UNIVERSITY OF WYOMING

Guide for Laboratory Moves and Closeouts

UW Safety (EHS)

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Waste Disposal Form

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Asset Management (Property Office) - Equipment Disposal
Phone: 307-766-2302
Email: property@uwyo.edu
Surplus Property / Property Disposition Request Form

Material Services (UW Movers)
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Moving Brochure
Moving Request Form

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I. INTRODUCTION

This guidance is intended for use by principal investigators, laboratory personnel, and department administrators as a guide for the required steps to move laboratories to new locations.

Laboratories are complex and difficult to move. There are many issues to consider when moving laboratories not encountered when moving office or residential spaces. Please review this guidance well in advance of your laboratory move and contact the UW Safety Office personnel listed above if you need clarification or have questions regarding your laboratory move.

The UW Safety Office's goal is to provide support to assist laboratories to move as quickly and efficiently as possible. Please be aware that our resources are limited. The sooner we can begin to help you with your move, the better.

II. PREPARING TO MOVE

Laboratory personnel should begin preparing their laboratory relocation at least three months in advance. This preparation will facilitate the relocation and transfer of the laboratory's equipment and materials.

An up-to-date chemical inventory is required to prepare for this move. Regulated Materials Management Center (RMMC) personnel will package and transport all hazardous and non-hazardous chemical reagents. Radioactive materials will be moved by the RMMC, in conjunction with the UW Radiation Safety Officer. Biological materials will be transported inside freezers under certain conditions and following procedures that will be outlined later in this document.

The procedures for moving chemical, radioactive, and biological materials are outlined below. Moving hazardous materials without following regulatory requirements is both dangerous and illegal, and will not be permitted. Individual researchers will not move any hazardous materials on their own (with the exception of controlled substances as applicable).

In laboratories where chemical, infectious, or radioactive materials have been used, the departing laboratory personnel are responsible for ensuring that laboratory surfaces and equipment have been properly disinfected or decontaminated. Laboratory personnel who share space with other laboratory groups should carefully survey the shared spaces and areas in order to locate and appropriately handle and/or dispose of their hazardous materials. Final clearance of the vacated lab space(s) will be coordinated with the UW Safety Office.

I. EQUIPMENT AND SUPPLIES

A. Tags

The UW Safety Office will provide move Tags to ensure the proper movement, correct placement and disposal of office and laboratory items in the new location. The Tag will note the building, room number, faculty/staff name, phone, item location and item description that each box or item will be moved to.

Green Tags – UW Movers will be attached to a piece of laboratory equipment, box of lab/office supplies. Lab personnel are verifying the item(s) are not contaminated with any hazardous materials (chemical/biological/radioactive) and the item(s) can be safely moved by the UW Movers. Green Tags must be completed by lab personnel and attached to all lab equipment, boxes of lab/office supplies that are moving to the new location. Green Tags may need to be used for office areas. A Property Disposition Form, PDR must be filled out for all UW Tagged property. Moving Request Form.

Yellow Tags – UW RMMC will be attached to containers of chemicals or other hazardous materials (these will be handled separately from lab equipment by the RMMC), Waste Disposal Form.

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Red Tags – UW Property Disposal will be attached to items or equipment that requires disposal (rather than being moved to the new location), complete a Surplus Property / Property Disposition Request Form.

B. Decommissioning and Decontamination

Laboratory equipment and supplies being disposed of or moved must be decommissioned and disinfected/decontaminated by laboratory personnel prior to the move. Refer to the appropriate Appendix below: "Decontamination Procedures for Laboratory Equipment" (Appendix 1) and "Moving Lab Equipment and Supplies" (Appendix 2) for guidance on how to prepare and box up your lab equipment and supplies for the move contractor.

UW RMMC personnel are not permitted to move any equipment or supplies or clean a laboratory until the items and/or laboratory have been properly cleared of hazardous materials, disinfected/decontaminated, and green-tagged.

This requires cleaning and decommissioning of the equipment and laboratories by laboratory personnel with guidance from the UW Safety Office. Once laboratory personnel complete cleaning/disinfection or decontamination of lab equipment, they will post green-tags issued by the UW Safety Office on the laboratory equipment.

Examples of items to clean or decontaminate include, but may not be limited to:

Incubators	Glassware
Centrifuges	Carts, Water Baths, Sample Holders
Liquid Scintillation Counters	Refrigerators, Freezers
Gamma Well Counters	Waste Containers
Chemical Fume Hoods	Pipette Washers
Biosafety Cabinets	Acid Baths
Fume Hoods	Bench Tops, Sinks, Shelves, Cabinets

C. General Equipment Information

The following laboratory equipment needs specific attention prior to being moved:

1. Refrigerators and Freezers – consult "Moving Refrigerators and Freezers" (Appendix 3) and "Moving Biological Agents and Materials" (Appendix 4).

2. Remove Mercury Thermometers – from heating blocks, ovens, refrigerators, freezers, incubators, water baths and other equipment. Mercury-containing items must be moved by the RMMC with possible assistance from the UW Movers.

3. HPLC – drain solvents from both supply and drain lines.

4. Centrifuges – remove tubes holding liquids from rotors. Remove rotors from centrifuges.

5. Peptide Synthesizers – drain solvents from both supply and drain lines.

6. Liquid Scintillation Counters – consult "Moving Radioactive Materials" (Appendix 5).

7. Class 3B and 4 laser equipment – the new laser location must be registered with the UW Laser Safety Officer (LSO) and meet the requirements of the UW Laser Safety Plan before the laser is operated. For assistance, call the LSO at 307-766-2638.

8. Specialized equipment to be moved may need assistance from the manufacturer

D. Asbestos-Related Issues

Some laboratory equipment could be directly attached or secured to surfaces such as lab bench tops, room walls, or fume hood work surfaces or sidewalls. It is possible that these surfaces contain asbestos and care must be taken to avoid disturbing asbestos- containing materials. Before any

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equipment is detached or removed from work surfaces, contact the UW Operations Service Desk to request assistance from the UW Safety Office. The UW Safety Office must first evaluate the surface to confirm the presence or absence of asbestos. Some older lab equipment can also contain asbestos material, such as ovens (gaskets and liner materials, heat-protective gloves, Bunsen burner pads, etc.). For disposal of these types of materials, please contact the UW Safety Office for guidance (307-766-3277).

E. Biological-Related Issues

Lab equipment or surfaces contaminated or potentially contaminated with infectious or biohazardous materials require cleaning with an appropriate disinfectant. This disinfectant must be specifically effective for the contaminant(s). This includes, but is not limited to, potential contamination from: human blood, bodily fluids, tissues and cell lines (i.e. HEK 393,HeLa, etc.); infectious agents, including human or animal cell culture materials that have been infected; and infectious stocks or cultures. Information on appropriate disinfectants is available from the Biosafety Specialist (307-766-2723).

Procedures for the disposal or transport of biological agents and materials contained in ultra-low temperature (ULT) freezers and other freezers and refrigerators, as well as procedures for the cleaning, transport, and disposal of biosafety cabinets may be found in the related Appendix: “Moving Biological Agents and Materials” (Appendix 4).

F. Chemical-Related Issues

Research equipment or laboratory surfaces contaminated with toxic, corrosive, carcinogenic, or mutagenic chemicals require adequate cleaning with an appropriate cleaning solution. For most chemicals, scrubbing with a laboratory detergent (Alconox or equivalent) and water should be adequate to remove the chemical contamination. Contact the UW Chemical Safety Specialist (307-766-2649) regarding cleaning procedures for materials exhibiting extreme or unusually dangerous hazards. Most used cleaning solutions can be drain disposed; however, cleaning solutions used to decontaminate grossly- contaminated equipment must be saved and disposed of as lab waste through the Regulated Materials Management Center (RMMC).

G. Radioactive-Related Issues

Before decommissioning, equipment that is potentially contaminated with radioactive material (RAM) must be surveyed with an appropriate portable detection instrument and a smear survey counted in a Liquid Scintillation Counter or Gamma Counter. Survey results must be documented using the UW Safety Office Green Tag.

Once departing laboratory personnel complete the necessary decontamination of RAM-equipment and surfaces, complete the Green Tags for those items. For more information on green-tagging equipment that is potentially contaminated with radioactive material, please consult the “Moving Radioactive Materials” (Appendix 5). Contact the Radiation Safety Officer at 307-766-2638 for assistance.

H. Emergency Spill Response and Accidental Spill Prevention

The consequences of hazardous materials spills should be considered before they happen. The purpose of this policy is to establish preparation guidelines for the event of a chemical, radioactive, or biohazardous spill, or a combination thereof. This guideline applies to everyone associated with the University of Wyoming (UW), and is inclusive of buildings and grounds owned, operated, and maintained by the University of Wyoming

The University of Wyoming maintains a waste water discharge permit with the City of Laramie. The Safety Office manages this permit and performs required waste water monitoring of selected sanitary sewer outfalls to ensure compliance with the permit. This plan describes the measures implemented

by the University of Wyoming to prevent unwanted sanitary sewer discharges from occurring, and to prepare UW to respond in a safe, effective, and timely manner to mitigate the impacts of a wastewater discharge within the City of Laramie. This wastewater spill control plan shall contain information on the discharge practices, chemical storage, notification procedures and procedures to prevent adverse impacts from accidental spills.

I. Surplus Equipment

Refer to the Moving Request Form for instructions to arrange pick-up and disposal of surplus laboratory equipment and electronics.

A Surplus Property / Property Disposition Request Form) and decontamination procedures listed within must be completed if the laboratory equipment or electronics were ever in contact with, or may be contaminated with chemicals, radioactive, or infectious materials. Decontamination must be performed by the researchers prior to submittal of the completed form to Material Services.

Be aware that mercury switches, mercury thermometers, radioactive sources, and chemicals must be removed from equipment before disposal. Contact the RMMC (307-766-3697) or the Radiation Safety Officer (307-766-2638) for assistance.

IV. HAZARDOUS MATERIALS

The identification of the hazardous materials (biological, chemical and/or radiological) in the laboratory is required beforehand to establish the appropriate arrangements for moving those materials.

Hazardous materials include:

- Many biological materials (cultures and stocks of infectious agents; human and animal cell cultures, preserved tissues and specimens; biological wastes)
- Chemicals (flammable, reactive, corrosive, oxidizers, toxic materials, etc.)
- Radioactive materials (sealed and unsealed sources, X-ray machines)
- Mixed wastes (mixture of radioactive and chemical wastes)

A. Biological Materials and Infectious Agents

1. Cultures and Stocks of Infectious Materials

Infectious materials are subject to the requirements of the Department of Transportation (DOT) when being moved or shipped. Infectious materials are classified as Category A (Appendix 6) or Category B. Additional information may be found in the related Appendix: “Moving Biological Agents and Materials” (Appendix 4).

Category A infectious substances are subject to more stringent regulation when being shipped, along with the necessary packaging, labels, markings, and related paperwork.

Category A infectious substances include, but are not limited to:
Cultures or stocks of Risk Group 3 or 4 infectious agents, to include HIV cultures, M. tuberculosis cultures.
Cultures or stocks of Select Agents (Appendix 7), and any cultures or stocks of certain RG 2 agents:
Verotoxigenic strains of E. coli Clostridium botulinum
S. dysenteriae, type 1
Avian paramyxovirus Type 1—Velogenic Newcastle disease virus Eastern, Western and Venezuelan equine encephalitis virus
Poliovirus
Rabies virus and other lyssaviruses Vesicular stomatitis virus
Any questions regarding moving stocks and cultures of infectious agents should be directed to the Biosafety Specialist (307-766-2723) for further information and assistance.

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Category B covers all other infectious materials, typically stocks and cultures of all other RG 2 organisms. This includes all human materials (blood, blood products, bodily fluids, tissues, and cell lines) and animal materials (blood, blood products, bodily fluids, tissues, and cell lines) known or suspected to be infected with a RG2 agent.

Exempt Human or Animal Specimens are not subject to DOT requirements for packaging. However, the UW Safety Biohazardous Waste Disposal Guidelines found here, must be followed for disposal of these materials. If these materials are to be transported in freezers, they must be packaged so there is sufficient packaging to prevent breakage and sufficient absorbent material in case of leakage.

The following are considered **Exempt Human or Animal Specimens:**

- Does not contain an infectious substance or that is unlikely to cause disease in humans or animals.
- Non-infectious biological materials from humans, animals, or plants. Examples include non-infectious cells, tissue cultures, blood or plasma from individuals not suspected of having an infectious disease, DNA, RNA, or other non-infectious genetic elements.
- A material containing micro-organisms that are non-pathogenic to humans or animals.
- A material containing pathogens that have been neutralized or inactivated such that they no longer pose a health risk.
- A material with a low probability of containing an infectious substance, or where the concentration of the infectious substance is at a level naturally occurring in the environment so it cannot cause disease when exposure to it occurs.

Any questions regarding moving Category B or Exempt, Human or Animal Specimens should be directed to the Biosafety Specialist (307-766-2723) for further information and assistance.

2. Human and Animal Cell Culture Materials

Human and animal cell culture materials not containing infectious materials (Category A or B above) are not restricted for transportation. The UW Safety Office strongly encourages laboratories working with human or animal cell culture materials to plan for the movement of these materials, whether at ambient temperatures, refrigerated or frozen. Additional information may be found in the related guidance document: “Moving Biological Agents and Materials” (Appendix 4).

Planning will allow appropriate time to clean incubators and other equipment and to follow the other requisite steps for the move.

3. Preserved Tissue and Specimens

Tissues or specimens preserved in formaldehyde, mercuric chloride, or other preservatives must be included in your chemical inventory, using the preservative name and volume. These containers MUST be shipped as a hazardous material by the RMMC. All containers MUST be PROPERLY SEALED (so they cannot leak) and labeled with the full chemical name to be lab-packed and moved.

4. Select Agents and Toxins

The term “Select Agents” refers to a collection of designated infectious agents and toxins that, by their nature, have the potential to pose a severe threat to public, animal, or plant health. This threat has resulted in the creation of strict regulations that impose fines and possible imprisonment for non-compliance. These regulations came into effect June 2002, so it is possible that you may find a select agent while you are cleaning out a freezer.

Refer to Appendix 7 at the end of this document or go to https://selectagents.gov/sat/list.htm

If you find any select agent:

- DO NOT THROW AWAY OR PROCESS THROUGH BIOWASTE OR LAB WASTE PROGRAMS.

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- Secure material in a locked freezer or other container that has restricted access.
- Contact the Biosafety Specialist immediately for assistance.

5. Biohazardous Wastes

Biological/biohazardous waste must be processed prior to the move using the Biohazardous Waste Disposal Guidelines found here.

Infectious wastes must be rendered non-infectious and disposed of through the RMMC using either the Biohazardous Waste Disposal Guidelines or the Waste Management Guidelines. Sharps must be contained in puncture-proof containers.

After disinfection, glass sharps and other biohazardous wastes should be disposed using the following Guidelines.
After disinfection, metal sharps (needles, scalpels, razors) must be disposed using the following Guidelines.

B. Chemicals

1. Chemical Inventory

After relocation, labs will be required to update their chemical inventories utilizing the UW Safety Office OnSite chemical inventory system. If possible, limit purchases of new chemicals three months prior to the move. Purchase only what you reasonably expect to use during that time frame. Recycle useful chemical reagents you no longer need to other UW researchers if possible. Dispose of unneeded or outdated reagents **before** moving.

2. Moving Chemicals

Hazardous and non-hazardous chemical reagents **must** be packaged and transported by the RMMC as part of the move. Reference the related Appendix: “Moving Chemicals” (Appendix 8) for guidance on how to prepare your chemicals for transportation by the RMMC.

The following summarizes the actions to be taken by researchers to facilitate the movement of their chemicals:

- Containers of chemicals must be labeled with the complete chemical name.
- Containers must be securely closed with a properly fitting lid.
- A day or two before the RMMC is scheduled to arrive in your lab: gather chemicals into one or two areas that is safe and secure for temporary storage. Ensure proper segregation and secondary containment of incompatible chemicals.
- Beakers, flasks, evaporating dishes, etc. must be emptied and cleaned.
- Check refrigerators, freezers, fume hoods and bench tops as well as storage cabinets for chemical containers.
- Don’t forget about the reagent containers on equipment/instruments that have attached chemicals or waste containers such as synthesizers, sequencers, HPLC, etc. These will need to be removed by you and transported by the RMMC. Lab waste containers must be disposed through the RMMC.
- The RMMC will segregate and package chemicals into drums for movement. The RMMC will need move stickers completed by each research group for each drum, to ensure the correct placement in the new location. Due to segregation of various chemicals, please ensure an extra supply of completed move stickers is available to the RMMC.

3. Mercury-Containing Equipment

Set aside mercury thermometers for shipment by the RMMC. Contact the RMMC for help with clean-up of mercury that has been released or spilled onto the floor. To reduce the potential for mercury spills, consider replacing mercury thermometers with alcohol-based thermometers.

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For mercury 'bubblers' and barometers, completely drain the mercury into sealed plastic bottles (do this inside of a hood and utilizing secondary containment). Set aside empty bubblers, barometers and sealed plastic bottles holding metallic mercury for shipment by the RMMC.

4. Chemical Wastes

Chemical wastes, expired chemicals, or those materials that will not be moved must be disposed of through the RMMC. Chemical waste pick-ups should be completed before the move begins. **Please don't wait until the last minute!**

UW Safety has a segregation process for large amounts of chemicals to dispose of. This process will greatly reduce the amount of waste forms that need to be completed by the research group. The closer we get to the big move, the busier UW Safety will become – if you are reading this document that means we are ready to help you dispose of your unwanted chemicals right now. Call or email the RMMC at 307-766-3697 to set up an appointment.

Anticipate finding unknown or unlabeled materials in your laboratory. Each laboratory is responsible for identifying potentially hazardous materials to be moved or which require disposal. By working with the RMMC, a general characterization of unknown materials can usually be made to facilitate their disposal and to avoid additional costs.

Unknown materials must be submitted for disposal using UW Safety Hazardous Materials/Waste Forms. Each unknown must be submitted on a separate tag. Please provide as much information as possible on the tags to assist RMMC personnel with identifying the materials (i.e. white solid, clear liquid with pH=5, etc.).

C. Radioactive Materials

1. Sealed Sources

Laboratories that are moving must discontinue work with sealed sources of radioactive material **at least one week prior** to moving. After this time, sealed sources will either be disposed of as waste or packaged for transport to the new location. For more information on relocating radioactive materials, consult "Moving Radioactive Materials" (Appendix 5).

2. Unsealed Sources

Laboratories that are moving must discontinue work with unsealed sources of radioactive material **at least one week prior** to moving. After this time, unsealed sources (stock vials, aliquots, etc.) will either be disposed as waste or packaged for transport to the new location. For more information on relocating radioactive materials, consult "Moving Radioactive Materials" (Appendix 5).

3. X-ray Machines

Laboratories that are moving must discontinue work with X-ray machines at least one week prior to moving. Assistance from the device manufacturer/servicing agent and/or other outside vendor may be required. The new location of X-ray equipment must be approved by the UW Radiation Safety Committee before the equipment is used. For more information on relocating your X-ray machine(s), contact the Radiation Safety Officer at 307-766-2638.

D. Mixed Wastes

Occasionally it is necessary to dispose of materials or wastes that contain both radioactive and chemical wastes (flammable, corrosive, reactive or toxic). These materials require significant time and effort to dispose of in accordance with environmental regulations. Contact the Radiation Safety Officer at 307-766-2638 and the RMMC at 307-766-3697 for assistance.

V. OTHER SPECIALTY ITEMS

A. Compressed Gas Cylinders

Remove gas connections, replace cylinder caps, and leave cylinders for transport by the RMMC.

Nitrogen tanks/Dewar's and large rental/returnable cylinders obtained from RMMC will be relocated by RMMC; coordinate with your department liaison for relocations of nitrogen tanks/Dewar's and other large rental/returnable cylinders or contact: RMMC at 307-766-3697.

Lecture bottles and other small, non-returnable cylinders will be moved by the RMMC to the new location. For unneeded compressed gas cylinders that are non-returnable, or for lecture bottles that are no longer needed, submit a hazardous material/waste tag for disposal. Never dispose of lecture bottles or other small, non-returnable cylinders in the trash, even if they are empty.

B. Controlled Substances

Controlled substance registrations (permits) are issued by the US Drug Enforcement Agency (DEA) and are issued to individual researchers. Permits must be updated with new lab locations prior to moving the controlled substances. Please refer to the DEA website for permit changes, address changes, etc https://www.deadiversion.usdoj.gov/drugreg/registration.html.It takes a minimum of six to eight weeks to amend a permit. Permit holders will be assigned to a DEA investigator and may require a site visit prior to approval.

These items must not be moved by any outside contractors or UW Safety Office personnel. They must be inventoried (written documentation) by the permit holder per DEA regulations, moved by the permit holder, and re-inventoried upon arrival at the new location and secured. Assistance transporting the controlled substances may be requested from the University of Wyoming Police Department by the permit holder.

Permission to transfer ownership of a controlled substance to another individual must be received from the DEA. Abandonment of a controlled substance is a violation of the DEA permit under which it was held.

VI. UNPACKING CHEMICALS

Research personnel will be responsible for unpacking chemicals after they have been moved. Refer to "Unpacking Chemicals and Chemical Storage Guidelines" (Appendix 9) and "Moving Biological Agents and Materials" (Appendix 4).

VII. FINAL CLEARANCE FOR VACATED AREAS

Once the laboratory is completely moved, arrangements must be made to confirm with the UW Safety Office that the formerly occupied area(s) is free from hazardous materials or contaminants. The proper disposal of hazardous materials, laboratory equipment, and is the responsibility of each department and principal investigator to whom the laboratory is assigned.

UW Safety Office personnel, in conjunction with the departmental safety coordinator, will inspect the vacated spaces to confirm that hazardous materials, equipment, and supplies have been removed. Any equipment and supplies left behind must be approved by the departmental safety coordinator. A checklist will be utilized to confirm and document that the former lab space has been appropriately vacated. See the Final Lab Clearance Checklist (Appendix 10).

All costs associated with laboratory spaces that have been improperly abandoned and require cleaning services and/or removal of hazardous materials will be charged back to the appropriate department.

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Appendix 1

Decontamination Procedure for Laboratory Equipment

Researchers must properly decontaminate their laboratory equipment of hazardous materials (chemical, radioactive, or infectious materials) before the moving contractors or UW Mover personnel can transport the equipment. In order to protect the individuals handling the equipment, comply with hazardous material regulations, and avoid dangerous spills, it is important to check every piece of laboratory equipment that once held hazardous materials and ensure that any remaining materials have been removed with an appropriate cleaning solution.

For most chemicals, scrubbing with a laboratory detergent (Alconox or equivalent) and water should be adequate to remove the chemical contamination. Remove infectious residues with a 10% hypochlorite solution (nine parts water, one part bleach) or a laboratory detergent containing hypochlorite. Contact the UW Safety Office (307-766-3277) for cleaning procedures regarding materials exhibiting extreme or unusually dangerous hazards. For decontamination of radioactive materials, clean the equipment and perform smear surveys according to the “Moving Radioactive Materials” (Appendix 5). Equipment that is potentially contaminated with radioactive materials must not be moved or even handled inside the laboratory until survey results confirm removable activity of less than twice that of background levels. If, after several decontamination attempts, radiation is still detected with a survey meter, the radioactive contamination may be below the surface level. In this case, label the equipment as radioactive and consult with the Radiation Safety Officer for special handling precautions.

Equipment must be either: moved to the new location; have disposal arrangements made with Asset (Property) Management; or be approved by the applicable departmental liaison to be left behind before each research group will be relieved of responsibility for their former room/area. Research groups will not be allowed to abandon equipment they no longer need. There are two different methods for certifying hazardous material decontamination of equipment depending on whether the equipment will be moved to the new location or if it will be disposed of:

For equipment that will be moved - Complete an UW Safety Office Green Tag and a move sticker

Equipment that will be moved will require an UW Safety Office Green Tag certifying that the equipment has been decontaminated or has never been in contact with hazardous materials. Green Tags will be available from the UW Safety Office. To obtain Green Tags please call 307-766-3277 or email uwehs@uwyo.edu. Once researchers have properly decontaminated the laboratory equipment, they will need to complete, sign, and attach a green tag to the equipment. In addition to the Green Tag, a move sticker noting the new room number and location will also need to be completed and attached to each piece of equipment.

For equipment that will be disposed - Complete an Equipment Disposal / Resale Form

Refer to the Asset (Property) Management for instruction to arrange pickup and disposal of surplus laboratory equipment and electronics. Each department has a liaison to Asset (Property) Management that is familiar with the equipment disposal procedures – please coordinate with this individual in your department to dispose of your equipment. A Surplus Property – Property Disposition Request Form and decontamination procedures listed within must be completed if the laboratory equipment was ever in contact with, or may be contaminated with chemicals, radioactive materials, or infectious materials. Decontamination must be performed by the researchers prior to pick-up. If lab equipment contains sealed radioactive sources (e.g., liquid scintillation counters), contact the Radiation Safety Officer to have the source removed.

Below are some common examples and things to remember when decontaminating lab equipment:

1. Refrigerators – Remove all contents such as mercury thermometers, chemical reagents, and radioactive isotopes. Decontaminate the refrigerator if it held radioactive isotopes, infectious agents, or toxic chemicals. See "Moving Radioactive Materials" (Appendix 5) for surveying refrigerators in which radioactive isotopes were stored, especially if the unit has ever been used to store ^{3}H (tritium). Biological materials such as tissues and specimens may remain inside the refrigerator while being shipped by the moving contractors. See "Moving Biological Agents and Materials" (Appendix 4). Defrost the refrigerator if there is a buildup of ice around the freezer compartment. For additional information see "Moving Refrigerators and Freezers" (Appendix 3).
2. Freezers – Remove all mercury thermometers, hazardous chemicals, and radioactive isotopes. Frozen tissues and specimens may remain inside freezer while being shipped by the moving contractors. See the Appendix: "Moving Refrigerators and Freezers" (Appendix 3) for further directions. Decontaminate the freezer if it held radioactive isotopes, infectious agents or toxic chemicals. See "Moving Radioactive Materials" (Appendix 5) for surveying freezers in which radioactive isotopes were stored, especially if the unit has ever been used to store ^{3}H (tritium).
3. Ovens – Remove all mercury thermometers or containers holding samples or liquids. For older ovens, check the lining for the presence of asbestos. If the oven lining appears to be constructed of asbestos, contact the UW Safety Office (307-766-3277) for assistance.
4. Incubators – Remove any remaining samples and thermometers and drain the water from the jacket. Laboratory equipment used for infectious agents, radioactive isotopes, or hazardous chemicals must be properly decontaminated by the researchers and green-tagged prior to the move.
5. Centrifuges – Inspect for centrifuge tubes holding water or samples to ensure they have been removed from the rotor system. Centrifuges used with infectious agents, radioactive isotopes, or hazardous chemicals must be properly decontaminated by the researchers and green- tagged prior to the move.
6. Water baths – Drain the water from the unit and remove any remaining samples or mercury thermometers.
7. Balances or scales – Wipe clean to remove any remaining chemical contamination inside the balance or on the scale.
8. Chemical storage cabinets such as flammable or corrosive cabinets must have the chemical containers removed prior to moving the cabinet. Decontaminate the chemical storage cabinet of any remaining spills or residues.
9. Vacuum pumps contain vacuum pump oil. Vacuum oil grossly-contaminated with toxic chemicals or other hazardous materials should be removed prior to shipment. Discard spent vacuum pump oil through the RMMC as lab waste.
10. Mercury thermometers – Set aside mercury thermometers for shipment by the RMMC. Contact the RMMC for help cleaning up mercury that has been released or spilled. To reduce the potential for mercury spills, consider replacing mercury thermometers with alcohol-based thermometers.
11. Heating blocks need to have samples and mercury thermometers removed. If necessary, decontaminate the heating block. Set mercury thermometers aside for shipment by the RMMC.
12. Mercury barometers – Completely drain the mercury from the barometer into sealed plastic bottles (do this inside of a hood and utilize secondary containment). Set aside empty barometer and sealed plastic bottles holding metallic mercury for shipment by the RMMC.

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13. Photo-processing equipment usually contains three storage tanks holding caustic developer, acidic photographic fixer, and rinse water. Drain the storage tanks, supply hoses and drain hoses prior to the move. Discard the photo-processing chemicals through the RMMC as lab waste.
14. Gas chromatographs (GC) which have electron capture detectors contain a radioactive source. If your GC has a radioactive source, contact the Radiation Safety Officer (307-766-2638) prior to moving the unit.
15. High Performance Liquid Chromatography (HPLC) may have columns that contain solvents. Drain the columns and waste lines prior to shipping the HPLC. Dispose of the solvent wastes through the RMMC as lab waste.
16. Tissue dehydrating units – Remove or drain the ethanol and xylene from the storage tanks. Dispose of the solvents through the RMMC as lab waste. Paraffin wax and tissue samples may also need to be removed from the tissue dehydrating unit.
17. Colorimeters may contain cuvettes holding liquids. If this is the case, the cuvettes need to be removed from the colorimeters before shipping.
18. Spectrophotometers may have automatic sample feeders holding sample containers or standards. Again, if this is the case, remove the containers or standards before shipping.
19. Desiccators may contain drying agents (Drierite, sodium hydroxide, phosphorus pentoxide). Assure they are removed prior to shipment and placed in a sealed container for transport by the RMMCs. Discard spent drying agents through the RMMC as lab waste.
20. Transformers or high voltage regulators may contain oil. Older transformers (pre-1980) may contain PCB contaminated oil. Contact the UW Safety Office whenever oil containing transformers or high voltage regulators are discovered. Do not ship oil containing transformers or high voltage regulators without approval from the UW Safety Office.
21. Water purification systems – Remove the free standing water from the water purification cartridges prior to the move.
22. pH electrodes and other chemical electrode systems may contain water and possibly hazardous chemicals. Set aside electrodes containing liquids for shipment by the RMMC.
23. Liquid Scintillation Counters (LSCs) likely have a radioactive source inside and need to be moved by a different contractor. See “Moving Radioactive Materials” (Appendix 5) and contact the Radiation Safety Officer (307-766-2638) for more information.
24. Biosafety Cabinets – Refer to “Moving Biological Agents and Materials” (Appendix 4).

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Appendix 2

Moving Lab Equipment and Supplies

Researchers must properly package their laboratory equipment and supplies into shipping boxes prior to having them transported by the general move contractor. Researchers need to check every piece of laboratory equipment that once held hazardous materials to ensure that any remaining samples or standards have been removed. Additionally, it is important to segregate chemical reagents or liquids from the shipping boxes in order to prevent spills and contamination problems. To ensure the contents of each shipping box has been decontaminated and/or disinfected and are safe for the move, each box must be labeled with a green tag and moving sticker. **All hazardous materials will be packaged and transported by the RMMC.**

Researchers should apply the following guidelines when packaging laboratory supplies and equipment into cardboard shipping boxes:

1. Do not place any chemical reagents, waste containers, radioactive, or infectious materials into shipping boxes. Do not box up supplies or equipment which is significantly contaminated with any of the previously listed materials. Wash contaminated equipment or supplies thoroughly with soap and water. Do not box up aerosol cans, gas cylinders, paint, cleaners, disinfectants, bleach, or kits containing chemical reagents (the RMMC will ship these).
2. Do not place containers or equipment holding liquids of any kind (including sterile water) into shipping boxes. Most liquids will need to be transported by the RMMC. For refrigerated non-hazardous liquids, see “Moving Refrigerators and Freezers” (Appendix 3).
3. Do not place equipment or supplies potentially contaminated with radioactive isotopes into shipping boxes until the item has been cleared using wipe tests. Potentially radioactive materials include lead pigs, Plexiglas, or other shielding and equipment that held radioactive materials. If the item cannot be fully decontaminated, label it as radioactive and consult with the Radiation Safety Officer for special handling precautions.
4. Do not place infectious agents or biological samples into shipping boxes. Equipment contaminated with potentially infectious materials must be properly disinfected before placing into shipping boxes. Do not box up sharps containers holding discarded sharps or containers holding biological wastes (these will need to be disposed of by the RMMC).
5. Do not place into boxes mercury containing thermometers, barometers, bubblers or other equipment containing metallic mercury (RMMC will ship these).
6. Do not package loose needles, syringes, sharps, scalpels, razor blades, glass slides, sheets of glass, or glass pipettes into a shipping box unless it has been placed inside a rigid container that will prevent them from penetrating the cardboard shipping box.

   Do not place sharp or pointed objects of any kind into the shipping box unless it has been packaged in such a manner that it will not puncture or tear through the cardboard shipping box. Your research group will unpack the box, so please take the extra time to make sure it is safe not only for the move contractors, but also for you and your colleagues when the box is unpacked in your new location.

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Appendix 3

Moving Refrigerators and Freezers

Refrigerators

Refrigerators must be completely emptied of all contents by researchers prior to shipment.

Non-hazardous and non-infectious reagents and supplies (agar, bovine serum, cell culture media, etc.) will be removed by the researchers and placed into coolers for shipment. It is imperative that researchers **not** place any hazardous chemical reagents in the coolers. Researchers are responsible for adding packing material (Styrofoam beads) between the glass containers in the coolers along with the frozen cooling packs to prevent breakage. The general move contractor will transport the coolers and then researchers will unpack them in the new location. If it is possible to place non-hazardous items inside of a freezer and keep them frozen for shipment, this may be an easier alternative than packing into coolers (please see the explanation below under “freezers”).

Refrigerated hazardous chemicals (flammable, oxidizing, corrosive, reactive, or toxic) must be provided to the RMMC for shipment along with the other laboratory chemicals, or disposed of through the RMMC.

If your refrigerator stored radioactive materials, you must perform smear surveys according to the “Moving Radioactive Materials” (Appendix 5) before your refrigerator can be moved. Defrost the refrigerator if there is a buildup of ice around the freezer compartment. If the unit has ever been used to store ^{3}H (tritium), the lab must collect, sample and analyze the defrost liquid to determine if it needs to be disposed as radioactive waste.

If your refrigerator stored infectious agents, you must wipe down your refrigerator with an appropriate disinfectant.

Freezers

If your lab has freezers that contain biological materials, special arrangements must be made in advance. Contact the Biological Safety Specialist at 307-766-2723 for additional information and coordination for moving these freezers.

The special permit applies only to biological materials contained within -70°C and -20°C freezers. Hazardous chemicals and radiological materials must be removed. Prepare an inventory of the biological materials stored inside the freezer and attach a copy to the outside of the freezer and provide a copy to the moving contractor. For detailed instructions, refer to “Moving Biological Agents and Materials” (Appendix 4).

Nitrogen freezers/Dewar’s must only contain sufficient nitrogen as needed for cooling during their movement to the new location. Empty out nitrogen so that the Dewar’s are no more than half full before moving to prevent spillage during transportation. The move contractor will use special packaging methods to stabilize the nitrogen freezers/Dewar’s during the move.

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Appendix 4

Moving Biological Agents and Materials

Disposal, Packaging, and Unpacking of Biological Items in Ultra Low Temperature (ULT) Freezers and Other Freezers, and Refrigerators

These procedures will help laboratories clean out and dispose of unused or unwanted biological items contained in ULT freezers and other freezers, and refrigerators or to package them so that they remain contained within the freezers during transport.

Important note: For tissue culture wastes, or items that are or may be biohazardous, these items must be separated and autoclaved, or chemically disinfected before they can be disposed of. After these items are disinfected, they should be disposed of through the RMMC Waste Management Guidelines. If you have animal carcasses and/or parts to dispose of please keep these separate and contact the Biological Safety Specialist for disposal procedures.

Disposal of Biological Items

Items removed from freezers or refrigerators must be carefully evaluated to ensure they are properly disposed of. For most biological kits and biological samples, there is a consolidation procedure described below that can be implemented by laboratory personnel that will greatly reduce waste volumes and the amount of Certified Non-Biohazardous Waste or Lab Waste labels that need to be completed by the research group.

For biological kits and samples:

Usually, many contents stored in freezers and ULT freezers are not hazardous materials, and consist of such items as: polymerase chain reaction (PCR) kits and other kits, biological samples, nucleic acids, peptides, enzymes, etc. that are in an aqueous pH buffered solution and may also contain some non-hazardous salts. The RMMC will still collect these types of waste through the lab waste program; but in the interest of reducing the number of waste labels and forms that need to be completed, laboratory personnel can bag these wastes together and fill out a summarized waste tag for disposal. Here is what can be bagged up for disposal:

Aqueous solutions of:

- pH buffered solutions, BICINE, EDTA, HEPES, MES, MOPS, PBS, PIPES, TRIS, etc.
- non-flammable and pH-neutral dyes and stains
- growth media, broths, bovine serum albumin, sugars
- nucleic acids, peptides, proteins, amino acids, enzymes, vitamins
- ammonium acetate, calcium acetate, lithium acetate, magnesium acetate, potassium acetate, sodium acetate
- ammonium carbonate, calcium carbonate, lithium carbonate, potassium carbonate, sodium carbonate
- ammonium chloride, calcium chloride, cesium chloride, lithium chloride, magnesium chloride, potassium chloride, sodium chloride

Once a bag has been filled with these non-hazardous items, complete and attach a lab waste label to each bag. Complete the lab waste label as you normally would, but under the “container contents” section just list a general description of the items contained in each bag. Don’t worry about percentages or total quantity of solids or liquids – RMMC will complete any additional information that is needed for each label when the waste is picked up. Call 307-766-3697 when you are ready for a pickup of these non-hazardous items, or include them on a waste pickup request

Here is a list of what CANNOT be bagged up for disposal: [all of these will need separate disposal and segregation by the RMMC – follow instructions for moving chemical reagents (Appendix 8)]

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- Radioactive materials
- Mercury or mercury compounds
- Any of these metals (or compounds of): Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Molybdenum, Nickel, Selenium, Silver, Zinc
- Flammable liquids (ethanol, methanol, ethers, etc.)
- Corrosive liquids (pH <3 or >11)
- Halogenated solvents (chloroform, methylene chloride, etc.)
- Oxidizers (hydrogen peroxide, nitrates, chlorates, permanganates, etc.)
- Reactive chemicals (water reactive, pyrophoric, cyanides, sulfides, azides, picric acid, etc.)
- Extremely toxic compounds (acrolein, bromine, carbon disulfide, osmium tetroxide, etc.)
- Toxins from living sources (venoms, actinomycin D, mytomycin C, amanitin, etc.)
- This list is not all inclusive; if in doubt keep the items separate for the RMMC to review.

For infectious agents or biohazardous samples:

Follow the current UW Safety Biohazardous Waste Disposal Guidelines found here for the proper disposal of infectious agents or biohazardous samples.

- Infectious agents
- Biohazardous samples that contain infectious agents
    - human or animal cells or cells in culture
    - human or animal tissue culture
    - human or animal tissue or fluid
- Biohazardous samples that contain human cells or cells in culture, tissue or fluid

Packaging Biological Items in Ultra Low Temperature (ULT) Freezers and Other Freezers, and Refrigerators

ULT Freezers and Other Freezers:

1. Only the move contractor is authorized to move freezers containing biological items.
2. An inventory of infectious agents or biohazardous samples must be posted on the outside front door of each freezer and provide a copy of this inventory to the move contractor. Contact the Biosafety Specialist (307-766-2723) for assistance.
3. Biological items must be packed as follows:
    a. The substances, contained in sealed ampoules, screw-capped vials, or other cryovials (primary receptacles), must be packaged in individual fiberboard boxes.
    b. The volume of the substance in each primary receptacle must not exceed 1 mL if contained in sealed ampoules, micro-tubes, and microvials, and 25 mL if contained in screw-capped vials or other appropriate primary receptacles.
    c. No more than 100 primary receptacles may be packed in a fiberboard box.
    d. No more than 200 boxes may be placed on racks in a freezer.
    e. The primary receptacles placed on racks must be wrapped in a plastic bag prior to placing the racks in a freezer.
4. Sufficient absorbent material must be placed in each freezer to absorb the entire contents of all primary receptacles in case of breakage or leakage and to prevent the contents from shifting during transport. The freezer serves as the outer packaging.
5. Freezers are constructed of steel and ultra-cold (-70˚C or colder) and liquid nitrogen freezers are double-walled.
6. Boxes and racks must be tightly secured within the freezer to prevent the contents from shifting.

7. Freezer doors and lids must be securely closed and wrapped to prevent opening during transport.
8. The biological items in the freezers must be frozen at all times within the operating temperature range of -70˚C or colder (ultra-cold freezer), -20˚C (-20˚C freezer), and liquid nitrogen (nitrogen freezer) using dry ice. Dry ice sufficient to keep the biological substances within the operating temperature range for at least twice the estimated travel time must be used in the freezers.
9. Freezers will be secured against movement in the transport vehicle by the Move contractor.

Refrigerators:

Refrigerators must be completely emptied of contents by researchers prior to shipment.

Non-hazardous and non-infectious reagents and supplies (agar, bovine serum, cell culture media, etc.) will be removed by the researchers and placed into lab packs provided by the RMMC. It is imperative that researchers not place any infectious agents, biohazardous samples, or hazardous chemical reagents in the plastic coolers. Researchers will be responsible for adding packing material (Styrofoam beads) between the glass containers in the lab packs along with the frozen cooling packs to prevent breakage. The RMMC will transport the lab packs and then researchers will unpack them in the new location. The RMMC can coordinate with you to find the best time and date to move your refrigerated items and get them back into a refrigerator as soon as possible. If it is possible to place non-hazardous items inside of a freezer and keep them frozen for shipment, this may be an easier alternative than packing into coolers; please see "Moving Refrigerators and Freezers" (Appendix 3) for an explanation.

If you have refrigerated infectious agents or biohazardous samples that must be transported and cannot be frozen and transported inside of a freezer, please contact the Biosafety Specialist (307-766-2723) for assistance.

If your refrigerator has been used to store infectious agents, you must wipe down the interior and exterior of your refrigerator with an appropriate disinfectant.

Unpacking Biological Items in Ultra Low Temperature (ULT) Freezers and Other Freezers

Items within freezers may shift or even break during transport. Care should be taken when initially opening freezer door. If a spill has occurred within or immediately outside of the freezer, follow the Biohazardous Spill Clean-up Procedures:

Spill inside the Freezer:

1. If you suspect or know that the material is infectious, then close the freezer door, secure it and call the Biosafety Specialist at 307-766-2723.

Spill Outside of Freezer:

1. Wear appropriate personal protective equipment (PPE) such as disposable gloves, safety glasses and lab coat.
2. If you suspect or know that the material is infectious, place an absorbent material over the liquid and spray with an appropriate disinfectant. Allow the disinfectant to dwell on the spill for the required time as identified on the disinfectant label. Follow UW SAFEFTY Biohazardous Waste Disposal Guidelines for disposal procedures.
3. If the material is not infectious, use an absorbent material to clean up spill and place in trash.
4. If broken glass is involved, use tongs to safely clean-up all materials and place in a puncture proof container for disposal.

Cleaning, Transport, and Disposal of Biosafety Cabinets

Biosafety cabinets (includes tissue culture hoods and laminar flow hoods) where infectious or biohazardous materials have been used must have the interior surfaces wiped with a suitable

disinfectant. If the entire history of use for any cabinet is not known, then it will be cleaned according to the following procedures. Consult with the Biosafety Specialist (307-766-2723) for further information.

Cleaning for – disposal

Disposal of a biosafety cabinet will require an outside contractor/vendor to decontaminate the HEPA filters prior to cabinet being disposed. An Surplus Property – Property Disposition Request Form must be completed and returned to Asset (Property) Management.

Cleaning for – transport

Transport of a biosafety cabinet will require an outside contractor/vendor to decontaminate the HEPA filters prior to cabinet being moved and transported. Biosafety cabinets moved must be certified by an approved contractor/vendor at the new location prior to use.

Cleaning for – move to another location

Moving a biosafety cabinet from its current location will require an outside contractor/vendor to decontaminate the HEPA filters prior to cabinet being moved. The cabinet must be certified by an approved contractor/vendor at the new location prior to use.

Cleaning for – leave in place

A cabinet left in place must have the interior and exterior surfaces wiped with a suitable disinfectant.

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Appendix 5

Moving Radioactive Materials

Laboratories permitted for radioactive materials and relocating to a new location must coordinate with the Radiation Safety Officer. To ensure safety and compliance with applicable regulations, radioactive materials will be transported by the RMMC, in conjunction with the Radiation Safety Officer. Laboratory permit amendments to authorize new workspaces require approval of the Radiation Safety Committee. Permit amendment forms for sealed and unsealed radioactive materials can be found on the UW Radiation Safety web site.

Researchers must follow the procedure below to ensure appropriate disposal/relocation of their radioactive materials (RAM).

AT LEAST

90 days prior to move	Submit permit amendment for new workspace(s).
45 days prior to move	The Radiation Safety Officer will visit the laboratory to address relocation logistics.
Two weeks prior to move	Laboratories will not be permitted to receive additional radioactive materials. Standing purchases will be held at the RMMC until the move is complete. Laboratories should stop working with radioactive materials.
One week prior to move	Inventory verification: The Radiation Safety Officer will work with laboratory personnel to inventory and verify that all radioactive material is accounted for. It is strongly recommended that laboratories dispose of old/decayed material. Laboratories must stop working with radioactive materials. Waste Collection: Waste and empty waste containers to be collected by the Radiation Safety Officer must be submitted.
One day prior to move	Radioactive Materials: RAM must be labeled and consolidated into appropriate containers and packed with dry ice, if necessary, by laboratory personnel. Containers must be left unsealed for inspection prior to collection and transfer. Manifest shipping form will be completed by the RMMC and must be affixed to each package. Additional forms will be available.

Moving Day Radioactive Materials: All RAM will be collected and transferred to the new location by the RMMC. Never transport Radioactive Materials in your own personal vehicle!

In order to resume ordering Radioactive Materials, someone must meet with the Radiation Safety Officer in the former lab space. Ideally, this is someone most familiar with any remaining items, especially any waste. An Exit Survey will be conducted to ensure that the laboratory is free from contamination, signage has been removed, and that other concerns have been addressed. This visit may be completed in conjunction with the UW Safety Office Final Lab Clearance process as outlined in Appendix 10.

The RMMC cannot accept unknown wastes. Therefore, do everything you can to identify waste items.

Questions? Contact Radiation Safety at 307-766-2638. Please don't wait until the last minute!

Defrosting a Contaminated Freezer

Guide for Laboratory Moves and Closeouts

1. Check to see if appropriate tritium (^{3}H) waste containers (liquid and solid) are available for the waste generated from the freezer. If appropriate waste containers are not available, contact the RMMC at (307) 766-3697.
2. Open the door and follow manufacturer's directions for switching to DEFROST mode. Be sure to place pans and absorbent bench paper around the freezer to catch any water leakage.
3. Prepare the fume hood by placing absorbent paper with a plastic backing in the bottom of the hood. The fume hood will be used to allow ice to melt in containers and dry out paper towels.
4. When chunks of ice begin to loosen, don two pairs of disposable gloves and a lab coat and remove the larger pieces of ice. Change gloves frequently, as tritium (3H) can infiltrate the plastic of the gloves.
5. Place the ice in large beakers or other containers and let thaw in an adequately ventilated fume hood.
6. Blot up frost melt with disposable paper towels and place the towels in the hood to dry.
7. Place liquid frost melt in a tritium (3H) liquid radioactive waste container, noting activity on container contents sheet. Place the dry paper towels and used gloves in a tritium (3H) solid radioactive waste container, noting the approximate activity on container contents sheet.
8. After all the ice and residual liquid is removed, wash down the interior surfaces with a decontamination solution and disposable paper towels. Rinse and dry. Dispose of paper towels, rinse, and used gloves as in 5 and 6 above.
9. Check freezer handles, exterior, and area around freezer for contamination (see below).
10. Wash your hands.

Equipment / Surface Decontamination Procedures

1. Use a decontamination solution (such as RadiacWash or IsoClean) or a strong detergent to clean with paper towels. For some radionuclides, a portable survey instrument may be helpful in narrowing down areas of contamination.
2. When wiping the area with the paper towels, be sure to wipe from the outside to inside to prevent spreading the contamination.
3. Dispose of clean-up materials in an appropriate radioactive waste container.
4. Take a wipe smear survey of the area to ensure it is clean. If the result is ≥ twice background, repeat cleaning process.
5. Record all wipe smear results in the laboratory's Radiation Safety Survey Log.
6. Refer to the UW Radioactive Materials Safety Plan, section III.I on Decontamination.

Liquid Scintillation Counter Relocation Procedure

The photomultiplier tube (PMT) inside liquid scintillation counters (LSC) can be damaged if not moved carefully. Contact the Radiation Safety Officer to have the PMT, the internal sealed source and lead shielding removed prior to moving the LSC.

Questions? Contact Radiation Safety at 307-766-2638. Please don't wait until the last minute!

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Appendix 6

DOT - CATEGORY A SUBSTANCES

UN Number and Proper Shipping Name	Micro-organism
UN 2814 Infectious substance affecting humans	*Bacillus anthracis*(cultures only)
	Brucella abortus(cultures only)
	Brucella melitensis(cultures only)
	Brucella suis(cultures only)
	Burkholderia mallei– Pseudomonas mallei–
	Glanders (cultures only)
	Burkholderia pseudomallei– Pseudomonas
	pseudomallei (cultures only)
	Chlamydia psittaci– avian strains (cultures only)
	Clostridium botulinum(cultures only)
	Coccidioides immitis(cultures only)
	Coxiella burnetii(cultures only)
	Crimean-Congo hemorrhagic fever virus
	Dengue virus (cultures only)
	Eastern equine encephalitis virus (cultures only)
	Escherichia coli, verotoxigenic (cultures only)
	Ebola virus
	Flexal virus
	Francisella tularensis(cultures only)
	Guanarito virus
	Hantaan virus
	Hantavirus causing hemorrhagic fever with renal
	syndrome
	Hendra virus
	Hepatitis B virus (cultures only)
	Herpes B virus (cultures only)
	Human immunodeficiency virus (cultures only)
	Highly pathogenic avian influenza virus (cultures
	only)
	Japanese Encephalitis virus (cultures only)
	Junin virus
	Kyasanur Forest disease virus
	Lassa virus
	Machupo virus
	Marburg virus
	Monkeypox virus
	Mycobacterium tuberculosis(cultures only)
	Nipah virus

DOT - CATEGORY A SUBSTANCES

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UN Number and Proper Shipping Name	Micro-organism
UN 2814 Infectious substance affecting humans	Omsk hemorrhagic fever virus
	Poliovirus(cultures only)
	Rabies virus (cultures only)
	Rickettsia prowazekii(cultures only)
	Rickettsia rickettsii(cultures only)
	Rift Valley fever virus (cultures only)
	Russian spring-summer encephalitis virus(cultures only)
	Sabia virus
	Shigella dysenteriae type 1(cultures only)
	Tick-borne encephalitis virus(cultures only)
	Variola virus
	Venezuelan equine encephalitis virus (cultures only)
	West Nile virus(cultures only)
	Yellow fever virus(cultures only)
	Yersinia pestis(cultures only)

DOT - CATEGORY A SUBSTANCES

UN Number and Proper Shipping Name	Micro-organism
UN 2900 Infectious substances affecting animals	African swine fever virus (cultures only)
	Avian paramyxovirus Type 1 – Velogenic Newcastle disease virus (cultures only)
	Classical swine fever virus (cultures only)
	Foot and mouth disease virus (cultures only)
	Lumpy skin disease virus (cultures only)
	Mycoplasma mycoides– Contagious bovine pleuropneumonia (cultures only)
	Peste des petits ruminants virus (cultures only)
	Rinderpest virus (cultures only)
	Sheep-pox virus (cultures only)
	Goatpox virus (cultures only)
	Swine vesicular disease virus (cultures only)
	Vesicular stomatitis virus (cultures only)

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Appendix 7

Select Agents and Toxins List

Viruses

1. African horse sickness virus [u]
2. African swine fever virus [u]
3. Akabane virus [u]
4. Avian influenza virus (highly pathogenic) [u]
5. Bluetongue virus (exotic) [u]
6. Camel pox virus [u]
7. Cercopithecine herpes virus 1 (Herpes B virus) [h]
8. Classical swine fever virus [u]
9. Crimean-Congo haemorrhagic fever virus [h]
10. Eastern equine encephalitis virus [h]
11. Ebola viruses [h]
12. Foot-and-mouth disease virus [u]
13. Goat pox virus [u]
14. Hendra virus [hu]
15. Japanese encephalitis virus [u]
16. Lassa fever virus [h]
17. Lumpy skin disease virus [u]
18. Malignant catarrhal fever virus (Alcelaphine herpes virus type 1) [u]
19. Marburg virus [h]
20. Menangle virus [u]
21. Monkeypox virus [h]
22. *Virulent Newcastle disease virus [u]
23. Nipah virus [hu]
24. Peste des petits ruminants virus [u]
25. Reconstructed 1918 Influenza virus (Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding Regions of all eight-gene segments.) [h]
26. Rift Valley fever virus [hu]
27. Rinderpest virus [u]
28. Sheep pox virus [u]
29. South American haemorrhagic fever viruses (Flexal, Guanarito, Junin, Machupo, Sabia) [h]
30. Swine vesicular disease virus [u]
31. Tick-borne encephalitis complex (flavi) viruses (Central European Tick-borne encephalitis, Far Eastern Tick-borne encephalitis, Russian Spring and Summer encephalitis, Kyasanur Forest disease, Omsk Hemorrhagic Fever) [h]
32. Variola major virus (Smallpox virus) [h]
33. Variola minor virus(Alastrim) [h]
34. Venezuelan equine encephalitis virus [hu]
35. Vesicular stomatitis virus (exotic): Indiana subtypes VSV-IN2, VSV-IN3 [u]

Prion

1. Bovine spongiform encephalopathy agent [u]

Toxins

1. Abrin [h]
2. Botulinum neurotoxins [h]
3. Clostridium perfringens epsilon toxin [h]
4. Conotoxins [h]
5. Diacetoxyscirpenol [h]
6. Ricin [h]
7. Saxitoxin [h]
8. Shigatoxin [h]
9. Shiga-like ribosome inactivating proteins [h]
10. Staphylococcal enterotoxins [h]
11. Tetrodotoxin [h]
12. T– 2 toxin [h]

Bacteria

1. *Bacillus anthracis* [hu]
2. Botulinum neurotoxin producing strains of *Clostridium* [h]
3. *Brucella abortus* [hu]
4. *Brucella melitensis* [hu]
5. *Brucella suis* [hu]
6. *Burkholderia mallei* (formerly Pseudomonas mallei) [hu]
7. *Burkholderia pseudomallei* (formerly Pseudomonas pseudomallei) [hu]
8. *Coxiella burnetii* [h]
9. *Ehrlichia ruminantium* (Heartwater) [u]
10. *Francisella tularensis* [h]
11. *Mycoplasma capricolum* subspecies *capripneumoniae* (contagious caprine pleuropneumonia) [u]
12. *Mycoplasma mycoides mycoides* small colony (MmmSC) (contagious bovine pleuropneumonia) [u]
13. *Ralstonia solanacearum* race 3, biovar 2 [a]
14. *Rathayibacter toxicus* [a]
15. *Rickettsia prowazekii* [h]
16. *Rickettsia rickettsii* [h]
17. *Xanthomonas oryzae* [a]
18. *Xylella fastidiosa* (citrus variegated chlorosis strain) [a]
19. *Yersinia pestis* [h]

Fungi

1. *Coccidioides immitis* [h]
2. *Coccidioides posadasii* [h]
3. *Peronosclerospora philippinensis* (*Peronosclerospora sacchari)* [a]
4. *Phoma glycinicola* (formerly *Pyrenochaeta glycines*) [a]
5. *Schlerophthora rayssiae var zeae* [a]
6. *Synchytrium endobioticum* [a]

Restrictions

https://www.selectagents.gov/compliance/guidance/restricted/

Exemptions:

The following agents or toxins are exempt if the aggregate amount under the control of a principal investigator does not, at any time, exceed:

- 0.5 mg of Botulinum neurotoxins
- 5 mg of *Staphylococcal* enterotoxins
- 100 mg of abrin, *Clostridium perfringens* epsilon toxin, conotoxin, ricin, saxitoxin, shigatoxin, shiga-like ribosome inactivating protein, and tetrodotoxin
- 1,000 mg of diacetoxyscirpeno (DAS)l and T-2 toxin

Exclusions:

For complete list, go to: https://www.selectagents.gov/sat/exclusions/index.htm

*A virulent Newcastle disease virus (avian paramyxovirus serotype 1) has an intracerebral pathogenicity index in day-old chicks (Gallus gallus) of 0.7 or greater or has an amino acid sequence at the fusion (F) protein cleavage site that is consistent with virulent strains of Newcastle disease virus. A failure to detect a cleavage site that is consistent with virulent strains does not confirm the absence of a virulent virus.

a = APHIS Plant Pathogen
h = HHS Select Infectious Agent
hu = HHS-USDA Overlap Agent
u = USDA High Consequence Livestock Pathogen or Toxin

Appendix 8

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Moving Chemicals

To ensure safety and compliance with applicable regulations, hazardous and non-hazardous chemical reagents will be packaged and transported by the RMMC as part of the move. Once the chemicals have been transported to the new facility, researchers will be responsible for unpacking the chemicals for placement into their new laboratory.

Researchers must follow the procedure below for moving chemicals:

1. Dispose of expired chemicals or chemicals you do not anticipate using through the RMMC. For large numbers of chemical containers, call the RMMC at 307-766-3697 or email an Excel document. The RMMC will remove your non-regulated chemicals and can help segregation large numbers of chemical containers. This will greatly reduce the amount of waste labels that need to be completed. If you have chemicals that are in good condition but are no longer needed, attempt to recycle them through other laboratories within your department. Depending on how busy the RMMC is in assisting other laboratories, this disposal process will take one week or longer for your chemicals to be removed. Please don't wait until the last minute!
2. Do not attempt to move outdated ethers, dry picric acid, or other potentially unstable/reactive chemical compounds. If you have chemicals that are stored inside corroded containers or if the container is missing the lid, they cannot be removed until the lid or container has been replaced.
3. Never transport hazardous chemicals in your own personal vehicle! If you have an accident, your auto insurance may not cover you for the damages caused by the released chemicals or the regulatory fines.
4. Follow these guidelines to prepare the chemicals you will be moving for packaging and transport by the RMMC:
    a. Containers must be in good condition, tightly sealed/closed, and clearly labeled with proper chemical names.
    b. Gather your chemicals safely into one or two areas of the lab (observing proper segregation and secondary containment of incompatibles).
    c. The RMMC will need room to work safely. They will need space in the hood and on the bench tops to segregate the chemicals before they are packaged. The packaging will consist of drums and boxes and will take up quite a bit of space in the lab. It is best to have your non-hazardous equipment and supplies boxed up and ready to go before the RMMC comes into your laboratory to package your chemicals.
    d. The RMMC will segregate and package chemicals into drums and lab packs for movement. The RMMC will need a destination location for your chemicals. Have someone in the new location available to point out a good spot for the containers, or leave a sign/sticky note. Please give the RMMC a few locations to ensure proper chemical segregation is followed.
5. If you have hazardous chemicals that cannot be easily replaced and must be shipped to somewhere other than a UW facility, then an approved hazardous materials carrier (i.e., FedEx) will be required. Arrangements for shipping hazardous materials in this case can be coordinated through the RMMC.

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Appendix 9

Unpacking Chemicals and Chemical Storage Guidelines

Researchers will be responsible for unpacking the chemical reagents from the shipping containers and coolers at their new laboratories. The shipping containers, vermiculite and other absorbents will be reused again by the RMMC so it will be important to ensure that all chemical reagents have been removed from the containers.

The proper segregation and storage of chemical reagents is important in the laboratory because the accidental mixing (leaking or broken containers) of incompatible chemicals may cause fires, explosions, or toxic gases. The chemical storage guidelines provided in this document will help ensure those incompatible chemical reagents will not have the chance to react while they are being stored in the laboratory.

Researchers should follow these guidelines when unpacking chemical reagents from the shipping containers:

1. Have flammable rated storage cabinets properly set up so that flammable solvents may be unpacked directly from the shipping container into the flammable cabinet.
2. Pre-plan where the chemical reagents will be stored inside the laboratory.
3. If vermiculite was used, avoid pouring the vermiculite out of the shipping containers, as this will create vermiculite dust which is considered an irritant. Consider wearing a dust mask while unpacking the reagent bottles and unpack the containers directly in front of a fume hood.
4. For extremely hazardous, toxic chemicals, or “Inhalation Hazards,” unpack inside of a fume hood to avoid potential vapors, mists, particulates, or fumes that may be present.
5. Notify the Chemical Safety Specialist immediately at 307-766-2649 or 307-766-3277 (after-hours call 911) if you discover a broken or leaking chemical reagent container inside the shipping container. Replace the cover on the shipping container to control the release of vapors, mists, particulates, or fumes.
6. It is critical that researchers thoroughly check each empty shipping container for chemical containers hidden inside the packing materials. The shipping containers and packing materials will be reused again by the RMMC.
7. Leave packing materials inside the empty shipping containers, and if possible, remove the hazard/shipping labels from each container. Contact the RMMC (307-766-3697) when your containers are empty and ready for collection.

General Chemical Storage Guidelines

1. Typically, chemical reagents are segregated into separate chemical storage cabinets by the following hazard classes in order to avoid unwanted chemical reactions:
    a. Flammable solvents and combustible organic solvents
    b. Acids
    c. Bases or caustics
    d. Oxidizers
    e. Solid chemical reagents
    f. Aqueous liquid reagents (non-flammable)
2. Avoid storing chemicals of different hazard classes together in the same storage cabinet or workspace. If separate storage cabinets are unavailable, use plastic pails or tubs as a means of secondary containment to segregate incompatible chemicals from one another.

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3. Store solid chemicals together on laboratory shelves or inside storage cabinets. Oxidizers (nitrates, nitrites, permanganates, etc.) are usually segregated from other chemicals and are collected in a plastic tub.
4. Do not place chemical reagents into storage until they are plainly and permanently labeled with the full chemical name. Chemical waste containers must also be properly labeled as “Lab Waste”. Do not store chemical reagents or chemical waste containers inside the chemical fume See the RMMC website for fillable, printable labels (https://www.uwyo.edu/safety/rmmc/waste-management.html).
5. Chemical fume hoods are active work areas that need to remain clean. Chemical fume hoods that are storing excessive containers or equipment may significantly reduce the airflow inside the hood or they may create unwanted eddy currents that release contaminants back into the room.
6. Do not store old or expired chemicals. Dispose of unneeded chemicals promptly through the RMMC. For disposal of large stocks of unwanted chemical reagents, contact the RMMC (307-766-3697 or email hazmat@uwyo.edu) to schedule an appointment to have the chemicals segregated before completing waste labels.
7. Do not store chemical reagent containers holding liquids above eye level or on the floor. If you must store containers of liquids on the floor, use a plastic secondary containment to control spills in case the container is accidentally broken.
8. Secure large, compressed gas cylinders to the wall (or a sturdy support) with a strap, unless it is secured with a stand. Small lecture bottles of toxic compressed gases should be stored underneath the chemical fume hood.

Flammable Liquid Storage Guidelines

Store flammable liquids inside approved fire rated cabinets. Researchers should plan on moving existing flammable storage cabinets and purchasing additional flammable storage cabinets as needed.

The following terminology is used to describe flammable solvents:

Flash Point is the temperature at which a liquid or volatile solid gives off enough vapors to form an ignitable mixture with air.

Flammable Liquids are organic solvents which have a flash point of less than 140º Fahrenheit. The lower the flash point of an organic solvent, the greater the potential fire hazard. Most alcohols have flash points below room temperature; therefore spills must be managed with caution because a fire may occur if a source of ignition (spark or flame) is present. Since ethyl ether has a flash point of minus 49º Fahrenheit, even when this solvent is stored inside a freezer there would be enough vapors present from a leaking container to cause a fire should a source of ignition be present.

Combustible Liquids are organic solvents which have a flash point of greater than 140º Fahrenheit and less than 200º Fahrenheit. The lower the flash point of a combustible liquid the greater the potential fire hazard. 37% formaldehyde is a combustible liquid. Many organic acids (acetic acid) also meet the classification of a combustible liquid.

Peroxidizable Solvents have chemical structures that are prone to react with atmospheric oxygen or light to form unstable peroxide-products during storage. A limited number of organic solvents (ethyl ether, isopropyl ether, dioxane, furan, tetrahydrofuran, etc.) form unstable peroxides upon storage. If shock-sensitive peroxide crystals are disturbed or heated (distillation), an explosion may occur. Mark the outside of the container with both the date of acquisition and date opened for all containers holding peroxidizable solvents. Purchase peroxide forming solvents in small quantities (enough for immediate use only) and dispose of them in an appropriate time period (one year or by expiration date).

Flammable and Combustible Liquid Storage – Store flammable and combustible liquids together and away from oxidizers or oxidizing acids (nitric acid, chromic acid, perchloric acid). Additional approved storage cabinets must be purchased by the laboratory.

Non-flammable solvents (chloroform, methylene chloride, etc.) may be stored with flammable liquids if you have adequate storage space.

Refrigerators and Walk-in Coolers cannot be used for storing flammable liquids. Refrigerators and freezers should be considered a potential source of ignition, which may cause a leaking solvent container to ignite. Only refrigerators and freezers which are rated to store flammables/combustibles (i.e., they have been manufactured or modified to remove potential ignition sources in their interior spaces) can be utilized for this purpose.

Common Flammable Solvents (not all-inclusive)

Alcohols – methanol, ethanol, propanol, butanol, amyl alcohol, hexanol Aldehydes and Ketones – acetaldehyde, acetone, methyl ethyl ketone, MIBK

Alkanes (hydrocarbons) – butane, hexane, heptane, octane, nonane, ligroin, naphtha, petroleum naphtha, petroleum ether, petroleum distillates, pentane, gasoline

Aromatics – benzene, bromobenzene, cumene, pyridine, toluene, xylene

Ethers – ether, ethyl ether, methyl ether, isopropyl ether, ethylene glycol monomethyl ether, cellosolve

Highly Toxic – acrolein, carbon disulfide, ethyleneimine, ethylene oxide

Miscellaneous – glacial acetic acid, acetyl chloride, acetonitrile, cyclohexane, dichloroethane, dioxane, ethyl acetate, furan, methyl methacrylate, propylene oxide, tetrahydrofuran, triethyl amine, (older scintillation cocktails)

Common Combustible Liquids (not all-inclusive)

Organic acids – acetic acid, formic acid, propionic acid, butyric acid

Miscellaneous – acetic anhydride, dimethylformamide, diesel fuel oil, ethylenediamine, 37% formaldehyde, isoamyl alcohol, kerosene, mercaptoethanol, mineral spirits, phenol, pseudocumene

Acid Storage Guidelines

Acids must be segregated from bases in order to prevent unwanted neutralization reactions and corrosive vapors from forming. Oxidizing acids (e.g., nitric, chromic, Perchloric) should not be stored together with flammable liquids. Perchloric acid becomes explosively unstable in concentration of higher than 70 percent, so do not store oxidizing next to strong dehydrating agents such as concentrated sulfuric acid or phosphorus pentoxide. Hydrochloric acid is somewhat volatile and should be stored inside a vented cabinet whenever possible to reduce corrosion. If you must store acids and bases together due to limited storage space, place the containers of one hazard class into plastic trays for secondary containment. Do not store acid containers next to metal natural gas lines.

1. Segregate oxidizing acids (nitric, Perchloric, chromic acid, chromerge) from organic acids (acetic, formic, etc.) to prevent fires. Many organic acids are also classified as combustible liquids so they should be stored inside fire rated storage cabinets.
2. Acids must be segregated from bases to prevent the generation of heat and toxic gases.
3. Do not store acids near any cyanide or sulfide containing chemicals in order to prevent the generation of highly toxic hydrogen cyanide or hydrogen sulfide gas.
4. Do not store concentrated acids next to household bleach, as mixing will generate highly toxic chlorine gas.
5. Do not store concentrated acids next to window cleaner or ammonium hydroxide, as mixing will generate highly toxic chlorinated amine gas.

Mineral Acids – hydrobromic, hydrochloric, hydrofluoric, hydroidic, nitric, Perchloric, phosphoric, sulfuric.

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Organic Acids – formic, acetic, propionic, butyric, valeric, hexanonic, oxalic, trichloroacetic, citric acid (Many organic acids are also classified as combustible liquids so they should be stored in fire rated cabinets).

Water-reactive acids – chlorosulfonic acid, fuming sulfuric acid, acetic anhydride.

Oxidizing Acids – nitric acid, Perchloric acid, chromic acid, chromerge.

HCl, HBr, HI hazard – Concentrated HCl, HBr and HI should be handled with care prior to opening a new container to prevent gas and liquid from spraying out of the container. These aqueous acids are prepared by dissolving the acidic gases into water. Containers of concentrated acids packaged at sea level may be under pressure when opened in Laramie (7,200 feet above sea level).

Bases and Caustic Storage Guidelines

Storage of Bases – Bases must be segregated from acids in order to prevent unwanted neutralization reactions and corrosive vapors from forming.

Common bases include ammonia, calcium oxide, potassium hydroxide, sodium hydroxide, sodium carbonate, sodium phosphate (tribasic), amines and ammonia derivatives.

Ammonium hydroxide hazard – Concentrated ammonium hydroxide (30%) containers should be cooled prior to opening to prevent ammonia gas and liquid from spraying out of the container.

Ammonia is a gas, and its solubility in solution is temperature dependent. At elevated temperatures, a container of concentrated ammonium hydroxide may be under pressure.

Oxidizer Storage Guidelines

Storage of Oxidizers – Store oxidizers together in a cool area away from other chemicals. Oxidizers should be placed together in a secondary containment tray. Note that some oxidizers are not compatible with one another.

Common Oxidizers (not all-inclusive)

Nitrates – ammonium, barium, cadmium, calcium, chromium, copper, ferric, lead, magnesium, mercury, nickel, potassium, propyl, sodium, uranyl, zinc.

Nitrites – ammonium, barium, calcium, potassium, sodium Bromates – ammonium, barium, calcium, potassium, sodium, zinc Chlorates – ammonium, barium, calcium, potassium, sodium, zinc Chlorites – calcium, sodium.

Dichromates – ammonium, ferric, potassium, sodium Iodates – ammonium, ferric, potassium, sodium Perborates – sodium, zinc.

Perchlorates – ammonium, barium, calcium, cesium, lead, magnesium, potassium, sodium.

Peroxides (dioxides) – barium, calcium, hydrogen peroxide, lead, lithium, manganese, magnesium, potassium, sodium, zinc.

Permanganates – ammonium, potassium, sodium.

Organic Oxidizers – amyl nitrate, benzoyl peroxide, butyl perbenzoate, cumene hydroperoxide, peroxyacetic acid.

Oxidizing Acids – nitric acid, Perchloric acid, chromic acid, chromerge.

Miscellaneous oxidizers – household bleach, bromine, fluorine, chromic acid, chlorine trifluoride, chromium trioxide, mercuric oxide, osmium tetroxide, periodic acid, nochromix.

Solid Chemical Storage Guidelines

Some solid chemicals may react when mixed with water or corrosives to generate either flammable or toxic gases. It is important not to store aqueous liquids or corrosives with water-reactive chemical reagents, to help prevent the generation of hazardous gases.

Water-Reactive Flammable Compounds – Some chemicals generate flammable gases (hydrogen) on contact with water, therefore these should be segregated from corrosives and aqueous liquids to prevent fires and/or explosions.

Common Water-Reactive Flammable Solids (not all-inclusive)

Alkali Metals – lithium, sodium, potassium, rubidium, cesium.

Borohydrides – aluminum, calcium, lithium, potassium, sodium.

Carbides – calcium, lithium (generate acetylene gas).

Hydrides – aluminum, calcium, lithium, potassium, sodium, zirconium.

Methoxides or methylates – sodium or potassium salts of methanol.

Ethoxides or ethylates – sodium or potassium salts of ethanol.

Water-Reactive Toxic Solids – Water soluble cyanides, sulfides and phosphides generate extremely toxic gases on contact with water or corrosives.

Common Water-Reactive Toxic Solids (not all-inclusive)

Cyanide compounds (water soluble) – Calcium, mercuric, ferric, potassium, sodium, silver, zinc.
Keep away from acids as they generate highly toxic hydrogen cyanide gas.

Sulfide compounds (water soluble) – ammonium, calcium, magnesium, potassium, sodium.
Keep away from acids as they generate highly toxic hydrogen sulfide gas.

Phosphide compounds – aluminum, calcium, sodium, stannic.
Keep away from water or acids as they generate highly toxic phosphine gas.

Miscellaneous Water-Reactives – aluminum chloride (anhydrous), lithium silicon, sodium amide, sodium dithionite, sodium.

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Appendix 10

Laboratory Closeout Procedures, Checklist and Clearance Documents

The purpose of this procedure and checklist is to ensure the proper and safe disposition of all hazardous materials and equipment when a laboratory is vacated. The proper disposition of all hazardous materials used in laboratories is the responsibility of the principal investigator (PI) or researcher to whom the lab is assigned. The PI or investigator must ensure that all hazardous materials are moved, discarded, or transferred to another PI. **When the PI is unable to perform these duties, it becomes the responsibility of the Department Chair to ensure that these procedures are followed.** If management of hazardous materials at closeout requires removal, the Regulated Materials Management Center and UW Safety Office must be notified prior to the closeout. The disposal process may take some time and should be started **one month** before vacating the laboratory. Waste collection may take a week or more after notification that the waste is ready for pickup.

CONTACTS

University of Wyoming Safety	
Chemical Safety Specialist:	**Biological Safety Specialist:**
766-2649	766-2723
Radiation Safety Officer:	**IH/Occupational Safety Specialist:**
766-2638	766-3203
Project Safety Coordinator	**Fire & Life Specialist**
7664936	766-3285
Regulated Materials Management Center, RMMC	
Hazardous Materials Specialist:	**Hazardous Materials Supervisor:**
766-3697	766-3698

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Checklist for Vacating Laboratories

Laboratory to be vacated	Building:	Room(s):
Principal Investigator:		**Department:**
_____		_____
Date laboratory will be vacated:		_____

When vacating a laboratory, the PI must; move, discard or transfer responsibility for all potentially hazardous materials.

NOTE: Wear personal protective equipment appropriate for the materials being handled (safety glasses or goggles, lab coat, gloves, closed-toe shoes).

CHECKLIST:

Chemicals	Done	N/A
Ensure all waste chemicals are in sealed, compatible containers	☐	☐
Identify all containers with full chemical name(s)	☐	☐
PI will, to the best of ability, identify all unknowns: contact RMMC for guidance	☐	☐
Contact UW Safety for information concerning packaging chemically-contaminated materials	☐	☐
Hazardous Waste Removal Request Form submitted via the Internet	☐	☐
Confirm that all chemicals have been removed from lab and support spaces	☐	☐
Clean all laboratory surfaces including hoods and storage cabinets	☐	☐
Transfer responsibility to: _____		
Gas Cylinders:	**Done**	**N/A**
If transferring usable gas cylinders to another lab, contact UW Safety for procedure	☐	☐
Return gas cylinders to supplier, if possible	☐	☐
Contact UW Safety if cylinders cannot be returned to supplier	☐	☐
Contact UW Safety if unknown gases are present	☐	☐
Transfer responsibility to: _____		

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Controlled Substances:	**Done**	**N/A**
Permission for transfer ownership of controlled substance received from DEA	☐	☐
Disposal of controlled substance has been arranged with the State Board of Pharmacy	☐	☐
Dept. Head has been notified of disposition of controlled substance	☐	☐
Transfer responsibility to: _____		

Microorganisms, Cultures, Recombinant Organisms:	**Done**	**N/A**
Cultures and solid, non-sharp biological waste autoclaved and placed in UW dumpster	☐	☐
If autoclave not available, place in BioHaz bags and request pickup from RMMC	☐	☐
Place needles and syringes in sharps containers and request pickup from RMMC	☐	☐
Add bleach to liquid waste to final concentration of 10%, allow adequate contact time, then pour down drain	☐	☐
Disinfect benches and equipment used with cultures	☐	☐
Decontaminate and clean incubators, drying or curing ovens, refrigerators and freezers	☐	☐
If cultures are shipped to another facility, all shipping regulations must be followed	☐	☐
Cultures to be moved within campus must be transported in a primary and secondary container	☐	☐
Transfer responsibility to: _____		
Animal and Human Tissue:	**Done**	**N/A**
Separate tissues from preservative liquid; dispose of preservative as chemical waste	☐	☐
Place animal carcasses/tissue in red BioHaz bag; call RMMC for pick-up and disposal	☐	☐
Place human tissue in red BioHaz bag: call RMMC for pick-up and disposal	☐	☐
Transfer responsibility to: _____		

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Radioactive Materials:	**Done**	**N/A**
Notify Radiation Safety Officer regarding lab closure/materials transfer	☐	☐
Package materials in approved and labeled waste containers	☐	☐
Contact RMMC for disposal of lead containers and shielding materials	☐	☐
Submit_Hazardous and Radioactive Materials Request for Disposal Form	☐	☐
Perform contamination survey, decontaminate and re-survey if necessary	☐	☐
Arrange for a responsible person to be present during survey	☐	☐
Schedule Close-out survey with the Radiation Safety Officer	☐	☐
Remove all radiation signs, stickers, postings, etc.	☐	☐
Return all inventory documents to Radiation Safety Office	☐	☐
Transfer inventory to: _____		

Shared Storage Areas:	**Done**	**N/A**
Check all shared areas for hazardous materials	☐	☐
Mixed Hazards:	**Done**	**N/A**
If mixed hazards are identified, contact UW Safety / RMMC for guidance	☐	☐
Equipment and Lab Furniture:	**Done**	**N/A**
If laboratory equipment is to be discarded, be aware that capacitors, transformers, mercury switches, mercury thermometers, radioactive sources and chemicals must be removed before disposal. Contact UW Safety (766-3277) for assistance	☐	☐
Clean or decontaminate equipment or furniture to be left in lab, including fume hoods	☐	☐
Remove all chemical bottles (and debris) from fume hoods and process for disposal or transfer	☐	☐
Place contaminated bench top covers/liners from work surfaces in appropriately identified bags	☐	☐
Label non-working equipment with operational deficiency	☐	☐

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Cleaning Procedures:	**Done**	**N/A**
• Clean laboratory bench tops and fume hood surfaces with soapy water.	☐	☐
• Decontaminate work surfaces using freshly prepared 10% bleach solution, 70% alcohol, or commercially available disinfecting solution.	☐	☐
• Decontaminate all biological safety cabinets using germicidal soap and rinse with de-ionized water. Do not use bleach on stainless steel surfaces.	☐	☐
• Decontaminate radioactive area work surfaces with commercially available decontamination product.	☐	☐
Lab Inspection	**Done**	**N/A**
Request exit inspection by UW Safety	☐	☐

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Department Clearance:

Principal Investigator's Agreement:	
I certify that my staff and I have adequately cleaned and decontaminated the laboratories under my supervision	
Principal Investigator's signature:	**Date:**
_____	_____
Department Chair:	
I am aware of the status of the lab(s) being vacated	
Departmental Chair/Unit Director Signature:	**Date:**
_____	_____

UW Safety Clearance:

Lab has been cleared of biological materials	
Signature:	**Date:**
_____	_____
Lab has been cleared of chemicals	
Signature:	**Date:**
_____	_____
Lab has been cleared of radioactivity	
Signature:	**Date:**
_____	_____
Lab has been cleared of waste chemicals and materials	
Signature:	**Date:**
_____	_____

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