EAST TEXAS A&M UNIVERSITY

IBC GUIDELINE:	Decontamination of laboratory equipment, packing recombinant DNA (rDNA) and biohazardous agents for relocation		
SOP #	103	IBC Approval:	March 23, 2020

Scope

This SOP describes decontamination of laboratory equipment that has been used with biological agents, including recombinant/synthetic nucleic acids. The surface decontamination methods described in this document are appropriate and required for laboratory equipment used with or exposed to biological materials prior to the equipment's relocation, decommissioning/disposal, or transport for authorized repair. This SOP is also applicable for packaging recombinant DNA (rDNA) and biohazardous agents for shipping or for transporting within the Texas A&M University-Commerce campus.

Basic Equipment

Prior to relocation, all large pieces of equipment must be appropriately decontaminated and labeled with a "Certificate that Property is Free from Hazards" (Appendix A), completed by a person qualified to safely decontaminate the equipment. Some equipment must be serviced and packed by the manufacturer or manufacturer's representative prior to relocation, such as confocal microscope and ultracentrifuges.

Means of Decontamination

Decontamination must be achieved with an appropriate EPA-registered chemical disinfectant, known to be effective against the agent(s) in use. During decontamination, personal protective equipment (PPE) and appropriate protective clothing such as chemical resistant gloves, eye protection, and lab coat must always be worn. It is always advisable to be familiar with hazards associated with chemical disinfectants, which may be found on the product label or safety data sheet.

Specific Laboratory Equipment Decontamination

A) Biological Safety Cabinet (BSC):

Following chemical surface disinfection, BSCs used with BL2 agents must undergo gaseous disinfection prior to relocation, decommissioning/disposal, or repair. Gaseous decontamination must be performed by an authorized BSC technician and shall not be attempted by laboratory workers.

Chemical decontamination procedure

1. With the cabinet blower on, remove all materials, reagents, and waste containers from the cabinet and either store or discard properly.
2. Clean up any spills which may have resulted from removal of materials from the BSC and discard properly.
3. Make sure the plenum drain valve (located underneath the front of the cabinet) is closed, and spray disinfectant into the front grill of the cabinet.
4. Liberally apply disinfectant to the work surface, side walls, back wall, and inside of sash. DO NOT spray the ceiling of the cabinet workspace as HEPA filter damage may result. Allow disinfectant to remain on the surfaces for at least 2 minutes or as recommended on disinfectant product label.
5. Raise the workspace grill and work surface (it should lift up in some manner) and liberally apply the disinfectant to the underside and all surfaces beneath.
6. Something or someone may be needed to hold the work surface up while disinfectant is sprayed. Allow disinfectant to sit for at least 2 minutes, or as recommended on disinfectant label.
7. After sufficient contact time has elapsed, using a hand mop or paper towels, wipe down all surfaces with water to remove any residue left by the disinfectant.
8. After decontaminated surfaces have dried, replace the workplace grill, close the sash, and turn off the blower.
9. Wipe down all external surfaces of the biosafety cabinet with an appropriate disinfectant, allowing sufficient contact time.
10. DO NOT use the BSC once it has been decontaminated until relocation is complete.
11. Remove any Biohazard stickers and place a sign on the BSC indicating date of decontamination. (See Appendix 1)
12. When the BSC is moved to the new laboratory, it must be recertified by an appropriately trained service technician prior to use.

B) Incubator

1. Incubators will be decontaminated according to manufacturer's protocol. If the manufacturer's protocol is used, the PI must provide evidence of such decontamination.
2. If gaseous decontamination is required because of hard to reach places, such decontamination must be performed by an approved vendor
3. Prior to decontamination PI or the laboratory staff must remove all materials from the incubator and either store or discard appropriately, and turn off incubator power supply and unplug from the source outlet.
4. Clean up any spills which may have resulted from material removal and discard appropriately.

5. Remove any modular shelving and liberally apply disinfectant to top, bottom, and sides of shelves. Allow disinfectant to remain on the surfaces for at least two minutes or as recommended on disinfectant label.
6. Liberally apply disinfectant to all surfaces inside the incubator, including the inside of the door and gaskets. Allow sufficient contact time for disinfectant (at least two minutes or as recommended on disinfectant label).
7. After sufficient contact time has elapsed, using a hand mop or paper towels, wipe down all surfaces with water to remove any residue left by the disinfectant.
8. Be sure to remove any biohazard stickers after decontamination and DO NOT use the incubator once it has been decontaminated until relocation is complete.
9. Place a sign on the incubator indicating date of decontamination, (See Appendix 1)
10. If necessary, tape the door shut to prevent opening during transport.

C) Refrigerators/Freezers

For relocation of refrigerators/freezers, after consulting with movers, the following procedure will be used.

1. Plan for 2 days of freezer downtime during this process. Before thawing, identify hazardous materials stored in the freezer.
2. Remove all materials from the refrigerator or freezer and either store or discard properly.
3. Turn off power supply and unplug from source outlet. Unplug the freezer in the morning so runoff can be monitored throughout the day.
4. Never use sharp objects to chip at the ice. Freezer walls are easily punctured by sharp objects, allowing coolant to escape and resulting in expensive repairs or replacement costs.
5. Never allow liquid to run directly onto floors creating a slip hazard, or down any floor drain. If the unit is thawed outside, do not let runoff reach the storm sewer drain.
6. Establish a wick and reservoir system to manage the melting ice:
    1. Place a piece of bench paper (paper side down, plastic side up) inside the freezer, on the lower level and lead it into a large autoclave pan.
    2. Surround the freezer and autoclave pan with paper towels or bench paper.
    3. Manage contaminated ice and liquid by collecting it and add 1 part bleach to 9 parts melted ice and liquids.
    4. Allow two minutes of contact time before pouring the melted ice down the drain.
7. Clean up any spills or residual organic material with soap and water and discard properly.
8. Remove any modular shelving and liberally apply disinfectant to top, bottom, and sides of shelves. Allow disinfectant to remain on the surfaces for at least 10 minutes or as recommended on disinfectant label.
9. Liberally apply disinfectant to all surfaces inside the refrigerator/freezer, including the inside of the door and gaskets.
10. After sufficient contact time has elapsed, using a hand mop or paper towels, wipe down all surfaces with water to remove any residue left by the disinfectant. This will help prevent subsequent corrosion of the surfaces.
11. Replace the shelving inside the unit, and close the door. Important: if being sent for repair or being decommissioned/discarded, be sure to remove any biohazard stickers after decontamination.

12. DO NOT use the refrigerator/freezer once it has been decontaminated for relocation, repair, or decommissioning. Place a sign on the equipment indicating date of decontamination. (See Appendix B for a sample sign)

D) Centrifuges:

1. Turn off power supply and unplug from source outlet.
2. Clean up any spills or residual organic material with soap and water and discard properly. Using tongs or forceps, any broken glass should be placed in a biohazard sharps container.
3. Remove any rotors and baskets/buckets and liberally apply disinfectant on all surfaces of the rotor and baskets/buckets. Allow disinfectant to remain on the surfaces for at least 10 minutes or as recommended on disinfectant label. If rotor is not removable, apply disinfectant in place and be sure to wipe the underside of the rotor if possible.
4. Note: Some centrifuge rotors and buckets can be autoclaved. Consult the equipment user's manual for additional guidance.
5. Liberally apply disinfectant to all surfaces inside the centrifuge, including the inside of the lid and gaskets.
6. Wipe down the exterior of the centrifuge with disinfectant and allow sufficient contact time.
7. After sufficient contact time has elapsed, using a hand mop or paper towels, wipe down all surfaces with water to remove any residue left by the disinfectant. This will help prevent subsequent corrosion of the surfaces.
8. Do not replace the rotor in the centrifuge, but close the lid. Important: if being sent for repair or being decommissioned/discarded, be sure to remove any biohazard stickers after decontamination.
9. DO NOT use the centrifuge once it has been decontaminated for relocation, repair, or decommissioning. Place a sign on the equipment indicating date of decontamination. (See Appendix A)

E) Miscellaneous equipment (shaker/rocker platforms, vortex mixers, etc.):

Consult the equipment user's manual for proper disassembly as appropriate. Exposed surfaces can be decontaminated as listed:

1. Unplug the unit from the power supply.
2. Liberally apply appropriate disinfectant to surfaces and allow at least 10 minutes contact time or as recommended on disinfectant label.
3. After sufficient contact time has elapsed, using a hand mop or paper towels, wipe down all surfaces with water to remove any residue left by the disinfectant.
4. Important: if being sent for repair or being decommissioned/discarded, be sure to remove any biohazard stickers after decontamination.
5. DO NOT use the equipment once it has been decontaminated for relocation, repair, or decommissioning. Place a sign on the equipment indicating date of decontamination. (See Appendix A).

F) Packing and transporting recombinant DNA (rDNA) and biohazardous agents:

1. Place rDNA and/or biohazardous agents in a leak-proof secondary container labeled with a biohazard symbol.
2. Primary container lids are to be Para filmed/wired/taped/secured closed so will they will not open during transport.
3. Absorbent material needs to be sufficient to absorb all liquid from primary container if leaking or broken.
4. If needed, wrap primary containers in cushioning material to protect from breakage. Place cushioning between containers if more than one.
5. Place primary container in secondary container (plastic bag, plastic canister/bottle, metal can, etc.). If using plastic bag as secondary container it is advisable to double bag substance/specimen.
6. Place enough additional cushioning to protect from breakage and moving in exterior container
7. You may pack more than one item in a sturdy exterior container in good shape (fiberboard box, etc.)
8. Decontaminate the outside of the container prior to transport. PPE should not be needed for transport.

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BIOLOGICAL HAZARD REMOVAL FORM

Exhibit "A"

SECTION 1.0 – Principal Investigator Information

This form must be completed by Research Compliance prior to decommissioning of the biosafety lab. A copy of the completed document will be provided to the Department of Campus Operations & Safety, the Principal Investigator and the Department Head to verify that all biological hazards were removed and appropriately disposed or transferred and that all lab surfaces and equipment were decontaminated with appropriate disinfectant and following manufacturer's instructions.

Date:	**Time:**	**Lab Representative (if applicable)**
Principal Investigator:	**PI's Phone #:**	**PI's email:**
Department:	**Department Head:**	**Phone #:**
Bldg. Name:	**Bldg. #**	**Lab Room #s:**

SECTION 2.0 –EQUIPMENT INFORMATION

Check the Box that is applicable:	**Yes**	**No**	**N/A**
1. All biohazard including human, animal, plant samples and bacterial, fungal, and/or viral stocks, and animal carcasses have been properly disposed of by autoclaving or incineration? (Chemical decontamination, using 10% bleach final concentration, may be used to decontaminate liquid cultures of biohazardous materials.)	☐	☐	☐
2. Biohazards not destroyed, have been transferred properly (using appropriate primary and secondary containment) to a new location at: NOTE: For shipment of potentially hazardous and/or infectious materials, please consult with COS for instructions and assistance. Do not attempt to ship these materials on your own.	☐	☐	☐
3. Biosafety Cabinets(s): Have all surfaces been decontaminated with appropriate disinfectant? NOTE: If Biosafety Cabinet is to be moved from one building to another, or is being sent to surplus, it must be gas/vapor decontaminated by a trained professional, prior to relocation, using approved disinfectant. Such decontamination of the BSC must be completed by a certified and approved vendor.	☐	☐	☐
4. Bench tops, cabinets and drawers are emptied, cleaned and surface decontaminated with appropriate disinfectant?	☐	☐	☐
5. Equipment, e.g. Incubators, shakers, centrifuges: Surface decontaminated with appropriate disinfectant?	☐	☐	☐
6. All door or other biohazard signs previously posted in the lab will be removed upon confirmation that all biohazards have been removed and the lab has been decontaminated.	☐	☐	☐

PRINCIPAL INVESTIGATOR (OR DESIGNEE) SIGNATURE: **DATE:**

SECTION 3.0 – Corrective Action(s) and/or special Notes:

SECTION 4.0 – AUTHORIZATION

IBC REPRESENTATIVE SIGNATURE:	**DATE:**

**Department of Campus Operations & Safety and Research Compliance are not responsible for ensuring the decontamination of any equipment or furniture. COS and/or IBC provide the minimum requirements for decontamination with which equipment owners must comply. For more information on these decontamination requirements, contact COS, It is the owner's responsibility to ensure the proper procedures are performed as appropriate prior to the release of the equipment to any receiving entity.

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EQUIPMENT DECONTAMINATION FORM

Exhibit "B"

SECTION 1.0 – LOCATION OF EQUIPMENT

ACADEMIC UNIT:		
BUILDING NAME:	**ROOM NUMBER:**	**DEPARTMENT OR CENTER:**

SECTION 2.0 –EQUIPMENT INFORMATION

EQUIPMENT DESCRIPTION:

☐ Centrifuge ☐ Water Bath ☐ Incubator ☐ Freezer/ Refrigerator* ☐ Biological Safety Cabinet* ☐ Fume Hood*

☐ Other (Specify) *Call COS for additional requirements

MANUFACTURER NAME:	**MODEL NUMBER:**	**PROPERTY RECORD OR SERIAL NUMBER:**

DESCRIBE EQUIPMENT USE: (ATTACH ADDITIONAL PAGES AS NEEDED)

EQUIPMENT TRANSFER TYPE:

☐ Surplus ☐ Another Department ☐ Another Institution ☐ Maintenance ☐ Within the same facility ☐ Another facility

SECTION 3.0 – DECONTAMINATION STATUS

CHECK CATEGORY 1 OR CATEGORY 2

☐ Category 1: This equipment has never been in contact with biological, chemical, and/or radioactive materials.
*******SKIP TO SECTION 4.0 – AUTHORIZATION. NOTE: Only PI/Owner Signature required for Category 1*******

☐ Category 2: This equipment has had prior contact with either biological, chemical, and/or radioactive materials and/or has contained a radioactive source, X-ray tube, or laser, and it has been thoroughly cleaned and decontaminated as described below:

BIOHAZARDOUS MATERIALS? ☐ YES** ☐ NO
If yes, describe decontamination method:

HAZARDOUS CHEMICALS? ☐ YES** ☐ NO
If yes, describe decontamination method:

RADIOACTIVE MATERIALS (RAM), RADIOACTIVE SOURCE, X-RAY TUBE, OR LASER? ☐ YES** ☐ NO **SOURCE OR TUBE REMOVED?** ☐ YES ☐ N/A
If yes, describe decontamination method:

If RAM, X-ray, or laser, signature of RSS for confirmation of source removal or successful completion of secondary contamination swipe test:

SECTION 4.0 – AUTHORIZATION

"I certify that I have cleaned and/or decontaminated this equipment for such materials and in such a manner as identified above."

PERSON COMPLETING THE DECONTAMINATION: (PRINT)	**TITLE:**
SIGNATURE:	**DATE:**
PHONE NUMBER:	**EMAIL:**

"I certify that I am the principal investigator or equipment owner and, to the best of my knowledge, the information recorded on this form is true and correct. I further certify that the person completing the decontamination as indicated above has been adequately trained and was provided with the appropriate PPE to perform the decontamination. I agree to maintain and provide documentation of adequate training upon request."

PRINCIPAL INVESTIGATOR OR EQUIPMENT OWNER: (PRINT)	**TITLE:**
SIGNATURE:	**DATE:**

FOR PROPERTY TRANSFERS OR SURPLUS PICK-UP SUBMIT A SIGNED COPY OF THIS FORM TO THE RECEIVING ENTITY

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