-



Laboratory SpecificBiosafety Plan

***for***

# *PI Name /* Select building */ Lab*

TEMPLATE

##

**BIOSAFETY LEVEL**

**2**

##

**Emergency Information**

**Emergency Contacts**

|  |  |
| --- | --- |
| Name | Phone Number |
| **ALL EMERGENCIES ON CAMPUS** | **210-784-1911** |
| A&M-SA Police Department | 210-784-1900 (non-emergency) |
| A&M-SA Risk and Safety | 210-784-2028 (non-emergency) |
| **A&M-SA Research & Academic EHS (RAEHS)** **Victor Pantusa, BSO** | **210-784-2822 (non-emergency)** |
| **830-423-6796 (Emergency)** |
| Facilities/SSC | 210-784-2100 (non-emergency) |

Use the non-emergency A&M-SA UPD number, for information and to contact A&M-SA support personnel as needed

## Emergency Equipment:

Emergency Equipment Locations (see floor plan drawings for locations of safety equipment Appendix D.)

|  |  |
| --- | --- |
| **Emergency Equipment** | **Nearest Location in/ to Your Work Area****(List Rm # and briefly describe location in room, i.e., “At lab sink,” or “On wall by main lab entry,” etc.)** |
| Telephones and phone numbers | Phone Location(s) & numbers |
| Eyewash Stations | Eyewash Location |
| Emergency Showers or Drench Hoses | Emergency Shower Location |
| Fire Extinguishers | Fire Extinguisher location |
| Fire Alarm Pull Stations | Location Fire Alarm Pull Station |
| First Aid kit | Location First Aid Kit |
| Biological Spill Kit\*\* | Location of Spill kit |
| Location of Assembly Location (after building evacuation) | Emergency Assembly Location |

\*\*(Example contents of spill kit: Disposable lab coat/ gloves/ shoe covers/ disposable face shield;

 absorbent paper towels; dustpan; tongs/ forceps; autoclave bags; disinfectant; copy of spill

 procedure; warning sign for spill to post; N-95 respirator if appropriate)

**Posting Of Emergency Contacts and Hazards**

[ ] We have posted an Emergency Contacts sign on the access doors to all areas where potentially infectious material is used or stored (including refrigerators, freezers or cryogenic storage units). Emergency contact sheet(s) is/are accurate and kept current. They include:

* Names of Principal Investigators, Lab Managers and/or other responsible personnel; a MINIMUM of 2 names for responsible parties is provided.
* Telephone numbers for these individuals where they can be reached at any time.

[ ] We have placed a Biosafety level sign and warning signs for other hazards present in the laboratory on the main access doors to the lab.

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# Principal Investigator(s) (PI) / Manager

 Principal Investigator\*

|  |  |  |  |
| --- | --- | --- | --- |
| Name: | PI Name | Email: |  PI Email  |
| Office Phone: | Office Phone | Alternate Phone: | Alternate Phone No. |

 Collaborators\*

|  |  |  |  |
| --- | --- | --- | --- |
| Name: | Collaborator Name | Email: |  Collaborators Email  |
| Office Phone: | Office Phone | Alternate Phone: | Alternate Phone No. |

 To add Collaborator’s information: Click on a row, then click the blue plus sign on the right.

Lab Manager\*

|  |  |  |  |
| --- | --- | --- | --- |
| Name: | Lab Manager’s Name | Email: |  Lab Manager Email  |
| Office Phone: | Office Phone | Alternate Phone: | Alternate Phone No. |

 \* This information will be provide to the UPD for use in emergencies involving your labs.

**Signature(s) - Principal Investigators and Designees**

A designee can be assigned the task of completing the LSBP by the PI of the research program. Designees must be persons of competence, proficiency and responsibility in the PI’s research program (post‐doctoral student or fellow, doctoral student, lab technician, research associate, etc.). If a designee completes this template, the PI must review it for correctness prior to providing a signature. Designee signatures are also required on the completed document.

|  |
| --- |
| Upon providing your signature below when this document is complete, as PRINCIPAL INVESTIGATOR you are verifying:* Accuracy, currency, and correctness of the content, to the best of your knowledge.
* Your agreement with and compliance with the conditions and requirements set forth in the document, item by item, and as denoted by placing a ‘check’ in check boxes provided with items.
* Your understanding that you will be held accountable if these conditions and requirements are not met.
* Your review and approval of the content in the document as provided by your designee (if applicable).

Principal Investigator(s) |
| Print Name | Signature | Date |
|  |  | Date |
| Upon providing your signature below when this document is complete, as **DESIGNEE** for your Principal Investigator you are verifying:* Accuracy, currency and correctness of the content you provided, to the best of your knowledge.
* Your agreement with and compliance with the conditions and requirements set forth in the document, item by item, and as denoted by placing a ‘check’ in check boxes provided with items.

Designee(s) |
| Print Name | Signature | Date |
|  |  | Date |

**Laboratory Specific Biosafety Plan (LSBP)**

* This document, when completed will satisfy the requirement for a “safety manual specific to the facility” found in the Biosafety in Microbiological and Biomedical Laboratories (BMBL) 6th edition (pages 33, 37). [A4 1+2]
* The document is a living, working document that is an important resource for staff and students engaged in the activities using biological and/or recombinant DNA or synthetic genomic materials. Its primary focus is to provide pertinent information to help execute the operations of the lab in a safe and professional manner.
* Maintenance of a printed copy of this completed document in the lab is required for reference, training and emergency response. The completed document is also essential for IBC review of your protocol for approval/renewals, and for biosafety inspections by RAEHS.

**Using and Maintaining the LSBP**

Required for lab-specific training: All laboratory personnel must read this copy of your laboratory’s completed LSBP before actively working with biohazardous materials in the laboratory. All laboratory personnel must verify that they have read this document by signing the Worksite Specific Safety Training Checklist for Laboratories document.

* Update the LSBP when anything changes such as personnel, agents, procedures, equipment, work locations, etc. Document all updates below in the Plan Review / Revision Status table.
* The LSBP must be reviewed annually by PI or designee. Document your annual reviews in the Plan Review / Revision Status table below.

**Plan Review / Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **DATE** | **Revision #** | **Comments** | **By** |
| Date | Revision # | Comments | By |

 To add another row: Click on a row, then click the blue plus sign on the right.

**SECURITY OF LABORATORIES AND BIOLOGICAL MATERIAL** (Choose all that apply)

|  |  |
| --- | --- |
| [ ]  | Access to the laboratory is controlled when work is being conducted. **[B.1]** |
| [ ]  | This lab will practice the policy of closing access doors to biohazardous work areas when work is being performed with biohazardous materials. |
| [ ]  | Entry doors to the biohazardous area will be locked when no one is in the lab.  |
| [ ]  | If biohazardous material is stored in freezers, refrigerators, Dewars, etc. that are located in areas accessible to individuals not on this protocol (such as core labs or prep labs), those storage units will be 1) kept locked except when lab personnel are removing or adding material, or 2) maintained in those locations using the following security measures: Lab Specific Security Measures |
| [ ]  | Visitor Access - Visitors to this lab will be: **[A.2]*** authorized by the PI or designee,
* escorted by lab personnel, and
* informed of necessary lab safety and lab hazards information prior to entering the lab.
 |

If biohazardous material is stored in freezers, refrigerators, Dewars, etc. that are located in areas accessible to individuals not on this protocol (such as core labs or prep labs), those storage units will be 1) kept locked except when lab personnel are removing or adding material, or 2) maintained in those locations using the following security measures:

Comments

**Service Providers Lab Access and Safety** (Servicing of Lab Equipment)

As PI of this laboratory, I (or my designee) will:

[ ]  Arrange for a lab escort when service providers (e.g., facilities workers, equipment repair technicians, movers, etc.) need to enter the lab and access their work areas in the lab. Laboratory equipment that will be serviced is to be decontaminated prior to service personnel working on the units. Lab hazard information can be verbally communicated to service providers at this time.

[ ]  **LAB EQUIPMENT will be DECONTAMINATED** and moved out of the laboratory space for service/repair. A document will be attached to the equipment stating the type of hazardous materials was used in/with the equipment; how it was decontaminated; by whom; date of decontamination; approval by BSO.

|  |
| --- |
| I. Introduction |

**1. Purpose**

This Lab Biosafety Plan is intended to be specific to the activities performed in the Principal Investigator’s Name laboratory.

This plan shall include specific policies and procedures established by the Principle Investigator(s) for all laboratory personnel. It is also intended to enhance the University’s overall Emergency Plan by providing specific information to lab personnel on what should be done in various emergencies.

**2. IBC Protocol Information / Biosafety Level**

This lab operates at **Biosafety Level 2** (Involves agents that pose moderate hazards to personnel and the environment.)

**3. Work Locations**

In the table below, list the building and room number associated with your work using biological agents, and list the primary category for each location. List the names of all PI’s using the laboratory spaces.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  **Building** | **Room** | **Phone** | **Research** | **Teaching\*** | **Storage** | **Prep Space** | **Animal Housing** | **Animal Procedures** | **All PI’s Using Space** |
| Select building | Room | Phone | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  | [ ]  | Comments |

 To add another row: Click on a row, then click the blue plus sign on the right.

###

###  For teaching labs, please provide the information below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | Course Title | Primary PI | Semester |

 To add another course: Click on a row, then click the blue plus sign on the right.

**4. IBC Protocol(s)**

### In the table below, provide information for the approved IBC Protocol(s) covering the work in this laboratory:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **IBC Protocol Title** | **IBC #** | **Expiration** |
|  | IBC Protocol Title | IBC # | Date |

 To add another IBC Protocol: Click on a row, then click the blue plus sign on the right.

|  |
| --- |
| II. Biosafety Procedures |

#  Section 1 Biosafety Level 2

BSL-2 is suitable for work involving agents that pose moderate hazards to personnel and the environment. It differs from BSL-1 in that:

1. Laboratory personnel have specific training in handling pathogenic agents and are supervised by scientists competent in handling infectious agents and associated procedures;
2. Access to the laboratory is restricted when work is being conducted; and
3. All procedures in which infectious aerosols or splashes may be created are conducted in BSCs or other physical containment equipment.
4. Personnel wear laboratory coats and gloves when working with BSL2 agents.

 Please see Appendix 1 for Laboratory Biosafety Levels 1 & 2 Criteria (BMBL 6th ed.).

#  Section 2 Responsibilities

2.1 Principal Investigator/Laboratory Supervisor/Instructor

1. Will assure that all research and support personnel obtain required training on the potential hazards associated with the work involved, the necessary precautions to prevent exposures, the exposure control/medical surveillance plan, and the incident reporting procedures.
2. Will assure that all research personnel are proficient in standard (BSL1) and special microbiological practices before working with BSL2 agents.
3. Will assure that documentation of training is maintained in the laboratory (Appendix 6 of this document) and available for inspection.
4. Will assure that biosafety procedures are incorporated into standard operating procedures for the laboratory and that the laboratory maintains written policies and procedures for handling of other potentially infectious materials (OPIM) or biohazardous agents.
5. Will assure that personal protective equipment (in correct type and sizes) and necessary safety equipment is provided and used.
6. Will assure that all laboratory personnel and support personnel are compliant with the relevant regulations, guidelines, and policies.
7. Will submit an Adverse Event report form to the IBC (within 24 hrs of event) concerning incidents as outlined in the A&M-SA IBC Procedures Manual.
8. Will review and update the Laboratory Specific Biosafety Plan at least annually and more frequently if procedures and practices change.
9. List additional PI/Laboratory Supervisor/Instructors Responsibilities applicable to this laboratory:

Additional Responsibilities

1.
2. 1.

2.2 Research Personnel

1. Will participate in and complete all required training.
2. Will follow biosafety procedures and practices outlined in this manual and the A&M-SA Biosafety Manual.
3. Will report incidents of exposure or accidents as outlined in the A&M-SA IBC Biosafety Procedures Manual to the Principal Investigator/Laboratory Supervisor/Instructor.
4. Will comply with all aspects of the exposure control/medical surveillance plan for the agents covered by this biosafety laboratory manual.
5. Will review this Laboratory Specific Biosafety Plan at least annually and more frequently if procedures and practices change.
6. List any additional research personnel responsibilities in this laboratory:

Additional Responsibilities

1.
2. 1.

## Section 3 Types of Agents Used or Stored and Risk Assessments

3.1 Please identify all types of biological material used or stored in the labs covered by this plan. Remember to mark Not Applicable material types that are not in use*.*

 3.1.1 Infectious material

|  |  |
| --- | --- |
| [ ]  | Not Applicable, will not be used |
| [ ]  | Yes, Infectious material will be used. (See Appendix 2 - Application for IBC Permit, Part II, Table A) |

 3.1.2 Biological Toxins

|  |  |
| --- | --- |
| [ ]  | Not Applicable, will not be used |
| [ ]  | Yes, biological toxins will be used. (See Appendix 2 - Application for IBC Permit, Part II, Table A) |

 3.1.3 Human Bloodborne Pathogens (BBP) and/or Other Potentially Infectious Materials (OPIM)

|  |  |
| --- | --- |
| [ ]  | Not Applicable, will not be used |
| [ ]  | Yes, BBP and/or OPIM will be used. (See Appendix 2 - Application for IBC Permit, Part II, Table A) |

*If yes then All personnel*

1. Must complete Bloodborne Pathogen training prior to working in the lab and then annually after that. Documentation of training completion must be maintained in this plan.
2. Will be provided information about the [Hepatitis B vaccine](https://www.cdc.gov/vaccines/hcp/vis/vis-statements/hep-b.pdf) to include: efficacy of the vaccine, its safety, method of administration, benefit of administration, benefits associated with vaccination. Personnel are encouraged to obtain the vaccine if they have not previously completed the three (3) shot series.
3. In the event of an overt exposure to blood or OPIM, the Lab Supervisor/PI/Instructor must report to the BSO and complete an Adverse Event Form. The employee will report to their personal physician or an emergency department for post exposure evaluation and follow-up.
4. Must familiarize themselves with the A&M-SA Exposure Control Plan requirements concerning exposure incidents response(section VII).

|  |  |
| --- | --- |
| [ ]  | Review *RAEHS* *Guidelines: Universal Precautions for Handling Human Blood, Body Fluids and tissues in Research Laboratories* for more information. Included in Appendix 4. |

3.1.4 Nonhuman Primate Materials

|  |  |
| --- | --- |
| [ ]  | Not Applicable, will not be used |
| [ ]  | Yes, Nonhuman Primate Materials will be used. (See Appendix 2 - Application for IBC Permit, Part II, Table A) |

3.1.5 Recombinant or Synthetic Nucleic Acid Molecules Materials

|  |  |
| --- | --- |
| [ ]  | Not Applicable, will not be used |
| [ ]  | Yes, Recombinant or Synthetic Nucleic Acid Molecules will be used. (See Appendix 2 - Application for IBC Permit, Part II, Table A) |

3.1.6 Viral Vectors

|  |  |
| --- | --- |
| [ ]  | Not Applicable, will not be used |
| [ ]  | Yes, Viral Vectors will be used. (See Appendix 2 - Application for IBC Permit, Part II, Table A) |

1.
2. 1.

# 3.2 Risk Assessment

#  Risk Assessment forms for the agents identified above (sections 3.1.1-3.1.6) are located in the Application for IBC Permit (Appendix 2 of this document).

# Section 4 Occupational Health Program Requirements

 4.1 General

All personnel are to be instructed that their health status may have an impact on their susceptibility to infection, and if required, their ability to receive immunizations or prophylactic interventions. Therefore, all laboratory personnel, and particularly women of childbearing age, will be provided with information regarding immune competence and conditions that may predispose them to infection. Personnel that have conditions that would render them more susceptible to infection, or who are pregnant, will be encouraged to self-identify to these issues to the PI/Laboratory Supervisor/Instructor and their personal physician such that appropriate counseling and guidance can be provided. For more information see the Guidelines: *RAEHS Guide0004 Immunocompromised Personnel in Research Laboratories.*

List additional information concerning materials used in this lab and the potential health effects on research personnel.

 Additional Information

|  |  |
| --- | --- |
| [ ]  | Lab workers will complete enrollment in the Occupational Health Program before beginning bench work in the laboratory, and will update their surveys 1) annually, 2) when risks in the lab change, and 3) when health status of the worker changes. |

4.4 Agent Specific Medical Risks

For all BSL-2 pathogens used in the laboratory and covered by this plan, list the signs and symptoms of illness from these pathogens, the usual sequelae of the disease, the natural, as well as, laboratory routes of transmission, and indicate the actions that employees should take if personnel display these signs and symptoms.

If risk assessment by IBC determines it is necessary, a medical surveillance plan may need to be developed in coordination with the IBC and the Biosafety Officer.

If an exposure incident occurs, the same procedure for reporting and follow-up is to be followed. In addition, the principal investigator must complete an IBC incident report form and submit it to the IBC. The report must be submitted within one week of the incident.

|  |  |
| --- | --- |
| [ ]  | Section M “Medical Risks” describes health risks associated with the use of all agents or biological samples used or stored in this laboratory and the symptoms / disease(s) that may occur. Section N “Medical Treatment” describes  |

**Section 5 Procedures for BSL-2 [A.5]**

1.

**5.1 General Signage for BSL-2 materials or agents**

5.1.1 A Laboratory Door Sign is posted at the laboratory entrance.

5.1.2 Posted information includes:

* + 1. The laboratory’s biosafety level
		2. Supervisors name and contact phone number(s)
		3. PPE requirements
		4. General occupational health requirements
		5. Agent information

**5.2 Entry and Exit Procedures**

5.2.1Access to this laboratory is restricted to those personnel approved by the principal investigator when work with BSL-2 agents is in progress. **[A.1]**

5.2.2 Does entry into this laboratory **require** vaccination against specific infectious agent(s)

|  |  |  |  |
| --- | --- | --- | --- |
| [ ]  | Yes | [ ]  | No |

If Yes, then list the agent(s) that requires vaccination:

|  |  |  |
| --- | --- | --- |
|  | Agent | Required Vaccination |
|  | Agent Name | Required vaccination |

 To add another row: Click on a row, then click the blue plus sign on the right.

 5.2.3 List additional entry requirements:

Additional Information

**5.3 PPE Required for this Lab**

**FOR ALL LABS, LEGS MUST BE PROTECTED BY LONG PANTS OR EQUIVALENT CLOTHING, AND FEET MUST BE PROTECTED BY CLOSE‐TOED SHOES; NO SHORTS, NO SANDALS.**

List the PPE that is required to perform procedures with agents and samples in this laboratory. If applicable, list all types of each PPE category, i.e., list both nitrile gloves and latex gloves (or cloth lab coats and disposable gowns) if both types are stocked and used for various tasks.

|  |  |  |
| --- | --- | --- |
| **PPE Required For This Lab** | **Type of PPE and location in room** (e.g., on bench, on shelves, etc.) | **Location of****Stored Supply****(if applicable)** |
| **Disposable gloves**(list glove material) | **Glove Type****Glove Location in Lab** | Additional Gloves – Storage Location |
| **Lab Coats** (list cloth or disposable) | Additional Information | Additional Information |
| **Eye/ Face Protection** | Additional Information | Additional Information |
| **Respirators (if applicable)** | Additional Information | Additional Information |
| **Other :** Additional Information | Additional Information | Additional Information |

5.3.1 Appropriate PPE must be worn when handling BSL-2 agents.

1. Gloves must be worn when handling or working with BSL-2 agents.
2. Gloves must be changed when contaminated, integrity has been compromised, or when otherwise necessary.
3. Two pair of gloves may be required for some procedures.
4. Lab coat
5. Eye Protection and Face protection (goggles, mask, face shield, or other splatter guard) must be worn if procedure may produce aerosols (splashes or sprays).
6. Please list additional or special PPE required when working in this lab:

Additional or Special PPE

5.3.2 No PPE beyond Work Area

[ ]  PPE will NOT be worn outside of the laboratory or work area.

5.3.3 Cleaning / Decontaminating Reusable PPE

[ ]  List re‐useable PPE (face shields, eye protection, respirators, etc.) used in the lab, and the cleaning and decontamination method required after use.

Additional Information

|  |  |
| --- | --- |
| Reusable PPE | Cleaning and Decontamination Method |
| Reusable PPE | Cleaning and Decontamination Method |

 To add another row: Click on a row, then click the blue plus sign on the right.

5.3.4 Upon completion of work with BSL-2 agents, the following procedures must be done.

1. Remove and discard gloves in biohazard waste. Disposable gloves may not be washed or reused. [A.8]
2. Wash hands.
3. Remove Laboratory coat, gown, smock, or uniform before leaving laboratory. For disposable protective clothing, place in biohazardous waste. For reusable protective clothing, hang in designated area in laboratory for reuse, or place in designated area for laundering by the institution. Protective clothing is not be taken home.
4. Eye and face protection must be disposed of with contaminated waste or decontaminated after use.
5. Wash hands before exiting. [A.9]

**5.4 Good Laboratory Practices must be followed at all times.**

5.4.1 Eating, drinking, chewing gum, smoking, handling contact lenses, or applying cosmetics is prohibited in this laboratory. [A.10]

5.4.2 All food for human consumption must be stored outside the laboratory area in cabinets or refrigerators designated for this purpose. [A.10]

5.4.3 Mouth pipetting is prohibited. Mechanical pipetting devices must be used. [A.11]

5.4.4 Personal items such as coats, boots, bags and books should not be stored in the laboratory in an area where they could get contaminated if a spill or accident occurs.

5.4.5 All procedures will be conducted such that the creation of splashes and aerosols are minimized. [A.13]

 5.4.6 Long hair is restricted so that it cannot contact hands, specimens, containers and or equipment.[A.6]

5.4.7 No animals or plants may enter this laboratory unless used specifically for the research being performed and approved by the IACUC. If animals are used in the context of an IBC protocol, use in the laboratory must be approved by the IBC. [A.17]

**5.5 Housekeeping Performed in Work Location**

PIs must coordinate with Housekeeping supervisors to determine which services are to be provided by housekeepers, and the frequency of service. PIs must determine the nature and frequency of other cleaning tasks to be accomplished by lab personnel. Please document these housekeeping details below.

|  |  |  |
| --- | --- | --- |
| **Cleaning Task** | **Frequency** | **Performed by:** |
| Floors cleaned\* | Cleaning Frequency | Floor Cleaned by |

|  |  |  |
| --- | --- | --- |
| **Cleaning Task** | **Frequency** | **Performed by:** |
| Regular trash removed | Regular Trash Frequency | Reg Trash Removed by |
| Biohazardous lab waste removed (will be done by Laboratory Personnel | Biohaz lab waste removed | Name Lab Personnel |
| Routine cleaning of counters, sinks, etc. | Routine Cleaning | Name of Lab Personnel |
| Routine cleaning of lab equipment (refrigerators, incubators, centrifuges, benchtop equipment, etc.) | Routine Equipment Cleaning | Name of Lab Personnel |

\* Cleaning of the laboratory floor(s) MUST be coordinated and scheduled in advance with the housekeeping supervisor. It is the laboratories responsibility to remove all items (ie., waste containers, equipment, etc.) from the floor prior to the cleaning date.

**5.6 Biosafety Cabinet in Laboratory**

5.6.1Complete the table below for the BSC(s) to be used for the work covered by this laboratory plan:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Location** | **Manufacturer** | **Model / Class / Serial #** | **Certification** |
|  | Location | Manufacturer | Model / Class / Serial # | Cert Date |

 To add another row: Click on a row, then click the **blue** plus sign on the right.

5.6.2 Biosafety cabinet is operated (Fan is running): [ ]  continuously [ ]  As Needed

If "As needed" is checked, please indicate the minimum time cabinet blower is on

* 1. Prior to beginning work: minutes blower to run
	2. After work in completed: minutes blower to run

 5.6.3 Procedures for Working in a biosafety cabinet

# Other activities (e.g., rapid movement behind the BSC operator, open/closing room doors, etc.) in the room are minimized when operations are being conducted in the biosafety cabinet to avoid disrupting the cabinet air barrier.

# PPE as outlined in Section 5.3 will be worn when working in the biosafety cabinet.

# Before beginning work, stool height will be adjusted such that personnel’s face is above the front opening. The sash should be set at the recommended height in order for proper cabinet operation and user protection. The cabinet user should adjust their shoulder height to be level with the lower edge of the sash.

1. Closure of the drain valve under the work surface will be done prior to beginning work so that all contaminated materials are contained within the cabinet should a large spill occur.
2. Wipe down the interior of the cabinet with an appropriate surface disinfectant (e.g., 10% commercial bleach solution, 70% alcohol, or similar non-corrosive antimicrobial agent)
3. Materials needed for work in the biosafety cabinet will be placed in the cabinet prior to beginning work to avoid disruption of airflow. Materials will be placed as far back in the cabinet as is practical but still in comfortable reach.
	1. All operations within the cabinet will be performed on the work surface at least four (4) inches from the inside edge of the front grille.
	2. If plastic-backed absorbent toweling is placed on work surface it will be placed such that it does not cover front or rear grille openings.
	3. The front grille will not be blocked with research notes, discarded plastic wrappers, pipetting devices, etc.
		* + 1. The number of arm-movement disruptions across the air barrier of the cabinet will be minimized.
4. Horizontal pipette discard trays containing an autoclave bag, or an appropriate chemical disinfectant will be used within the cabinet. Upright pipette collection containers placed on the floor outside the cabinet, or autoclavable biohazard collection bags taped to the outside of the cabinet are not to be used. The frequent inward/outward movement needed to place objects in these containers is disruptive to the integrity of the cabinet air barrier and can compromise both personnel and product protection.
5. Active work should flow from the clean to contaminated area across the work surface. Bulky items such as biohazard bags, discard pipette trays and suction collection flasks must be placed to one side of the interior of the cabinet.
6. Use of glass Pasteur pipettes is discouraged. Glass pipettes should be replaced with safer alternatives (i.e., plastic).
7. Gloves and disposable PPE will be removed and disposed of as biohazard waste and hands will be washed.
8. Upon completion of work, the interior surfaces of the cabinet will be wiped down a disinfectant (check relevant boxes and list details as asked):

[ ]  10% final concentration of household bleach followed by 70% ethanol to remove bleach residue.

[ ]  Other – List agent, concentration and contact time:

 Agent, concentration and contact time.

|  |  |
| --- | --- |
| [ ]  | Guideline Attached Included in Appendix 4.*RAEHS Guide0001 Guidelines: Biosafety Cabinets.*  |

5.6.4 Will an UV light be used in BSC? [ ]  No [ ]  Yes

5.6.5 Will any aspirator suction flasks be used? [ ]  No [ ]  Yes

* 1. If Yes, then **two flasks are to be connected in series**, and they will be pre-filled with appropriate disinfectant such that the final concentration is sufficient to kill the microorganisms. A filter (either 0.3 µM or HEPA) will be placed in-line along with a second flask to prevent overflow into building vacuum system.
	2. List disinfectant and final concentration (check the relevant boxes and add detail if "other" is selected) **Contact time must be at least 30 minutes:**

[ ]  Not Applicable

[ ]  10% final concentration of household bleach

[ ]  Other – List agent and concentration:

 List agent(s) and Concentration(s)

|  |  |
| --- | --- |
| [ ]  | Guideline Attached Included in Appendix 4.RAEHS Guide0002 *Guidelines: How to Disinfect Tissue Culture Media in Vacuum Flasks* for more information.  |

**5.7 Handling of Sharps** Will sharps be used?[ ]  No [ ]  Yes

5.7.1 Precautions are always taken with sharp items (ie., such as needles, scalpels, contaminated glass pipettes, and broken contaminated glassware). [A.12] These include:

(1) Whenever possible, use of sharps with potentially hazardous material will be avoided. Plasticware will be substituted for glassware whenever possible. [A.12a]

(2) Uncapping of needles is performed in such a manner to reduce the potential for recoil causing an accidental needle stick. [A.12 b i]

(2) The handling of sharps will be minimized. Needles will not be bent, sheared, broken, recapped, removed from disposable syringes, or otherwise manipulated by hand before disposal. [A.12 b ii]

(3) Used disposable needles and syringes will be carefully placed in a puncture- resistant containers used for sharps disposal. The sharps container is located a close to the point of use as possible. [A.12 b iv]

(4) Broken glassware will not be handled directly. It will be removed using a brush and dustpan, tongs, or forceps and properly disposed of glassware waste. [A.14]

5.7.2 Disposal of **biohazardous sharps**.

 When sharps containers are ¾ full, contact RAEHS for pickup (safety@tamusa.edu , 210-784-2822) for disposal.

5.7.3 **Non-disposable** sharps [ ]  No [ ]  Yes

If *Yes*, once **non-disposable sharps** are contaminated with infectious material,

[ ]  They are placed in a hard-walled container for transport to a processing area for decontamination or

[ ]  They are decontaminated in the manner described below:

List the types of non-disposable sharps used:

|  |  |  |
| --- | --- | --- |
|  | Reusable Sharp | Cleaning and Decontamination Method |
|  | Reusable Sharp | Cleaning and Decontamination Method |

 To add another row: Click on a row, then click the blue plus sign on the right.

**Section 6 Aerosol Generating Procedures**

Many procedures generate biological aerosols which may be released and lead to contamination of the laboratory and/or disease transmission. Complete the table below by checking the applicable boxes for equipment that will be used in the lab and completing the control measures that will be used.

|  |  |
| --- | --- |
| **Task** | **Aerosol Control Measures** |
| [ ]  Centrifuge | Control Measures |
| [ ]  Sonication | Control Measures |
| [ ]  Homogenization | Control Measures |
| [ ]  Tissue Grinding | Control Measures |
| [ ]  Blending or Mixing | Control Measures |
| [ ]  Shaker | Control Measures |
| [ ]  Cryostat | Control Measures |
| [ ]  Other: List  | Control Measures |

 To add another row: Click on a row, then click the blue plus sign on the right.

**Section 7 Transporting Biological Materials**

 7.1 Will biological materials be transported between: (“X” all that apply)

 [ ]  Between research and teaching laboratories and laboratory support operations on campus.

 [ ]  To and from research collaborators labs off campus.

 [ ]  From field collection sites back to A&M-SA campus.

 [ ]  No biological materials will be transported.

 8.1.2 If yes, is the materials transported in secondary containment? [ ]  No [ ]  Yes

 8.1.3 If yes above, review *RAEHS SOP0010 Transportation of Biological Materials.*

 [ ]  All transportation of biological / biohazardous materials will be done in compliance with *RAEHS SOP0010 Transportation of Biological Materials.*

 [ ]  A copy of the SOP is included in Appendix 04 of this Plan.

**7.2 Shipping Hazardous Materials from A&M-SA using a Commercial Carrier**

 7.2.1 Will hazardous materials be shipped from A&M-SA using a commercial carrier?

 [ ]  No [ ]  Yes

7.2.1The federal and international regulations governing the shipping and transportation of hazardous materials (dangerous goods) using a commercial carrier (e.g., Federal Express, Word Courier, etc.) are very complex and the regulatory fines for improper shipping and transportation can be very high.  All personnel involved in the shipping process must have formal, specialized hazardous material shipper training to ensure the packaging, labeling, and shipping documentation all meet strict regulatory requirements.

 General types of regulated hazardous materials commonly shipped from A&M-SA include:

* Hazardous Chemicals,
* Biological / Biohazard Materials,
* Dry Ice

7.2.2 All appropriate local, state and federal (U.S. Department of Transportation) regulations must be followed. For air or international shipments, International Air Transportation Association (IATA) rules must be followed.

[ ]  I agree that prior to offering hazardous materials to a commercial carrier RAEHS will be contacted for training requirements and guidance.

**Section 8 Training**

 [ ]  **The PI/ designee will:**

* Ensure that new lab personnel complete all required RAEHS training before beginning work in the laboratory.
* Ensure that existing lab personnel complete required REFRESHERs for training to remain compliant with federal, state and university regulations.
* Provide new lab personnel with the following training. (All training must be documented and retained in Appendix 6 of this plan):
	+ Safety orientation (e.g., evacuation routes, safety equipment in lab, spill and reporting procedures, etc.)
	+ Training on lab‐specific practices, equipment, agents, hazards, hazardous waste management, etc. before they begin to work independently in the lab.
* Provide existing lab personnel with:
	+ Lab safety and biosafety updates/refreshers as needed.
	+ Specific training on new procedures and equipment.
	+ Remedial training, higher level training, and proficiency evaluations as needed.
* Ensure that other personnel with whom you share lab space, facilities or equipment, OR personnel working in/around the lab (e.g., data entry) but not with biohazards, will receive:
	+ Documented awareness training for 1) biohazards present in the lab, 2) basic exposure avoidance and response, signs of disease, reporting procedures.

 [ ]  **The PI/designee agree to:**

1. provide (or see to the provision of) all training, as needed, in a timely way to the constituent groups noted here.
2. to document the receipt of all formal training provided to personnel. (See Appendix 6 for training forms and templates.)
3. to maintain these records electronically or in printed form for all current personnel, and for 3 years after personnel leave the lab setting.

**Section 9 Integrated Pest Management Program for the Laboratory**

* Insect and rodent pests present a contamination risk and containment breech in laboratory areas, therefore an integrated pest management program is an important part of managing a research facility.
* The most common approach to pest control is the application of pesticides as a preventive or remedial measure. This can be effective as a corrective action, but pesticide use has limited long‐ term effects when used alone. In addition, pesticides can contaminate the research environment via volatilization.
* To minimize the presence of pests and the use of pesticides in the lab, a comprehensive effort is required that integrates housekeeping, maintenance and pest control, and is the responsibility of the PI and laboratory personnel to manage this integration, as each situation necessitates.

[ ]  The PI or designee has implemented, and ensures the maintenance of an integrated pest management program that prevents pest problems in the following ways:

* Food and drink, and food/drink storage are not allowed in any BSL‐1 or BSL‐2 space.
* Lab floors are routinely cleaned and mopped.
* If lab staff place insect bait traps in the lab, traps are regularly monitored and replaced.
* Lab workers maintain a daily visual awareness for the presence of vermin and insects.
* Lab workers report any signs of insects/ pests to the PI or lab manager, who then contacts Facilities to arrange pest control/removal by appropriate means; lab workers document any service provided.

**Section 10 Biological Waste Management**

10.1Will biological waste be collected and managed in this laboratory? [ ]  No [ ]  Yes

 If yes, review *RAEHS SOP0001 Biological Waste Management and Disposal Plan.*

10.2 Using the definitions and examples from *RAEHS SOP0001 Biological Waste Management and Disposal Plan,* identify all waste streams that will be generated in the lab (“X” all that apply);

 [ ]  Liquid waste [ ]  Pasteur Pipets and Broken Glass waste

 [ ]  Solid waste [ ]  Serological Pipettes and pipette tips waste

 [ ]  Metal Sharps waste [ ]  Animal Tissue waste

 [ ]  Mixed Waste\*

 [ ]  Other: Other Waste not listed above

 10.3 [ ]  This laboratory will follow the practices of biological waste container selection, collection, handling, decontamination and disposal as detailed in ***RAEHS SOP 0001 Biological Waste Management and Disposal Plan***

 [ ]  A copy of the SOP is included in Appendix 04 of this Plan

**Section 11 Use of Autoclaves**

It is the responsibility of the supervisor to ensure that all authorized individuals are properly trained on the use of the autoclave(s) used by laboratory personnel.

1. Will Autoclaves be used by laboratory personnel? [ ]  No [ ]  Yes

If *Yes*, list the location with the point of contact responsible to maintain the autoclave in the table below:

|  |  |  |
| --- | --- | --- |
| Machine brand / Serial Number | Location(room & building) | Person responsible for QA Testing |
| Click here to enter text**.** | Click here to enter text. | Click here to enter text. |

Training on the use of autoclaves will consist of the following (a. through h.). Maintain training records in the laboratory and make them available for review by RAEHS and IBC upon request.

1. Appropriate PPE requirements such as the use of heat resistant gloves, lab coats, and safety eye and face protection.
2. A discussion of the types of items that can and cannot be autoclaved.
3. Proper packaging of biohazardous wastes for autoclaving.
4. Methods for loading materials into an autoclave and unloading procedures.
5. The use of biological indicators for quality control.
6. Autoclave operational procedures including emergency shutdown precautions.
7. How to dispose of autoclaved waste.
8. Record keeping

Maintenance and Testing of Autoclaves

* 1. Department or person responsible for autoclave must properly maintain and service the machine.
	2. Department or person responsible for autoclave must occasionally quality tested to ensure proper sterilization procedures are met and decontamination of biohazardous waste is complete.

**Transporting Biohazardous Waste to Autoclave Facilities**

[ ]  Waste must be securely closed and sprayed thoroughly with 70% ethanol.

[ ]  Waste must be placed within a secondary container (e.g., Nalgene or stainless steel pan, plastic lidded tub, etc.) which is dedicated for this function and labeled with a Biohazard label.

[ ]  Waste must be transported Place in secondary containers on a cart to autoclave facilities

**Section 12 Decontamination and Spill Clean Up**

**12.1 Decontamination of Work Surfaces**

Work surfaces will be decontaminated after completion of work and immediately cleaned after

1. Any spill or splash of potentially infectious material.

Check the box indicating the method that will be used for routine decontamination of work surfaces (complete description as applies):

[ ]  10% final concentration of household bleach made daily followed by 70% ethanol to remove bleach residue.

[ ]  Other – List agent and concentration: Click here to enter text.

2) Disinfectant for Routine Use:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  Disinfectant | Concentration | Contact Time | Used for (Biological Agent)  | Material Disinfected |
| Click here to enter text. | Click here to enter text. | Click here to enter text. | Click here to enter text**.** | Click here to enter text. |

 To add another row: Click on a row, then click the blue plus sign on the right.

 All equipment which comes into contact with biohazardous material must be decontaminated before repair, maintenance, or removal from the laboratory.

**Section 13 Emergency Procedures**

 13.1 Order of Priority in an Emergency:

 1) **SAFETY OF EVERYONE IN THE LABORATORY.**

* Notify everyone in the lab an incident has occurred.
* Safety for persons in the lab must be the first consideration. The circumstances of the incident will determine the response, i.e., assist injured/contaminated personnel prior to cleaning up spill (of course every effort is to be made not to spread potential contamination while assisting personnel).

2) **DANGER OF OUTSIDE CONTAMINATION (Site Control):**

* + Do not exit lab wearing contaminated clothing or protective outerwear (gown, gloves).
	+ Leave biosafety cabinet on.
	+ Place covers on open containers of viable agents and absorbent material on spills.

13.2 Medical Emergencies (from A&M-SA Emergency Action Plan) Located in Appendix 9.

|  |
| --- |
| **Appendices** |

[ ]  Appendix 1 Laboratory Biosafety Levels 1 & 2 Criteria (BMBL 6th ed.)

[ ]  Appendix 2 Approved IBC Registration Document and Approved Amendments

[ ]  Appendix 3 Pathogen Safety Sheet(s) / Biological agent Reference Sheet(s)

[ ]  Appendix 4 Laboratory Specific Standard Operating Procedures (SOPs)

 **Please add Titles of Lab-Specific SOP’s**

[ ]  Appendix 5 Laboratory Sketch / Layout

 *Include a floor plan of each of the laboratory spaces covered by this Plan and identifying the following items:*

[ ]  Appendix 6 Biosafety Training Documents

[ ]  Appendix 7 Laboratory Inspection Report(s) (Last 3 yrs)

[ ]  Appendix 8 Emergency Response Procedures

[ ]  Appendix 9 Emergency Response Procedures

1. Texas A&M University-San Antonio – Emergency Action Plan (rev 09.30.2022)

[ ]  Appendix 10 Forms

[ ]  Appendix 11 Click here to enter text.