.

Storage of corrosive chemicals:

Strong mineral acids, such as sulfuric acid, nitric acid, hydrochloric acid, etc., must be stored by themselves in under the counter metal cabinets, glass or ceramic trays or sand boxes or on wooden shelving. Alternatively, approved corrosive storage cabinets may be used. Storage trays or sand boxes must be of sufficient volume to contain all the acid from the bottles if all the bottles were to break. The storage area or cabinet must be labeled to identify the agents stored therein and the hazards present, along with decontamination and first aid instructions. Hydrofluoric acid must be stored in plastic trays non-reactive to the compound.

SOP-9: Oxidizers, water reactive materials, pyrophoric Materials, Peroxidizable Chemicals, Light Sensitive Materials and Unstable Materials

Oxidizers:

These are materials which react with other substances by giving off electrons and undergoing reduction. This reaction may result in fire or explosion. The intensity of the reaction depends on the oxidizing-reducing potential of the materials involved.

1. Know the reactivity of the materials involved in the experiment or process. Ensure there are no extraneous materials in the area which could become involved in a reaction.
2. If the reaction is anticipated to be violent or explosive, use shields or other methods for isolating the materials or the process.

Water Reactive Materials:

These are materials which react with water to produce a flammable or toxic gas or other hazardous conditions. A fire or explosion often results. Safe handling of water reactive materials will depend on the specific material and the conditions of use and storage. Examples of water reactive chemicals include alkali metals such as lithium, sodium, and potassium; acid anhydrides, and acid chlorides.

Peroxidizable Chemicals (Organic Peroxides):

These are materials which undergo auto-oxidation (a reaction with oxygen in the air) to form peroxides (an O_2 group) which can explode with impact, heat, or friction. Since these chemicals may be packaged in an air atmosphere, peroxides can form even though the container has not been opened, necessitating careful handling.

Date all Peroxidizable chemicals upon receipt and upon opening. Dispose of or check for peroxide information after 6-months of opening following all Hazard Waste Plan Requirements.

- Do not open any container which has obvious solid formation around the lid.
- Addition of an appropriate inhibitor to quench the formation of peroxides is specified in the Material Safety Data Sheet.
- It is recommended to chemically test for peroxides periodically.
- Follow the same basic handling procedures as for flammable materials.

Light-Sensitive Materials:

These are materials which degrade in the present of light, forming new compounds that can be hazardous, or resulting in conditions such as pressure build-up inside a container which may be hazardous. Examples of light sensitive materials include chloroform, tetrahydrofuran, ketones and anhydrides.

- Store light-sensitive materials in a cool, dark place in amber colored bottles or other containers which reduce or eliminate penetration of light.

Unstable Materials:

These are compounds which can spontaneously release large amounts of energy under normal conditions, or when struck, vibrated, or otherwise agitated. Some chemicals become increasingly shock-sensitive with age. Of great concern in the laboratory is the inadvertent formation of explosive or shock-sensitive materials such as peroxides, perchlorates (from perchloric acid), picric acid and azides.

SOP-10: Hazardous Waste Disposal

In preparation for any laboratory activity, plans for collection and ultimate disposal of hazardous chemical wastes must also be made. Teachers must follow the following waste disposal procedures:

Hazardous wastes must be deposited in appropriately labeled hazardous wastes containers after use in the lab. All waste containers need a proper Hazardous Waste label/tag (see Appendix H).

- All waste must be disposed of properly by compatibility in one (1) gallon containers (subject to change based on amount of waste accumulated):

i. Common waste mixtures include but are not limited to:
   1. Inorganics
   2. Organics
   3. Acids
   4. Bases
   5. Flammables

A list of incompatible chemicals for disposal can be found in Appendix F (list is incomplete).

- The Science Supervisor shall notify principal/building administrator, sector supervisors and chief custodians of the disposal dates of **December 15th or June 15th**.
- Appendix G: Waste Stream Log shall be filled out and submitted to the chief custodian on **December 15th or June 15th** whether or not there is waste.
  - In the case there is no waste, simply indicate no waste. Form is signed by the principal or building administrator.
  - Chemicals shall be checked annually for expiration and added to the Waste Stream log for disposal.
- The chief custodian shall ensure that the Waste Stream Log is submitted to the Chemical Safety Officer and their sector supervisor on **December 15th or June 15th**.
  - Each school/chief shall notify the following sector supervisors that waste pick-up is ready:

Sector I	
School	**Sector Supervisor**
Public School #6	Pedro Cespedes Cell: 973-978-1564 Email: pcespedes@paterson.k12.nj.us
Public School #25	
Public School #27	
Harp @ Paterson Catholic	
Rosa Parks High School	
International HS/Garett Morgan	
Dr. Hani Awadallah	

Sector II	
School	**Sector Supervisor**
Public School #2	Anthony Vasquez Cell #: 973-967-9810 Email: avasquez@paterson.k12.nj.us
Public School #3	
Public School #10	
Public School #26	
Norman S. Weir	
Panther Academy	
John F. Kennedy	
SILK	

Sector III	
School	**Sector Supervisor**
Public School #13	Javier Valle Cell: 973-262-4283 Email: vallej@paterson.k12.nj.us
Public School #15	
Public School #21	
Public School #24	
Dr. Martin Luther King – Public School #30	
New Roberto Clemente	
East Side High School	

Sector IV	
School	**Sector Supervisor**
Dr. Frank Napier Jr. Public School #4	Gjylten Ramadan Cell: 862-377-3616 Email: gramadan@paterson.k12.nj.us
Public School #7	
Public School #8	
Charles J. Riley Public School #9	
Public School #16	
Public School #18	
Public School #20	
Public School #28	
Young Men's Academy	

- Hazardous waste shall be secured in each building until picked up by facilities or a licensed hazardous waste disposal company, who will ensure the proper classification, packaging, and transportation of the waste from the school to an off-site disposal facility.

General Disposal Notes:

- It is **never** acceptable to flush chemicals down the sink or discard them into a regular trash receptacle, unless it is known that this is in compliance with all the applicable federal, state, and local regulations.

- All chemical wastes must be deposited in sealed glass, metal or plastic containers appropriate for the compatible materials they will contain.
- All hazardous waste containers must be labeled with the words, "Hazardous Waste" and have the names of ingredients and their approximate concentrations listed.
- The generator's name (person or persons filling the container) must also appear on the hazardous waste container label.
- All properly labeled and identified hazardous waste containers must be tightly capped or sealed except during filing operations.
- Each school laboratory should have satellite waste containers (stored at or bear the point of generation) to store hazardous wastes in. Only one "satellite" container of a particular waste stream is permitted in any one laboratory.
- The District Policy limits the quantity a satellite waste container may hold to a single one-gallon container for each waste stream.
- When satellite containers become full, they are ready for disposal and must be collected by a NJ licensed hazardous waste disposal contractor who will ensure the proper classification, packaging, and transportation of the waste from the school to an off-site disposal facility.
- Note the date the material was first added to the container; partially filled satellite hazardous waste containers may not be kept for more than one (1) year.
- Note the date the container became full on the container and arrange for it to be picked up for disposal. In consultation with the CHO.
- Items such as baking soda, salt, and flour, etc., can be disposed by using the regular trash receptacle, as long as they have not been mixed with a hazardous chemical.
    - If you are uncertain about disposing your materials in a general waste receptacle, please consult your Supervisor before proceeding.

SOP-11: Microbiology Sanitation & Disposal

Collecting and culturing microbiological samples from the surrounding environment may pose as a possible hazard to staff and students occupying the laboratory classroom; especially when the organisms that are collected and cultured are unknown.

Although the bacterium being grown is unknown and may seem harmless coming from personal items, or areas of everyday use, it is best to treat all culture waste with caution; as it is uncertain what is being picked up and grown during the experiment since some of these organisms may be pathogenic.

Methods for Sanitation & Disposal:

Two (2) different types of sanitation/disposal methods can be utilized when handling and disposing of Petrie dishes after experiments:

Sterilization by use of an Autoclave:

i. Autoclaves are used to sterilize (kill) any microorganisms (bacteria, viruses, etc.) present on any instruments or Petrie dishes used during the experiment.
ii. Its function is similar to a pressure cooker; using steam to kill germs, bacteria and spores. The autoclave is set to a specific time and temperature for sterilization to occur.
    a. Using vinyl or nitrile gloves transfer the dishes from the work station to the autoclave.
    b. Glass petri dishes may be sterilized without issue.
    c. Certain plastics can and cannot be put into an autoclave
    d. Plastics that **can**: polypropylene, polypropylene copolymer, and fluoropolymer products; ETFE, Teflon, PFA and FEP.
    e. Plastics that **cannot**: PETG, PET, LDPE, HDPE products.
    f. Once the sterilization is complete, glass Petri dishes may be relocated to their proper storage location and plastic dishes, if designed for one time use, can be thrown into the trash. Plastic dishes designed for multiple uses can be stored in their designated cabinet.
    g. Any instruments sterilized may either be discarded into the trash or relocated to their storage location.
        i. Sanitization by use of a 10% sodium hypochlorite (bleach) water solution:

iii. Apply personal protective equipment (PPE), such as vinyl or nitrile gloves and safety goggles with side shields. Consider wearing a lab coat, as bleach can be harmful to clothing or skin; if long sleeves are not worn.
iv. Create the disinfecting solution by adding 10% bleach to water (one-part bleach into 9 parts water).
v. Bring your Petri dishes to the sink (if your fume hood has a sink installed, the dishes can be brought there as well).
vi. Carefully remove the lid of the Petri dishes and pour the 10% bleach solution into the dish until it fully covers the surface of the media and replace the lid.

vii. When sanitizing instruments, put them in a plastic container and pour the solution on top of them so they are fully covered.
viii. Let the solution sit undisturbed for one (1) to two (2) hours.
ix. After allowing the solution to sit, dispose of the bleach solution down the drain while letting the sink water run for about 5 minutes.
x. Remove the Petri dishes from the sink or hood. If they are plastic, place them in a bag and throw them away in a garbage can. If using glass, use a non-abrasive cloth to dry the dishes and put them away in a proper location.
xi. Dry any instruments and return them to their proper storage locations.

<u>When cleaning the laboratory work table after the experiment</u>:

1. Use the 10% bleach solution or 70% ethanol, or other approved sanitizer, to clean the table surfaces.
    a. Be cautious when using ethanol, as it is a flammable liquid.
    b. Wear all appropriate PPE as stated above.

Appendix A: Training Sign in Sheet

TOPIC: _____ DATE: _____

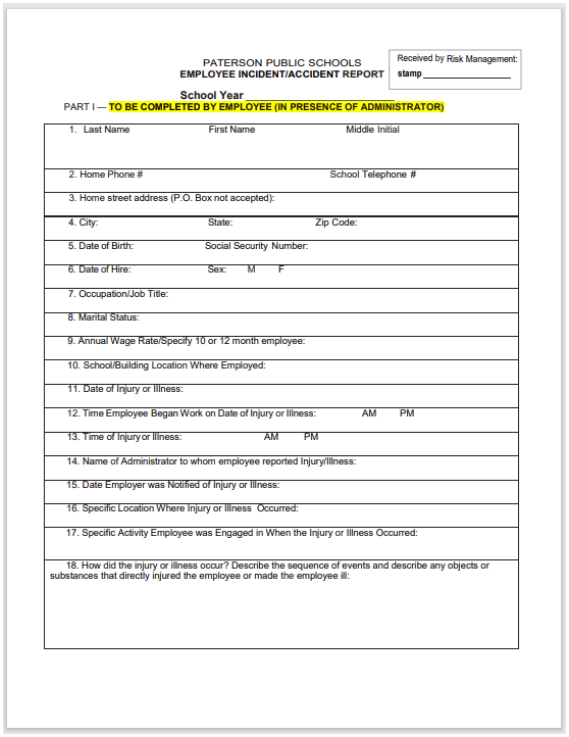
(Attach outline of material covered)

NAME OF INSTRUCTOR: _____ POSITION: _____

NAME	SCHOOL & DEPARTMENT	POSITION
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

Appendix B: School District Accident / Incident Report

Incident Report Form



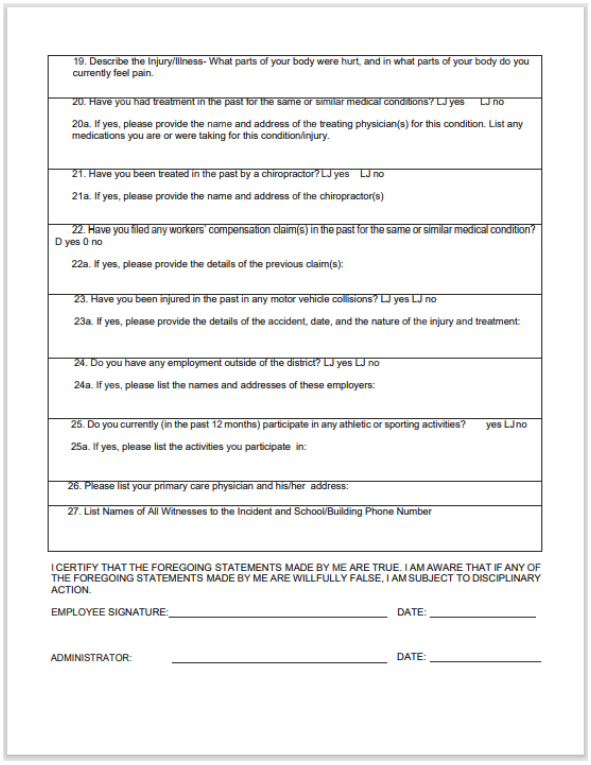
PATERSON PUBLIC SCHOOLS
EMPLOYEE INCIDENT/ACCIDENT REPORT

Received by Risk Management:
stamp_____

School Year_____

PART I — **TO BE COMPLETED BY EMPLOYEE (IN PRESENCE OF ADMINISTRATOR)**

1. Last Name First Name Middle Initial
2. Home Phone # School Telephone #
3. Home street address (P.O. Box not accepted):
4. City: State: Zip Code:
5. Date of Birth: Social Security Number:
6. Date of Hire: Sex: M F
7. Occupation/Job Title:
8. Marital Status:
9. Annual Wage Rate/Specify 10 or 12 month employee:
10. School/Building Location Where Employed:
11. Date of Injury or Illness:
12. Time Employee Began Work on Date of Injury or Illness: AM PM
13. Time of Injury or Illness: AM PM
14. Name of Administrator to whom employee reported Injury/Illness:
15. Date Employer was Notified of Injury or Illness:
16. Specific Location Where Injury or Illness Occurred:
17. Specific Activity Employee was Engaged in When the Injury or Illness Occurred:
18. How did the injury or illness occur? Describe the sequence of events and describe any objects or substances that directly injured the employee or made the employee ill:



19. Describe the Injury/Illness- What parts of your body were hurt, and in what parts of your body do you currently feel pain.
20. Have you had treatment in the past for the same or similar medical conditions? LJ yes LJ no

20a. If yes, please provide the name and address of the treating physician(s) for this condition. List any medications you are or were taking for this condition/injury.

21. Have you been treated in the past by a chiropractor? LJ yes LJ no

21a. If yes, please provide the name and address of the chiropractor(s)

22. Have you filed any workers' compensation claim(s) in the past for the same or similar medical condition? D yes 0 no

22a. If yes, please provide the details of the previous claim(s):

23. Have you been injured in the past in any motor vehicle collisions? LJ yes LJ no

23a. If yes, please provide the details of the accident, date, and the nature of the injury and treatment:

24. Do you have any employment outside of the district? LJ yes LJ no

24a. If yes, please list the names and addresses of these employers:

25. Do you currently (in the past 12 months) participate in any athletic or sporting activities? yes LJ no

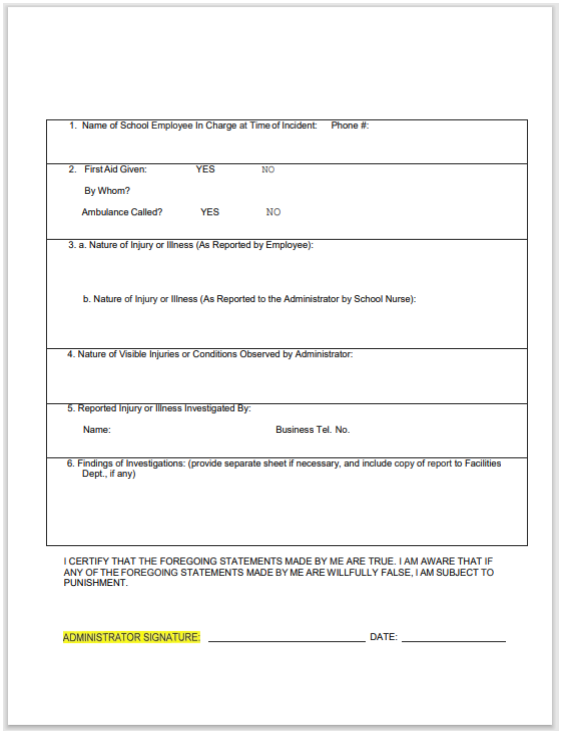
25a. If yes, please list the activities you participate in:

26. Please list your primary care physician and his/her address:
27. List Names of All Witnesses to the Incident and School/Building Phone Number

I CERTIFY THAT THE FOREGOING STATEMENTS MADE BY ME ARE TRUE. I AM AWARE THAT IF ANY OF THE FOREGOING STATEMENTS MADE BY ME ARE WILLFULLY FALSE, I AM SUBJECT TO DISCIPLINARY ACTION.

EMPLOYEE SIGNATURE:_____ DATE: _____

ADMINISTRATOR: _____ DATE: _____



1. Name of School Employee In Charge at Time of Incident: Phone #:
2. First Aid Given: YES NO

   By Whom?

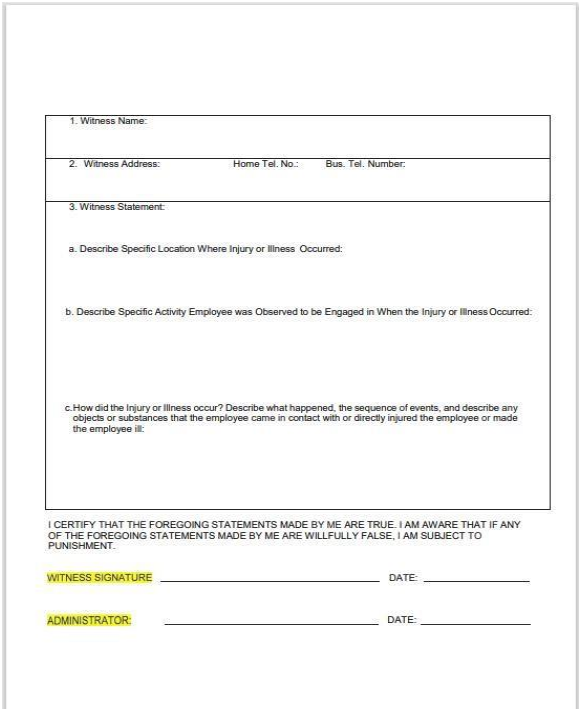
   Ambulance Called? YES NO
3. a. Nature of Injury or Illness (As Reported by Employee):

   b. Nature of Injury or Illness (As Reported to the Administrator by School Nurse):
4. Nature of Visible Injuries or Conditions Observed by Administrator:
5. Reported Injury or Illness Investigated By:

   Name: Business Tel. No.
6. Findings of Investigations: (provide separate sheet if necessary, and include copy of report to Facilities Dept., if any)

I CERTIFY THAT THE FOREGOING STATEMENTS MADE BY ME ARE TRUE. I AM AWARE THAT IF ANY OF THE FOREGOING STATEMENTS MADE BY ME ARE WILLFULLY FALSE, I AM SUBJECT TO PUNISHMENT.

ADMINISTRATOR SIGNATURE: _____ DATE: _____



1. Witness Name:
2. Witness Address: Home Tel. No.: Bus. Tel. Number:
3. Witness Statement:

   a. Describe Specific Location Where Injury or Illness Occurred:

   b. Describe Specific Activity Employee was Observed to be Engaged in When the Injury or Illness Occurred:

   c. How did the Injury or Illness occur? Describe what happened, the sequence of events, and describe any objects or substances that the employee came in contact with or directly injured the employee or made the employee ill:

I CERTIFY THAT THE FOREGOING STATEMENTS MADE BY ME ARE TRUE. I AM AWARE THAT IF ANY OF THE FOREGOING STATEMENTS MADE BY ME ARE WILLFULLY FALSE, I AM SUBJECT TO PUNISHMENT.

WITNESS SIGNATURE _____ DATE: _____

ADMINISTRATOR: _____ DATE: _____

Appendix C: Housekeeping Checklist

✔	Good Housekeeping Inspection Items
	Laboratory and Storeroom floors and counter tops are clean and free of hazards.
	There are no carelessly discarded objects, dropped objects, or spilled material on the floor.
	No chemical containers are stored on the floor.
	All chemical containers are well sealed and stored appropriately.
	Walking/working surfaces do not have any visible spilled liquids or solids.
	Tables, chemical hoods, floors, aisles, and desks are clear of all material not being used.
	Frequently used bench apparatus is kept well away from any edges and secured whenever possible.
	Storage shelves, bench tops, and bench liners are free of visible contamination.
	Sharp or pointed tools are properly sheathed or stored.
	Excess cardboard boxes, Styrofoam, packing materials, etc. are not stored under lab benches, on shelves, or in cabinets anywhere in the laboratory.
	Work areas are cleaned upon completion of an experiment or at the end of each day.
	There is clear space around storage shelves, safety showers, eyewashes, fire extinguishers, and electrical controls.
	All passageways to exits and safety equipment are clear of obstructions.
	Doors, drawers and cabinets are kept closed.
	Unused paper materials and outdated student projects/ work are appropriately transferred to the available recyclable receptacle.
☐	***Note: Any unchecked items must be corrected immediately or by the end of the day!***

Building: _____Storage Room, Laboratory or Work Area Inspected: _____
Inspector's Name: _____ Date: _____

Inspector's Signature: _____

Appendix D: Fume Hood Checklist for District Use

School Building: _____ **Room/Laboratory #:** _____

Fume Hood Number: _____

#	FUME HOOD OPERATIONS	YES	NO	N/A
1.	**Blower Motor Fan Switch is in working order**			
2.	**With blower fan on, air flows into fume hood from room.** (Test with sash lowered at least 2/3s of way down. A piece of tissue paper held at the bottom edge of sash will be pulled toward inside of hood. Note that this is just a simple qualitative test and is no guarantee of optimal hood performance)			
3.	**Interior Fume Hood light is operable**			
4.	**Window sash can be moved up and down freely**			
5.	**Equipment in hood, if any, is needed for present project**			
6.	**There is no excess equipment present**			
7.	**Equipment is set back at least 6 inches from front of fume hood**			
8.	**The chemicals in the hood will be used for the present project**			
9.	**Fume Hood appears to be functioning normally and may be used.**			
9a.	**If "NO" has been checked for # 9, DO NOT USE this fume hood.**			
9b.	**An "Out of Order" sign has been taped to the sash.**			
9c.	**A Service Technician or Maintenance Worker will be contacted before the end of day.**			

Date inspection: _____ Name of Inspector (Print): _____

Signature of Inspector: _____

Copy this form for: **Science Department Coordinator or the CHO**

Appendix E1: Fume Hood Out of Order Sign

Appendix E2: Out of Order Sign

CAUTION

OUT OF ORDER!

DO NOT USE UNTIL ITEM IS REPAIRED OR REPLACED.

Paterson Public School District

Appendix F: Incompatible Chemicals for Disposal

This list should not be considered complete. Anyone who is unsure as to the status of a particular chemical is advised to refer to safety literature, the manufacturer, the Safety Data Sheet, and/or the Chemical Hygiene Office.

From: "Safety in Academic Chemistry Laboratories," American Chemical Society

Chemical	Is incompatible with
Acetic Acid	Chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates
Acetylene	Chlorine, bromine, copper, fluorine, silver, mercury
Acetone	Concentrated nitric and sulfuric acid mixtures
Alkali and alkaline earth metals (such as powdered aluminum or magnesium, calcium, lithium, sodium, potassium)	Water, carbon tetrachloride or other chlorinated hydrocarbons, carbon dioxide, halogens
Ammonia (anhydrous)	Mercury (in manometers, for example), chlorine, calcium hypochlorite, iodine, bromine, hydrofluoric acid (anhydrous)
Ammonium nitrate	Acids, powdered metals, flammable liquids, chlorates, nitriles, sulfur, finely divided organic combustible materials
Aniline	Nitric acid, hydrogen peroxide
Arsenical materials	Any reducing agent
Azides	Acids
Bromine	See chlorine
Calcium oxide	Water
Carbon (activated)	Calcium hypochlorite, all oxidizing agents
Carbon tetrachloride	Sodium
Chlorates	Ammonium salts, acids, powdered metals, sulfur, finely divided organic or combustible materials
Chromic acid and chromium	Acetic acid, naphthalene, camphor, glycerol, alcohol, flammable liquids in general
Chlorine	Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases), hydrogen, sodium carbide, benzene, finely divided metals, turpentine
Chlorine dioxide	Ammonia, methane, phosphine, hydrogen sulfide
Copper	Acetylene, hydrogen peroxide
Cumene hydroperoxide	Acids (organic or inorganic)
Cyanides	Acids
Flammable liquids	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, halogens
Fluorine	All other chemicals

Chemical	Is incompatible with
Hydrocarbons (such as butane, propane, benzene)	Fluorine, chlorine, bromine, chromic acid, sodium peroxide
Hydrocyanic acid	Nitric acid, alkali
Hydrofluoric acid (anhydrous)	Ammonia (aqueous or anhydrous)
Hydrogen peroxide	Copper, chromium, iron, most metals or their salts, alcohols, acetone, organic materials, aniline, nitromethane, combustible materials
Hydrogen sulfide	Fuming nitric acid, oxidizing gases
Hypochlorites	Acids, activated carbon
Iodine	Acetylene, ammonia (aqueous or anhydrous), hydrogen
Mercury	Acetylene, fulminic acid, ammonia
Nitrates	Sulfuric acid
Nitric acid (concentrated)	Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids, flammable gases, copper, brass, any heavy metals
Nitrites	Acids
Nitroparaffins	inorganic bases, amines
Oxalic acid	Silver, mercury
Oxygen	Oils, grease, hydrogen: flammable liquids, solids or gases
Perchloric acid	Acetic anhydride, bismuth and its alloys, alcohol, paper, wood, grease, oils
Peroxides, organic	Acids (organic or mineral), avoid friction, store cold
Phosphorus (white)	Air, oxygen, alkalis, reducing agents
Potassium	Carbon tetrachloride, carbon dioxide, water
Potassium chlorate	Sulfuric and other acids
Potassium perchlorate (see also chlorates)	Sulfuric and other acids
Selenides	Reducing agents
Silver	Acetylene, oxalic acid, tartaric acid, ammonium compounds, fulminic acid
Sodium	Carbon tetrachloride, carbon dioxide, water
Sodium nitrite	Ammonium nitrate and other ammonium salts
Sodium peroxide	Ethyl or methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethyl acetate, methyl acetate, furfural
Sulfides	Acids
Sulfuric acid	Potassium chlorate, potassium perchlorate, potassium permanganate (similar compounds of light metals, such as sodium, lithium)
Tellurides	Reducing agents

Appendix G: Waste Stream Log

Use this log for each waste stream container, in addition to the Hazard Waste Label, if applicable. Complete this log each time you add to this waste container. One log will be used for each waste stream container.

School Name: **Laboratory Classroom #:**

Date	Waste Stream	Volume	Concentration	Waste Container	Signature

Appendix H: Hazardous Waste Tag

Reference: https://www.mysafetylabels.com/hwl/Hazardous-Warning-Labels/SKU-LB-H512.aspx?engine=googlebase&keyword=Safety+Labels&skuid=LB-H512-LB-H512-P100&gclid=Cj0KCQjwj7v0BRDOARIsAGh37irbokLb1quAUydH5oXH1DDSRsc80XKRWAzNmuGqr5Ul76mwecpKldgaAmG_EALw_wcB

The link above can also be used to make purchases of the hazardous waste tag.

Appendix I: Safety Equipment Testing Records

Safety Shower, Eyewash Station & Drench Hose Testing Record

Date	Signature	Date	Signature

Nautral Gas
Testing Record

Date	Signature	Date	Signature

GFCI Breakers
Testing Record

Date	Signature	Date	Signature

Appendix J: Occupational Exposure to Hazardous Chemical in Laboratories Standard (Standard 29 CFR 1910.1450) & Appendices

OSHA Laboratory Standard

https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1450

Appendix A

https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1450AppA

Appendix B

https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1450AppB

APPENDIX K
Review and Revision Log

Date	Revision	Authorized By
11/28/23	**Added Appendix K, updated chief custodian and sector supervisor contact information.**	**Lakisha Kincherlow**
