

BOSTON COLLEGE

ENVIRONMENTAL HEALTH AND SAFETY

LABORATORY GUIDE FOR RENOVATIONS, REMODELS, MOVES AND TERMINATIONS

I. Policy for Termination of Laboratory Use of Hazardous Materials

The Principal Investigator (PI) is responsible for the proper disposition of all hazardous materials used in their laboratory. Proper disposition of hazardous materials is required whenever an investigator leaves the College or transfers to a different laboratory. The PI should contact the Office of Environmental Health and Safety (EH&S) for assistance after reviewing this documentation.

An exit inspection tour of departing Investigators' laboratories, equipment rooms, storage areas, refrigerators/freezers will be conducted by the Department Chair or their designee with the departing Investigator before the investigator leaves. This tour should also include departing graduate students, post doctoral fellows, and other staff members.

II. Close-Out Procedures for Hazardous Chemicals in Laboratories

The following procedures are to be followed/completed when an investigator leaves the College or transfers to a different laboratory. The proper disposal of waste chemicals at BC is a serious concern, and every effort should be made to do it safely and efficiently. The responsibility for the identification and handling of waste chemicals in the laboratory is with the individuals who create the waste.

Routine service for the removal of laboratory waste chemicals is provided by the Office of EH&S at no charge. Waste must be properly identified and chemicals removed in small quantities as generated. In cases where a major clean-out must occur, for example, a move or accident clean-up, the Department Administration and EH&S will coordinate a waste removal vendor visit to the lab to inventory the material. Costs for removal will be decided upon on a case by case basis.

a.) Before disposing of unwanted, unopened, uncontaminated chemicals check with others in your department who may be able to use them.

b.) Make sure all materials to be disposed of are properly identified, labeled with its chemical name and adequately contained. Make sure all samples and products to be disposed of are properly identified, labeled with its chemical name, and containerized. Do not leave them for others to clean up after you. For more information on identifying waste see the subsequent sections on Identification, Unknown Waste and Paperwork.

IDENTIFICATION

All waste chemicals must be identified by chemical name, including the proportions of a mixture, and must have appropriate hazard warnings. Do not use symbols or abbreviations. All containers must be labeled prominently because the safe transportation of chemicals is possible only when everyone who handles the containers knows the identity of the contents.

Please see Appendix A - Policy on the Identification and Disposition of Chemical, Biological and Radioactive Substances (In Laboratories and Other Work Areas).

YELLOW TAGS - CHEMICAL WASTE

All containers of waste chemicals must have a "Yellow Tag" attached to them. This "Yellow Tag" identifies the type of waste, the associated hazards, and the laboratory or department that created the waste. The yellow tags are available from the Environmental Health and Safety or your department office.

UNKNOWN WASTE CHEMICALS

Unknown waste cannot be accepted for disposal. Disposal contractors cannot accept or ship unknown waste. It is the responsibility of the department involved to identify all chemicals and this may require polling laboratory personnel, students and faculty members to ascertain the owner of such unknown waste and its identity. Ultimately it may require the services of an analytical laboratory to analyze the waste. It must be constantly emphasized to personnel and students to identify and label all wastes and project products with a chemical name and hazard class.

PAPERWORK

Refer to the Hazardous Waste Program available at the EH&S website at <http://www.bc.edu/ehs> and to Section 7.0 of the Boston College Chemical Hygiene Plan for details on waste disposal. The Laboratory Hazardous Waste Disposal Policy guides the PI through the required steps for disposal of unwanted chemical waste.

Refer to the EH&S Hazardous Waste Program web page for Standard Operating Procedures on waste disposal, disposal of scientific equipment, and disposal of gas cylinders.

III. Shared Storage Areas

The department is responsible for shared storage spaces. Common storage areas such as refrigerators, cold rooms, freezers, stock rooms, waste collection areas and laboratories or equipment rooms should have a responsible PI assigned to the area. Prior to departure from the college all researchers must carefully survey shared facilities in order to locate and appropriately dispose of their materials.

IV. Close-Out Procedures for Biologicals In Laboratories

Researchers may move infectious materials if the laboratory is moving to another location on campus. All infectious materials must be moved in sealed, clean, leak-proof, breakage resistant containers. Place infectious materials in secure coolers or shipping containers and label them with a biohazard symbol, contact person, phone extension, department name and building and room number. Contact the Biological Safety Office, St. Clements Hall, in writing, to inform them of the proposed move.

The United States Department of Transportation (DOT) has strict requirements for the transport of infectious materials on public roads. Infectious materials must not be transported on public roads without proper packaging and labeling. Contact the Biosafety Officer at 2-0363, for assistance in making arrangements to move or ship infectious materials off campus.

Refrigerators, incubators and freezers should not be moved with infectious agents inside. All equipment used in conjunction with infectious agents must be cleaned with a suitable disinfectant by laboratory personnel prior to moving them from the laboratory. Suitable disinfectants and techniques are identified in the Biosafety Manual which is available at the EH&S web page.

Biological Safety Cabinets (BSCs) in which infectious materials have been used, must have all working surfaces, including the sides and ceiling, wiped with a suitable disinfectant. If a BSC is to be moved, it may require disinfection of its internal components and will require recertification at its new location. Fume hood disinfection should be performed by outside contractors qualified and experienced at performing such activities.

Animal and Human Tissue, rDNA

- If tissue is held in a liquid preservative, tissue and liquid should be separated. Please note: vapors may be hazardous to personnel. Identify the preservative and contact EH&S for advice on personnel protection.
- Liquid preservatives are usually disposed of as hazardous waste. Contact EH&S at 2-0307 for assistance. Do not assume that preservatives can be disposed of in the sanitary sewer.
- To dispose of recognizable tissue contact the Supervisor of the Animal Care Facility to make arrangements for disposal of the material.
- Defrost, clean and decontaminate refrigerators, freezers and any other equipment. Remove biohazard signs and labels. Follow the equipment disposal procedure.
- If samples are to be saved, locate an appropriate person to take responsibility for them and notify the Department Chair and Biological Safety Officer in writing. Label the samples and store them in an appropriate, secure location.

Micro-organisms and Cultures

- Autoclave infectious materials before disposal in biohazardous waste containers.
- If materials cannot be decontaminated, it must be double-bagged in biohazard waste bags and placed in a biohazard box or plastic tub for disposal. Please contact the Department Administrator and the Supervisor of the Animal Care Facility to make arrangements for this activity.
- Clean incubators, drying or curing ovens, refrigerators and freezers. Contact the Biosafety Officer for advice regarding decontamination solutions and appropriate disinfectant contact times.
- If samples are to be saved, locate an appropriate person to take responsibility for them and notify the Department Head.

V. Close-Out Procedures for Radioactive Materials

Prior to close-out of a radioactive materials use area and/or a radioactive materials user authorization, it is the responsibility of the Department and the authorized Principal Investigator to assure that the appropriate administrative and technical steps have been taken.

The request to move radioactive materials or terminate work with radioisotopes must be submitted to the Radiation Safety Officer in writing. These requests may include descriptions of the proposed move logistics to include the time frame, handling techniques and protocols to be used to ensure the safety of laboratory workers and other occupants of the building.

All potentially contaminated surfaces must be surveyed for both fixed and removable contamination. This requires an instrument survey (scanning surfaces with a portable radiation detecting instrument) and a swipe test survey (wiping surfaces with a cotton-tipped swab or filter paper and counting the sample in a liquid scintillation counter). A thin-window Geiger-Mueller instrument, the most common type used in laboratories, will be the most appropriate for general area surveys. The instrument should be equipped with a pancake probe for monitoring isotopes with weak energy beta emissions such as S-35 or P-33. Tritium contamination should be evaluated using only swipe tests since it is not observable using common hand-held survey meters.

Areas and equipment which is planned to be released for unrestricted use must be evaluated by the Radiation Safety Office beforehand. Contact the Radiation Safety Technician or the Radiation Safety

Officer for contamination verification surveys and swipe tests to be performed and documented prior to removing radioactive caution labels or room postings.

Radioactive waste should be disposed of in accordance with existing protocols outlined in Section IV. B. of the Radiation Safety Manual. Call the Radiation Safety Technician for pick-up of the waste for decay in storage or offsite disposal.

Laboratory areas and equipment (including hoods, sinks, refrigerators, freezers, centrifuges, glassware, shielding, storage containers, bench tops, cabinets, and floors) shall be decontaminated or disposed of by the terminating user to the acceptance and approval of the Radiation Safety Officer.

Equipment and areas which have been cleared will have radiation materials labels and stickers removed by the Radiation Safety Office prior to release from the laboratory or disposal to public landfill.

When the laboratory is free of all radioactive materials and equipment, and all work areas are decontaminated, then radioactive materials signs will be removed from laboratory entrances and doors.

Documentation of Radiation Safety Office surveys and laboratory clearance will remain on file at the Office of Environmental Health and Safety.

VI. Transfer of Radioactive Materials

Package all radioactive materials (stock vials, sealed sources, lead containers, shields, waste containers) and put them in a secure container or cart. Be sure that all radioactive materials are appropriately labeled as such.

Prior to the transfer, notify the Radiation Safety Office to ensure authorization for the transfer and to assure that the new use area or laboratory is properly posted and authorized by the Radiation Safety Office.

Following the removal of all radioactive wastes and stock materials, close-out contamination surveys will be performed on all areas and equipment. Areas which are identified as contaminated will be decontaminated by laboratory researchers with the assistance of the Radiation Safety Office and resurveyed until levels are at background. If materials can not be decontaminated effectively they will remain in use with the appropriate labels and area postings or, if necessary, they will be disposed of as radioactive waste.

Before the move of radioactive materials, the Principal Investigator should verify the laboratory inventory with the Radiation Safety Technician or the Radiation Safety Officer. Hard copies of the current inventory, waste disposal logs, and wipe test records should be on hand before, during and after each laboratory move.

If the Principal Investigator or laboratory researchers fail to complete the above steps, the Department will be responsible for completion of their assigned duties. The Department will be responsible for maintaining communication with the Radiation Safety Office regarding the status of laboratory moves.

VII. Specific Procedures for Decontamination of Laboratory Equipment

The researcher or Principal Investigator is responsible for properly and thoroughly decontaminating all equipment and working surfaces in the laboratory. It is not always obvious that a minor spill has occurred so careful cleaning is required.

If laboratory equipment is to be left for the next occupant, clean and decontaminate it before departing the space. If exhaust or filtration equipment has been used with extremely hazardous substances or organisms communicate this specifically in writing to the Environmental Health and Safety Office Laboratory Safety Officer.

If laboratory equipment is to be discarded, be aware that capacitors, transformers, mercury switches, mercury thermometers, radioactive sources and chemicals that may be inherent to the equipment must be removed or identified before disposal. Contact EH&S for assistance. Also, please refer to the EH&S website at www.bc.edu/ehs for further instructions on the disposal of scientific equipment.

If the equipment could contain freon, such as in a refrigerator or freezer, contact the HVAC Department through the work order center at 2-3048 to investigate the removal of freon prior to disposal. If possible, HVAC will remove the freon for safe disposal through their department; however, some freons are mixed with toxic chemicals. Costs for removal might be charged back to the Department depending on the type of freon.

If the equipment contains oils, antifreeze or other types of chemicals they should be drained prior to disposal. The drained materials should be placed into hazardous waste containers and picked up by EH&S for ultimate disposal.

If the equipment contains asbestos, such as an oven, the EH&S Office should be contacted for disposal.

After following any of the above steps, make sure that all hazardous materials stickers and labels are removed from the equipment prior to disposal.

Contact your Departmental Chemical Hygiene Officer or EH&S for assistance.

Should the equipment have a BC tag, purchased through Capital Funding or through Grants & Contracts, contact the Manager of Plant Fund Accounting, in Plant Accounting for approval prior to disposal.

VIII. Final Checkout Procedure

Notify the Department Head when the laboratory has been cleared.

The departing faculty member must complete a final inventory of hazardous chemicals in the laboratory and a Laboratory Clearance Form. The list and the form, must be presented to the Department Head or their designee prior to final clearance of the lab. The departing PI will be responsible for rectifying any problems to the satisfaction of the Department Head. The Department Administrator will inspect the laboratory and when satisfactory, sign and date the Laboratory Clearance Form. The Department Administrator will then send the form to EH&S for final disposition and record keeping.

LABORATORY CLEARANCE FORM

Department of _____

TO: _____

Department Head/Administrative Officer

Room _____

_____ has cleaned up all of his/her experimental apparatus and properly disposed of chemicals, samples, gases, and other laboratory materials.

Date: _____

Safety Coordinator

Faculty Supervisor

Environmental Health & Safety: _____ Date: _____