

Laboratory Safety Inspection Categories

LAB

Violation Code Description

1. Laboratory Entrance / Egress

1A	<p>External laboratory entryway signs are posted and the information is accurate.</p> <p><i>External Laboratory entryway signs are a form of hazard communication that are utilized by both laboratory personnel and ancillary personnel (i.e. housekeeping, police and first responders). Based on a hazard assessment, all lab signs should contain accurate pictograms (hazard symbols), entry and exit requirements, access symbols and after-hours contact information. After-hours contact information in the form of a phone number must be provided. The individual is typically the PI/LS. If the PI/LS chooses to list an alternate, this person must be intimately familiar with all laboratory materials or equipment within the space.</i></p>
1B	<p>Door(s) is/are closed and, if no one is present, secured.</p> <p><i>Laboratory ventilation systems are designed to be most effective when laboratory doors are closed. Additionally, doors must be secured when no one is present in the laboratory in order to prevent unauthorized access.</i></p>
1C	<p>Laboratory door window is unobstructed.</p>
1D	<p>Laboratory ventilation maintains negative pressure with respect to adjacent areas and hallways.</p> <p><i>Laboratory ventilation systems are designed to be single-pass systems that support a negative pressure environment with respect to adjacent hallways and rooms.</i></p>
1E	<p>Aisles and exits are unobstructed.</p> <p><i>In order to facilitate evacuation during an emergency, passageways and aisles must be a minimum of 36 inches wide and must remain unobstructed.</i></p>
1F	<p>All door handles, doors, furniture, and fixtures operate correctly and are inherently safe.</p>

2. Documentation

2A	<p>EHS-Laboratory Safety wall bins are present and contain the appropriate Safety Manuals, Safety Records, and Resources Binder.</p>
2B	<p>The SDS library contains a current SDS for each and every chemical found in the laboratory and is organized in a useable fashion.</p>
2C	<p>Current Supplementary Laboratory Safety Plan is present, accurate, and complete. EHS has an electronic copy available.</p> <p><i>Supplemental Laboratory Safety Plans (SLSP) provide laboratory specific safety information and are required for each and every laboratory location. A template is available on the EHS website. This form should be completed in its entirety and maintained hardcopy in the laboratory's Safety Records and Resource binder.</i></p>
2D	<p>Laboratory Training Signature Page is present in the Safety Records and Resource Binder and has been reviewed and signed by all lab personnel.</p> <p><i>Laboratory Training Signature Page is a record of Laboratory Specific Safety Training for individuals that frequent the laboratory. All personnel should review all associated documents to their laboratory.</i></p>
2E	<p>Current and accurate chemical inventory is present.</p> <p><i>Chemical inventories are maintained electronically utilizing EHSAssistant software. All laboratory spaces that contain hazardous chemicals must maintain a current chemical inventory to be utilized for hazard assessment and emergency response. For access, information, training or assistance, please contact EHS.</i></p>
2F	<p>Current and accurate biological inventory is present.</p>
2G	<p>Safety training records are on file in EHSA for all laboratory personnel.</p> <p><i>Laboratory personnel, students, support services staff and visitors entering the laboratories or laboratory support rooms are required to receive safety training commensurate with their level of participation in laboratory activities and the duties they are to perform. Personnel can view a complete list of training offered by EHS and register for training through the EHS website (ehs.gmu.edu)</i></p>
2H	<p>Standard Operating Procedures (SOP) for unique laboratory hazards or activities are present if required.</p>

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
-----------------------	--------------------

2. Documentation

2H

3. Housekeeping and Facility Design

3A The laboratory is equipped with a sink with running water, non-carpeted floors, and adequate lighting.

3B Bench tops, floors, and shelving are reasonably clean and uncluttered.

3C No food or beverages for consumption are present in the laboratory or laboratory refrigerator.

3D Laboratory refrigerators are marked with No Food or Drink signage.

3E Furniture and chairs are sufficient and adequate.

Chairs used in the laboratory must be covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant.

3F Soap and paper towels are available near sink.

Proper handwashing materials must be available to personnel within the laboratory space. Hand sanitizer is not a substitute to soap and water but can be provided in addition to.

3G All ceiling tiles are in place.

In laboratories that contain a drop ceiling, all ceiling tiles must be in place at all times. Contact Facilities Management in order to replace worn out or missing ceiling tiles.

3H Storage maintains a 24" clearance from the ceiling.

All spaces within the laboratory must maintain atleast a 24 inch clearance from the ceiling. All materials should be removed in order to maintain this clearance. Good housekeeping, including the the proper and timely disposal of unused laboratory materials, equipment and empty shipping containers, can assist in maintaining this clearance.

3I Laboratory furniture must be capable of supporting anticipated loads and uses.

3J Spaces between benches, cabinets, and equipment should be accessible for cleaning.

3K Bench tops must be impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals.

4. Emergency Equipment / Supplies

4A Emergency equipment/supplies are properly labeled with signage.

4B Emergency showers and eyewash stations are present.

In areas where hazardous substances are used, an ANSI-approved emergency shower and eyewash station must be available within a ten-second walk, be clearly labeled and easily accessible. Equipment can not be removed for any reason without approval from EHS. The reinstallation of any unit that has been removed or tampered with should be performed by Facilities Management via placement of a work order.

4C Inspection tags show flushing performed every 2 weeks.

Routine flushing of units must occur every two weeks to verify that they are operating properly and the effluent is clear. Routine flushing is managed by each department. Contact the Unit Safety Liaison from your department if routine flushing is not occurring.

4D Area around emergency shower and/or eyewash is clear of obstructions.

Any area where an emergency shower is located must provide for a minimum unobstructed area of 34" in diameter. All material and/or equipment blocking access to the shower or eyewash should be moved to provide unobstructed access to this equipment.

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
-----------------------	--------------------

4. Emergency Equipment / Supplies

4E	A first aid kit is available and properly labeled.
4F	The laboratory is equipped with a fire extinguisher or one is located within 75 feet of the laboratory.
4G	EHS-Laboratory Safety spill supplies pail is present and properly stocked.

5. Personal Protective Equipment

5A	Lab coats are worn in research laboratories.
5B	Gloves are worn when handling hazardous materials and selection is based on appropriate risk assessment.
5C	An alternative to latex gloves is available.
5D	Eye protection is available and worn when there is a hazard to the eye.
5E	UV face shields or eye protection is available for UV producing instruments.
5F	Closed toe shoes are worn in the lab at all times.
5G	Clothing that covers the legs is worn in the laboratory at all times.
5H	Long hair is restrained.
5I	One gloved hand and one ungloved hand is worn in common area such as hallways, elevator, etc. when transporting laboratory materials.

6. Fume Hood

6A	The chemical fume hood face velocity monitor registers 80-120 FPM when the sash is positioned at 18 inches.
6B	The chemical fume hood(s) have been tested and testing is current.
6C	Chemical fume hoods with unacceptable face velocities are not in use and warning signage is posted.
6D	The chemical fume hood has a maximum sash height sticker and tape identifying the six inch line.
6E	The chemical fume hood(s) are free from unnecessary clutter that may interfere with the operation of the hood.
6F	Chemicals are not stored in the chemical fume hood.
6G	Supplemental ventilation equipment is functioning properly.

7. Chemical Safety

7A	All chemical containers are properly labeled.
7B	All chemical containers have caps, lids, or stoppers that completely seal the container and are in good condition.
7C	All chemical containers are appropriate and compatible with their contents.
7D	Chemicals are segregated and stored according to chemical compatibility.
7E	Chemical storage areas are labeled with signage and are properly arranged: below eye level, compatible with the materials they contain, and unobstructed.
7F	A designated area is established for work with particularly hazardous substances.

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
7. Chemical Safety	
7G	All gas cylinders are secured and labeled with both the contents and status (empty or full). Cylinders are capped if not in use.
7H	Gas piped systems have an emergency shut off valve clearly marked and unobstructed.
7I	If HF is stored or used, a sufficient quantity of calcium gluconate is available.
7M	All DEA controlled substances are properly secured.
7N	No more than 60 gallons of flammable liquid are stored in each flammable cabinet and no more than 10 total gallons of flammable liquids are stored outside of a flammable cabinet.
7O	Refrigerators used to store chemicals are approved for flammable/chemical storage and are marked as such.
7P	Unique laboratory hazards are identified with signage.
8. Biological Safety	
8A	Infectious material is properly labeled.
8B	The universal biohazard symbol is present on equipment used with biohazardous materials and storage areas and containers holding biohazardous materials.
8C	Biosafety cabinet control switches are readily identifiable and unobstructed.
8D	The biosafety cabinet(s) have been certified within the previous 12 months or after relocation.
8E	Bunsen burners are not used in the biosafety cabinet.
8F	Vacuum lines are protected with liquid disinfectant traps and an in-line HEPA filter.
8G	Vacuum line disinfectant trap flasks are either stored within the biosafety cabinet or have secondary containment.
8H	Biosafety cabinets are clear of unnecessary materials and air intakes are cleared.
8I	For BSL-2 laboratories, only animals or plants related to the work are present.
8J	For laboratories that use biological materials, windows that open to the outside are fitted with screens.
8K	Biosafety cabinets must be installed so that fluctuations of the room air supply and exhaust do not interfere with proper operations.
8L	Biosafety cabinets should be located away from doors, windows that can be opened, heavily traveled laboratory areas, and other possible airflow disruptions.
8M	A method for decontaminating all laboratory wastes should be available in the facility (e.g., autoclave, chemical disinfection, incineration, or other validated decontamination method).
9. Radiation Safety	
9A	Current NRC Form 3 and VA Workers-Right-to-Know are clearly visible.
9B	"No eating, drinking, smoking" and "No mouth pipetting" signage is clearly visible.
9C	Radioactive materials storage areas are labeled with radiation symbol and secured from unauthorized access.
9D	Radioactive materials usage areas and equipment/instruments used with radioactive materials are labeled with radiation symbol.
9E	Equipment that contains radioactive materials is labeled with the radiation symbol and a warning against unauthorized removal. The radioactive material is secure from unauthorized access.

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
9. Radiation Safety	
9F	Radiation sink is labeled with radiation symbol and a sink disposal log is posted at the sink.
9G	Instruments that produce ionizing radiation are labeled with the radiation symbol and a warning regarding unauthorized transport or removal.
9H	Stock vials of radioactive materials are properly labeled with the radiation symbol, chemical name, isotope, amount of radioactivity, and GMU serial number.
9I	Radioactive Materials Usage and Disposal log is current.
9J	Radioactive materials receipt records contain a copy of the purchase order with RSO signature, a packing slip confirming package receipt, and wipe test results from package.
9K	Radiation surveys are current and show no contamination above 220 DPM.
9L	Leak test records for sealed sources of radioactive material are current.
9M	All radiation producing instruments are registered with the VA Department of Radiological Health and leak test records are current.
10. Laboratory Waste	
10A	Hazardous waste is properly labeled: hazardous waste label, complete chemical name, and the date that the material was determined to be waste.
10B	A satellite accumulation area is present, unobstructed, and utilized in laboratories that generate hazardous waste.
10C	Chemical waste is properly segregated according to hazard class.
10D	Ethidium bromide and acrylimide waste is properly handled.
10E	Radioactive waste is labeled with a radiation symbol along with the isotope present, is adequately shielded, and is secure from unauthorized access or removal.
10F	Sharps containers are available and not overfilled.
10G	Broken glass containers are available and not overfilled.
10H	Regulated medical waste to be autoclaved is collected in 2 closable red bags with the biohazard symbol.
10I	Regulated medical waste containers are leak-proof and functional.
10J	Bags of waste to be autoclaved are stored off the floor and treated in a timely manner.
10K	Biological waste to be incinerated is stored in a properly-constructed burn box with two liners.
10L	Hazardous waste is stored in compatible containers.
11. Electrical and Mechanical	
11A	Electrical equipment is either UL or FM approved.
11B	All electrical cords are in good condition and do not obstruct aisle ways or travel.
11C	Multiplug power strips are fused, connected directly to a wall socket, and are equipped with an on/off switch.
11D	Moving mechanical parts and belts are properly covered.
11E	Vacuum pumps are properly ventilated or filtered.

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
11. Electrical and Mechanical	
11E	
11F	Heat sources are unplugged when not in use.
11G	Electrical service panels are identified with signage, clear of obstructions, and breakers are labeled with their area of coverage.
11H	All electrical installations or temporary wiring is approved prior to use.
11I	Multiplug adapters are fused and not connected to one another.
11J	Junction boxes and splices are covered.
11K	All permanent wiring, electrical outlets, and permanent electrical equipment (i.e. fixtures, motors, sockets, etc.) are free of damage.
11L	Extension cords are used for temporary wiring only, not connected to one another, and do not obstruct means of egress or walkways.
11M	Fire suppression system sprinkler heads, audio/visual alarms, and fire extinguishers are unobstructed and undamaged.
12. Animal	
12A	Animal bites or scratches are reported to the PI/LS, and then to EHS-Laboratory Safety.
12AA	Decontamination by an appropriate method (e.g. autoclave, chemical disinfection, or other approved decontamination methods) is necessary for all potentially infectious materials and animal waste. <i>Decontamination should be completed before movement outside the areas where infectious materials and/or animals are housed or are manipulated. This includes potentially infectious animal tissues, carcasses, contaminated bedding, unused feed, sharps, and other refuse.</i>
12B	Allergy symptoms are reported to PI/LS, and then to EHS-Laboratory Safety.
12BB	A method for decontaminating routine husbandry equipment, sensitive electronic and medical equipment should be identified and implemented (for ABSL-2 spaces).
12C	Slip hazards such as wet floors and spilled animal feed is avoided.
12CC	Equipment, cages, and racks should be handled in a manner that minimizes contamination of other areas (for ABSL-2 spaces).
12D	External facility doors are self-closing and self-locking.
12DD	Spills involving infectious materials must be contained, decontaminated, and cleaned up by staff properly trained and equipped to work with infectious material.
12E	Walls, floors, and ceilings are water-resistant and impact-resistant, and free of cracks and unsealed utility penetrations.
12F	Sink traps and floor drains are filled with water and/or appropriate disinfectant to prevent the migration of vermin and gases.
12G	If cages are washed in a mechanical cage washer, the final rinse temperature is at least 180 F.
12H	Animal Handler Questionnaires are on file with OHS for personnel working with animals.
12I	Animal bedding and food is stored off the floor.
12J	Sticky mats are located on the floor or shoe covers are provided and used.
12K	When changing bedding, personnel wear safety glasses, disposable coveralls, hair cover and an N95 respirator. Disposable gowns are worn and secured in the back.

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
12. Animal	
12L	
12M	When available, bedding change stations are used for all bedding changes.
12N	If bedding change stations are not available, bedding changes are conducted in a biosafety cabinet.
12O	A vermin control program is in place.
12P	The sign outside the animal facility includes the animal biosafety level, occupational health requirements, and PPE requirements.
12Q	For work at ABSL-2, a biosafety cabinet is used for work with infectious agents.
12R	All wastes from laboratories and animal rooms are appropriately decontaminated before disposal.
12S	Hypodermic needles and syringes are used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles.
12T	Areas for surgery or clean equipment storage should be kept under relative positive pressure with clean air.
12U	It is recommended for ABSL-1 and required for ABSL-2 that penetrations in floors, walls, and ceiling surfaces are sealed, including around ducts, doors and doorframes, to facilitate pest control and proper cleaning.
12V	Floors must be slip-resistant, impervious to liquids, and resistant to chemicals.
12W	Gloves are personal protective equipment should be removed in a manner that minimizes transfer of infectious materials outside of the areas where infectious materials and/or animals are housed or are manipulated.
12X	Eye and face and respiratory protection should be used in rooms containing infected animals, as dictated by the risk assessment.
12Y	All wastes from the animal room (including animal tissues, carcasses, bedding) are transported from the animal room in leak-proof, covered containers for appropriate disposal in compliance with applicable institutional, local and state requirements.
12Z	Restraint devices and practices that reduce the risk of exposure during animal manipulations (e.g., physical restraint devices, chemical restraint medications) should be used whenever possible.
13. Behavior	
13A	Laboratory personnel wash their hands after working with potentially hazardous materials (or materials involving organisms containing recombinant or synthetic nucleic acid molecules and animals) and before leaving the laboratory.
13AA	Special care is taken to avoid skin contamination with organisms containing recombinant or synthetic nucleic acid molecules.
13B	Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption must not be permitted in laboratory areas.
13BB	Only needle-locking syringes or disposable syringe-needle unites (i.e. needle is integral to the syringe) are used for the injection or aspiration of fluids containing organisms that contain recombinant or synthetic nucleic acid molecules.
13C	Mouth pipetting is prohibited; mechanical pipetting devices must be used.
13CC	Extreme caution should be used when handling needles and syringes to avoid autoinoculation and the generation of aerosols during use and disposal.
13D	Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware must be developed and implemented.
13DD	Needles should not be bent, sheared, replaced in the needle sheath or guard, or removed from the syringe following use.
13E	Whenever practical, laboratory supervisors should adopt improved engineering and workplace controls that reduce the risk of sharps injuries.

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
13. Behavior	
13EE	The needle and syringe should be promptly placed in a puncture-resistant container and decontaminated, preferably autoclaved, before discard or reuse.
13F	Precautions are taken with sharp items. <i>Precautions listed below must always be taken with sharp items.</i> <i>a. Careful management of needles and other sharps are of primary importance. Needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal.</i> <i>b. Used disposable needles and syringes must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal.</i> <i>c. Non-disposable sharps must be placed in a hard walled container for transport to a processing area for decontamination, preferably by autoclaving.</i> <i>d. Broken glassware must not be handled directly. Instead, it must be removed using a brush and dustpan, tongs, or forceps. Plasticware should be substituted for glassware whenever possible.</i>
13FF	Spills and accidents which result in overt exposure to organisms containing recombinant or synthetic nucleic acid molecules are immediately reported to EHS.
13G	Procedures are performed carefully to minimize the creation of splashes and/or aerosols.
13GG	Biosafety cabinets are used whenever high hazard procedures involving recombinant DNA are conducted. <i>High hazard procedures include:</i> <i>Procedures with a high potential for created aerosols. These may include: centrifuging, grinding, blending, vigorous shaking or mixing, sonic disruption, opening containers of materials whose internal pressures may be different from ambient pressures, intranasal inoculation of animals, and harvesting infected tissues from animals or eggs.</i> <i>High concentrations or large volumes of organisms containing recombinant or synthetic nucleic acid molecules are used. Such materials may be centrifuged in the open laboratory if sealed beads or centrifuge safety cups are used and if they are opened only in a biological safety cabinet.</i>
13H	Work surfaces are decontaminated after completion of work and after any spill or splash of potentially infectious or viable material with an appropriate disinfectant.
13HH	Work is being conducted under an approved protocol.
13I	All cultures, stocks, and other potentially infectious materials are decontaminated before disposal using an effective method.
13J	Materials to be decontaminated outside of the immediate laboratory must be placed in a durable, leak proof container which is closed and secured for transport or removal from the laboratory.
13K	Materials to be removed from the facility for decontamination must be packed in accordance with applicable local, state, and federal regulations.
13L	The laboratory supervisor must ensure that laboratory personnel receive appropriate training regarding their duties, the necessary precautions to prevent exposures, and exposure evaluation procedures. <i>Personnel must receive annual updates or additional training when procedural or policy changes occur.</i>
13M	Potentially-infectious materials must be placed in a durable, leak-proof container during collection, handling, processing, storage, or transport within a facility.
13N	Laboratory equipment should be routinely decontaminated, as well as, after spills, splashes, or other contamination.
13O	Equipment must be decontaminated before repair, maintenance, or removal from the laboratory.
13P	Incidents that may result in exposure to infectious materials must be immediately evaluated and treated according to procedures described in the laboratory biosafety safety manual. All such incidents must be reported to the laboratory supervisor.
13Q	Properly maintained BSCs, or other appropriate personal protective equipment, or other physical containment devices must be used for high risk activities. <i>High risk activities include:</i>

Laboratory Safety Inspection Categories

LAB

<u>Violation Code</u>	<u>Description</u>
13. Behavior	
13Q	<i>Procedures with a potential for creating infectious aerosols or splashes are conducted. These may include pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials, inoculating animals intranasally, and harvesting infected tissues from animals or eggs. High concentrations or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory using sealed rotor heads or centrifuge safety cups.</i>
13R	Remove protective clothing before leaving for non-laboratory areas (e.g., cafeteria, library, and administrative offices).
13S	Dispose of protective clothing appropriately, or deposit it for laundering by the institution.
13T	Eye and face protection must be disposed of with other contaminated laboratory waste or decontaminated before reuse.
13U	Persons who wear contact lenses in laboratories should also wear eye protection.
13V	Gloves must not be worn outside the laboratory.
13W	Gloves should be changed when contaminated, integrity has been compromised, or when otherwise necessary (when operating at BSL-2).
13X	Gloves should be removed and hands should be washed when work with hazardous materials has been completed and before leaving the laboratory.
13Y	Disposable gloves should not be washed or reused.
13Z	Hand washing protocols must be rigorously followed.
No deficiencies	
0	No deficiencies were noted at the time of inspection.
15	This space is not used as a laboratory.