**Directions for Utilizing the BSL-1 Biosafety Manual (BSM) Template**

**NOTE:** The Principal Investigator (PI) is responsible for providing a Biosafety Manual for all research covered under the NIH guidelines and the BMBL Guidelines at the BSL-1 (Biosafety Level 1). In order to assist WSU investigators with this endeavor the BSL-1 Biosafety Manual Template has been prepared. Facility reviews are required for all BSL-1 lab facilities. If your work involves transgenic plants in growth chambers and/or green houses or genetically modified organisms such as insects, nematodes, microbes etc. in conjunction with plants (for both transgenic and non-transgenic plants) then a greenhouse facility review will also be provided. At the end of this document are the facility review checklists for your reference.

**BACKGROUND:** The information provided in this template has been taken, in part from the CDC-NIH publication, “Biosafety in Microbiological and Biomedical Laboratories”, ([BMBL](https://www.cdc.gov/labs/BMBL.html)) (6th Edition) and the “NIH Guideline for Research Involving Recombinant DNA Molecules” ([NIH Guidelines](https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf)) as well as the WSU Safety Policies and Procedures Manual ([SPPM](https://policies.wsu.edu/prf/index/manuals/safety-policies-procedures-manual/)) and other pertinent guidelines and regulations.

**INSTRUCTIONS:**

1. Fill in all sections of the manual in blue print.
2. All items in red are requirements from the NIH Guidelines and need to be included when recombinant DNA activities are involved.
3. All items in green are Animal Handler and Animal Facility requirements for work involving animals at ABSL-1 (items in red in this section are additional requirements for working with rDNA and animals at ABSL-1).
4. Please utilize the [Potentially Biohazardous Guideline](https://biosafety.wsu.edu/forms-templates-inspection-checklists/): to verify that you have included all appropriate agents at the bottom of page 3. “List all potentially biohazardous materials”.
5. Review all sections of the information to ensure that they accurately reflect lab standards and practices
6. As part of the protocol review process for biological materials the WSU Biosafety Officer will review the Lab Biosafety Manual and discusses lab practices with you and members of your lab staff. Please contact Mike Kluzik, mkluzik@wsu.edu or 335-9553 to schedule a convenient time to meet.
7. For statewide facilities please contact Levi O’Loughlin, levi.oloughlin@wsu.edu or 509-335-1585.



**BIOHAZARD**

BIOSAFETY MANUAL

**BIOSAFETY LEVEL 1(BSL-1) FACILITY**

\*[Building(s)/Room Number(s)]

BAF# XXXX

WASHINGTON STATE UNIVERSITY

(City, Town)

\*(Month/Year) Written

\*(Month /Year) Revised

BSO Review: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Expires: 3 years from month and year of IBC approval

**OFFICE AND PERSONNEL NOTIFICATION NUMBERS**

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| Office | Personnel | Phone Number |

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| --- | --- | --- | --- |
| \*Department  | \*Principal Investigator | Office: | xxx-xxxx |
|  |  | Lab: | xxx-XXXX |
|  |  | Home: | XXX-XXXX |
| \*Department | Technician or Lab Mgr | Lab/Office: | xxx-xxxx |
|  |  | Home: | XXX-XXXX |
|  |  |  |  |
| Office of Research Assurances | Levi O’Loughlin | Office: | levi.oloughlin@wsu.edu(509) 335-1585 |
|  |  |  |  |
| Emergency |  | FIRE | 911 |
|  |  | POLICE | 911 |
|  |  | AMBULANCE | 911 |
|  |  |  |  |
|  |  |  |  |
| Non-Emergency |  | Police | 334-0802 |
|  |  |  |  |
| Facilities Operations | Maintenance |  | 335-9000 |
|  |  |  |  |

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| --- |
| \*List all [potentially biohazardous material](https://biosafety.wsu.edu/potentially-biohazardous-materials/) used in this research: |

**POLICIES AND PROCEDURES**

The information provided in this template has been taken, in part from the CDC-NIH publication, “Biosafety in Microbiological and Biomedical Laboratories”, ([BMBL](https://www.cdc.gov/labs/BMBL.html)) (6th Edition); “NIH Guideline for Research Involving Recombinant DNA Molecules” ([NIH Guidelines](https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf)) as well as the WSU Safety Policies and Procedures Manual ([SPPM](https://policies.wsu.edu/prf/index/manuals/safety-policies-procedures-manual/)) and other pertinent guidelines and regulations.

1. **Standard Microbiological Practices**
	1. The laboratory supervisor must enforce the departmental policies that control access to the laboratory.
	2. Persons must wash their hands after working with potentially hazardous materials recombinant DNA and before leaving the laboratory.
	3. Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption must not be permitted in laboratory areas. Food must be stored outside the laboratory area in cabinets or refrigerators designated and used for this purpose.
	4. Mouth pipetting is prohibited; mechanical pipetting devices must be used.
	5. Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware must be developed and implemented. Whenever practical, laboratory supervisors should adopt improved engineering and work practice controls that reduce risk of sharps injuries.

	Precautions, including those listed below, must always be taken with sharp items. These include:
		1. 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.
		2. Used disposable needles and syringes must be carefully placed in conveniently located puncture-resistant containers used for sharps disposal.
		3. Non disposable sharps must be placed in a hard walled container for transport to a processing area for decontamination, preferably by autoclaving.
		4. Broken glassware must not be handled directly. Instead, it must be removed using a brush and dustpan, tongs, or forceps. Plastic ware should be substituted for glassware whenever possible.
	6. Perform all procedures to minimize the creation of splashes and/or aerosols.
	7. Decontaminate work surfaces after completion of work and after any spill or splash of potentially infectious material or recombinant DNA with appropriate disinfectant. Work surfaces are decontaminated at least once a day for all recombinant DNA work. Refer to SPPM S80.12 for more information.
		1. PROTOCOL FOR DAILY SURFACE DECONTAMINATION: Must indicate the rationale for disinfectant used in regard to the following factors. (You needn’t address each area just outline the pertinent factors used for disinfectant selection.)
			1. Spectrum of activity, efficacy, susceptibility to inactivation by organic matter, compatibility with soaps and detergents used, toxicity to personnel/animals, contact time required, optimal temperature, residual activity, corrosiveness, environmental effects, and cost:
		2. PROTOCOL FOR SPILL CLEAN UP: Must also indicate the rationale for selected disinfectant (if different than that used for daily surface decontamination.)
			1. Place a physical barrier between the spill and yourself to contain aerosols. Generally a paper towel or towels will be sufficient for this purpose.
			2. Pour, or spray appropriate disinfectant on the paper towel (CONCENTRATION AND NAME OF DISINFECTANT).
			3. Leave for appropriate contact period to inactivate the spilled material. (TIME REQUIRED).
			4. Clean up after the inactivation period. Dispose of all clean up materials in the biohazardous waste stream.
			5. For biological agent spills inform both the lab director and the WSU Biosafety Officer.
	8. Decontaminate all cultures, stocks, recombinant DNA and other potentially infectious materials before disposal using an effective method. STATE THE METHOD OF DECONTAMINATION (autoclaving, incineration, bleaching, etc.) & DISPOSAL OF WASTES. ALSO STATE THE LOCATION OF THE EQUIPMENT NEEDED, e.g., AN AUTOCLAVE. Depending on where the decontamination will be performed, the following methods should be used prior to transport:
		1. Materials to be decontaminated outside of the immediate laboratory must be placed in a durable, leak proof container and secured for transport. STATE METHODS USED FOR SECURING PRIOR TO TRANSPORT OUTSIDE OF THE LAB BUT WITHIN THE FACILITY.
		2. Materials to be removed from the facility for decontamination must be packed in accordance with applicable local, state and federal regulations.
			1. Autoclaved waste: Many labs collect potentially biohazardous waste and inactivate it by autoclave, thereby allowing the waste to be disposed in landfill. The waste container should be marked with the biohazard symbol; however the bag should be black, white, or clear and free of the biohazard symbol (once the bagged waste is autoclaved, it is no longer biohazardous and can be sent to the landfill). Any contents or bags marked with the biohazard symbol, labeled “infectious” or “pathogenic,” or other similar markings discovered at any point in the waste stream cannot be disposed of in the landfill and will initiate an emergency biohazard response. Remember that opaque bags may rupture during waste processing to reveal inner biohazard labeling.
			2. Incineration or STI Treatment: Can be bagged (any color or markings) and boxed waste marked and labeled appropriately for STI or incineration. This requires a WSU waste Management Form: [WSU Pullman STI/Incineration Waste Management Request](https://s3.wp.wsu.edu/uploads/sites/2905/2022/05/WSU-Pullman-STI_Incineration-Waste-Management-Request-Form.pdf). Contact waste.management@wsu.edu or call 509-335‐3089 for more information. STI treated waste is state funded and does not cost individual research investigators.
			3. Sharps: All biohazardous sharps (e.g., needles, razor blades) in the state of Washington are disposed by incineration only. Sharps must be collected in a hard-walled container, preferably designed for sharps, and then placed in a box for incinerator processing. Sharps not used or associated with biohazardous materials must be collected in a hard-walled container, preferably designed for sharps, and disposed in the landfill (Pullman campus). Any sharps container marked with the biohazard symbol, labeled “infectious” or “pathogenic,” or other similar markings discovered at any point in the waste stream cannot be disposed of in the landfill and will initiate an emergency biohazard response.
	9. All spills and accidents involving potentially biohazardous material are reported to the laboratory director and to the WSU Biosafety Officer as soon as possible. This reporting is important to safeguard personnel at WSU who work with potentially biohazardous material and facilitate compliance with the OSHA general duty clause and other legal obligations.
	10. Equipment and pertinent lab areas are cleaned and decontaminated before workers, (Facility Operations, Architects or other non-lab workers) are asked to move equipment or work in the lab area. Equipment decontamination follows the manufacturer’s recommendations and is effective for the potentially biohazardous materials that are in use with the piece of equipment. FACOPS employees have been instructed not to move any equipment that does not have appropriate documentation that it is decontaminated. (Call EH&S for information on obtaining this form.)
	11. A sign incorporating the universal biohazard symbol must be posted at the entrance to the laboratory. The sign should include the names of the agent(s) used and the name and phone number of the Lab director or other responsible personnel. Contact EH&S for more information on the signage program at WSU.
	12. An effective integrated pest management program is required. For further information on pest control contact EH&S.
	13. All laboratories are required to supply access to Material Safety Data Sheets (MSDS's) for all chemicals in the laboratory. MSDS’s that are available for biological agents should be incorporated into the Biosafety Manual. For more information on MSDS's, refer to your Laboratory Safety Manual, section II pages 23-24.
	14. The laboratory director must ensure that laboratory personnel receive appropriate training regarding their duties, the necessary precautions to prevent exposure, and exposure evaluation procedures. Personnel must receive annual updates or additional training when procedural or policy changes occur. Personal health status may impact an individual’s susceptibility to infection, ability to receive immunizations or prophylactic interventions. Therefore, all laboratory personnel and particularly women of child-bearing age should be provided with information regarding immune competence and conditions that may predispose them to infection. Individuals having these conditions are advised to self-identify to the institution’s health provider or their own health care provider for appropriate counseling and guidance.
2. **Safety Equipment (Primary Barriers)**
	1. Protective laboratory coats, gowns or uniforms are recommended to prevent contamination of personal clothing.
	2. Wear protective eyewear when conducting procedures that have the potential to create splashes of microorganisms or other hazardous materials. Persons who wear contact lenses in laboratories should also wear eye protection.
	3. Gloves must be worn to protect hands from exposure to hazardous materials. Gloves must be worn when working with recombinant DNA when the skin is not intact or even if it appears intact but there is a rash. Glove selection should be based on an appropriate risk assessment. Alternative to latex gloves should be available. Wash hands prior to leaving the laboratory. In addition, BSL-1 workers should:
		1. Change gloves when contaminated, integrity has been compromised, or when otherwise necessary.
		2. Remove gloves and wash hands when work with hazardous material has been completed and before leaving the laboratory.
		3. Do not wash or reuse disposable gloves. Dispose of used gloves with other contaminated laboratory waste (biohazardous waste stream). Hand washing protocols must be rigorously followed.
		4. Gloves are removed before leaving the laboratory and before touching common use items such as telephones, doorknobs, keyboards, drawer handles etc.
3. **Laboratory Facilities (Secondary Barriers)**
	1. Laboratories should have doors for access control.
	2. Each laboratory must have a sink for hand washing.
	3. The laboratory should be designed so that it can be easily cleaned. Carpets and rugs in laboratories are not appropriate.
	4. Laboratory furniture must be capable of supporting anticipated loads and uses. Spaces between benches, cabinets, and equipment should be accessible for cleaning.
		1. Bench tops must be impervious to water and resistant to heat, organic solvents, acids, alkalis and other chemicals.
		2. Chairs used in laboratory work must be covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant(s).
	5. Laboratory windows that open to the exterior should be fitted with screens.

# Animal Handler Practices

# The animal facility director establishes and enforces policies, procedures, and protocols for institutional policies and emergency situations.

* + - * 1. Each institute must assure that worker safety and health concerns are addressed as part of the animal protocol review.
				2. Prior to beginning a study animal protocols must also be reviewed and approved by the Institutional Animal Care and Use Committee (IACUC) and the Institutional Biosafety Committee.
	1. A safety manual specific to the animal facility is prepared or adopted in consultation with the animal facility director and appropriate safety professionals.
		+ - 1. The safety manual must be available and accessible. Personnel are advised of potential hazards and are required to read and follow instructions on practices and procedures.
	2. Supervisor must ensure that animal care, laboratory and support personnel receive appropriate training regarding their duties, animal husbandry procedure, potential hazards, manipulations of infectious agents, necessary precautions to prevent hazard or exposures, and hazard/exposure evaluation procedures (physical hazards, splashes, aerosolization, etc.). Personnel must receive annual updates or additional training when procedures or policies change. Records are maintained for all hazard evaluations, employee training sessions and staff attendance.
	3. Appropriate medical surveillance program is in place, as determined by risk assessment. The need for an animal allergy prevention program should be considered
		+ - 1. Facility supervisors should ensure that medical staff is informed of potential occupational hazards within the animal facility, to include those associated with research, animal husbandry duties, animal care and manipulations.
				2. Personal health status may impact an individual’s susceptibility to infection, ability to receive immunizations or prophylactic interventions. Therefore, all information regarding immune competence and conditions that may predispose them to infection. Individuals having these conditions should be encouraged to self-identify to the institution’s healthcare provider for appropriate counseling and guidance.
				3. Personnel using respirators must be enrolled in an appropriately constituted respiratory protection program.
	4. A sign incorporating safety information must be posted at the entrance to the areas where infectious material and/or animals are housed or are manipulated. The sign must include the animal biosafety level, general occupational health requirements, personal protective equipment requirements, the supervisor’s name (or other responsible personnel), telephone number, and required procedures for entering and exiting the animal areas. Identification of specific infectious agents is recommended when more than one agent is being used within an animal room
		+ - 1. Security-sensitive agent information should be posted in accordance with the institutional policy.
				2. Advance consideration should be given t emergency and disaster recovery plans, as a contingency for man-made or natural disasters.
	5. Access to the animal room is limited. Only those persons required for program or support purposes are authorized to enter the facility.
		+ - 1. All persons including facility personnel, service workers, and visitors are advised of the potential hazards (natural or research pathogens, allergens, etc.) and are instructed on the appropriate safeguards.
	6. Protective laboratory coats, gown, or uniforms are recommended to prevent contamination of personal clothing.
		+ - 1. Gloves are worn to prevent skin contact with contaminated, infectious and hazardous materials, and when handling animals.
				2. Gloves and 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.
				3. Persons must wash their hands after removing gloves, and before leaving the areas where infectious materials and/or animals are housed or are manipulated
				4. Eye and face and respiratory protection should be used in rooms containing infected animals, as dictated by the risk assessment.
	7. Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human use should only be done in designated areas and are not permitted in animal or procedure rooms.
	8. All procedures are carefully performed to minimize the creation of aerosols or splatters of infectious materials and waste.
	9. Mouth pipetting is prohibited. Mechanical pipetting devices must be used.
	10. Policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware must be developed and implemented.
		+ - 1. When applicable, laboratory supervisors should adopt improved engineering and work practice controls that reduce the risk of sharps injuries. Precautions, including those listed below, must always be taken with sharp items. These include:

Needles and syringes or other sharp instruments are limited to use in the animal facility when there is no alternative for such procedures as parenteral injection, blood collection, or aspiration of fluids from laboratory animals and diaphragm bottles.

Disposable needles must not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal. Used disposable needles must be carefully placed in puncture-resistant containers used for sharps disposal. Sharps containers should be located as close to the work site as possible.

Non-disposable sharps must be placed in a hard-walled container for transport to a processing area for decontamination.

Broken glassware must not be handled directly. Instead, it must be removed using a brush and dustpan, tongs, or forceps. Plastic ware should be substituted for glassware whenever possible.

Equipment containing sharp edges and corners should be avoided.

* 1. Equipment and work surfaces are routinely decontaminated with an appropriate disinfectant after work with an infectious agent, and after any spills, splashes, or other overt contamination.
	2. Animals and plants not associated with the work being performed must not be permitted in the areas where infectious materials and/or animals are housed or are manipulated.
	3. An effective integrated pest management program is required.
	4. All wastes from the animal area (including animal tissues, carcasses, and bedding) are transported from the animal room in leak-proof, covered containers for appropriate disposal in compliance with applicable institutional, local and state requirements.
		+ - 1. Decontaminate all potentially infectious materials before disposal using an effective method.
	5. A risk assessment should determine the appropriate type of personal protective equipment to be utilized.
	6. Special containment devices or equipment may not be required as determined by appropriate risk assessment.
		+ - 1. Protective laboratory coats, gowns, or uniforms may be required to prevent contamination of personal clothing.
				2. Protective outer clothing is not worn outside areas where infectious materials and/or animals are housed or manipulated. Gowns and uniforms are not worn outside the facility.
	7. Protective eyewear is worn when conducting procedures that have the potential to create splashes of microorganisms or other hazardous material. Persons who wear contact lenses should also wear eye protection when entering areas with potentially high concentrations or airborne particulates.
	8. Gloves are worn to protect hands from exposure to hazardous materials.
		+ - 1. A risk assessment should be performed to identify the appropriate glove for the task and alternative to latex gloves should be available.
				2. Change gloves when contaminated, integrity has been compromised, or when otherwise necessary.
				3. Gloves must not be worn outside the animal rooms.
				4. Gloves and personal protective equipment should be removed in a manner that prohibits transfer of infectious materials.
				5. Do not wash or reuse disposable gloves. Dispose of used gloves with other contaminated waste.
				6. Persons must wash their hands after handling animals and before leaving the areas where infectious materials and/or animals are housed or are manipulated. Hands should be washed after gloves are removed.
				7. The animal facility is separated from areas that are open to unrestricted personnel traffic within the building. External facility doors are self-closing and self-locking.

Access to the animal facility is restricted.

Doors to areas where infectious materials and/or animals are housed, open inward, are self-closing, are kept closed when experimental animals are present, and should never be propped open. Doors to cubicles inside an animal room may open outward or slide horizontally or vertically.

* + - * 1. The animal facility must have a sink for hand washing.

Sink traps are filled with water, and/or appropriate liquid to prevent the migration of vermin and gases.

* + - * 1. The animal facility is designed, constructed, and maintained to facilitate cleaning and housekeeping. The interior surfaces (walls, floors and ceilings) are water resistant.

It is recommended that penetrations in floors, walls and ceiling surfaces are sealed, to include openings around ducts, doors and door frames, to facilitate pest control and proper cleaning.

Floor must be slip resistant, impervious to liquids, and resistant to chemicals.

* 1. Cabinets and bench tops must be impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals. Spaces between benches, cabinets, and equipment should be accessible for cleaning.
		+ - 1. Chairs used in animal areas must be covered with a non-porous material that can be easily cleaned and decontaminated. Furniture must be capable of supporting anticipated loads and uses. Sharp edges and corners should be avoided.
	2. External windows are not recommended; if present windows must be resistant to breakage. Where possible, windows should be sealed. If the animal facility has windows that open, they are fitted with fly screens. The presence of windows may impact facility security and therefore should be assessed by security personnel.
	3. Ventilation should be provided in accordance with the *Guide for Care and Use of Laboratory Animals.* No recirculation of exhaust should occur. It is recommended that animal rooms have inward directional airflow.
		+ - 1. Ventilation system design should consider the heat and high moisture load produced during the cleaning of animal rooms and the cage wash process.
	4. Internal facility appurtenances, such as light fixtures, air ducts, and utility pipes, are arranged to minimize horizontal surfaces areas to facilitate cleaning and minimize the accumulation of debris or fomites.
	5. If floor drains are provided, the traps are filled with water, and/or appropriate disinfectant to prevent the migration of vermin and gases.
	6. Cages are washed manually or preferably in a mechanical cage washer. The mechanical cage washer should have a final rinse temperature of at least 180 degrees F.
	7. Illumination is adequate for all activities, avoiding reflections and glare that could impede vision.
	8. Emergency eyewash and shower are readily available; location is determined by risk assessment.
	9. Animal carcasses shall be disposed of to avoid their use as food for human beings or animals unless food use is specifically authorized by an appropriate Federal agency.
	10. A permanent record shall be maintained of the experimental use and disposal of each animal or group of animals.
	11. The containment area shall be locked.
	12. The containment area shall be patrolled or monitored at frequent intervals.
	13. All genetically engineered neonates shall be permanently marked within 72 hours after birth, if their size permits. If their size does not permit marking, their containers should be marked. In addition, transgenic animals should contain distinct and biochemically assayable DNA sequences that allow identification of transgenic animals from among non-transgenic animals.
	14. A double barrier shall be provided to separate male and female animals unless reproductive studies are part of the experiment or other measures are taken to avoid reproductive transmission. Reproductive incapacitation may be used.
	15. The containment area shall be in accordance with state and Federal laws and animal care requirements.
	16. Animals shall be confined to securely fenced areas or be in enclosed structures (animal rooms) to minimize the possibility of theft or unintentional release.

# E Laboratory Personnel Listing for \*[Lab Building(s)/Room Number(s)]

The personnel listed below have been trained on the potential hazards of the work involved, the necessary precautions to avoid exposure, the exposure evaluation process, and safe operation of the equipment used. [Click here](https://hrs.wsu.edu/training/) for training available on the HRS, under WSU online Training then WSU Safety Courses then Biosafety training. All beginning level employees complete the Biosafety Training.

Please indicate any other required training here.

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| Name | Signature | Position | Date Manual Reviewed | Annual Retraining Date(s) |
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1. **Contamination Control**
2. Biohazardous work surfaces and equipment are disinfected with the appropriate disinfectant after daily work and spills. A one to ten dilution of chlorine bleach or its equivalent is effective for most purposes. Ensure fresh solutions are maintained.

Spills should be covered with paper toweling and bleach solution applied from the outer edge of the spill to the center. Deactivation time of 20 minutes is necessary for most recombinant DNA before cleanup.

**B. Exposure Control**

1. Be particularly cautious when handling any sharps, i.e., needles, syringes, and glass implements. Substitute plastic for glass where possible. Use only needle locking or disposable syringes. Contaminated sharps like needles, syringes, and blades are discarded in puncture-proof plastic sharp containers. Needles are not bent, sheared, broken, recapped, or removed from disposable syringes before disposed.
2. All procedures are conducted in a way to minimize creation of splashes or aerosols
3. When there is exposure to potentially biohazardous materials, the lab worker wears appropriate personal protective equipment (PPE) such as, but not limited to gloves and eye protection and appropriate equipment.
4. Self explanatory

**C. Inventory Control**

1. All work with infectious agents/Recombinant DNA has been submitted, reviewed, and approved by the IBC. The approved protocol is available for staff in the lab. All appropriate permits have been obtained.
2. Biologically contaminated waste is placed in the provided biohazard bags which are then autoclaved by staff from the generating laboratory. Proper sterilization is achieved when the load is autoclaved at 250oF or 121oC for a minimum of 30 minutes. Non-recyclable, uncontaminated waste glass is placed in glass waste boxes. Empty chemical containers are placed in green Rubbermaid container with half lid. Animal bedding waste is bagged and placed in gray carts for pick-up. Animal carcasses are bagged and freezer-stored until removed for transport to incineration facility.

**D. Training**

1. Principal Investigator ensures all exposed personnel receive information and training on hazards associated with those agents used and the necessary precautions to minimize exposure. For example, if sharps are to be used in the laboratory, then training on [Percipio Compliance](https://hrs.wsu.edu/training/skillsoft-percipio/) is to be completed before the use of sharps by any personnel. This training is documented in the Biosafety Manual training log.

**E. Engineering Controls**

1. Hand washing facilities are available in the laboratory and used particularly after handling potentially biohazardous material or animals, after removing gloves, and before leaving the lab.
2. In laboratories generating recombinant DNA waste, the waste is treated by appropriate chemical disinfection (i.e., 1 to 10 bleach solution or equivalent) or steam sterilization. Heat sensitive test strips or other indicator of proper heat treatment is used with each autoclaved container. A biological indicator (i.e., Bacillus sterothermophilus spores) is used periodically to ensure proper functioning of the steam autoclave.

 **F. Administrative Controls and Documentation**

1. Verify the laboratory facilities meet the criteria for the Biosafety level 1.
2. Records current and accurate.

a. Records of training.

1. The Biosafety Manual is located in the laboratory. Lab staff is familiar with the Biosafety Manual and there is documentation that they have all read it.
2. Access to the laboratory is limited or restricted at the discretion of the Laboratory Manger or Principal Investigator.
3. Any insect and rodent problems are reported to the lab directory and appropriately addressed.