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INTRODUCTION

The health and safety program for the State of Alaska's Scientific Crime Detection Laboratory (SCDL) is outlined in this manual. The purpose of the program is to provide a safe environment for all Laboratory employees and visitors to the Laboratory, and to ensure that all Laboratory employees conduct work in a safe manner.

This manual is NOT an all-inclusive resource of health and safety information. It is one source of information that provides basic, common sense guidelines for maintaining a healthy and safe work environment at the Laboratory. All Laboratory employees should use this manual as a reference guide to assist them in performing their day-to-day work activities in such a manner as to ensure their safety as well as the safety of those who could be impacted by those activities.

SECTION 1 – RESPONSIBILITIES

DIVISION OF RESPONSIBILITIES

Safety management exists at three levels: Organizational, Supervisory, and Individual.

ORGANIZATIONAL

The State of Alaska is obligated to provide facilities, equipment, training, and maintenance to ensure a safe working environment.

SUPERVISORY

Role of the Forensic Laboratory Manager
The Forensic Laboratory Manager ensures there is proper funding for safety supplies and safety training at the Laboratory. The Forensic Laboratory Manager designates the Safety Coordinator.

Role of the Safety Coordinator
The Safety Coordinator is responsible for the development, implementation and continual improvement of health and safety policies and practices either directly or through a designated Safety Committee. The Safety Coordinator may update, revise and authorize the Laboratory Health and Safety Manual, plan and document safety training, track and file training certificates, oversee chemical inventory and disposal, etc.

Role of Discipline Supervisors
Discipline Supervisors are responsible for reporting and correcting health and safety hazards, and ensuring that all employees under their supervision know and comply with proper safety procedures and rules. Supervisors will designate Safety Committee members if needed.

INDIVIDUAL

Each and every employee at the Laboratory is responsible for complying with the health and safety program, taking the necessary precautions to protect himself/herself and others, and bringing any hazards to his or her Supervisor's attention immediately.

Bottom Line:

Safety is the mutual responsibility of ALL Laboratory personnel.

ALL Laboratory employees are responsible for ensuring a healthy and safe work environment.

Safety Committee

A Laboratory Safety Committee can be established to facilitate implementation of the Laboratory health and safety program. The Committee is comprised of Laboratory employees who have been designated by their Supervisor to participate in this implementation process.

The Safety Committee meets on an "as needed" basis to perform the following duties:

- Communicate safety concerns and/or compliance issues to the Safety Coordinator and/or Discipline Supervisors
- Assist in addressing safety concerns and/or compliance issues as requested by the Safety Coordinator and/or Discipline Supervisors
- Participate in conducting an annual health and safety audit

The Safety Committee is chaired by the Safety Coordinator who directs the activities of the Laboratory Committee to ensure the Laboratory health and safety program is properly implemented. The Coordinator also serves as a liaison between management (i.e., Forensic Laboratory Manager and Discipline Supervisors) and staff (i.e., all other Laboratory employees) to promote communication of health and safety-related issues.

SECTION 2 – GENERAL LAB HEALTH AND SAFETY PRINCIPLES

GOOD HOUSEKEEPING PRACTICES

The following guidelines will be followed to maintain an acceptable level of cleanliness at the Laboratory:

1) General cleaning services are provided by janitorial service personnel. Laboratory personnel are responsible for maintaining their specific areas.

2) Work areas must be kept as clean and uncluttered as possible.

3) Clean work areas regularly and at appropriate times.

4) Laboratory workspaces that are shared by two or more Laboratory employees must be maintained (cleaned) by those employees.

5) Trash removal from laboratory work areas is the responsibility of those Laboratory employees who occupy those work areas. Trash should NOT be allowed to accumulate beyond the capacity of the trash receptacle. When a trash receptacle is full, trash should be bagged and disposed of in the dumpster.

6) Trash that is considered hazardous must be labeled as such and disposed of in the appropriate manner (refer to Sections 3 and 4 of this manual for additional information).

7) Responsibility for maintaining common areas (e.g., multipurpose room, classroom) is shared by all Laboratory employees who use those areas.

Bottom Line:

Each Laboratory employee is responsible for maintaining a clean and clutter-free work environment.

Good Laboratory Practices

Good laboratory practices require that every Laboratory employee observes the following rules:

1) All emergency and safety equipment, first aid cabinets, and exits are clearly marked.

2) Hazard warning signs, such as Biohazard, Laser, etc., are posted at appropriate locations.

3) Smoking is prohibited in the Laboratory facility (AS 18.35.300).

4) No eating or drinking in laboratory work areas.

5) Food and beverages will not be prepared or stored in laboratory work areas.

6) Consumption of food and beverages IS permitted in the following Laboratory areas: front lobby area, classroom, reception area, multipurpose room, and offices that are completely separated by a barrier (e.g., door, window, wall) from the laboratory work area.

7) No laboratory work area utensils, glassware, apparatus, equipment or chemicals are allowed in non-work areas.

8) Horseplay and other behavior which might confuse, startle or distract workers will not be tolerated.

9) When needed, wear eye protection and sufficient clothing to protect you from spills. Lab coats are provided by the Laboratory for use.

10) Wear additional protective clothing and/or accessories when appropriate.

11) Closed-toed shoes shall be worn at all times in rooms where chemicals are stored or used. Perforated shoes or sandals shall not be worn in laboratories or where mechanical work is conducted. Such shoes offer no barrier between the laboratory worker and chemicals or broken glass. Chemical resistant overshoes or boots may be used to avoid possible exposure to corrosive chemicals or large quantities of solvents or water that might penetrate normal footwear (e.g., during spill cleanup).

12) Confine long hair and loose clothing while performing laboratory work procedures.

13) Avoid unnecessary exposure to chemicals by any route; especially do not inhale, taste or touch.

14) No mouth pipetting.

15) Avoid exposure to gases, vapors, aerosols, and particulates by using a properly functioning laboratory exhaust (fume) hood.

16) Consult the material safety data sheet (MSDS/SDS) prior to using an unfamiliar chemical and follow the proper procedures when handling or manipulating all hazardous agents.

17) Chemical wastes must be properly labeled and stored.

18) Ensure that all chemicals and biological materials are labeled and stored correctly according to the manufacturers' recommendations and any guidelines set forth in the Laboratory Health and Safety Manual.

19) Ensure that all chemical and biological waste is disposed of properly, following MSDS/SDS guidelines and any guidelines set forth in the Laboratory Health and Safety Manual.

20) Inspect all chemicals, equipment and instrumentation before using. Do not use if defective.

21) Use chemicals, equipment and instrumentation only for their intended use.

22) Follow operating instructions to use and maintain chemicals, equipment and instrumentation properly.

23) Glassware should be handled carefully and properly stored.

24) Remove all protective equipment, including gloves and lab coats, before entering the restroom, front lobby area, classroom, reception area, multipurpose room and offices that are completely separated from the laboratory work area.

25) Wash hands with soap and water before leaving the laboratory area.

26) Familiarize yourself with all the special safety features of the laboratory and, most importantly, your specific work area(s). Know the location and correct use of all available safety equipment.

27) Familiarize yourself with any special health and safety requirements of test procedures before beginning and strictly adhere to them.

28) Determine potential hazards and appropriate safety precautions BEFORE beginning a new procedure and confirm that existing safety equipment is sufficient for this procedure.

29) Familiarize yourself with all the special sample handling and waste disposal procedures of your specific work area(s).

30) Familiarize yourself with spill clean up and accident response procedures for your specific work area(s) and the laboratory in general.

31) Follow Laboratory Quality Assurance Manual and Health and Safety Manual guidelines when working alone at the laboratory.

32) Ensure that authorized visitors are equipped with the appropriate safety equipment PRIOR to entering the laboratory work area.

33) Be alert to unsafe conditions; correct them or report them to your Supervisor promptly, as appropriate.

34) If you have any questions, keep asking until you get a satisfactory answer.

USE OF PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) includes all clothing and work accessories designed to protect employees from workplace hazards. PPE should NOT replace engineering, administrative, or procedural controls for safety. Rather, it should be used in conjunction with these controls. All Laboratory employees are required to wear PPE (e.g., lab coat, gloves, safety glasses, face shield, respirator, ear plugs, etc.) appropriate for the potential hazard(s) associated with the laboratory work they are performing. PPE will be considered "appropriate" only if it does not permit blood and other potentially infectious materials to pass through to or reach the employee's clothes, skin, eyes, mouth or other mucous membranes under normal conditions of use and for the duration of time which the PPE will be used. Appropriate PPE will be covered in the discipline training programs and is provided to all Laboratory employees at no cost.

PPE clothing (e.g., laboratory coats and crime scene coveralls) should be placed in the appropriate bin for laundering, as needed. PPE clothing is laundered by a private contractor or in the laboratory facility at no cost to Laboratory employees.

GENERAL EQUIPMENT SAFETY

SHARPS

Employees can be punctured or cut by improperly disposed of needles, scalpels and broken glass. To avoid injury and possible infection, it is important to handle these and other "sharps" carefully and dispose of them in a sharps container. Sharps containers should be closable, puncture-resistant containers, with leak-proof sides and base, and must be labeled as containing sharps. Sharps containers should be closed before removal to prevent spillage or protrusion of contents during handling or transport.

Needles and/or scalpels should never be recapped, broken, or shorn. If necessary, they should be moved with the aid of forceps, pliers, or other mechanical device. For disposal, needles should be collected with the aid of a broom and dustpan and placed in a sharps container.

Broken glassware should never be picked up directly with the hands. It should be swept or brushed into a dustpan for disposal in a sharps container.

Fume (exhaust) Hoods and Biosafety Cabinets

Where practical, procedures involving hazardous substances should be performed in a fume hood (e.g. drug screening, serial number restoration, etc.) or Biosafety Cabinet (e.g. biological hazards). Alternatively, such a procedure should be performed in a laboratory workspace with minimal traffic and an appropriate breathing filter should be worn by the Laboratory employee performing the procedure. All chemical spraying should be done in a fume hood.

Compressed Gases

Cylinders containing compressed gases should be securely strapped onto a cylinder transport cart when being transported from one location to another within the Laboratory facility. The proper regulator is to be used for each compressed gas cylinder in question and may not be adapted for use on another gas cylinder. After use, compressed gas cylinders should be recapped and labeled as to their contents (i.e., compressed gas type, amount of gas remaining in psi, or "empty" if the cylinder is empty). Each tank should be equipped with a safety shut-off valve. Reference Safe Cylinder

Handling and storage guidelines posted near cylinder storage locations. **Note**: this does not apply to the 1 liter nonflammable dry gas standards used by the Breath Alcohol program.

Electrical

All electrical wiring and equipment must meet current National Electrical Code Standards. All electrical devices must be grounded (manufactured with a three-wire cord and a three-prong plug) or double-insulated (an attached label will be marked "double insulated"). A three-prong plug should never be plugged into a two-prong adapter. Coffee pots, radios, tape players, and similar office items are exempted if they are not used near a water source. Fans and heaters are never exempt.

Frayed or damaged electrical cords should never be used. Electrical cords may not be extended across doorways, aisles or other areas where they can pose a hazard. Any Laboratory employee who detects a potential electrical hazard should immediately report it to his/her Discipline Supervisor for appropriate action.

Ergonomics

Ergonomics is the applied science of designing the workplace to fit the worker. It covers all aspects of the work environment, from the physical stressors that can impact the worker's health (i.e., by placing stress on joints, muscles, nerves, tendons, bones, etc.) to the environmental factors that can impact a worker's health and general well-being.

Ergonomics is important to the productivity and long-term health and safety of Laboratory employees. If a Laboratory employee has concerns about physical stressors and/or environmental factors in the workplace, these concerns should be brought to the attention of the appropriate Discipline Supervisor so they may be addressed.

After-Hours Safety and Working Alone

All Laboratory policies and procedures, including the Laboratory health and safety program, are in effect during the after-hours period as they would be during official work hours. Extra vigilance on the part of the Laboratory employee working after-hours is required in order to ensure personal safety, especially if the employee is working alone.

Due to safety considerations, no one should be alone in the Laboratory while conducting scientific examinations, particularly those involving chemical or biological reagents, firearms, or other hazardous materials.

Personnel may work alone in the office area to conduct administrative duties such as: scientific report review; reports; paper or memo preparation; court preparation; latent print verifications; etc. Personnel may also operate analytical instrumentation workstations for data handling and printing of analytical results.

Anyone who wishes to work after hours in the Laboratory must have prior approval of their Supervisor. This does not apply to crime scene response.

Visitor Safety

If a Laboratory visitor must enter a laboratory work area, the visitor must be provided with the appropriate PPE prior to entering the area.

SECTION 3 – CHEMICAL HYGIENE PLAN

A hazardous material is defined as *any* substance which presents a physical or health hazard as determined by scientific evidence or as dictated by state or federal regulations. For many chemicals, the degree of hazard is still unknown, so good practice dictates that all chemicals used in the laboratory be treated as potentially hazardous.

Laboratory employees working with or around chemicals, biological materials, or radioactive materials are responsible for exercising caution and handling hazardous materials in a safe manner. If employees are unsure of a hazard or safety procedure, they should ask the Safety Coordinator, a Safety Committee member, the Discipline Supervisor, or refer to the safety literature, including Material Safety Data Sheets or Safety Data Sheets, before using a chemical or procedure. The policies and guidelines contained herein are intended to apply to the Laboratory facility in its entirety.

Chemical Safety Guidelines

All Laboratory employees working with chemicals should follow these guidelines:

General

1) Assume that any unfamiliar chemical is hazardous.
2) Become familiar with Material Safety Data Sheets/Safety Data Sheets (MSDS/SDS) and know all the hazards of the chemicals with which you work (see *Material Safety Data Sheet* page(s) of this section).
3) Consider any mixture to be at least as hazardous as its most hazardous component.
4) Never use any substance if you are unsure of its identity or integrity.
5) Follow all chemical safety instructions precisely (see *Material Safety Data Sheet* page(s) of this section).
6) Minimize your exposure to any chemical, regardless of its hazard rating.
7) Use personal protective equipment (PPE) as appropriate.
8) A person's own safety and that of his/her colleagues should be considered at all times.
9) Report any potentially hazardous situations to the Discipline Supervisor, Forensic Laboratory Manager, Safety Coordinator, or a member of the Safety Committee.

Specific Actions

1) Keep routes to exits free of obstructions.
2) Keep your work area clean and orderly and free of unnecessary chemicals, equipment and personal items.
3) Use proper lifting techniques for heavy items.

Personal Precautions

1) Consumption of food and/or beverages of any kind in the laboratory work areas is prohibited (refer to *Good Laboratory Practices* in Section 2 of this manual).
2) Laboratory glassware is not to be used for the preparation or consumption of food or beverages. Items used for food are not to be washed with laboratory items.
3) Food for personal use can be stored only in the multipurpose room cupboards, multipurpose room refrigerators, personnel lockers or office areas.
4) Smoking is prohibited in the building.
5) Wash hands frequently with soap especially if skin contact is made with any chemical.
6) Avoid touching unprotected body areas with gloved or unwashed hands.
7) Use caution when wearing contact lenses because of solvent, acidic and basic fumes.
8) Personal protective equipment such as safety glasses, shields, gloves, and lab coats should be used when handling chemical materials.
9) Laboratory coats shall be laundered through the provided service or in the laboratory facility, as needed or disposable coats may be used.
10) Laboratory coats should be removed prior to leaving laboratory areas in order to prevent the spread of contamination.
11) Eye protection should be worn whenever there is danger of injury to the eyes. Appropriate eye protection shall be worn when using sources of ultraviolet, infrared, alternate light sources, and laser radiation.
12) Do not place objects which may become contaminated into the mouth (e.g. pens).
13) No mouth-pipetting of any substance is permitted.

Procedural

1) Always read the label on a container before using the contents. Do not use chemicals from unlabeled bottles.
2) Do not return unused chemicals to the original stock container. Discard into the appropriate waste container.
3) When diluting an acid, pour the acid slowly into water, never the reverse.
4) Dispose of damaged or disposable glassware in designated sharps containers.
5) Do not pour solvents down sinks or drains. Waste containers should be utilized for disposal.
6) Procedures involving potentially hazardous materials shall be performed in fume hoods whenever possible.
7) Keep fume hoods clean and orderly. Store only those chemicals which are used regularly. Large quantities should be stored elsewhere in the proper storage area.
8) When working with chemicals and evidence in the fume hood, place these items toward the back of the hood when possible. This is the most effective area of the fume hood for drawing away vapors.
9) A solution such as hypochlorite (bleach) or a disinfectant spray may be used for routine decontamination procedures.

Isolation of Hazards

1) Crime Lab employees must use caution in order to avoid exposing others to chemical hazards.
2) Whenever possible, separate tasks to avoid contaminating another employee, his or her work area, or equipment.
3) When evidence or chemicals are examined in non-laboratory areas, proper precautions must be taken to prevent the exposure of others.

Emergency

1) Know the location of exits, fire alarms, first aid kits, AED and emergency phone numbers.
2) Know the location and proper use of safety equipment such as the emergency showers, eyewashes, fire extinguishers, and chemical spill kit.
3) Contain chemical spills and clean them up as soon as possible (See *In Case of a Hazardous Chemical Spill* - Section 6 of this Manual).

Hazard Communication

State and federal regulations have been enacted to protect employees against hazardous materials on the job. To remain compliant with these regulations the lab shall require:

1) A yearly inventory of chemicals within the laboratory

2) Access to Material Safety Data Sheets/Safety Data Sheets for each of the hazardous chemicals used

3) Proper labeling of all containers of hazardous materials

4) A SAFETY MANUAL (this document) and CHEMICAL HYGIENE PLAN (this section)

5) An employee training program covering the hazardous substances with which they work.

The primary responsibility for ensuring compliance with the hazard communication regulations will fall on the supervisor for each discipline. With assistance from the *Safety Coordinator*, the Discipline Supervisor should ensure that information on newly acquired chemicals is added to the chemical inventory, MSDS/SDS are maintained for all chemicals stored in their Discipline, proper labeling guidelines are being followed, and new employees are informed of safety policies and practices within the Laboratory. Yearly chemical inventories conducted by each discipline will be submitted to the Safety Coordinator and stored in in the SAFETY folder on Lab Share.

Each Laboratory employee is responsible for working in a safe manner and communicating any perceived potential hazards to his/her Supervisor, Safety Coordinator, Safety Committee member, or Forensic Laboratory Manager.

Community Right-to-Know Program (CRTK)

Owners or operators of facilities that have hazardous chemicals on hand in quantities equal to or greater than set threshold levels (referenced in the CRTK booklet) must submit Tier Two forms annually by March 1 to each of the following organizations:

Anchorage Fire Department CRTK and Department of Environmental Conservation

The purpose of the Tier Two form is to provide State and local officials and the public with specific information on hazardous chemicals present at our facility during the past year. Currently, the 1- liter nonflammable gas mixtures utilized in the Breath Alcohol program require annual reporting.

This program also details the requirements for the National Fire Protection (NFPA) placards that are posted at the front, employee and service entrances:

Additional information regarding this program is stored in the SAFETY folder on Lab Share.

Material Safety Data Sheets / Safety Data Sheets

A Material Safety Data Sheet/Safety Data Sheet (MSDS/SDS) is prepared by the manufacturer of a product containing 1% or more of a hazardous substance (or 0.1% if it is a carcinogen). The MSDS/SDS is a document containing a description of the hazards and precautions associated with a product. A product may contain more than one hazardous substance, but will require only one MSDS/SDS.

Each MSDS contains the following information:

- Trade name (product name)
- Chemical and common names
- CAS (Chemical Abstract Service) number of each hazardous ingredient
- The physical and chemical properties such as vapor pressure, flashpoint, and solubility of the chemicals
- The physical hazards such as fire, explosion, and dangerous chemical reactions
- The specific acute (short-term) and chronic (long-term) health hazards, including the signs and symptoms of illness and medical conditions which may be aggravated by exposure
- The potential routes of entry into the body
- The permissible exposure limits
- Whether the substance is listed as a carcinogen
- The precautions necessary for the safe handling, use, and storage
- The known control measures, including engineering, work practices, and personal protective equipment necessary to protect against hazards
- Emergency and spill clean-up procedures
- First aid procedures

Each SDS contains similar content, but is required to be in a uniform format that includes the following information:

- Section 1, Identification
- Section 2, Hazard(s) identification
- Section 3, Composition/information on ingredients
- Section 4, First-aid measures
- Section 5, Fire-fighting measures
- Section 6, Accidental release measures
- Section 7, Handling and storage
- Section 8, Exposure controls/personal protection
- Section 9, Physical and chemical properties
- Section 10, Stability and reactivity
- Section 11, Toxicological information
- Section 12, Ecological information
- Section 13, Disposal considerations
- Section 14, Transport information
- Section 15, Regulatory information
- Section 16, Other information

Manufacturers and distributors are required to provide an MSDS/SDS to any purchaser. As of June 1, 2015, the Hazard Communication Standard will require new SDSs to be in a uniform format, and include the section numbers and the headings as listed above. If one is not received, it should be requested. The Safety Coordinator has information on obtaining a missing MSDS/SDS.

MSDS/SDS sheets for the laboratory and individual disciplines are filed online at:

http://hq.msdsonline.com/akcrimelab3077

In addition, a backup file will be created by the safety coordinator and provided to discipline supervisors annually. Once received, the prior year's backup file will be destroyed. Employees shall utilize the online version rather than the backup files where possible.

Chemical Labeling

All primary containers of chemicals must be clearly labeled with the following minimum information: contents, date prepared (or received), initials of preparer (or receiver), date opened and appropriate hazard warnings. When you transfer a chemical from its original container to another container, the container you transfer it into is called a "secondary container." All secondary containers of chemicals must be clearly labeled with the contents and appropriate hazard information. Existing labels on incoming containers of hazardous chemicals may not be removed or defaced.

Several different types of hazards may be encountered within the confines of the Crime Laboratory. These may include:

- Flammables - such as chloroform, acetone, and other organic solvents
- Poisons - such as cyanide, arsenic, mercury, drugs, and strychnine
- Corrosives - such as sodium hydroxide
- Carcinogens - such as benzene and formaldehyde
- Respiratory Irritants - such as ammonium hydroxide, hydrochloric acid, glacial acetic acid, triethylamine, and carbon disulfide
- Pressure Hazards - such as gas cylinders
- Biohazards - such as blood, semen, animal evidence, and moldy marijuana

When using chemicals, Laboratory employees shall read the manufacturer's label and note the hazards indicated:

- "Flammable" means a material can catch fire or explode above 20°F.
- "Extremely flammable" means material can catch fire or explode below 20°F.
- "Toxic" means poisonous. Some toxins are absorbed through the skin, some are hazardous when dust or vapors are inhaled, and all are harmful if swallowed.
- "Skin irritation" or "avoid contact with skin" means the material may cause skin damage and can be extremely hazardous to the eyes. Eye protection is required.

- "Causes burns" or "causes severe irritation" means that contact with the skin will cause a rash or tissue destruction.

A number of different systems exist for labeling hazards. Red color may indicate flammability or skull and crossbones may indicate a poison. In the Laboratory, primary responsibility is placed upon each Laboratory employee for reading manufacturer's labels and following precautionary statements on the container and in the MSDS/SDS. Beyond commercial labeling, the laboratory supplies specific labels for carcinogens and also NFPA (National Fire Protection Association) rating labels. This system of rating the hazards of a substance are explained in the included graphic, with higher numbers associated with greater risk and lower numbers with less individual risk.

Chemical Storage

Chemicals should be purchased in quantities that will be utilized within a reasonable period of time. *Do not* order solvents in sizes larger than four (4) liters or one (1) gallon.

Chemicals must be segregated by hazard for safe storage. Separate storage areas have been designated for flammables and acids. Care should be taken to ensure that incompatible chemicals are not stored together. For a resource on incompatible chemicals, see Prudent Practices in the Laboratory, Handling and Disposal of Chemicals, by the National Resource Council.

Quantities of flammable solvents in excess of daily needs are kept in OSHA-approved cabinets below desk level. Acids, bases, and corrosives are never to be stored above head level. Chemicals must not be stored on open shelves. Designated storage shelves in the ***Chemical Storage/Preparation Rooms*** within the individual disciplines have restraining doors.

Specific precautions include:

- Acids

  Store in low cabinets with neutralizer material in case of spills.
  Store nitric acid separately.

- Peroxide-forming chemicals (ether, picric acid)

  Store in airtight containers in a cool, dark, dry place.

- Carcinogens

Precautions that will be followed include labeling all containers with a "carcinogen" sticker and storing according to the hazardous nature of the chemical. Personnel should always use caution when using the following carcinogens:

- Benzene
- Chloroform
- Fast Blue B
- Formaldehyde

Chemical Waste Disposal

An item is considered chemical waste if it contains a chemical component that meets one or more of the following criteria:

- Ignitability (flashpoint <60°C or supports combustion)
- Reactivity (e.g., water reactives, cyanides, explosives, unstable chemicals)
- Corrosivity (pH <4 or >10)
- EP toxicity (e.g., pesticides, heavy metals, poisons)
- Material is not excluded from regulations

Each Laboratory employee is responsible for properly identifying the hazardous waste he/she generates and for ensuring that the chemical waste is positioned in a designated area for proper disposal.

Expired batteries may be placed in the Dead Battery Casket located on the counter in the Latent Prints Discipline office.

Chemical Spill Response

An emergency spill response plan is outlined in Section 06 of this manual.

Receiving Chemicals – MSDS/SDS Sheets – Chemical Inventory

Verification

The first step for receiving chemicals is to verify that the chemicals received match the chemicals listed on the packaging invoice. After this is verified, initial and date all the chemicals received. This lets future users know who accepted the chemicals and when the chemicals arrived at the laboratory.

Online MSDS/SDS

The second step is to search the online MSDS/SDS database and see if there is an MSDS/SDS data sheet for each chemical AND manufacturer in the order. For instance, if there is an MSDS/SDS online for acetone manufactured by Sherwin-Williams, but the acetone you received is manufactured by Honeywell, an MSDS/SDS sheet for Honeywell acetone would have to be added to the online MSDS/SDS database.

If there is no MSDS/SDS in the database, notify the online MSDS/SDS administrator (usually the Laboratory Safety Coordinator), and they will add the MSDS/SDS sheet to the database. Alternatively, Discipline Supervisors or designees may add the MSDS/SDS sheet to the database. The database will automatically send an email to the MSDS/SDS administrator to approve the update.

The online MSDS/SDS database may be organized by storage location. This feature of the MSDS online database is not currently utilized.

Chemical Inventory

To remain compliant with State and Federal regulations, a yearly inventory of chemicals shall be performed by each discipline. Yearly chemical inventories conducted by each discipline will be submitted to the Safety Coordinator and stored in the SAFETY folder on Lab share.

SECTION 4 – BIOLOGICAL SAFETY

Biosafety Control Measures

To ensure minimal exposure, Laboratory employees must assess the hazards associated with their work and determine how to apply the appropriate biosafety guidelines. The following biosafety guidelines should be used when working with infectious agents or infected material:

Personal Hygiene Guidelines

1) Wash your hands thoroughly:
   a. After working with any biohazard
   b. After removing personal protective equipment
   c. Before eating, drinking, smoking, applying cosmetics, or other activity that involves touching your face
2) Do not touch your face when handling biological material
3) Never eat, drink, smoke, or apply cosmetics in the laboratory work area

Clothing Guidelines

1) Always wear appropriate personal protective equipment when working with infectious agents or infected material
2) Do not wear potentially contaminated clothing outside the laboratory work area

Handling Procedures

1) Use mechanical pipetting devices
2) Minimize aerosol production
3) Use secondary leak-proof containers when transporting samples containing bio hazardous materials
4) Biosafety Cabinets are available when processing bio hazardous materials

Sharps (needles, glass, scalpels)

1) Do not recap
2) Dispose of in an approved sharps container

Work Area

1) Limit access to laboratory work areas when working with infectious or biohazardous agents or material that may contain infectious or biohazardous agents
2) Ensure that appropriate signage is posted on laboratory work area doors where infectious or biohazardous agents may be present

Disinfection and Sterilization

Biological safety depends on proper cleanup and removal of potentially harmful agents. Disinfection and sterilization are two ways to help ensure biological safety in the laboratory:

1) Disinfection – reduction of the number of pathogenic organisms by the direct application of physical or chemical agents.
2) Sterilization – total destruction of all living organisms.

The method of disinfection or sterilization used depends on the target organism to be removed and the characteristics of the area to be cleaned.

The following guidelines should be used when working with potentially harmful agents:

1) Frequently disinfect floors, cabinet tops, and equipment where biohazardous materials are used.
2) Minimize the amount of materials and equipment present when working with infectious agents.
3) Properly store biohazard-containing material at the end of each day.

Bloodborne Pathogens Exposure Control Plan

Bloodborne Pathogen training is required annually for all laboratory employees. This training will be pre-scheduled and provided through the Laboratory and/or an approved vendor at no cost to the employee.

Laboratory employees should refer to Chapter 205 (Communicable Diseases) of the Department of Public Safety Operating Procedures Manual for additional information.

Chapter 205 can be found on the DPS Intranet:

http://dpsportal/Comm/OPM/205%20Communicable%20Diseases.pdf

SECTION 5 – CONTROL MEASURES AND EMERGENCY EQUIPMENT

Safety is achieved by continual awareness of hazards and by keeping the hazards under control by using precautions such as control measures. There are three general types of controls: engineering controls, personal protective equipment and hygiene practices. Laboratory personnel should be familiar with precautions to be taken, including the use of engineering and other safeguards. All laboratory employees should be alert to detect the malfunction of engineering and other safeguards. All engineering safeguards and controls must be properly maintained, inspected on a regular basis and never overloaded beyond their design limits.

Criteria for Use

These criteria will be used to determine and implement control measures to reduce employee exposure to hazardous chemicals. The typical routes of entry into the body are: inhalation, skin absorption, ingestion, injection and eye contact. The following control measures that guard against these routes of entry are to be used.

1) All work which may generate significant amounts of vapor, aerosol, mists or dusts of hazardous materials will be done in a chemical fume hood, biological safety cabinet or specifically designed hood for that operation.

2) Protection from skin and eye contact is routinely used. It includes, at a minimum whenever hazardous or potentially hazardous materials are used, the use of laboratory coats, gloves and safety glasses.

3) Additional levels of protection are provided by goggles and face masks. Other types of appropriate protective clothing are to be implemented when warranted. Both the worker involved in the operation and the Supervisor evaluates the need for use of additional protective apparel and/or equipment. The Supervisor will make the protective items available and the worker will use them. Useful guides and references are MSDS/SDS and Prudent Practices in the Laboratory, Handling and Disposal of Chemicals by the National Research Council.

4) Appropriate hygiene practices will be observed. These include immediately washing of areas of skin contact, removal of contaminated clothing, decontamination of clothing and work area, as necessary, disposal of contaminated items and use of eyewash and safety showers, as indicated.

5) In general, before leaving work areas for breaks, lunch or at the end of the work day, clean up the work area to minimize hazards, remove protective apparel and store properly; and wash hands thoroughly with soap and water.

Engineering Controls

These controls involve the use of proper building ventilation including an adequate number of appropriately designed exhaust hoods, fans and ducts in use.

Fume and laminar flow hoods are the primary control in this category. Their two primary methods of protection are: removing airborne hazards and providing a physical barrier between the worker and the operation being performed inside the hood.

Laboratory equipment which exhausts hazardous materials will be vented to an area minimizing employee exposure. Before any current equipment is moved or new equipment installed, these considerations will be addressed.

Personal Protective Equipment

This is addressed under “Criteria for Use”.

Hygiene Practices

This is addressed under “Criteria for Use” and “Good Housekeeping PracticeS”.

MSDS/SDS Information

It is the responsibility of each Supervisor to ensure that personnel within the discipline know where MSDS/SDS information is located. Personnel should be aware of the hazards presented by chemicals used in the discipline. Personnel should know if a chemical is carcinogenic, flammable, poisonous, explosive, etc.

Biosafety Cabinets

Biosafety Cabinets may be utilized for processing bio hazardous materials. They are certified by an outside company and monitored by the maintenance staff. Documentation will be stored with the quality assurance program.

Fume Hoods

Fume hoods provide protection to the laboratory worker when used in procedures involving chemicals or chemical reactions that give off toxic, flammable, noxious, or hazardous fumes and vapors. When these procedures are performed in a fume hood, these fumes and vapors are captured and exhausted to the external environment, where they are diluted by ambient air. It should be noted that smoke detectors and sprinklers are in the fume hoods and will activate the fire alarm.

Fume Hood Use

To ensure safety and proper fume hood performance, employees shall follow these guidelines:

- Do not store large quantities of chemicals in the fume hood or block the rear area of hood. This decreases airflow and limits the function and safety of the fume hood.
- Use a fume hood when working with chemicals or procedures that may produce hazardous fumes or vapors.
- Know how to properly operate a fume hood and inspect the fume hood before each operation.
- Place equipment and chemicals at least six inches behind the fume hood sash. This practice reduces the chance of exposure to hazardous vapors.
- Do not allow paper or other debris to enter the exhaust duct of the hood.
- Elevate any large equipment within the hood at least three inches to allow proper ventilation around the equipment.
- When working in a fume hood, keep the sash at the correct operating level – the only time the sash should be completely open is while setting up equipment.
- Wear personal protective equipment, as appropriate.
- Do not modify the fume hood or associated duct work.
- Clean up spills in the hood immediately.

IMPORTANT! If a power failure or other emergency occurs, close the fume hood sash and initiate the correct emergency evacuation plan (see Section 6).

Fume Hood Inspections

Fume hoods are monitored by the building automation system (BAS) for air flow and fire suppression. Fume hoods will be inspected and adjusted, if necessary, annually by in house maintenance staff. Documentation will be stored with the quality assurance records.

Fume hoods will also be tested in the following circumstances:

- When a Laboratory employee requests an inspection
- When a procedural change requires a hood classification upgrade
- After major repair work
- After a fume hood is moved

Alternate Light Sources

Forensic light sources such as the OMNIPRINT 1000B or the Mini Crimescope 400W are hazardous when used improperly or by untrained personnel. Proper eye protection must be worn at all times. Permanent eye damage can occur from direct illumination to the eye, or reflected or refracted light hitting the eye.

- Do not use inappropriate or incorrect goggles.
- Remove all unnecessary reflective surfaces from the area or exam room, and avoid looking at reflections in shiny objects such as doorknobs, watch crystals, tools, jewelry, windowpanes, mirrors, or any other surface that may reflect light.
- Exposing the skin to the beam of light directly from the unit can cause burns and other skin damage. There is no hazard with skin exposure to the beam emitting from the liquid light guide of fiber optic cables as temperatures are decreased.

Firearms Safety

- All firearms should be handled as if they are loaded.
- Firearms should be rendered safe by an analyst prior to processing the firearm.
- All personnel in a test firing area will wear suitable safety glasses and hearing protection. Body and face shields should be used in all situations where bullet fragments could be deflected towards the shooter or observers.
- The bore of the firearm should be checked for obstructions prior to loading. All ammunition shall be thoroughly inspected before use in test firing.
- Water tanks should be kept in a locked area.
- Fire extinguishers should be readily accessible when test-firing into a bullet recovery trap. The velocity limitation of the trap should be clearly posted and should not be exceeded. The trap should be routinely cleaned to minimize chance of ricochet.
- For indoor test firing, ventilate the area in a manner that removes discard residue from the shooter's face.
- The range door shall be closed for indoor test firing.
- Verbally announce the commencement of firing and/or clear the areas when test firing is to begin.

FIRST AID KITS

There are first aid kits throughout the Laboratory.

First aid kits are re-stocked on an as-needed basis. The safety coordinator may designate an individual to ensure that the first aid kits are adequately stocked. If a Laboratory employee observes that one or more first aid kit items need to be replenished, he/she should notify the Safety Coordinator or designee.

AED (Automatic External Defibrillator)

An AED is located in classroom A, the training classroom and also in each of the laboratory main hallways. CPR equipment (gloves, breathing mask, etc.) is stored with the AED. The Safety Coordinator or designee is responsible for checking the AED monthly to ensure that the batteries are charged and replacing the batteries when needed. Initials and date of the individual checking the AED will be recorded for each month and stored annually in LIMS.

FIRE EXTINGUISHERS

Class A-B-C multipurpose fire extinguishers are available if there is a fire in the Laboratory facility. There is also a class D fire extinguisher located in the firearms discipline.

Remember the acronym “APASS”
(Alert people in the area, Pull the pin, Aim low, Squeeze the lever, Sweep side-to-side)

Do NOT attempt to fight a fire unless it is small and controllable. When fighting a fire, always maintain an escape route – NEVER allow a fire to block your exit.

An approved vendor will check fire extinguishers at least annually as part of the annual fire inspection. Records are stored with the Maintenance Specialist files.

SHOWER AND EYEWASH STATIONS

Shower and eyewash stations are located in each laboratory work area. Laboratory employees should become familiar with the location of the shower and eyewash stations in their work area as well as the shower and eye wash stations in other parts of the Laboratory facility in the event that they may need to use this equipment.

Designated personnel will test shower and eyewash stations *at least* quarterly to ensure that they are working properly (i.e., that the flow of water is unobstructed and that the water exiting the station is tepid). Tepid is defined as a flushing fluid temperature conducive to promoting a minimum 15-minute irrigation period (Reference: A guide to the ANSI Z358.1-2009 standard for emergency eyewashes and shower equipment).

The Shower/Eyewash Quarterly check log (Appendix C) will be utilized to document the results. If any results are unacceptable the Safety Coordinator will be notified in writing (i.e. email) and an appropriate course of action will be initiated. Records will be scanned to the SAFETY folder on Lab Share and stored.

FIRE ALARM PULL STATIONS

Fire alarm pull stations are located throughout the Laboratory.

SPILL STATIONS

A chemical spill station is located near the center hub on each floor and mobile spill carts are located in each laboratory.

The spill stations and carts are re-stocked on an as-needed basis. If a Laboratory employee observes that one or more spill cart items need to be replenished, he/she should notify the Safety Coordinator or designee.

FLAMMABLE STORAGE CABINETS

Flammable storage cabinets will be used for the storage of flammable chemicals.

Acid Cabinets

Acid cabinets will be used for the storage of acidic chemicals.

Smoke Detectors

Smoke detectors located in the Laboratory corridors will respond to the solid and liquid aerosols produced by a fire (i.e., smoke). Since smoke detectors cannot distinguish between smoke particles and other particles such as steam, all Laboratory employees need to be aware of smoke detector locations and be considerate when working around them.

An approved vendor will check smoke detectors at least annually as part of the annual fire inspection. Records are stored with the Maintenance Specialist files.

Sprinkler System

The purpose of water sprinkler systems is to help extinguish and minimize the spread of fires. Sprinklers are normally activated only by heat. They are NOT connected to emergency pull stations. To ensure that sprinklers are effective in the event of a fire:

1) Maintain <u>at least</u> 18 inches of clearance between any equipment or storage items and the ceiling.
2) Never hang anything from a sprinkler head.
3) Arrange work areas to facilitate sprinklers and allow even water distribution.

An approved vendor will check the sprinkler system at least annually as part of the annual fire inspection. Records are stored with the Maintenance Specialist files.

Emergency Access and Exit

Emergency access and exit are critical during an emergency situation. For instance, effective emergency access ensures that firefighters can reach a fire in time to extinguish it before it does additional damage. Effective emergency egress ensures that building occupants can exit a building easily to avoid injury.

All Laboratory employees should adhere to the following safety guidelines to ensure effective emergency access / exit:

1) Keep all exits clean, clutter-free, and unobstructed to maintain a minimum corridor width of *at least* 36 inches (IFC 1016.2, Section 1005.2).
2) Do not place hazardous materials or equipment in areas that are used for evacuation.
3) Do not use corridors for storage or office/laboratory operations. Corridors should not be used as an extension of the office or laboratory.
4) A three-foot radial clear space shall be maintained around fire hydrants (IFC 508.5.5).
5) Never park in a fire lane.

<u>Classroom and Multipurpose Occupancy</u>

The maximum occupancy for the combined classrooms at the laboratory is 101 people.

The maximum occupancy of the multipurpose room at the laboratory is 64 people.

Reference the classroom usage agreement form on the Lab Share for additional safety information.

SECTION 6 – EMERGENCY AND EVACUATION PLANS

PURPOSE

An emergency consists of any situation that poses immediate and extreme danger to people or property. Because most emergencies are sudden and unexpected, it is extremely important to be prepared for such an event. Proper preparation helps ensure safety and survival.

The purpose of this section is to provide a written emergency response plan for all laboratory personnel in the event of a medical emergency, fire, hazardous material spill, bomb threat, and receipt of a suspicious package, earthquake or volcanic eruption. The procedures are intended to limit injuries and minimize damage to the laboratory.

Supervisors are responsible for the proper exercise of leadership in providing for the safety of employees and visitors.

In the event of a fire, bomb threat or hazardous material spill, all personnel will evacuate the laboratory upon hearing the alarm or an announcement over the P.A. system to evacuate.

IN CASE OF A MEDICAL EMERGENCY

<u>If the injury is life threatening</u>:

1) Remain calm.
2) Dial 911 and report the injury.
3) Call for help in the work area verbally or over the P. A. system.
4) When help arrives, one person stays with the injured person; another person seeks an employee trained in CPR/AED and/or First Aid.
5) While Alaskans are protected by the “Good Samaritan Law” when administering First Aid to a victim, it is important to remember that the person administering the aid must not put himself/herself in danger, thereby creating an additional medical emergency.
6) Have someone go to the front of the laboratory to meet emergency personnel and escort them back to the injured employee.
7) As soon as practical, inform your Supervisor of the situation.

<u>For injuries that are not life threatening, but require medical attention</u>:

1) Report the injury to your Supervisor.
2) Make arrangements for the injured employee to be transported to a medical facility. Do NOT permit the injured employee to drive himself/herself home or to another location for medical attention.

If the injury is not life threatening, and does not require medical attention:

1) Report any significant injury to your Supervisor within 24-hours of occurrence.
2) First Aid supplies are located throughout the laboratory.
3) Emergency eyewash stations and showers are located in each laboratory work area.

IN CASE OF FIRE

Response time is critical during a fire. Most fires produce an immense amount of highly toxic smoke, which can become deadly in a matter of minutes. The following procedure should be implemented in responding to a fire within the Laboratory facility:

1) Extinguish small fires by using the nearest portable fire extinguisher.
2) If you are not certain of your ability to contain the fire, leave the area immediately. Do not attempt to extinguish the fire unless you are confident you can safely exit the area.
3) When a fire occurs, the person discovering the fire may pull the nearest fire alarm to begin evacuating the building. Fire alarms are located throughout the laboratory. Pulling the alarm will notify the security company and the fire department.
4) If you are not in immediate danger, call 911 to report the fire. If there is immediate danger, you must evacuate the building immediately.
5) As time permits, and at no risk to personal safety, employees may secure confidential information and valuables in the event of a drill or an actual emergency.
6) It is the responsibility of everyone to check the areas around them to assure complete evacuation as they leave an area.
7) A laboratory employee exiting through the employee entrance/exit double doors shall grab the Emergency Clipboard as they exit the area. The Emergency Clipboard is located above the fire alarm-pull to the right of the employee exit doors.
8) Proceed quickly and calmly to the nearest and safest laboratory exit and proceed to the employee parking lot. This is the designated meeting area.
9) Once outside the building and at the designated meeting area, report to your Supervisor. Supervisors or Acting Supervisors are responsible for verifying that all employees are accounted for at the assembly area. The Emergency Clipboard has a checklist of employee's names that can be used to account for employees.
10) Remain in the designated meeting area until advised to re-enter the building.

IN CASE OF A HAZARDOUS CHEMICAL SPILL

1) If a chemical spill involves:
   - NO large quantities of hazardous material
   - NO significant respiratory hazard
   - NO significant fire or explosion and no potential for a significant fire or explosion

   DO THE FOLLOWING:
   - Barricade the spill area
   - Put on appropriate protective wear
   - Contain spill against spreading
   - Ventilate area
   - Transfer a dry spillage to an appropriate waste container.
   - Pick up liquid spillage using sorbent pillows, sorbent sheets, etc. and transfer to an appropriate waste container.
   - Clean up any remaining chemical residue
   - Decontaminate cleanup personnel
   - Report the incident and document the response measures taken.

2) If a chemical spill involves:
   - Large quantity of hazardous material
   - Significant respiratory hazard
   - Significant fire or explosion or the potential for a significant fire or explosion

   DO THE FOLLOWING:
   - The person discovering the spill will pull the nearest fire alarm. Fire alarms are located throughout the laboratory. Pulling the alarm will notify the security company and the fire department.
   - The person familiar with the spill will brief the Fire Department when they arrive.
   - As time permits, and at no risk to personal safety, employees may secure confidential information and valuables in the event of a drill or an actual emergency.
   - It is the responsibility of everyone to check the areas around them to assure complete evacuation as they leave an area.
   - A laboratory employee exiting through the employee entrance/exit doors shall grab the Emergency Clipboard as they exit the area. The Emergency Clipboard is located above the fire alarm-pull to the right of the employee exit doors.
   - Proceed quickly and calmly to the nearest and safest laboratory exit and proceed to the employee parking lot. This is the designated meeting area.
   - Once outside the building and at the designated meeting area, report to your Supervisor. Supervisors or Acting Supervisors are responsible for verifying that all employees are accounted for at the assembly area. The Emergency Clipboard has a checklist of employee's names that can be used to account for employees.
   - Remain in the designated meeting area until advised to re-enter the building.

IN CASE OF A BOMB THREAT or THREATENING PHONE CALL

1) Remain calm.

2) If your phone has caller ID display, record the number of the incoming call.

3) As much as possible, write down the exact words of the caller.

4) Ask questions to obtain as much information as possible to try to determine the exact nature of the threat.

5) If the situation presents immediate danger to people or property, call 911.

6) Report the call immediately to any member of laboratory management.

7) Follow directions of the Forensic Laboratory Manager or your Supervisor.

8) Upon notification of a bomb threat, employees shall not touch anything, including electrical switches, furniture and equipment. Unidentified items in work area and/or items suspected of containing a bomb should be reported to explosives personnel.

9) If required, evacuate the building in an orderly manner.

10) As time permits, and at no risk to personal safety, employees may secure confidential information and valuables in the event of a drill or an actual emergency.

11) It is the responsibility of everyone to check the area around them to assure complete evacuation as they leave an area.

12) The laboratory employee exiting through the employee entrance/exit doors shall grab the Emergency Clipboard as they exit. The Emergency Clipboard is located above the fire alarm-pull to the right of the employee exit doors.

13) Proceed quickly and calmly to the nearest laboratory exit and proceed to the employee parking lot. This is the designated meeting area.

14) Once outside the building and at the designated meeting area, report to your Supervisor. Supervisors or Acting Supervisors are responsible for verifying that all employees are accounted for at the assembly area. The Emergency Clipboard has a checklist of employee's names that can be used to account for employees.

15) Remain in the designated meeting area until advised to re-enter the building.

SUSPICIOUS LOOKING PACKAGES

Incoming packages to the Laboratory that have one or more of the following characteristics should be handled with caution:

1) Excessive postage
2) Missing return address
3) Misspelling of common words
4) Oily stains, discoloration, or odor
5) Protruding wires or aluminum foil
6) Markings indicating a chemical or biological agent release

Most packages are received at the Service Receiving Area and at the Evidence Room Receiving Area. It is important that the Laboratory employees working in these areas take notice of incoming packages with these and other unusual characteristics.

Laboratory employees should wear gloves and other appropriate personal protective equipment when handling suspicious-looking packages. If there is a concern that a package may pose a significant threat to health and safety, the Laboratory employee should NOT attempt to open it.

The Discipline Supervisor and Forensic Laboratory Manager should be notified about the package and emergency personnel (e.g., Anchorage Police Department or Anchorage Fire Department) should be contacted.

The package should be isolated from other Laboratory employees to minimize exposure to any potential health and/or safety hazards.

IN CASE OF AN ACTIVE SHOOTER EVENT

The FBI's Quick Reference Guide is inserted below with recommended actions if you find yourself in an Active Shooter Event:

When law enforcement arrives:

- Remain calm and follow instructions.
- Drop items in your hands. (e.g., bags, jackets)
- Raise hands and spread fingers.
- Keep hands visible at all times.
- Avoid quick movements toward officers, such as holding on to them for safety.
- Avoid pointing, screaming or yelling.
- Do not ask questions when evacuating.

Information to provide to 911 operators:

- Location of the active shooter.
- Number of shooters.
- Physical description of shooters.
- Number and type of weapons shooter has.
- Number of potential victims at location.

For questions or additional assistance contact:

Your local FBI Office:

FBI Headquarters National Press Office: (202) 324-3691

Federal Bureau of Investigation
935 Pennsylvania Avenue, NW
Washington, DC 20535

U.S. Department of Justice
Federal Bureau of Investigation

ACTIVE SHOOTER EVENT

QUICK REFERENCE GUIDE

An active shooter is an individual actively engaged in killing or attempting to kill people in a populated area.

- *Victims are selected at random.*
- *Event is unpredictable and evolves quickly.*
- *Knowing what to do can save lives.*

ACTIVE SHOOTER EVENTS

When an Active Shooter is in your vicinity, you must be prepared both mentally and physically to deal with the situation.

You have three options:

1 RUN

- Have an escape route and plan in mind.
- Leave your belongings behind.
- Evacuate regardless of whether others agree to follow.
- Help others escape, if possible.
- Do not attempt to move the wounded.
- Prevent others from entering an area where the active shooter may be.
- Keep your hands visible.
- Call 911 when you are safe.

2 HIDE

- Hide in an area out of the shooter's view.
- Lock door or block entry to your hiding place.
- Silence your cell phone (including vibrate mode) and remain quiet.

FIGHT 3

- Fight as a last resort and only when your life is in imminent danger.
- Attempt to incapacitate the shooter.
- Act with as much physical aggression as possible.
- Improvise weapons or throw items at the active shooter.
- Commit to your actions. . . your life depends on it.

The first officers to arrive on scene will not stop to help the injured. Expect rescue teams to follow initial officers. These rescue teams will treat and remove the injured.

Once you have reached a safe location, you likely will be held in that area by law enforcement until the situation is under control and all witnesses have been identified and questioned. Do not leave the area until law enforcement authorities have instructed you to do so.

IN CASE OF AN EARTHQUAKE

During the earthquake:

1) Keep calm, do not run or panic.
2) Remain in the general area. Do not try to run outdoors.
3) Take cover under tables, desks, etc., in doorways or against inside walls.
4) Stay away from glass windows and doors. If you cannot get away from glass windows or doors, turn your back towards them.
5) Stay clear of shelves and high piled material.
6) If you are outdoors, move away from buildings, poles and downed wires.

Following the earthquake:

1) Check your immediate area to see if anyone requires medical assistance. Report injuries to any member of laboratory management.
2) Follow all instructions issued by supervisory or emergency service personnel.
3) Evacuate the building if told to do so.
4) As time permits, and at no risk to personal safety, employees may secure confidential information and valuables in the event of a drill or an actual emergency.
5) It is the responsibility of everyone to check the areas around them to assure complete evacuation as they leave an area.
6) A laboratory employee exiting through the employee entrance/exit double doors shall grab the Emergency Clipboard as they exit the area. The Emergency Clipboard is located above the fire alarm-pull to the right of the employee exit doors.
7) Proceed quickly and calmly to the nearest and safest laboratory exit and proceed to the employee parking lot. This is the designated meeting area.
8) Once outside the building and at the designated meeting area, report to your Supervisor. Supervisors or Acting Supervisors are responsible for verifying that all employees are accounted for at the assembly area. The Emergency Clipboard has a checklist of employee's names that can be used to account for employees.
9) Remain in the designated meeting area until advised to re-enter the building.

IN CASE OF A VOLCANIC ERUPTION

Volcanic ash abrades and jams machinery. Therefore, the following precautions will be taken at the Laboratory in the event of a volcanic eruption:

1) The laboratory Maintenance Specialist or designee will shut down the air handling system located in Penthouse A and Penthouse B - C.
2) Dampen ash in the Laboratory parking lot to reduce suspension.

3) Keep doors closed and place damp towels at door thresholds and other draft sources; seal draft windows with tape.
4) Protect dust-sensitive electronics (e.g., computers, specialized instruments, etc.) with plastic covering.
5) Dust surfaces using a vacuum cleaner rather than a dusting cloth to reduce chance of abrading surfaces.

SECTION 7 – HEALTH AND SAFETY MONITORING

Employee Health Monitoring

The goal of employee health monitoring is to ensure that measures to protect the employee from workplace hazards are effective by carrying out medical surveillance programs for the early detection of adverse health effects. While it is the responsibility of the employer to communicate potential workplace risks to each employee and to insure that the appropriate workplace controls are in place to minimize these risks, it is the responsibility of all employees to be aware of potential workplace risks and to perform his/her duties in a manner that is consistent with the health and safety guidelines set forth in this manual.

Annual Physical Exam
Laboratory employees who in the performance of their regular duties come in contact with pathogenic, carcinogenic, and toxic substances or with infectious blood-borne (or other bodily fluid-borne) diseases may be entitled to partial reimbursement for an annual physical exam performed for the purpose of employee health monitoring (article 29.02 in the GGU contract and article 28.5 in the Supervisory Unit contract).

Immunization Guidelines
Laboratory employees who may be exposed to human blood or other human bodily fluids as a result of their job duties (e.g., employees working in crime scenes and biology) are encouraged to receive Hepatitis A (HAV) and Hepatitis B (HBV) vaccinations for their protection from potential infection with these blood-borne pathogens. Vaccination against these pathogens and titer checks are offered by the Laboratory at no cost to the Laboratory employee.

Hearing Tests – Baseline and Follow-Up
Laboratory employees who may be exposed to loud noises as a result of their job duties (e.g., employees working with firearms) are eligible to receive a baseline hearing test at the initiation of their exposure on the job and a follow-up hearing test every year while performing their job for the purposes of monitoring their hearing. This benefit is offered by the Laboratory at no cost to the Laboratory employee whose job duties may impact their hearing.

Blood Lead Level Tests
Laboratory employees who may be exposed to lead (e.g., employees working with firearms) are eligible to receive a baseline blood lead level test at the initiation of their exposure on the job and a follow-up blood lead level test every year while performing their job for the purposes of monitoring their exposure to lead. This benefit is offered by the

Laboratory at no cost to the Laboratory employee whose job duties may result in lead exposure.

SECTION 8 – REPORTING PROCEDURES

Injury / Exposure Reporting

A job-related injury or illness must be reported to the Supervisor as soon as possible. The Department of Administration, Division of Risk Management, has provided a general Claim Reporting Procedures booklet to assist in completing the correct forms for documentation of job-related injuries or illnesses. The Administrative Assistant will assist the Supervisor in providing the employees with the appropriate documentation forms.

Any injury caused by a "sharps" must be reported by memo to the Safety Coordinator, through the Supervisor as soon as possible. The memo should include the following from the *Department of Public Safety (DPS) Bloodborne Pathogens Exposure Control Plan* found in Chapter 205 (Communicable Diseases) of the DPS Operating Procedures Manual:

a. Date and time the incident occurred.
b. Location where the incident occurred.
c. Type of material (blood, etc.) that potentially infectious materials were involved in the incident.
d. Source of the material
e. Under what circumstances and the type of work being performed when the incident occurred.
f. How the exposure was caused.
g. Personal protective equipment being used at the time of the incident.
h. Actions taken as a result of the incident.
   -- Employee Decontamination
   -- Cleanup
   -- Notifications made

When applicable, the memo will be used in conjunction with the appropriate Department of Administration, Division of Risk Management, documentation of job-related injuries, and, if applicable, the *DPS Bloodborne Pathogens Post-Exposure Evaluation and Checklist* form.

CHEMICAL SPILLS

All chemical spills must be reported by memo to the Safety Coordinator, through the Supervisor. The memo should include the composition of the spill, extent of the spill, personnel involved, description of exposure, and clean up procedure used. Any injury, illness or reaction incurred should be reported on the Report of Occupational Injury or Illness form found online at the Department of Administration, Division of Risk Management.

Safety Concerns

Safety concerns should be documented and brought to the attention of the Discipline Supervisor and Safety Coordinator for resolution. If the safety concern is discipline specific, the

Safety Coordinator will work with the Supervisor of the involved Discipline to resolve the concern. If the safety concern is Laboratory-wide, the Safety Coordinator will work with the Forensic Laboratory Manager and all Discipline Supervisors to resolve the concern.

In both instances, Laboratory employees will be notified of the safety concern and the action steps needed in order to resolve the concern.

Safety concerns will be reported by memo or email to the employee's Supervisor or the Safety Coordinator.

SECTION 9 – TRAINING PROGRAMS

New Employees

All new employees to the Scientific Crime Detection Laboratory will receive health and safety information as part of their orientation. The orientation must include reading this manual and successful completion of online Bloodborne Pathogen and Fire Extinguisher training.

The Discipline Supervisor or designee will provide specialized safety training, as needed.

Safety training will be completed **before** the new employee begins work assignments.

Documentation of an employee's safety training should be on file with the Safety Coordinator prior to a new employee beginning his or her work assignments.

Refresher Training

Employees transferring to a new laboratory discipline must receive safety training for that new work discipline. The training will be completed **before** the employee begins work assignments. The Discipline Supervisor or designee will provide this training.

Bloodborne Pathogen and Fire Extinguisher training are required annually for all laboratory employees. Hands on Fire Extinguisher training may be provided every other year. This training will be pre-scheduled and provided through the Laboratory and/or an approved vendor at no cost to the employee. Records are stored in LIMS.

First Aid, AED and CPR training are also available for designated personnel through the Laboratory by an approved vendor at no cost to the employee. Records are stored in LIMS.

At a minimum, the Laboratory will practice evacuation procedures on an annual basis. During an evacuation procedure, all Laboratory employees should exit the building in a timely manner and congregate at the employee parking lot. Discipline Supervisors will take a head count of their respective sections to ensure that all employees are present. The Laboratory building may be re-entered when the Forensic Laboratory Manager deems the building safe to re-enter. Records are stored in LIMS.

Safety refresher training will be incorporated into the monthly staff meetings as needed.

If an employee has concerns regarding the efficacy of the content or extent of the safety training, this matter should be brought to the attention of the Discipline Supervisor or the Safety Coordinator.

SECTION 10 – AUDITING THE HEALTH AND SAFETY PROGRAM

Annual Health and Safety Audits

The Safety Coordinator will organize and conduct an annual, laboratory wide health and safety program audit to include all Disciplines of the Laboratory. The Safety Coordinator may form a Safety Committee to facilitate the annual audit.

Each Discipline Supervisor or Safety Committee member should perform an annual health and safety program audit for his/her discipline and record audit findings on the Discipline Health and Safety Audit Checklist (Appendix A). In addition, each employee should complete the Employee Health and Safety Audit Checklist (Appendix B).

The Discipline Supervisor or Safety Committee member will share the results of the Discipline audit with his/her discipline and the Safety Coordinator.

The Discipline Supervisor and Safety Coordinator will prepare an action plan to correct any health and safety deficiencies found during the audit process.

The Discipline Supervisor will document correction of the deficiencies on the Health and Safety Audit Checklist where indicated.

The Safety Coordinator will share the results of the annual audit with the Forensic Laboratory Manager. Documentation will be stored annually in LIMS.

MANUAL UPDATES

This manual will be reviewed annually by the Safety Coordinator to incorporate revisions that may be necessary to reflect changes that have been made in the day-to-day work activities at the Laboratory since the previous year's revision of the manual.

Important Note! - In the event that a change needs to be communicated in a more timely manner (e.g., a change that could potentially impact a Laboratory employee's health or safety), the Safety Coordinator will provide prompt, written notification of that change to all Laboratory employees and the health and safety manual will be revised to reflect that change at the time of annual review.

SECTION 11 - REVISION HISTORY

2016 R0 Page	2016 R1 Page	Location	Revision made
8	8	General Equipment Safety	Add to heading: **Fume (exhaust) Hoods** the following: "**and Biosafety Cabinets"** Add to end of first sentence: "or Biosafety Cabinet (e.g. biological hazards)"
20	20	Biosafety Control Measures Handling Procedures	In 3) replace "biohazardous" with "bio hazardous" Add 4) "Biosafety Cabinets are available when processing bio hazardous materials"
23	23	After **MSDS/SDS Information**	Added heading "**Biosafety Cabinets"** Add under heading: "BiosafetyCabinets may be utilized for processing bio hazardous materials. They are certified by an outside company and monitored by the maintenance staff. Documentation will be stored with the quality assurance program."
24	24	Fume Hoods Fume Hood Inspections	Removed the 3rd and 4th sentences referring to the"Fairbanks remote laboratory" and "Biohazard hoods" respectively.
43	43	Appendix A: Discipline Health and Safety Audit Checklist After Fire Extinguishers	Added heading **"BIOSAFETY CABINETS If no Biosafety Cabinets in Discipline, write NA here____"** Underneath heading added: **"NUMBER OF BIOSAFETY CABINETS IN DISCIPLINE_____** **YES NO** Cabinet(s) clean uncluttered, and not used for long term storage ____ ____ Cabinet(s) air intake and exhaust functions operational ____ ____ Cabinet(s) date of certification within certified limits ____ ____ **Comments / Action Taken:**_____
44	44	Appendix A: Discipline Health and Safety Audit Checklist Under: Fume Hoods	After Hood sash(es) operate properly? Removed: "Date(s) of last fume hood inspection(s)? If more than one fume hood in Discipline, write inspection dates for each fume hood if different from above."

APPENDIX A: DISCIPLINE HEALTH AND SAFETY AUDIT CHECKLIST

Discipline/Location:_____ Date:_____

Inspected by:_____ Supervisor Reviewed:_____

GENERAL ENVIRONMENT	YES	NO	
Are doors in proper working condition?	___	___	
Are walkways free from hazards?	___	___	
Is wiring in good condition, not frayed, abraded, or corroded?	___	___	
Are combustible materials kept a safe distance from ovens and heat?	___	___	
Are gloves, goggles, masks and/or face shields available?	___	___	
Is storage in overhead cabinets secure?	___	___	NA___
Are air lines, valves, regulators, etc. in good condition?	___	___	NA___
Are drains in working condition?	___	___	NA___
Are lights, bulbs, indicator lights operative?	___	___	NA___
Are lab refrigerators free from food storage?	___	___	NA___

Comments / Action Taken:_____

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CHEMICAL AND MATERIAL HANDLING AND DISPOSAL	YES	NO
Are there separate waste containers for glass, chemicals, and solids?	___	___
Are combustible chemicals kept a safe distance from ovens and heat?	___	___
Are chemicals properly labeled and in adequate containers?	___	___
Are hazardous wastes properly labeled?	___	___
Are chemicals properly stored (with respect to compatibility flammability, etc)?	___	___
Are there written procedures for preparing reagents?	___	___
Are there MSDS's for all chemicals used in the Discipline?	___	___
Are procedures involving potentially hazardous materials performed in fume hoods?	___	___

Comments / Action Taken:_____

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FIRE EXTINGUISHERS If no Extinguishers in Discipline, write NA here _____

	YES	NO
Are fire extinguishers at the correct pressure? (i.e is the yellow arrow in the green zone on the valve?)	___	___

Note: you do not need to remove the fire extinguisher from its location, simply peer in the window.

Comments / Action Taken:_____

_____

_____

_____

BIOSAFETY CABINETS If no Biosafety Cabinets in Discipline, write NA here____

NUMBER OF BIOSAFETY CABINETS IN DISCIPLINE_____

	YES	NO
Cabinet(s) clean uncluttered, and not used for long term storage	____	____
Cabinet(s) air intake and exhaust functions operational	____	____
Cabinet(s) date of certification within certified limits	____	____

Comments / Action Taken:_____

_____

_____

_____

FUME HOODS If no fume hood in Discipline, write NA here _____

NUMBER OF FUME HOODS IN DISCIPLINE _____

	YES	**NO**
Hood(s) clean, uncluttered, and not used for long term storage?	___	___
Hood fan/blower(s) operational?	___	___
Hood sash(es) operate properly?	___	___

Comments / Action Taken:_____

_____

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GAS CYLINDERS If no gas cylinders in Discipline, write NA here _____

	YES	NO
Are operating procedures for handling cylinders posted or otherwise available?	___	___
Location of gas cylinder handling procedures for Discipline _____		
Are gas cylinders properly labeled?	___	___
Are gas cylinders secured tightly and clamped in an upright position?	___	___
Are tubing and valves adequate and valve protection caps in place on both empty and full containers?	___	___
Are empty cylinders marked and removed promptly?	___	___
Are handcarts used for moving cylinders?	___	___
Are hand tools in good condition?	___	___

Comments / Action Taken:_____

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Appendix B: Employee Health and Safety Audit Checklist
This form is completed by each Laboratory employee as part of the Annual Safety Audit.
After completion, give this form to the Safety Coordinator for review.

Name: _____ Discipline: _____

Read the Laboratory Health and Safety Manual located in controlled documents on the Lab Share.

After you have finished, initial and date below

Initial _____ Date: _____

Answer the following Safety Questions
If you do not know the answer, ask your Supervisor

Where is the nearest…….

Fire extinguisher: _____

Eyewash Station: _____

Safety Shower: _____

Spill Control Station: _____

First Aid Kit: _____

Laboratory Exit: _____

AED:_____

Fire alarm-pull station:_____

Where is…….

The Online MSDS Located (web address): _____

The Laboratory Emergency Evacuation Clipboard: _____

The gathering point after Emergency Evacuation: _____

How do you……..

Report a Sharps or safety incident: _____

Where do you find required information to include in the Report: _____

- - - - REMINDER - - - - -
Discipline or laboratory safety concerns should be addressed to your Supervisor

Reviewed by Safety Coordinator (Initial and Date): _____

APPENDIX C: SHOWER/EYEWASH QUARTERLY CHECK LOGS

Biology

Discipline	Room Location	Shower/ Eye Wash	Comments	Acceptable	Unacceptable
	2199	Shower			
	2199	Eye Wash			
	2199	Sink Eye Wash			
	2200	Shower			
	2200	Eye Wash			
	2200	Sink Eye Wash A			
	2200	Sink Eye Wash B			
	2200	Sink Eye Wash C			
	2200	Sink Eye Wash D			
	2201	Shower			
	2201	Eye Wash			
	2201	Sink Eye Wash			
	2212	Shower			
	2212	Eye Wash			
	2212	Sink Eye Wash A			
	2212	Sink Eye Wash B			
	2213	Sink Eye Wash			
	2215	Shower			
	2215	Eye Wash			
	2215	Sink Eye Wash A			
	2215	Sink Eye Wash B			

Check Functions:

1. Water Pressure – appropriate to reach eyes; not to hard; not too soft
2. Temperature – appropriate for eyes; not boiling
3. Clean – area accessible; free from rust, dirt and clutter

If Unacceptable, date Safety Coordinator was notified _____

APPENDIX C: SHOWER/EYEWASH QUARTERLY CHECK LOGS

Chemistry

Discipline	Room Location	Shower/ Eye Wash	Comments	Acceptable	Unacceptable
	2116	Shower			
	2116	Eye Wash			
	2116	Sink Eye Wash			
	2117	Shower			
	2117	Eye Wash			
	2117	Sink Eye Wash			
	2118	Shower			
	2118	Eye Wash			
	2118	Sink Eye Wash A			
	2118	Sink Eye Wash B			
	2118	Sink Eye Wash C			
	2118	Sink Eye Wash D			
	2118	Sink Eye Wash E			
Breath	1171	Sink Eye Wash			

Check Functions:

1. Water Pressure – appropriate to reach eyes; not too hard; not too soft
2. Temperature – appropriate for eyes; not boiling
3. Clean – area accessible; free from rust, dirt and clutter

If Unacceptable, date Safety Coordinator was notified: _____

APPENDIX C: SHOWER/EYEWASH QUARTERLY CHECK LOGS

Evidence

Discipline	Room Location	Shower/ Eye Wash	Comments	Acceptable	Unacceptable
	1152	Shower			
	1152	Eye Wash			
	1152	Sink Eye Wash			
	1158	Sink Eye Wash			
AST	Office	Shower			
	Office	Eye Wash			

Check Functions:

1. Water Pressure – appropriate to reach eyes; not too hard; not too soft
2. Temperature – appropriate for eyes; not boiling
3. Clean – area accessible; free from rust, dirt and clutter

If Unacceptable, date Safety Coordinator was notified: _____

APPENDIX C: SHOWER/EYEWASH QUARTERLY CHECK LOGS

Firearms

Discipline	Room Location	Shower/ Eye Wash	Comments	Acceptable	Unacceptable
	2160	Shower			
	2160	Eye Wash			
	2160	Sink Eye Wash			
	2157	Shower			
	2157	Eye Wash			
	2157	Sink Eye Wash			
	2156	Sink Eye Wash			

Check Functions:

1. Water Pressure – appropriate to reach eyes; not too hard; not too soft
2. Temperature – appropriate for eyes; not boiling
3. Clean – area accessible; free from rust, dirt and clutter

If Unacceptable, date Safety Coordinator was notified: _____

APPENDIX C: SHOWER/EYEWASH QUARTERLY CHECK LOGS

Physical

Discipline	Room Location	Shower/ Eye Wash	Comments	Acceptable	Unacceptable
CSI	1220 (Garage)	Shower			
	1220 (Garage)	Eye Wash			
Latents	1205	Shower			
	1205	Eye Wash			
	1205	Sink Eye Wash (SW)			
	1205	Sink Eye Wash (NE)			
	1205	Sink Eye Wash (W)			
	1206	Sink Eye Wash (NW)			
	1207	Sink Eye Wash (SE)			
	1209	Shower			
	1209	Eye Wash			
	1209	Sink Eye Wash (NE)			
CSI	1116 (Blood Spatter)	Eye Wash			
TRNG Lab	1117	Shower			
	1117	Eye Wash			
	1117	Sink Eye Wash			

Check Functions:

1. Water Pressure – appropriate to reach eyes; not too hard; not too soft
2. Temperature – appropriate for eyes; not boiling
3. Clean – area accessible; free from rust, dirt and clutter

If unacceptable, date Safety Coordinator was notified: _____