SOP Title: Transportation of Biological Materials

SOP No.: RAEHS SOP0010	Effective Date: 06/27/2022	Page **1** of **6**

1.0 INTRODUCTION / PURPOSE:

This standard operating procedure (SOP) outlines required methods when transporting biological materials at Texas A&M-University San Antonio (A&M-SA). These practices and procedures are intended to provide a safe working environment, promote a culture of proactive risk mitigation, and to promote compliance with federal, state, and local regulations pertaining to hazardous materials.

2.0 SCOPE:

These requirements are to be used by students, faculty, and staff when self-transporting biological materials:

1. Between research and teaching laboratories and laboratory support operations on campus
2. To and from research collaborators labs off campus
3. From field collection sites back to A&M-SA campus

Note: Restrictions on Self-Transport of Biological Materials or Infectious Substances

- Biological Substance Category A (substances capable of causing permanent disability, life-threatening or fatal disease in otherwise healthy humans or animals) materials have other transportation requirements and therefore are excluded from self-transport using a personal or university vehicle.
- Packages offered to a common carrier (e.g., Federal Express, World Courier, etc.) for transport have other requirements and therefore personnel must obtain specialized training.
- Contact Research and Academic Environmental Health & Safety (RA-EHS) at 210-784-2822 for assistance with transporting these materials.

3. 0 DEFINITIONS / ACRONYMS:

3.1 Agents (Biological) - a microorganism, biological toxin, or human endoparasite, either naturally occurring or genetically modified, with the potential to cause infection, allergy, toxicity, or otherwise, create a hazard to human health.

3.2 Biological Materials - Those items or agents of biological origin that have potential to cause harm to humans, animals, or the environment, either by themselves or through interaction with other factors. Examples include human blood, human body fluids, biological toxins, human cell lines, infectious agents, venoms, and recombinant DNA.

3.3 Outer Container – A sturdy, leak-proof container, for example, a fiberboard (cardboard) box,

Styrofoam, cooler (plastic hard walled ice chest), that is used to contain the secondary containers.

3.4 Primary Container – a container or receptacle in contact with the biological or environmental material to be transported.

3.5 Secondary Container – Provides additional protection for the primary container, is leakproof and can include absorbent material (for liquid samples).

4.0 RESPONSIBILITY:

4.1 Department Chair

4.1.1 Adopt and implement the requirements of this document or create departmental guidelines that comply with this SOP to prevent inappropriate transportation of hazardous materials within Departmental operations.

4.2 Faculty, Supervisory staff, Employee, and Students

4.2.1 Implement procedures that follow these requirements and prevent inappropriate transportation of hazardous materials.

4.3 Research and Academic Environmental Health & Safety (RA-EHS)

4.3.1 Provide information and technical assistance regarding transportation storage regulation and best practices.

4.3.2 Provide regulatory required training to shippers of hazardous materials.

4.3.3 Act as the A&M-SA representative during regulatory inspections.

5.0 SAFETY:

5.1 Wear appropriate personal protection equipment (PPE) when handling the samples.

5.2 Be prepared to clean a spill immediately, if necessary, during transport

5.3 Portable spill kits can be assembled easily: gloves, eyewear, disinfectant, absorbent material, hand sanitizer, waste disposal bag.

5.4 Have a means to contact someone for assistance or emergency assistance in the event of an incident.

5.5 The package must be under direct control/secured and never left unattended while in transit.

5.6 Do not bring package into food or bathroom locations.

5.7 DO NOT transport biomaterials by public bus, shuttle, Uber, or taxi.

6.0 PROCEDURES:

6.1 Containment Requirements

6.1.1 For biological materials:

6.1.1.1 Biological samples must be prepared for transport using the triple packaging method. (See figure in Appendix 1).

6.1.1.2 Place samples into leak proof primary containers (vials, tubes, etc.) with positive closure (screw-on, snap-on, or push-on) and properly labeled.

6.1.1.3 Lids/caps should be secured with tape or parafilm.

6.1.1.4 Containers/vials should than be placed into a leak-proof secondary container (plastic bag sealed with tape or in a sealable zip lock bag) with absorbent materials in sufficient quantity to absorb the entire contents.

6.1.1.5 Use cushioning material to keep specimens padded & separated during transport (e.g. paper towels, bubble wrap, vial sleeves, microtube boxes, tube racks for example).

6.1.1.6 Apply a biohazard label if materials to be transported are classified as BSL-2.

6.1.1.7 Each individual container must have enough label information to identify its contents.

6.1.1.8 The samples should then be placed into an outer container (e.g., hard walled plastic) with a secure lid. Apply a biohazard label if materials to be transported are classified as BSL-2.

6.1.2 For Dry Ice:

6.1.2.1 The container MUST be designed and constructed to permit the release of carbon dioxide gas in order to prevent a buildup of pressure that could rupture the container.

6.1.2.2 Use only a minimum amount of dry ice to keep the samples frozen.

6.1.2.3 Place the dry ice outside the secondary container

6.2 Transport between University labs or buildings through public areas (not in vehicle)

Applies to transport within a building (e.g., in stairwells, elevators, through lobbies, office space, public or non-lab spaces) and between laboratory buildings within a short distance (e.g., across street, down sidewalk, across parking lot). Transport by bicycle or scooter is discouraged.

6.2.1 Package samples as described above in 6.1.1.

6.2.2 If samples are being removed from a BSL2 lab, disinfect exterior of container prior to transport to remove any contamination acquired during packing in the lab. Must be clean enough to handle without PPE during transport.

6.2.3 Avoid moving large. Heavy or fragile materials by hand if a cart is available for transport between laboratories, building floors or between buildings

6.2.4 Avoid transporting hazardous materials during class changes and in high traffic areas.

6.2.5 A freight elevator should be used if available for moving hazardous materials within buildings/floors.

6.3 Transport by Vehicle (to/from research collaborators lab off campus) or From Field Collection sites back to A&M-SA campus

6.3.1 Package samples as described above in 6.1.1.

6.3.2 Complete a “Research Sample Transport Form” and have it available with the container(s) being transported.

6.3.3 Include a list of contents with the container, describing the specimens within and any known infectious materials or pathogens. List should be placed between the secondary and outer container.

6.3.4 If samples are being removed from a BSL2 lab, disinfect exterior of container prior to transport to remove any contamination acquired during packing in the lab. Must be clean enough to handle without gloves or PPE during transport.

6.3.5 Label exterior container with:

- Contact information: Name, phone, lab name/location
- Origin and Destination locations/addresses
- Orientation Arrows
- Brief content description and handling information applicable to your materials
- Should be informational without causing undue alarm to non-lab individuals during transport. Examples:

Biological Research Samples	Research Samples, Non-Infectious
Non-Hazardous Biologicals	Exempt human or animal specimen

6.3.6 Place package/container in a secure location within the vehicle to avoid tipping or shifting.

6.3.7 If possible, place in an inconspicuous location within the vehicle (reduces risk of theft).

6.3.8 Avoid moving large or heavy materials by hand if a cart is available for transport to and from the vehicle. Take care when moving materials through public spaces or high traffic walkways.

6.3.9 If transporting on dry ice and no trunk is available have the windows open/cracked (at all times while in transit) to allow fresh air into the car.

6.4 Receipt of Biological Material

6.4.1 Laboratories receiving biological materials must have prior approval with the Institutional Biosafety Committee (IBC) for transfer, storage, and work with these materials.

6.4.2 Upon delivery, the receiving laboratory personnel should be informed, and the material properly stored.

6.4.3 The package should be carefully inspected for signs of leakage or other contamination and, if necessary, decontaminated before opening.

6.4.4 Upon receiving transport boxes, the package(s) integrity should be checked immediately. Any leaking package needs to be reported to the sender immediately. Contact EH&S, if necessary, to assist in cleanup.

6.4.5 The packages should be opened in laboratory using the appropriate personal protective equipment and a biosafety cabinet, if available.

7.0 ASSOCIATED DOCUMENTS:

7.1 Research Sample Transport Form (current Version)

8.0 REFERENCES:

1. A&M-SA Hazard Communication Program
2. A&M-SA Bloodborne Pathogen Exposure Control Plan
3. 49 CFR Parts 171-180 Hazardous Materials Regulations 171.1 (d), Ground transport of hazardous materials
4. A&M-SA RA-EHS wishes to acknowledge the following institutions whose websites provided information and resources that were referenced creating this plan:
   a. University of Southern California (USC) – Transport of Biological Materials
   b. University of Texas – Austin – Transporting Hazardous Materials on Campus
   c. University of Wisconsin-Madison – Biological Materials Transport on UW Campus Guidance.
   d. University of Arkansas – Transporting Biological Materials

9.0 APPENDICES:

Appendix 1. Examples of primary, secondary and outer containers

10.0 SOP REVISION HISTORY:

Date	Changes / Comments	Revision by
06/09/2022	New Document	V. Pantusa

Appendix 1

Example of primary sample container in secondary container (plastic bag).

Examples of “outer container”