

Department of Public Safety

Division of Environmental Health and Safety

Environmental Health and Safety Center
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ENVIRONMENTAL HEALTH AND SAFETY POLICY

Topic: **BIOLOGICAL LABORATORY WASTE MANAGEMENT -
DISPOSAL POLICY & PROCEDURE**

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Approved by: _____
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Distribution: Science Department Chairs, Institutional Biosafety Committee, Selected Building Proctors
and Autoclave Users, V. C. for Administration, V. C. for Academic Affairs

Policy Statement

It is the policy of the University of Colorado at Boulder, that biological waste from Campus research and teaching laboratories be managed in accordance with the Biowaste Program procedures detailed below. Failure to abide by this policy and program may result in penalties that can be assessed, as appropriate to the entities that caused or contributed to the non-compliance.

Purpose

The Administration of the University of Colorado Boulder Campus is committed to protecting its students, faculty, staff, the public and the environment. The Environmental Health and Safety Department has developed a biological waste management program in accordance with Colorado Revised Statutes Title 25- Article 15-Part 4, which, if followed, satisfies applicable safety, health, and environmental regulations and concerns for the Campus laboratory operations that generate biological waste. It is the responsibility of each of us to implement these requirements where they pertain to our respective activities and job duties.

NOTE: *For information and assistance regarding the proper management and disposal of Sharps (needles, syringes, blades, scalpels) generated from personal medical use or from Campus medical facilities, contact Wardenburg Health Center at 492-2794. For information and assistance regarding occupational exposures to Bloodborne Pathogens, contact Risk Management at 303-492-1901.*

Definitions (for purposes of this Policy and Procedures)

BIOLOGICAL WASTE (Infectious & Non-Infectious): Cultures, plates, media and other liquid or solid materials generated by Campus research and teaching laboratories, that contain or come in contact with living cells, body fluids, viruses, clinical materials, and other microorganisms.

INFECTIOUS WASTE: Biological waste that involves the presence of organisms containing recombinant DNA or any other organisms hazardous to human or animal health, including pathogens of sufficient virulence and quantity that exposure to the waste by a susceptible host could result in an infectious disease.

NON-INFECTIOUS: Plates, slides, culture vessels, and other biological or biomedical appearing materials generated by Campus laboratories, that do not meet the criteria of “infectious” (as defined above) or have been rendered non-infectious by chemical disinfection or autoclaving.

RESPONSIBLE PARTY

RESPONSIBILITIES / • ACTIONS

WASTE GENERATOR ...

is responsible for identifying infectious and non-infectious biological waste that they use or make, and for collecting / managing the waste in accordance with these procedures.

If biological waste or sharps are contaminated with **radioactive material, STOP - DO NOT AUTOCLAVE**. Contact EH&S Radiation Safety at 303-492-6523 for proper procedures.

- **Determine if the waste is infectious.** Render all infectious waste non-infectious using effective chemical disinfection methods or by autoclaving. Non-infectious liquid waste may be drain-disposed if it contains no other regulated chemicals or radioactive materials. If in doubt, be conservative and autoclave or chemically treat all non-radioactive biological waste or consult with EH&S Hazardous Material/Waste Program staff at 303-492-7845.
- **Place infectious waste that has not been chemically disinfected** into non-leaking, heat resistant autoclave bags which have built-in sterilization indicators. Complete applicable portions (Dep't., P.I., Room #, Waste Volume, Contents) of a Non-Biohazardous waste Certification tag – available from EH&S, check the "Autoclave" box and attach all three tag copies to the bag. Bring the bag of biohazardous waste to your designated autoclave area.
- **Sharps are not to be disposed of through this program. Sharps are handled through the hazardous (chemical) material/waste program.** Biomedically appearing sharps (needles, syringes, blades, scalpels) whether they are chemically contaminated or not, must be placed in **puncture-proof, sealed** containers (no plastic or autoclave bags) and tagged for hazardous material/waste pick-up.

RESPONSIBLE PARTY

RESPONSIBILITIES / • ACTIONS

Infectious sharps must be rendered non-infectious prior to submittal of the Hazardous Material/Waste Tag. Chemical disinfection is not effective for needles and small syringes. These types of infectious sharps must be autoclaved using a puncture-proof container that contains a built-in sterilization indicator or place autoclave tape on the container. The tape is preferred because on containers with built-in sterilization indicators the change is often not visible.

Make sure that the container is not completely sealed during autoclaving so that sharps won't puncture it due to the heat and pressure. Once the container has been autoclaved, make sure the autoclave indicator has changed to show that the sharps have been rendered non-infectious. Re-seal the container.

- **Seal biologically appearing non-infectious waste (No Sharps)** inside a non-leaking autoclave bag, and complete and sign a non-biohazardous waste tag as described below, checking the box that indicates the material inside the bag is non-biohazardous. Attach the 3-part biowaste tag to the bag, remove the top (white) copy and put it in the designated pocket posted in the area near the autoclave. Leave the other two copies of the tag attached to the bag (canary and bottom manila card) and place the bag into a designated "Certified Non-biohazardous Materials" receptacle. There is no need to autoclave or chemically disinfect this waste.
- **Seal chemically disinfected solid biowaste (No Sharps)** inside a non-leaking autoclave bag and complete and sign a non-biohazardous waste tag as described below, indicating that the material inside the bag has been rendered non-infectious by chemical treatment. Attach the tag to the bag and put the top (white) copy into the designated pocket. Place the bag into a designated "Certified Non-biohazardous Materials" receptacle.

GENERATING DEPARTMENT'S RESPONSIBLE PERSON(S) ...

is (are) assigned by the Department's Administration to serve as liaison for the Biowaste Program and to assure that requirements are being properly implemented by the Department's personnel.

- Assure that each autoclave is checked by an **authorized service provider at least every 6 months** (preferably every 60-90 days) to assure proper function, i.e., preventative maintenance, temperature calibration, and verification of adequate disinfection (see Bacillus test below). If the Department does not already have a contract for autoclave maintenance, EH&S can provide a list of vendors.

RESPONSIBLE PARTY

RESPONSIBILITIES / • ACTIONS

GENERATING DEPARTMENT'S RESPONSIBLE PERSON(S) (cont.)

NEW REQUIREMENT: Obtain from your service provider, a copy of each autoclave maintenance service record and place it in the pocket (posted near the autoclave) where completed top copies of the non-biohazardous waste tags are deposited. The record should show that the autoclave is fully operational as well as the date that service was performed. In addition, send a copy of the maintenance, inspection, and verification of adequate disinfection (Bacillus test) record to EH&S, 413 UCB. The Bacillus results can be sent to EH&S via e-mail to Denise.Donnelly@Colorado.edu.

- Make sure that any autoclave which is not functioning properly is taken out of service (and posted with appropriate signage) until it is repaired. Notify EH&S (303-492-6025) when an autoclave is taken out of service or placed back into service.
- **Bacillus stearothermophilus** must be used at least every 90 days to confirm adequate disinfection. The Bacillus test may be performed by the Department or the service provider, following the test manufacturer's instructions.

NEW REQUIREMENT: If the Bacillus test is performed by the service provider, the results must be indicated on the autoclave maintenance service record placed in the posted tag-pocket near the autoclave. If the Bacillus test is performed by Department staff, documented results of the test must also be placed in the posted tag-pocket near the autoclave and sent to EH&S, 413 UCB or via e-mail to Denise.Donnelly@Colorado.edu.

AUTOCLAVE OPERATOR...

is responsible for assuring that any infectious waste that has not been rendered non-infectious by chemical treatment, is autoclaved and managed according to the following biowaste autoclave procedures.

NOTE: These procedures do not apply to non-biowaste autoclave use, such as sterilizing glassware or equipment.

- Make sure that each autoclave used for biowaste disinfection has been identified with a unique **EH&S-assigned number**, posted on the front of the autoclave. Let EH&S know if you become aware of other autoclaves being used for treating biological waste.
- Make sure that the autoclave machine you are using has a prominently posted **standard operating procedure (SOP)**, including directions for proper loading and adequate cycle time. Please provide EH&S with a copy of the SOP (413 UCB).

RESPONSIBLE PARTY

RESPONSIBILITIES / • ACTIONS

AUTOCLAVE OPERATOR (cont.)

- **NEW REQUIREMENT:** Make sure that a copy of the latest autoclave maintenance service record is placed in the pocket (posted near the autoclave) where completed top copies of the non-

biohazardous waste tags are deposited. Also, if the Bacillus test is performed by Department staff, results of the test must be documented, placed in the tag-pocket near the autoclave, and sent to EH&S, 413 UCB (or via e-mail to Denise.Donnely@Colorado.edu).

- Make sure that infectious waste has been placed into non-leaking, heat resistant **autoclave bags** with built-in sterilization indicators. Each bag must have a non-biohazardous waste tag attached (initially completed by the generator) with the "autoclave" box marked to show that the bag needs autoclaving.
- Leave the bags loosely tied (do not seal during the autoclave process) so that steam can access all areas of the load, and **autoclave the load according to the posted SOPs.**

For infectious Sharps, make sure that the puncture-proof sharps container is not completely sealed during autoclaving so that sharps won't puncture containers due to the heat and pressure. Once the container has been autoclaved, make sure the autoclave indicator changed to show that the sharps have been rendered non-infectious.

- **Verify that built-in autoclave bag indicators and/or autoclave tape** have changed, showing that the waste has been rendered non-infectious. **Containers without visible sterilization indicators will NOT be collected for disposal.** Remove the autoclaved bags and sharps containers from the autoclave and seal them.

For bags, finish completing each non-biohazardous waste tag by printing and signing your name in the blank provided along with the date that the biowaste was autoclaved. Remove the top (white) copy of each tag and put it in the designated pocket posted in the area near the autoclave. Leave the other two copies (canary and bottom manila card) attached to each bag and deposit the bags into the "**Certified Non-biohazardous Materials**" receptacle.

For sharps containers, **attach a completed Hazardous Material/Waste Tag** and submit the top, white copy to EH&S.

RESPONSIBLE PARTY

WASTE GENERATOR and
AUTOCLAVE OPERATOR...

RESPONSIBILITIES / • ACTIONS

Non-biohazardous waste tags, available from EH&S, are to be completed as described below and attached to each autoclave bag. Bags that do not have a completed, signed Non-Biohazardous Waste Certification tag attached will be considered "infectious" and **WILL NOT BE PICKED UP FOR DISPOSAL.** They will be left in a red

"Biohazardous Waste" tub (next to the Certified Non-Biohazardous Materials receptacle) for the Generating department to properly autoclave and tag.

1. AUTOCLAVE NUMBER - Write the EH&S autoclave number in

the blank provided. This number (black number on a white sticker) has been posted on each autoclave.

2. DEPARTMENT - Indicate the generating laboratory's Department.

3. PRINCIPAL INVESTIGATOR - Identify the Principal Investigator for the generating lab.

4. ROOM # - Indicate the room where the waste originated.

5. VOLUME - Estimate the waste volume in the bag in cubic feet.

6. CONTENTS – Generically describe contents of the bag.

7. NON-BIOHAZARDOUS – Check this box if the contained materials are non-infectious biowaste and therefore, do not require disinfection or autoclaving.

8. METHOD OF DISINFECTION - Check the appropriate boxes, indicating if the infectious waste was rendered non-infectious by autoclaving. If chemical disinfection was used, describe the specific treatment method in the blank provided.

9. CERTIFICATION - A signature of the person certifying the waste as non-infectious is required.

This will either be the generator who chemically disinfected the waste or the operator who autoclaved the waste. The signature also confirms that proper biowaste management procedures were followed and that the autoclave is being properly maintained.

10. DATE - Indicate when the waste was certified non-infectious by the waste generator or autoclave operator.

NON-BIOHAZARDOUS CERTIFICATION TAG

Environmental Health & Safety, Campus Box 413
 (303) 492-6025, FAX (303) 492-2854 ehs@colorado.edu
REMOVE & PLACE TOP-WHITE COPY IN DESIGNATED POCKET

Bag/Container ID # B _____

PRESS HARD USING INK - MULTIPLE COPIES


Autoclave # 1 Dept. 2
 Principle Investigator 3
 Room # 4 Est. Waste Vol. (ft³) 5
 Contents 6

Type of Waste:
 Non-Biohazardous: No Disinfection or Autoclaving Required 7
 Biohazardous: Disinfection or Autoclaving Required

Method of Disinfection: (check one)
 Chemical Disinfection (specify): 8
 Autoclave

I certify that this waste is Non-Biohazardous. If autoclaving was required, proper biowaste management procedures were followed, the autoclave is being properly maintained, and the sterilization indicator was visible on this autoclave bag.
 Generator: (SIGNATURE REQUIRED)
 x 9

Print Name: _____
 Date: 10



Rev. 1/13/04
 Distribution: White - Put In Designated Pocket for EH&S; Canary - Attach to Bag/Container, Bottom Manila Card - Attach to Bag/Container

RESPONSIBLE PARTY

SUPERVISORS...

RESPONSIBILITIES / • ACTIONS

of personnel assigned to collect bags of non-infectious biowaste from Department receptacles are responsible for assuring that their

employees have received the proper training. **Training** should include, but not be limited to: proper hygienic/sanitary practices, proper lifting techniques, review of Biowaste Program disposal procedures, and record-keeping requirements for UCB and the disposal company.

PERSONNEL COLLECTING BIOWASTE BAGS...

are responsible for picking up non-infectious biowaste bags from Department receptacles, bringing them to designated Campus or off-site collection or disposal locations, and properly processing the associated paperwork.

- **Receive proper training**, coordinated through their supervisors as noted above.
- **Collect the top (white) copy** of each tag from the designated pocket. Make sure the tags are all completed and signed. Deliver the white copies to EH&S.
- **Collect autoclave bags** containing non-infectious biowaste from the Certified Non-Biohazardous Materials receptacles. Make sure that each bag has the 2 remaining copies of the tag attached (canary and bottom manila card).
- **If no tag is present, or the tag has not been completed and signed, or there is no visible sterilization indicator on the bag** remove the bag from the Certified Non-Biohazardous Materials receptacle and place it into the red "Biohazardous Waste" tub next to the receptacle. The Generating Department will be responsible for properly re-processing/disinfecting that waste.
- Load the bags into the designated University vehicle.
- **If a central Campus collection point is utilized**, bring the bags to the designated collection location, unlock the secured collection receptacle and unload the bags into the receptacle. Complete the appropriate paperwork for transport as needed by the disposal company and place it in the paperwork box attached to the collection receptacle. Lock the receptacle and the paperwork box.
- **If the load is taken directly to the landfill** complete any additional paperwork as required by the disposal company, i.e., the Landfill.

RESPONSIBLE PARTY

EH&S...

RESPONSIBILITIES / • ACTIONS

is responsible for: overseeing general University compliance with the Biowaste Program; helping Campus Departments understand their responsibilities and assisting them in attaining program compliance; posting signs, stickers and notices; and keeping records.

- **Post Biowaste Management Procedures**, emergency spill contingency plans, and autoclave identification numbers at each autoclave. Provide "Biohazardous Waste" tubs next to each Non-Biohazardous Materials receptacle.
- Assist generating Departments in posting SOPs on each autoclave, and in finding **autoclave service vendors**.
- Keep white tag copies as the **University records**. Receive, review and file autoclave maintenance and disinfection records from the biowaste generating Departments.
- Periodically **audit** the Biowaste / Autoclave program to make sure that proper procedures are being followed, and where deficiencies are found, help the Departments attain compliance. If necessary to protect people and the environment, shut down research or other activities where biowaste management procedures are not being followed.

Your cooperation is required and appreciated in implementing this policy and program. The Director and Staff of Environmental Health and Safety can be reached at 303-492-6025 to assist you with questions and concerns about this and other safety, health and environmental protection matters.