

LABORATORY INSPECTION CHECKLIST
Appendix 2

Laboratory Safety Inspection Checklist

This checklist is provided as a guideline to conduct internal safety surveys. This summary does not list every possible hazard, but may be useful in performing periodic safety inspections. All items are not always applicable to all facilities. Please contact UAF EHS&RM for assistance in correcting deficiencies.

Department Name: _____ Area Inspected: _____

Inspected by: _____ Date of Inspection: ___/___/___

A. Administrative

- Yes No N/A 1) Are employees aware of how to access and interpret Material Safety Data Sheets (MSDSs)?
- Yes No N/A 2) Are safety training records maintained and available for review by employees, EHS&RM, and/or outside agencies?
- Yes No N/A 3) Is the lab's Chemical Hygiene Plan readily available to all employees?
- Yes No N/A 4) Are safety inspection reports maintained and available for review by employees, EHS&RM, and/or outside agencies?
- Yes No N/A 5) Is an annual (or continuous) listing of the chemical inventory maintained and available to employees, EHS&RM, and/or outside agencies?

B. General Safety Concerns

- Yes No N/A 1) Has an emergency information sign been posted outside the lab, identifying department personnel to contact in the event of an emergency?
- Yes No N/A 2) Are rooms, cabinets, designated areas containing such materials as regulated hazardous substances, radioactive materials, and biohazardous materials, posted with the appropriate warning signs?
- Yes No N/A 3) Are all exits and aisles to the outside free from any obstructions?
- Yes No N/A 4) Are there provisions in place to prevent acids, caustics, flammable liquids, and other potentially hazardous substances from entering the sewer discharge system via floor or any other type of drain?

C. Seismic Safety

- Yes No N/A 1) Does shelving have lips or restraints in place to prevent spillage?
- Yes No N/A 2) Is overhead storage minimized and restrained?
- Yes No N/A 3) Are cabinets and storage shelves over 42 inches in height braced or otherwise fastened to the wall to prevent their falling in the event of an earthquake?

D. Personal Protective Equipment

Yes No N/A 1) Is the appropriate personal protective equipment required for the lab available and utilized?
 Safety Glasses Goggles Face Shields Gloves Lab Coats Aprons Foot wear

E. Laboratory Equipment

Yes No N/A 1) Are the eyewash and emergency shower stations free from any obstructions and have been tested within the last 12 months?

Yes No N/A 2) Is the maximum operable sash height information posted on the chemical fumehood(s)?

Yes No N/A 3) Is the maximum operable sash height information followed by all fumehood users?

Yes No N/A 4) Is an airflow indicator located on the fumehood?

Yes No N/A 5) Has the fumehood been tested within the last year?

Yes No N/A 6) Is storage with the fumehood minimized and operations conducted at least six inches inside the fumehood face?

Yes No N/A 7) Are the biological safety cabinets appropriate for the biohazard class of material being examined? Note: See items I and J.

Yes No N/A 8) Are the biological safety cabinets certified annually? Note: See items I and J.

Yes No N/A 9) Is non-ionizing radiation equipment such as lasers, microwaves, and ultraviolet light sources properly posted and shielded?

Yes No N/A 10) Are vacuum systems that are capable of imploding protected with cages or barriers; are smaller vacuum systems taped?

Yes No N/A 11) Glass dewars are wrapped or shielded?

Yes No N/A 12) Are proper gloves and safety glasses available for use with liquid nitrogen?

Yes No N/A 13) Are employees instructed on the dangers of liquid nitrogen and how to prevent exposure?

Yes No N/A 14) Vacuum pump belt guard is in place?

Yes No N/A 15) Two pronged appliances are not within a five foot radius or directly located above a sink or flammable materials?

Yes No N/A 16) Are GFIs (ground fault interrupters) located on outlets within six feet of sinks?

F. Refrigerators

Yes No N/A 1) Are food and beverages kept out of work areas and out of laboratory refrigerators?

Yes No N/A 2) Is the proper type of refrigerator used i.e., explosion-proof for flammable liquids?

Yes No N/A 3) The laboratory refrigerators are properly marked, prohibiting the storage of food or drink?

Yes No N/A 4) Walk-in refrigerators can be opened from the inside?

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Yes No N/A 5) The refrigerator/freezer is free of chemical spills or contamination; all containers are labeled, stoppered, or tightly closed?

G. Compressed Gases

Yes No N/A 1) Are all cylinders properly secured in an upright position?

Yes No N/A 2) Are protective caps in place when the cylinder is not in use?

Yes No N/A 3) Are incompatible cylinders stored separately?

Yes No N/A 4) Are the cylinders legibly marked to identify contents?

Yes No N/A 5) Are gauges of oxygen regulators marked with the words, "Use No Oil"?

Yes No N/A 6) Are the regulators, connections and supply lines in good condition? Are shatter-resistant supply lines utilized (no hard plastic)?

Yes No N/A 7) Are flash arresters on flammable gas supplies for atomic absorption instruments, in-house propane gas lines, hydrogen and oxy-acetylene torch lines?

H. Hazardous Materials/Wastes

Yes No N/A 1) Are all chemical and waste containers properly labeled with the chemical name(s) and hazard of the material(s)?

Yes No N/A 2) Are the proper containers obtained and used for storing hazardous waste?

Yes No N/A 3) Are all chemicals color-coded to identify proper storage location?

Yes No N/A 4) Are all chemicals and wastes stored according to hazard classification and compatibility?

Yes No N/A 5) Are all containers of potential peroxide-forming chemicals dated upon receipt and utilized or disposed of within one year?

Yes No N/A 6) Are flammable liquids stored in flammable liquid storage cabinets or in closed metal safety cans whenever possible?

Yes No N/A 7) Is storage of corrosive chemicals above eye level avoided?

Yes No N/A 8) Are all lab personnel aware of how to have hazardous waste picked up?

Yes No N/A 9) Are lab personnel instructed not to dispose of chemicals by evaporation in the fume hood?

Yes No N/A 10) Are all containers kept tightly closed except when adding or removing waste?

Yes No N/A 11) Are liquid waste containers kept in secondary containment tubs?

Yes No N/A 12) Is the "satellite accumulation start date" identified on the waste container?

Yes No N/A 13) Are waste storage areas inspected weekly by lab personnel?

Yes No N/A 14) Are waste minimization practices used in the laboratory?

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Yes No N/A 15) Are all "sharps" collected in puncture and leak resistant containers prior to decontamination/disposal?

Yes No N/A 16) Is broken glass collected in puncture resistant containers, marked with the words "Broken Glass" and sealed before disposal?

I. Standard Microbiological Practices Applicable to Biosafety Level 1 & 2* Laboratories

** (Additional conditions and requirements for Biosafety Level 2 Laboratories begin at item J)*

Biosafety Level 1 & 2 Standard Microbiological Practices

- Yes No N/A 1) Is access to the laboratory is limited or restricted at the discretion of the laboratory director when experiments or work with cultures and specimens are in progress?
- Yes No N/A 2) Do persons wash their hands after they handle viable materials, after removing gloves, and before leaving the laboratory?
- Yes No N/A 3) Are eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human use prohibited in the work areas? Persons who wear contact lenses in laboratories should also wear goggles or a face shield. Food is stored outside the work area in cabinets or refrigerators designated and used for this purpose only.
- Yes No N/A 4) Is the practice of mouth pipetting prohibited, and are mechanical pipetting devices available?
- Yes No N/A 5) Is there a policy for the safe handling of sharps?
- Yes No N/A 6) Are all procedures performed carefully to minimize the creation of splashes or aerosols?
- Yes No N/A 7) Are work surfaces decontaminated at least once a day and after any spill of viable material?
- Yes No N/A 8) Are all cultures, stocks, and other regulated wastes decontaminated before disposal by an approved decontamination method such as autoclaving?
- Yes No N/A 9) Are materials to be decontaminated outside of the immediate laboratory placed in a durable, leakproof container and closed for transport from the laboratory?
- Yes No N/A 10) Are housekeeping and maintenance activities adequate in eliminating pest management issues?

Biosafety Level 1 & 2 Safety Equipment (Primary Barriers)

- Yes No N/A 11) Are laboratory coats, gowns, or uniforms worn to prevent contamination or soiling of street clothes?
- Yes No N/A 12) Are gloves worn if the skin on the hands is broken or if a rash is present? Are alternatives to powdered latex gloves available?
- Yes No N/A 13) Is protective eyewear worn for conduct of procedures in which splashes of microorganisms or other hazardous materials are anticipated?

Biosafety Level 1 & 2 Laboratory Facilities (Secondary Barriers)

- Yes No N/A 14) Does the laboratory have doors for access control?
- Yes No N/A 15) Does the laboratory contain a sink for hand washing? Foot, knee, or automatically operated sinks are recommended.
- Yes No N/A 16) Is the laboratory is designed so that it can be easily cleaned (no carpets or rugs)?

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- Yes No N/A 17) Are bench tops impervious to water and resistant to moderate heat and the organic solvents, acids, alkalis, and other chemicals used to decontaminate work surfaces and equipment?
- Yes No N/A 18) Is all laboratory furniture capable of supporting anticipated loading and uses? Are spaces between benches, cabinets, and equipment accessible for cleaning? Chairs and other furniture used in laboratory work are covered with a non-fabric material that can be easily decontaminated.
- Yes No N/A 19) If the laboratory has windows that open to the exterior, are they fitted with fly screens?

J. Biosafety Level 2 - Additional Conditions and Requirements

- Yes No N/A 1) Has the laboratory director established policies and procedures whereby only persons who have been advised of the potential hazards and meet specific entry requirements (e.g., immunizations, immune-competent) may enter the laboratory?
- Yes No N/A 2) Has a biohazard sign been posted on the entrance to the laboratory when infectious agents are in use? Appropriate information includes the agent(s) in use, the biosafety level, required immunizations, the investigator's name and telephone number, any personal protective equipment that must be worn in the laboratory, and any procedures for exiting the laboratory.
- Yes No N/A 3) Have laboratory personnel received appropriate immunizations or tests for all agents handled or potentially present in the laboratory (e.g., hepatitis B vaccine or TB skin testing)?
- Yes No N/A 4) Are baseline serum samples for laboratory and other at-risk personnel collected and stored (when appropriate, based on the agent(s) handled)? Is there a plan for periodic testing to determine exposure?
- Yes No N/A 5) Have biosafety procedures been incorporated into standard operating procedures or in a biosafety manual adopted or prepared specifically for the laboratory by the laboratory director? Are personnel advised of special hazards and required to read and follow instructions on practices and procedures?
- Yes No N/A 6) The biosafety procedures described in item 5 are available for review at the following location(s): _____

- Yes No N/A 7) The laboratory director has ensured that laboratory and support personnel receive appropriate training on the potential hazards associated with the work involved, the necessary precautions to prevent exposures, and the exposure evaluation procedures. Personnel receive annual updates or additional training as necessary for procedural or policy changes.
- Yes No N/A 8) Is a high degree of precaution always taken with any contaminated sharp items, including needles and syringes, slides, pipettes, capillary tubes, and scalpels?
- Yes No N/A 9) Is the use of needles and syringes or other sharp instruments restricted in the laboratory except when there is no alternative (e.g. parenteral injection, phlebotomy, or aspiration of fluids from laboratory animals and diaphragm bottles)?
- Yes No N/A 10) Is plastic substituted for glassware whenever possible?

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- Yes No N/A 11) Are only needle-locking syringes or disposable syringe-needle units (i.e., needle integral to the syringe) used for injection or aspiration of infectious materials?
- Yes No N/A 12) Are used disposable needles placed in conveniently-located puncture-resistant sharps containers? Are used non-disposable sharps placed in a puncture-resistant container for transport to a processing area for decontamination (autoclaving)?
- Yes No N/A 13) Used disposable needles must not be bent, sheared or broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.
- Yes No N/A 14) Syringes which re-sheath the needle, needleless systems, and other safety devices are used when appropriate.
- Yes No N/A 15) Broken glassware is not handled directly by hand, but is removed by mechanical means such as a brush and dustpan, tongs, or forceps. Containers of contaminated needles, sharp equipment, and broken glass are decontaminated before disposal, according to local, state or federal regulations.
- Yes No N/A 16) Cultures, tissues, specimens of bodily fluids, or potentially infectious wastes are placed in a container with a cover that prevents leakage during collection, handling, processing, storage, transport, or shipping.
- Yes No N/A 17) Laboratory equipment and work surfaces are decontaminated with an effective disinfectant on a routine basis, after work with infectious materials is finished, and especially after overt spills, splashes, or other contamination by infectious materials. Contaminated equipment is decontaminated according to local, state or federal regulations before it is sent for repair or maintenance or packaged for transport in accordance with applicable local, state or federal regulations, before removal from the facility.
- Yes No N/A 18) Spills and accidents that result in overt exposures to infectious materials are immediately reported to the laboratory director. Medical evaluation, surveillance, and treatment are provided as appropriate and written records are maintained.
- Yes No N/A 19) Animals not involved in the work being performed are not permitted in the lab.

Biosafety Level 2 – Safety Equipment (Primary Barriers)

- Yes No N/A 20) Properly maintained biological safety cabinets, preferably Class II, or other appropriate personal protective equipment or physical containment devices are used whenever:
- a) Procedure with a potential for creating infectious aerosols or splashes are conducted. These may include centrifuging, grinding, blending, vigorous shaking or mixing, sonic disruption, opening containers of infectious materials whose internal pressures may be different from ambient pressures, inoculating animals intranasally, and harvesting infected tissues from animals or embryonate eggs.
 - b) High concentrations of large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory if sealed rotor heads or centrifuge safety cups are used, and if these rotors or safety cups are opened only in the biological safety cabinet.
- Yes No N/A 21) A biosafety cabinet is available in this laboratory. Provide a description of the cabinet, including manufacturer, class and safety features:
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- Yes No N/A 22) Face protection (goggles, mask, face shield or other splatter guard) are used for anticipated splashes or sprays of infectious or other hazardous materials to the face when the microorganisms must be manipulated outside of the biosafety cabinet.
- Yes No N/A 23) Protective laboratory coats, gowns, smocks or uniforms designated for lab use are worn while in the laboratory. This protective clothing is removed and left in the laboratory before leaving for non-laboratory areas (e.g., cafeteria, library, administrative offices). All protective clothing is either disposed of in the laboratory or laundered by the institution; it should never be taken home by personnel.
- Yes No N/A 24) Gloves are worn when hands may contact potentially infectious materials, contaminated surface or equipment. Wearing two pairs of gloves may be appropriate. Gloves are disposed of when overtly contaminated, and removed when work with infectious materials is completed or when the integrity of the glove is compromised. Disposable gloves are not washed, reused, or used for touching "clean" surfaces (keyboards, telephones, etc.), and they are not worn outside of the lab. Alternatives to powdered latex gloves are available. Hands are washed following removal of gloves.

Biosafety Level 2 – Laboratory Facilities (Secondary Barriers)

- Yes No N/A 25) Lockable doors are provided for facilities that house restricted agents (as defined in 42 CFR 72.6)
- Yes No N/A 26) Biological safety cabinets are installed in such a manner that fluctuations of the room air supply and exhaust air do not cause biological safety cabinets to operate outside their parameters for containment. The biological cabinets are located away from doors, from windows, that can be opened, from heavily traveled laboratory areas, and from other potentially disruptive equipment so as to maintain the biological safety cabinets' air flow parameters for containment.
- Yes No N/A 27) An eyewash station is readily available.
- Yes No N/A 28) Illumination is adequate for all activities, avoiding reflections, and glare that could impede vision.