

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

Title: Laboratory Equipment Service Procedure	Document No.: Campus 02-102 Revision No.: 1
Nature of Change: New Format	

- 1.0 Purpose:** The purpose of this document is to prescribe procedures to be followed to safely and properly prepare laboratory equipment, which may potentially be contaminated, by hazardous, radiological, or biological materials, for service or repair by University Facilities Operations, or by commercial service vendors. Adherence to this procedure will ensure that service employees are not needlessly exposed to potentially dangerous materials, and that no materials are inappropriately released to the environment.
- 2.0 Scope:**
- 2.1 This procedure applies to all potentially contaminated equipment located within any laboratory where radiological, hazardous chemical or biologically hazardous materials are used, created, or stored. This may include but is not limited to fume hoods, autoclaves, centrifuges, refrigerators, freezers, and incubators (hereafter “equipment”).
- 2.2 This procedure applies to equipment located within both campus facilities and off-campus facilities.
- 3.0 Responsibilities:**
- 3.1 Deans, Directors, and Department Chairs – will ensure that all Faculty and Principal Investigators receive a copy of this procedure, and are instructed that it is necessary to comply with the terms of this procedure.
- 3.2 Faculty and Principal Investigators – will ensure that all laboratory personnel have access to a copy of this procedure, that the procedure is followed, that any unusual problems are referred to Occupational and Environmental Safety (OES) Services for discussion and resolution. A copy of this procedure will also be provided to any commercial service vendors as well.
- 3.3 Laboratory Staff and Students – will follow this procedure, and will refer any problems or questions to their supervisor.
- 3.4 Occupational and Environmental Safety Services – will provide consultative support, will assist in managing unusual or special problems, and will authorize any necessary deviations from this procedure.
- 3.5 University Facilities Operations – will refrain from servicing or contacting equipment that has not been cleared as outlined in this procedure. A copy of this procedure will also be provided to any commercial service vendors as well.

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

4.0 Definitions:

- 4.1 Employees: University at Buffalo Facilities employees
- 4.2 Equipment: Any laboratory equipment used for research or storage of research materials, including but not limited to fume hoods, autoclaves, centrifuges, refrigerators, freezers, incubators, etc.
- 4.3 Materials: Hazardous, radiological, or biological materials
- 4.4 OES: Occupational and Environmental Safety Services
- 4.5 Safe or Safety: Having no exposure to potentially dangerous concentrations of materials
- 4.6 Vendor: Commercial service/repair vendors or contractors

5.0 Procedures: Implement the “Checklist for “OK to Service” Certification of Equipment Containing Hazardous Chemicals and Biological Agents” (see Exhibit 1) and the “Checklist for “OK to Service” and Unrestricted Release of Equipment Used with Radioisotopes” (see Exhibit 2).

5.1 Material Removal – In general, before servicing, all hazardous chemical, radiological, or bio-hazardous materials shall be removed from equipment and stored or disposed of in accordance with established procedures. However, materials may remain within equipment if there will be no direct contact with the materials in the course of servicing the equipment. For example materials may remain within a refrigerator or freezer while it is being serviced as long as service providers need not work inside the refrigerator, the materials are isolated inside the refrigerator to prevent contact, and there is no dripping or leakage from the interior. This presumes that there is no need to tip or invert the equipment.

5.2 Decontamination –

5.2.1 In general, all hazardous chemicals, radiological, or bio-hazardous materials shall be removed from equipment surfaces (both internal and external) before the equipment is serviced. However, as outlined in Material Removal above, it may be appropriate to only partially decontaminate the equipment in consideration of the nature of the service to be performed, and which surfaces workers are expected to come in contact with.

5.2.2 It is strongly recommended for service workers and the lab personnel to discuss the proposed service in advance to mutually determine what level of decontamination is required.

5.2.3 Decontamination shall be performed as outlined herein:

Radiological Materials – radioactive contamination shall be removed by standard radiological decontamination methods. The maximum level of residual radioactivity shall be as determined by OES policy or by Chapter 1, Part 16 of the State Sanitary Code; whichever is more limiting. Surveys shall be performed to demonstrate that the decontamination limit has been

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

achieved. These surveys shall be documented, and records shall be available for inspection by OES or by the Department of Health. All waste generated in the course of decontamination shall be disposed of as radioactive waste. After decontamination radioactive labels and stickers shall be removed, defaced, or temporarily covered.

Chemical Residues – shall be removed, neutralized, or otherwise rendered non-hazardous using an appropriate method determined by the chemical and physical characteristics of the contaminant(s), and the physical nature of the equipment. Hazard labels shall be removed, defaced, or temporarily covered as appropriate. The decontamination method shall be documented, and records shall be available for inspection by OES. Any incidental wastes shall be disposed of properly.

Bio-hazardous Contaminants - shall be removed or rendered non-pathological. Typically this will be accomplished using a bleach solution, other chemical means, and or by steam sterilization. Hazard labels shall be removed, defaced or temporarily covered as appropriate. The decontamination method shall be documented, and records shall be available for inspection by OES. Any incidental wastes shall be disposed of properly

- 5.2.4 If decontamination can not be achieved, it may be appropriate to cover contaminated surfaces with impermeable materials such as by polyethylene sheet. If this is done, any contamination, which has been temporarily covered over, must be clearly labeled and explained to service personnel. The covered material shall be disposed of as appropriate for the contaminant hazard.
- 5.3 Certification and Labeling - Once Material Removal and Decontamination have been completed the Principal Investigator (or other authorized individual as designated in writing), shall affix an equipment “OK to Service” certification tag to the equipment (see Exhibit 3). All sections of the tag shall be completed with the relevant information or “NA” as appropriate. A copy of the tag will be retained, and shall be available for inspection by OES.
- 5.4 Equipment with No Potential for Contamination - Some equipment within laboratories has essentially no potential for contamination. This would include computers and office equipment, audio-visual equipment, cameras, optical equipment, food storage refrigerators, etc. No decontamination of this equipment is required and the “No Potential for Contamination” box shall be checked on the release tag. In addition to this check off, the name and date section should be completed, and the other sections may be left blank.

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

5.5 Equipment Service - Once the equipment release/certification tag has been affixed to the equipment it may be serviced. University Facilities Operations will not service any equipment, which has not been tagged. Laboratory personnel should be readily available to answer questions, and should explain any special considerations to service personnel.

5.6 Special Problems - All special or unusual problems will be referred to OES for resolution. Any deviation from the requirements of this procedure must be approved in writing by OES.

6.0 **Document Management:** This procedure shall be reviewed once every two years, or as changes require.

7.0 Associated Documents:

7.1 “Campus Commitment to Safety,” University at Buffalo, Office of the Provost, Office of the Senior Vice President, April 3, 2001.

7.2 Radiation Protection Services “Radioactive Materials Safety Manual”.

7.3 Chapter 1, Part 16 of the State Sanitary Code (NYCRR Title 10).

8.0 Document Revision History:

Revision: 1 Date of Last Revision: 4-17-02 Due for Review: 4-17-04

Document Author: L. Henry, A. Swavy, D. Vasbinder	Document Approver: M. Dupre	Document Manager: Kelly Haidar
--	-----------------------------	-----------------------------------

9.0 Reason for Change:

Revision	Sec/Para Changed	Change Made:	Date
1		New Document format for procedures	4-17-02

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

EXHIBIT 1

Checklist for “OK to Service” Certification of Equipment Containing Hazardous Chemicals and Biological Agents

In order comply with applicable federal and state regulations, all laboratory equipment to be serviced must be decontaminated prior to servicing. Please implement the checklist below to ensure the equipment is “OK to Service” safely.

Restricted Use Only: *Plan enough time to perform all necessary decontamination procedures on the restricted area(s) requiring access for service.*

- a) Determine the restricted area(s) of the equipment that need(s) to be accessed for servicing. Specify the service requested on the Equipment “OK to Service” Certification Form.
- b) If these area(s) contain(s) hazardous chemicals or biological materials, determine what can be disposed of (check for items which might have significant chemical degradation). Process disposal paperwork and have wastes removed by OES (829-2401). Follow your department’s procedures for disposing of Regulated Medical Waste for biological/medical waste.
- c) Remove and properly store any hazardous chemicals to be saved.
- d) The restricted area(s) for service must be free of all hazardous chemicals prior to certifying the equipment for restricted “OK to Service.” Decontaminate all area surfaces that the equipment repair worker may contact. In addition, chemical residues, stains, deposits, etc. on or in the restricted area(s) that are certified “OK to Service” must be removed, neutralized, or otherwise rendered non-hazardous to human health or the environment using appropriate chemical and physical methods.
- e) **The equipment may not contain any Select Agent(s) (neither organisms nor toxins or materials of biological origin), viable organisms that must be handled at a Biological Safety Level (BSL) of 3 or 4; or any toxins that have an LD 50 (oral) of <100 ug/kg. For a list of applicable materials see the CDC website or contact OES.**
- f) Decontaminate all area surfaces that the equipment repair worker may contact with appropriate solutions that are known to kill the organisms that may be present and/or inactivate the hazardous substances of biological origin.
- g) If decontaminating agents may leave a corrosive or otherwise harmful residue, the surfaces must be rinsed clean of hazardous deposits.

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

- h) Final Equipment Survey - After restricted area(s) is(are) ready for certification, do a thorough survey of the restricted area(s) (restricted “OK to Service” internal and external surfaces, void spaces, etc.). Decontaminate “OK to Service” internal and external surfaces of the equipment before certifying the equipment as “OK to Service.” SPECIFY ON THE FORM THE DURATION THAT THE CERTIFICATION FORM WILL REMAIN IN EFFECT (start and finish dates). Affix Equipment “OK to Service” Certification form, with restricted areas that are “OK to Service” clearly stated, to the exterior of the equipment in a prominent location and certify that the equipment poses no hazard to human health or the environment.

Unrestricted Use Only: *Depending on the size of the equipment to be serviced for unrestricted use, plan enough time to perform all necessary decontamination procedures.*

- a) Specify the service requested on the Equipment “OK to Service” Certification Form. If the equipment (e.g., refrigerators, freezers, hoods, etc.) contains hazardous chemicals or biological materials, determine what can be disposed of (check for items, which might have significant chemical degradation). Process disposal paperwork and have wastes removed by OES (829-2401). Follow your department’s procedures for disposing of Regulated Medical Waste for biological/medical waste.
- b) Remove and properly store any hazardous chemicals to be saved.
- c) Equipment must be empty of all hazardous chemicals and biological materials prior to certifying the equipment for unrestricted use. In addition, chemical residues, stains, deposits, etc. on or in the equipment must be removed, neutralized, or otherwise rendered non-hazardous to human health or the environment using appropriate chemical and physical methods.
- d) Decontaminate all surfaces with appropriate solutions that are known to kill the organisms that may be present and/or inactivate the hazardous substances of biological origin.
- e) Final Equipment Survey - After all items are removed from the equipment, do a thorough survey of the equipment (all internal and external surfaces, void spaces, etc.). Decontaminate all internal and external surfaces of the equipment before certifying the equipment for unrestricted use. SPECIFY ON THE FORM THE DURATION THAT THE CERTIFICATION FORM WILL REMAIN IN EFFECT (start and finish dates). Affix Equipment “OK to Service” Certification form to the exterior of the equipment in a prominent location and certify that the equipment poses no hazard to human health or the environment.

Questions? Call OES 829-2401

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

EXHIBIT 2

Checklist for “OK to Service” and Unrestricted Release of Equipment Used with Radioisotopes

In order comply with applicable regulations, use the check list below in order to release equipment used with radioactive materials for repair or release for general use.

1. “OK to Service”: Determine if area to be repaired has been used for radioactive materials.

Call OES Radiation Safety at 829-3281 if you have any questions or cannot clean items to the levels listed below.

A. Survey equipment inside and out using both survey meter and wipe survey.

- ___1) Wipe survey shows less than 3 (three) times background count rate.
 - Use liquid scintillation counting for beta emitting isotopes:
e.g. H-3, C-14, S-35, P-32, P-33
 - Use a gamma counter for radioisotopes that are gamma emitters:
e.g. I-125, Co-57, Na-22, Cr-51, Fe-59
- ___2) Survey Meter scan taken at distance 0.5 cm shows less than 3 (three) times background count rate.
 - Use a pancake GM probe for items that have been used with beta emitting isotopes.
 - Use a low energy gamma probe for:
I-125, Co-57, or other isotopes that have significant gamma emissions between 10 and 40 keV.
 - Use a high energy gamma probe for:
Na-22 or Fe-59 or to survey for any gamma emitting isotopes which have an energy above 40 keV.

B. ___ Remove radioactive materials from area to be repaired.

C. ___ Remove radioactive materials label **before** sending for repair.

2. Unrestricted Release of Equipment

A. ___ Do all the above.

B. ___ Contact OES Radiation Safety to formally survey and tag any item used with radioactive materials **before** it is scrapped or transferred to a new user.

OCCUPATIONAL & ENVIRONMENTAL SAFETY SERVICES

EXHIBIT 3

University at Buffalo Equipment "OK to Service" Certification

Service Requested: _____

Dates Certification is in Effect: _____ to _____
Start Date Finish Date

- This equipment has no potential for chemical, radiological, or bio-hazardous contamination because it was never used for or in contact with such materials and is "OK to Service" for unrestricted use.
- Restricted Use Only:** This equipment has been decontaminated in accordance with the University Facilities "OK to Service" Checklist and is safe to service with the following restrictions or special conditions:

- Unrestricted Use Only:** This equipment has been decontaminated in accordance with the University Facilities "OK to Service" Checklist and is safe to service.

Item Description:	Make/Model
Asset Number (if applicable):	Serial #
Item's Current Location - Building: _____ Room: _____ Department: _____	
Principal Investigator: _____	Phone #: _____

Certification Statement

I certify that the above named equipment is free to the limits specified above of any hazardous chemical, biological and radioactive materials and I attest that this equipment does not pose a hazard to human health or the environment to the limits specified above.

Certified By:

 Print Sign Date

Keep the original for your records, send the second copy to Occupational and Environmental Safety, 220 Winspear Ave, South Campus and Affix the bottom card to the equipment.