**Laboratory Chemical Hygiene Plan**

**Tips and Considerations**

**Applicability.** This sample Laboratory Chemical Hygiene Plan (Plan) applies to laboratories orfacilities with laboratories where employees routinely work with hazardous chemicals (that is, any chemical that is a physical or a health hazard) and are regulated under OSHA’s Occupational Exposure to Hazardous Chemicals in Laboratories rule (29 CFR 1910.1450). OSHA requires such facilities to have a written chemical hygiene plan, and it must be made accessible to employees for review and include specific measures for protecting employees against chemical hazards.

The OSHA rule details what must be accomplished but allows employers to decide how to accomplish it. The regulation directs each employer to explain its path to lab safety in a written Chemical Hygiene Plan, developed by a specific individual or committee assigned to the task. The Plan must be capable of protecting employees from health hazards associated with hazardous chemicals in that laboratory and keeping exposures below the permissible exposure limits (PELs) established by OSHA.

This Plan focuses only on worker chemical safety and does not cover bloodborne pathogens requirements in detail. Also, it does not cover any environmental rules related to solid or hazardous waste management, medical waste disposal, or discharges to the environment. It also does not apply to uses of hazardous chemicals or substances that do not meet the definition of laboratory use (for example, benzene, cadmium, and formaldehyde). In such cases, the employer must comply with the relevant rule for toxic substances (see 29 CFR 1910, subpart Z) even if such use occurs in a laboratory. It also does not apply to laboratory uses of hazardous chemicals that provide no potential for employee exposure, such as procedures using chemically impregnated test media such as Dip-and-Read tests and commercially prepared kits such as those used in performing pregnancy tests in which all of the reagents needed to conduct the test are contained in the kit.

**Related rules.** The following workplace safety rules generally apply to laboratories, and theapplicable components of each rule related to hazardous chemical safety should be incorporated into the Plan:

* 29 CFR 1910.132—Personal Protective Equipment (requirement for a hazard assessment)
* 29 CFR 1910.134—Respiratory Protection
* 29 CFR 1910.1200—Hazard Communication (especially labels and hazard warnings)
* 29 CFR 1910.1000—Air Contaminants
* 29 CFR 1910.1030—Bloodborne Pathogens

**Related EHS Plan templates.** The following EHS Plans located on the Safety.BLR.com®website contain useful information as the topics apply to your laboratory conditions that you may incorporate into your laboratory safety plan:

**Accident Investigation Plan**

**Bloodborne Pathogens Exposure Control Plan (General or Health Care)**

**Emergency Action Plan**

**Fire Prevention Plan**

**First-Aid Plan for General Industry**



**Flammable Liquids Plan**

**Hazard Communication Plan**

**Job Hazard Analysis Plan**

**SDS Plan**

**Process Safety Management Plan**

**Respiratory Protection Plan**

**Spill Prevention Safety Plan**



**Elements of a Chemical Hygiene Plan.** According to the federal*Occupational Exposure to**Hazardous Chemicals in Laboratories* rule, the written Plan must contain the followingelements:

* Standard operating procedures for lab work using hazardous substances
* Ways the employer will determine or measure employee exposure to hazardous substances
* Engineering controls, personal protective equipment (PPE), and hygiene practices that will be used to reduce employee exposure
* Specific measures to ensure that fume hoods and other protective equipment function properly
* Procedures to train employees to recognize hazards and protect themselves against them
* Criteria for requiring preapproval of a particular operation, procedure, or activity
* Explanations of when and how medical consultations and examinations will be provided to employees
* Additional protections for employees working with particularly hazardous substances, such as carcinogens or reproductive toxins

**[Name of organization]**

**Laboratory Chemical Hygiene Plan**

Plan last updated:

**Purpose:** This Laboratory Chemical Hygiene Plan (known hereafter as the “Plan”) outlines theworkplace safety and health measures for the safe use, storage, and disposal of hazardous chemicals in the laboratory. It is written to meet the specific safety and health requirements outlined in the federal regulation 29 CFR 1910.1450, Occupational Exposure to Hazardous Chemicals in Laboratories.

Scope: This Plan applies to all personnel of **[name of facility]** who use hazardous chemicals in a laboratory.

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**Plan Administration**

**Plan Administrator.** The Plan Administrator (hereafter known as the “Administrator”) isqualified by training or experience and designated by *[insert name of organization or chief* *operating officer]* to provide technical guidance in the Plan’s development and is authorized toimplement and enforce the provisions of the Plan. The Administrator or a person or persons designated by the Administrator will provide all other personnel that work in the laboratory with health and safety information about the specific hazards found in the laboratory and assist laboratory workers in matters relating to chemical safety.

*[Modify the following job descriptions as applicable to your laboratory administrative structure.]*

The Administrator may designate the chemical hygiene officer(s), laboratory supervisor(s), or project director(s) to implement any of the provisions of this Plan.

**Chemical hygiene officer.** The chemical hygiene officer will:

* Work with administrators and other employees to develop and implement appropriate chemical hygiene policies and practices.
* Monitor procurement, use, and disposal of chemicals used in the laboratory.
* See that appropriate audits are maintained.
* Help project directors develop precautions and adequate facilities.
* Know the current legal requirements concerning regulated substances.
* Seek ways to improve the chemical hygiene program.

**Laboratory supervisor.** The laboratory supervisor has overall responsibility for ensuring thatworkers comply with chemical hygiene requirements in the laboratory, including responsibility to:

* Ensure that workers know and follow the chemical hygiene rules that protective equipment is available and in working order, and that appropriate training has been provided.
* Provide regular, formal chemical hygiene and housekeeping inspections, including routine inspections of emergency equipment.
* Know the current legal requirements concerning regulated substances.
* Determine the required levels of protective apparel and equipment.
* Ensure that facilities and training for use of any material being ordered are adequate.

**Project director.** The project director has primary responsibility for chemical hygieneprocedures for a particular operation or project.

**Laboratory worker.** The laboratory worker will:

* Plan and conduct each operation in accordance with the chemical hygiene procedures in this Plan.
* Develop good personal chemical hygiene habits.

**Plan evaluation**

The Administrator will annually review and evaluate the effectiveness of the Plan and update it

as necessary to maintain its effectiveness.

**Definitions**

**Action level** means a concentration for a specific airborne contaminant regulated under theworkplace safety regulations calculated as an 8-hour time-weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance.

**Chemical Hygiene Plan** means a written program developed and implemented by the employerthat sets forth procedures, equipment, personal protective equipment and work practices that (i) are capable of protecting employees from the health hazards presented by hazardous chemicals used in that particular workplace and (ii) meets the requirements of 29 CFR 1910.1450(e).

**Emergency** means any occurrence such as, but not limited to, equipment failure, rupture ofcontainers or failure of control equipment that results in an uncontrolled release of a hazardous chemical into the workplace.

**Hazardous chemical** means a chemical for which there is statistically significant evidence basedon at least one study conducted in accordance with established scientific principles that acute or chronic health effects may create a health hazard to exposed employees, or the chemical creates a physical hazard to employees.

**Health hazard** means a chemical that is a carcinogen, a toxic or highly toxic agent, reproductivetoxin, irritant, corrosive, sensitizer, hepatotoxin, nephrotoxin, neurotoxin, an agent that acts on the hematopoietic systems, and an agent that can damage the lungs, skin, eyes, or mucous membranes.

**Laboratory** means a workplace where the laboratory use of hazardous chemicals occurs andwhere relatively small quantities of hazardous chemicals are used on a nonproduction basis.

**Laboratory use of hazardous chemicals** means handling or use of such chemicals in which:

* Chemical manipulations are carried out on a laboratory scale.
* Multiple chemical procedures or chemicals are used.
* The procedures involved are neither part of a production process nor in any way simulate a production process.
* Protective laboratory practices and equipment are available and in common use to minimize the potential for employee exposure to hazardous chemicals.

**Permissible exposure limit (PEL)** means regulated substances specified in the federal rules at29 CFR Part 1910, subpart Z, or corresponding state rules.

**Physical hazard** means a chemical for which there is scientifically valid evidence that it is acombustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive), or water-reactive.

**Hazard Identification**

**Hazard Assessment**

*[See the sample* ***Job Hazard Analysis Plan*** *at Safety.BLR.com to copy and paste relevant information into this Plan.]*

The Administrator or designee will conduct a Hazard Assessment to identify potentially hazardous conditions, chemicals, and equipment that may cause potential exposure or injury to laboratory workers. The assessment will also identify and recommend hazard control procedures for safe chemical handling and PPE.

Each chemical assessment will be recorded on the attached *Chemical Hazard Analysis* *Worksheet*.

Completed or updated assessments must be attached to this Plan and kept on file in the laboratory. The Hazard Assessment will be used to develop safe work practices for each hazardous material or procedure found in the lab. Any new potential hazards associated with any change of procedures, new equipment, or new chemicals will be assessed and documented before being used by laboratory workers.

**Exposure monitoring**

***Initial monitoring***

This facility will monitor employee exposure to any substance that requires monitoring if there is reason to believe that exposure levels for that substance routinely exceed the action level, or in the absence of an action level, the PEL.

***Periodic monitoring***

If the initial monitoring discloses employee exposure to a substance over the action level or PEL, the Administrator or designee will immediately comply with the continued monitoring procedures prescribed by the regulation for such substance.

***Employee notification***

The Administrator or designee will, within 15 working days after the receipt of any monitoring results, notify the employee of these results in writing either individually or by posting results in an appropriate location that is accessible to employees.

***Termination of monitoring***

Monitoring may be terminated in accordance with the relevant regulation for the substance.

The need for regular monitoring of airborne contaminants in the laboratory is not usually justified or practical assuming that fume hoods and other appropriate methods of containment are used properly, safe work practices are followed judiciously, and all laboratory and support personnel practice good personal hygiene.

Contact *[Insert name or department.]* for assistance when a concern arises over potential

exposure to a laboratory chemical. Specialized monitoring and chemical exposure determination is available from *[Insert name or department.]*.

**Chemical inventory**

The Administrator or designee will perform an annual chemical inventory that lists all hazardous chemicals in the laboratory. The inventory (known as the “chemical list”) will be updated whenever new chemicals are introduced in the laboratory or when a new chemical hazard is identified. The inventory will list chemicals that are classified as hazardous by:

* The Hazard Communication Standard (29 CFR 1910.1200), Appendices A and B (health hazard criteria and physical hazard criteria)

Safety data sheets (SDSs) for chemicals used or stored at the facility will be used to assist with the chemical identification and communicate hazards of the hazardous chemical.

The chemical list is located *[Insert location or method to access electronically.]*.

See the attached *Chemical Inventory List* form.



**Container labeling**

Each container of a hazardous chemical delivered to, used at, or shipped from the laboratory must be labeled with the following:

* Name, address, and telephone number of chemical supplier
* Product identifier
* Signal word
* Hazard statement(s)
* Precautionary statement(s)
* Pictogram(s)

All laboratory workers must be trained on the elements of the container labels of hazardous chemicals.

Container labels must be maintained in a legible condition. Manufacturers’ labels must not be defaced or removed unless the container is immediately labeled with the same required information. Any container without a label or with an illegible label must be reported to the supervisor immediately.

The Administrator or designee will ensure that all chemical containers in the laboratory are labeled with the following information:

* The name of the chemical or stock solution
* The date of preparation
* Concentration
* The user’s initials

Secondary or temporary storage containers must be labeled with the same information as the original container chemical label.

**SDS**

An SDS will be maintained for each chemical used in the laboratory and will be readily available for laboratory workers’ review. The SDSs will be used during the training of laboratory workers. All laboratory workers must be trained on the standard 16-section SDS format.

SDSs are available *[Insert physical location or describe electronic access method.]*.

**Safe Work Practices**

**General practices**

Laboratory supervisors must ensure that all personnel under their direction possess the requisite knowledge, training, and education to safely handle hazardous chemicals in the laboratory. All laboratory personnel are responsible for following appropriate work practices when using hazardous chemicals.

Following are the general safe work practices that must be followed in all laboratory areas:

* Minimize all chemical exposures and do not underestimate the risk of exposure.
* Avoid unnecessary exposure to chemicals by any route (such as inhalation, skin, eyes, or needlestick).
* Keep food, beverages, cosmetics, and medication outside the lab.
* Protect your clothes and exposed skin by wearing laboratory coats and gowns.
* Open-toed shoes, sandals, shorts, and other apparel that leave skin exposed are not appropriate when handling potentially hazardous chemicals.
* Laboratory coats must not be worn outside the laboratory.
* Wear the appropriate gloves and eye/face protection whenever handling hazardous chemicals; these items should not be worn outside the laboratory.
* Ensure unimpeded access to safety showers and eyewash stations.
* Test-flush eyewash stations weekly.
* Remove gloves carefully and use the proper procedure.
* Thoroughly wash hands and forearms after finishing work and before leaving the laboratory.
* Use only an approved chemical fume hood when opening, pouring, or handling hazardous chemicals.
* Keep all doors to the laboratory closed; open laboratory doors can degrade hood performance and appropriate air flow through the building.
* Do not use or store chemicals or compressed gas in cold rooms or warm rooms since they have contained, recirculated atmospheres.
* Never pipette by mouth.
* Transport laboratory chemicals using bottle carriers and suitable carts.
* Follow the established procedures for the decontamination and safe movement of scientific and medical equipment.
* Maintain proper oversight of inexperienced personnel working with potentially hazardous chemicals.
* Contact **[contact name or department]** for clearance of the workspace when personnel must

enter laboratories to perform required services such as maintenance.

* Remove hazardous materials from equipment or facilities to be serviced and forewarn service personnel of the need for PPE or work practices.
* Decontaminate equipment when possible; notify a supervisor if the equipment could not be properly decontaminated.
* Follow the hazardous material spill procedure immediately in the event of a hazardous chemical spill.

**Chemical fume hood safe practices**

The chemical fume hood will provide adequate containment for most chemical operations.

Workers will comply with the following safety procedures when using fume hoods:

* Conduct all work within the chemical fume hood at a distance of at least 6 inches behind the face opening, and position the vertical sliding sash at the height specified on the certification sticker.
* Avoid blocking the airfoil, baffles, and rear ventilation slot.
* Support large items with legs to minimize airflow disruption across the work surface.
* Minimize foot traffic around the hood during use, since passing in front of the hood during operation disrupts the airflow and may pull contaminants out of the hood.
* Do not use the fume hood for storage.

**Respirator use**

See the ***Personal*** ***protective equipment*** section of this Plan for more information.

**Purchase of Hazardous Chemicals**

Following are the guidelines for purchasing hazardous chemicals for laboratory use:

* Purchase only what you can reasonably expect to use during the next 6 months.
* Buy what you specifically need. It is often possible to buy premade molar and normal solutions, thereby reducing the likelihood of waste.
* Purchase containers in the smallest practical size. Although the cost may be slightly greater, significant savings are realized in reduced disposal cost and safer storage.
* Purchase chemicals in plastic containers and avoid glass containers; if this is not possible, purchase shatter-resistant plastic-coated bottles.
* Read container labels; most of the information that you will need to handle and store the chemical is found on the manufacturer’s label.
* Obtain and read the SDS for each of the chemicals that you use.
* Rotate the chemical inventory. Indicate the date received, the date opened, and pay particular attention to the expiration date. Stored chemicals should be inspected periodically for deterioration and container integrity. For example, ether must be dated twice: once when it is received and again when it is opened. It should be discarded as chemical waste 6 months after opening.

**Storage of Hazardous Chemicals**

The procedures below must be followed when storing hazardous chemicals in the laboratory:

* Temperature-sensitive, volatile, or flammable chemicals must be kept in explosion-safe or explosion-proof refrigerators.
* All flammable chemicals must be stored in an approved flammable storage cabinet. Contact *[Insert name or department.]* for information about storage cabinets.
* All hazardous laboratory chemicals must be stored below eye level. This procedure greatly reduces the likelihood of something falling from above, breaking, and contaminating the laboratory or causing eye or other injuries.
* Avoid placing any chemical container in direct sunlight, underneath a sink, or near heat sources.
* Store hazardous chemicals in cabinets with doors rather than on open shelves.
* Do not store chemicals on laboratory bench tops or in chemical fume hoods.
* Keep all chemical containers off floors, carts, and electrical equipment.
* Segregate chemicals into their respective hazard categories: corrosive, flammable, reactive, or toxic. Physically separate incompatible chemicals.
* Hazardous substances must be kept in an area designated for their storage and use.

**Fume hood storage**

Do not store chemicals or equipment in the hood since these items can block the air slots and compromise the operation of the hood. Shelving units specifically designed to be used in chemical fume hoods are available when authorized for such use. Contact *[Insert contact name* *and/or phone for information about these products.]*.

**Disposal of Hazardous Chemicals**

*[Insert site-specific guidelines that apply to your laboratory.]*

Following are the procedures for disposing of hazardous chemicals:

* Do not dispose of chemicals down the drain or by evaporation.
* Properly collect, tag, and date waste.
* Keep chemical waste containers closed and sealed.
* Use drip pans under waste collection containers to prevent spills.

Contact *[Insert contact person or department and phone number.]* if there are any questions regarding what may be approved to discard down the drain.

**Exposure Control**

This facility will ensure that any employee exposures to airborne contaminants in the laboratory do not exceed the PELs or the recommended threshold limit values (TLVs) when there is no PEL.

Hazardous chemicals may be used only in laboratory facilities specifically designed and

engineered for such work. They may not be used in areas where their use is prohibited, including offices, storage rooms, shared equipment areas, cold rooms, and other areas lacking the appropriate hazard control facilities and a proper means of ventilation.

See the ***Safe work*** ***practices*** subsection of this Plan for more information about specific operating procedures for exposure control equipment.

**Ventilation systems**

Local exhaust ventilation systems such as fume hoods and slot hoods are the primary method of controlling airborne exposure to hazardous chemicals in the laboratory.

All fume hoods must meet the fume hood design specifications authorized by the Administrator or designee. Contact *[Insert name or department with phone number.]* for more information about the design specifications.

Any alteration affecting a local exhaust ventilation system or associated ductwork must be approved by *[Insert name or department.]* before the system’s modification. Ductless chemical fume hoods are not to be used in laboratories. Captured organic vapors begin to desorb from ductless chemical fume hood charcoal filters shortly after adsorption occurs, and some degree of breakthrough or failure to capture occurs during introduction of vapor into the hood.

**Chemical-sensitive personnel**

Personnel who are pregnant or considering becoming pregnant may have special concerns about working with chemicals that have potential reproductive hazards. Such concerns can be discussed with a supervisor or *[Insert name or department with phone number.]*.

**PPE**

PPE is an essential means of worker protection and will be used in combination with physical containment devices such as fume hoods at our laboratory.

See the ***Hazard assessment*** section of this Plan for more information about the hazard identification and PPE selection process. Information on the selection and use of PPE is also presented in the facility’s training courses.

All types of PPE, including chemical resistant gloves, aprons, eye and face protection, and respirators, are available to all employees who need them.

**General PPE practices**

Laboratory workers must:

* Wear gloves whenever there is a potential for direct skin contact with blood, hazardous chemicals, or infectious materials.
* Wear lab coats only in the laboratory area and button them to protect clothing. Contact *[Insert name or department.]* to obtain a lab coat.
* Wear an impervious apron in areas where there is a high risk for chemical splashes.
* Remove all PPE immediately after leaving the work areas (or as soon as possible) and put clothing in the laundry hamper located in the laboratory area or change rooms.
* Wear masks and eye protection or chin-length face shields to prevent contamination from splashes or sprays of blood, infectious materials, or hazardous chemicals whenever there is a potential for eye, nose, or mouth contamination.

Follow all project- or area-specific PPE requirements.

PPE is located *[Insert location.]*. Contact *[Insert name or department.]* if additional or specialized PPE is needed.

If you need a respirator to maintain exposure levels below PELs, *[Insert name or department.]* will provide one to you.

**Gloves**

Disposable gloves are one of the most commonly used types of PPE. The proper use of disposable gloves provides protection to the wearer by providing a barrier to potential hazards and product protection. All laboratory personnel are responsible for following the appropriate work practices when using disposable gloves. All workers must follow safe work practices when using gloves. Example practices include:

* Remove gloves carefully and use the proper procedure.
* Thoroughly wash hands and forearms upon completion of work and before leaving the laboratory.
* Do not reuse disposable gloves.
* Disposable gloves that become visibly contaminated or are suspected of being contaminated with hazardous materials must be replaced as soon as possible.
* Gloves contaminated with hazardous materials must be disposed of in accordance with

laboratory waste disposal rules and policies.

* All used disposable gloves must be treated as potentially contaminated and disposed of appropriately.
* Gloves must not be worn in common-use areas except in emergency situations or in rare situations when conditions warrant their use.

**Safety glasses**

Regular and prescription safety glasses that provide protection from flying objects are available through the *[Insert name or department and phone.]*. Goggles and face shields are available and must be worn if there is a potential for a chemical splash.

**Respirators**

*[Incorporate content from the* ***Respiratory protection******plan*** *at Safety.BLR.com if more detail is needed for this Plan. Modify this section as applicable to your facility.]*



This facility will provide, at no cost to the employee, respiratory protection when:

* The best available engineering controls fail to adequately reduce employee exposure to respiratory hazards.
* Substitution of respiratory hazards with less hazardous elements is not feasible.
* Modifications in hazardous operations fail to reduce exposures to below regulated or acceptable levels.

Respirators must not be used in the laboratory without prior approval by the Administrator or designee. Laboratory supervisors are not authorized to select or recommend the use of respiratory protection, regardless of the type.

Laboratory workers must contact *[Insert name or department.]* if they feel that they may need respiratory protection.

**Emergency Response**

**Emergency Action Plan**

This facility has developed an emergency action plan and evacuation procedures for this facility.

See the attached **Emergency** **Action Plan** for more information.

See the attached *Emergency Services Personnel Contact Information* form for information about whom to contact in an emergency.



**Spill response**

This facility has developed procedures for responding to large and small chemical spills in the laboratory.

***Large spill***

The following procedure must be followed by all employees when a large spill that involves more than *[Insert minimum quantity.]* of hazardous chemicals has occurred:

*[Modify the list to include all site-specific procedures for responding to a large spill at your facility.]*

1. Immediately notify *[Insert contact name.]*.
2. Contain the spill with available equipment (e.g., pads, booms, and absorbent).
3. Secure the area and alert other site personnel.
4. Do not attempt to clean the spill unless trained to do so.
5. Attend to injured personnel and call the medical emergency number, if required.
6. Evacuate the building as necessary.

***Small spill***

The following procedure will be followed by all employees when a small chemical spill that involves less than *[Insert maximum quantity.]* has occurred:

1. Notify *[Insert name, such as the emergency coordinator and/or supervisor.]*.
2. If toxic fumes are present, secure the area (with caution tape or cones) to prevent other personnel from entering.
3. Deal with the spill in accordance with the instructions described in the SDS.
4. Small spills must be handled in a safe manner while wearing the proper PPE.
5. Review the general spill cleanup procedures.

**First aid**

*[See the sample* ***First-aid Plan*** *and associated forms on Safety.BLR.com for more detailed information about first-aid services.]*

This facility will provide prompt emergency medical services and first-aid support to all personnel at the workplace who are injured or become ill.

*[Choose an option below; delete the options not chosen.]*

*Option 1—Emergency medical treatment services are provided on-site.*

*Option 2—The facility or worksite is located in close proximity (within 4 minutes for life-*

*threatening or permanently disabling injury emergencies and 15 minutes for non-life-threatening emergencies) to a medical treatment facility or service.*

*Where the facility or worksite is not in close proximity to a medical treatment facility or service and emergency medical services are not provided on-site, employees with valid first-aid certificates must be designated to provide first aid.]*

**[Option 1]**

**[Name]** will provide prompt medical attention in case of injury or illness to employees. Theproper equipment for transportation of the injured person to a physician or hospital is available. For emergencies, contact **[name, phone number]**.

**[Option 2]**

**[Name of medical treatment facility or service]** is located in close proximity to this worksiteand will respond to all emergencies or injuries sustained by employees. A communication system for contacting the emergency medical service is provided. Where the 911 emergency communication system is not available, *[Insert name.]* will post the telephone numbers of physicians, hospitals, or ambulances at conspicuous locations. See the attached *Emergency* *services personnel contact list* for more information.



Any employee who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence is authorized to provide first aid before emergency medical services arrive.

**[End Option 2]**

Any employee who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, a licensed physician, or equivalent training that can be verified by documentary evidence is authorized to render first aid.

**Medical Examination and Information**

The Administrator or designee will identify a licensed physician or a medical professional under the direct supervision of a licensed physician to perform medical examinations and consultations for laboratory workers who are or may be exposed to hazardous chemicals. The examinations and consultations will be performed at no cost to the employee, without loss of pay, and at a time and place reasonable to the employee.

**Evaluation criteria**

An employee will be sent for medical examination when either:

* The employee develops signs or symptoms associated with a hazardous chemical exposure;
* Exposure monitoring reveals an exposure level routinely above the action level; *or*
* An event takes place in the work area, such as a spill, leak, or an explosion, resulting in hazardous chemical exposure.

**Exposure information**

The Administrator or designee will provide the following information to the attending physician:

* The identity of the hazardous chemicals to which the employee may have been exposed;
* A description of the conditions under which the exposure occurred, including quantitative exposure data, when available;
* A description of the signs and symptoms of the exposure; *and*
* Copies of SDSs for the chemicals to which the employee was potentially exposed.

**Physician responsibilities**

The physician will provide to the Administrator or designee a written opinion that includes:

* Any recommendations for further medical follow-up
* Results of the medical examination and any associated tests
* Any medical conditions that may be revealed in the course of the examination that may place the employee at increased risk as a result of the exposure to a hazardous chemical found in the workplace
* A statement by the physician that the employee has been informed of the consultation and examination results and any medical condition that may require further examination or treatment

The physician will not reveal to the Administrator or designee any findings unrelated to the exposure.

**Training and Information**

Employees will be provided with information and training to ensure that they understand the hazards of chemicals present in their work area and know how to control or avoid such hazards. The information and training will be provided at the time of an employee’s initial assignment to a work area where hazardous chemicals are present and before assignments involving new exposure situations.

**Information**

The following information will be provided to laboratory employees:

* The contents of the Occupational Exposure to Hazardous Chemicals in Laboratories regulation
* The location and availability of this Plan
* The PELs for regulated substances or recommended exposure limits for other hazardous chemicals where there is no applicable PEL
* Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory
* The location and availability of known reference material on the hazards, safe handling, storage, and disposal of hazardous chemicals found in the laboratory, including SDSs received from the chemical supplier

**Training**

Training on the following topics will be provided to laboratory employees through a combination of computer, classroom, and hands-on instruction:

* Methods and observations used to detect the presence or release of a hazardous chemical, such as monitoring conducted by the employer, continuous monitoring devices, and the visual appearance or odor of hazardous chemicals when being released
* The physical and health hazards of chemicals in the work area
* The measures employees can take to protect themselves from these hazards, including the appropriate work practices, emergency procedures, and PPE needed to protect themselves from exposure to hazardous chemicals
* The applicable details of the Plan

**Refresher training**

Refresher information and training will be provided to employees whenever laboratory processes or chemicals change or whenever an employee demonstrates lack of knowledge or proficiency in carrying out the requirements of this Plan.

**Particularly Hazardous Chemicals**

This facility has adopted special rules and safe work practices for laboratory workers who handle or use particularly hazardous chemicals. Such chemicals include select carcinogens, reproductive toxins, and chemicals that have a high degree of acute toxicity.

Specific information about particularly hazardous chemicals is contained in SDSs and is also available *[Insert location or contact person and phone number.]*.

The Administrator or designee is responsible for ensuring that appropriate precautions are taken when working with particularly hazardous chemicals.

**Safe work practices**

The Administrator or designee will implement the following safe work practices for particularly hazardous chemicals used, handled, or stored at the laboratory:

*[Modify the list as applicable to your laboratory.]*

* Control access to the laboratory through the use of appropriate signs that warn of the hazards and indicate the precautions or approvals necessary for entry.
* Contact *[Insert name or department.]* to determine if medical surveillance may be warranted if toxicologically significant quantities of a particularly hazardous substance are used on a routine or frequent basis.
* Maintain an accurate record of the workers who use these substances and the amounts used and stored in the laboratory.
* Contact *[Insert name or department.]* for assistance with specialized waste disposal.
* Protect work surfaces from contamination through the use of disposable, absorbent, plastic-backed paper. Replace paper when contaminated (plastic side down) and handle as hazardous waste.
* Use additional containment devices, such as shielding or protective filters, to safely handle, store, or protect equipment and workers when using these chemicals.

***Secondary containers***

* Keep particularly hazardous substances in a secondary container to help prevent breaks and spills.
* The secondary container should be opened only inside a chemical fume hood.
* Attach an appropriate hazard warning label to this secondary container to alert others of the chemical contained therein and the need for special precautions: for example, “Warning— Cancer Hazard” or “Highly Toxic.”

***PPE***

* Wear appropriate PPE, including gloves, eye/face protection, and other protective apparel or equipment, as needed. Apparel includes impervious gowns, aprons, or gauntlets.
* Remove all protective apparel and thoroughly wash hands, forearms, face, and neck upon completion of work and before leaving the laboratory.

**Prior approval for work with particularly hazardous chemicals**

Prior approval is required when working with particularly hazardous chemicals and when there is a significant risk of exposure.

***Criteria for prior approval***

This oversight process is followed when the proposed work involves hazardous chemicals that meet one or more of the following criteria:

* Capable of causing severe, acute, or lethal effects upon exposure by any route in quantities of 50 micrograms/kilogram or less
* Highly unstable or, when combined with other compounds in the procedure, explosive
* May undergo chemical or physical changes during routine use and generate by-products that may overcome standard control measures or may penetrate available PPE to cause severe, acute, or lethal injuries
* Present a unique hazard or are used in an operation that requires approval above the level of the laboratory supervisor

***Safety protocol***

When one or more of the criteria above are met, the Administrator or designee must develop a specific written safety protocol and submit it to *[Insert name, committee, or department.]* for review before beginning work.

The safety protocol should include:

* A thorough description of the chemical(s) to be used, including the potential physical and health effects
* A step-by-step review of the work to be performed
* A list of the available engineering controls and PPE
* Provisions for proper labeling, storage, and waste disposal
* Decontamination procedures
* Expected actions in the event of an emergency

***Training***

Evidence of employee training on the established safety protocol must be documented and kept on file with this Plan. Training documentation must include the date the training was provided and the names of personnel trained.

**Recordkeeping**

The Administrator or designee will maintain all of the following records:

* Chemical inventories
* SDSs
* Hazardous waste inventories
* Waste disposal manifests and records
* Accurate records for each employee who undergoes environmental exposure monitoring, medical consultations, and examinations, including all tests and the written opinions of physicians
* Employee and supervisor training records
* Exposure monitoring records that are not related to specific employees
* Records of safe work practices, safety protocols, and prior approvals related to particularly hazardous chemicals

**Attachments**

*Chemical inventory list*



*Chemical hazard analysis worksheet*

*Emergency services personnel contact information*

