

INFECTIOUS WASTE MANAGEMENT PLAN
Marshall University Robert C. Byrd Biotechnology Science Center
(8/15/2023)

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II. OBJECTIVES OF THE WASTE MANAGEMENT PLAN

The objectives of this plan are to:

- A. Provide a safe environment for visitors, students, faculty and staff in the Robert C. Byrd Biotechnology Science Center (hereafter referred to as the Biotech Center).
- B. Provide proper management of infectious medical waste in accordance with the West Virginia Infectious Waste Rule 64-CSR-56 and the Occupational Safety and Health Administration Health Bloodborne Pathogens Standard, 29 CFR 1910.1030.

III. HANDLING OF INFECTIOUS MEDICAL WASTE

A. Packaging - All infectious medical waste, except free liquids, sharps and plastic or glass pipettes, shall be placed into two (2) leak-proof orange autoclave bags (double-bagged) that meet the American Society for Testing and Materials drop weight test (ASTM-D-959-80) of 125 pounds. The bags shall have the international biohazard symbol and the words "Biohazard" or "Biohazardous Materials" on them. Heavier materials shall be supported in double-walled corrugated fiberboard boxes. These boxes shall have the international biohazard symbol on them and the words "Biohazard" or "Biohazardous Materials" on them.

Free liquids shall be contained in break resistant, tightly capped containers. These shall have the international biohazard symbol on them and the words "Biohazard" or "Biohazardous Materials" on them.

Contaminated needles and sharps shall be collected at the point of generation in rigid leak-proof and puncture-resistant containers that have the international biohazard symbol on them and the words "Biohazard" or "Biohazardous Materials" on them.

Contaminated Pasteur pipettes shall be placed into double-walled corrugated fiberboard boxes labeled for broken glass and with additional labels with the international biohazard label on them and the words "Biohazard" or "Biohazardous Materials" on them.

Contaminated plastic or glass serological pipettes shall be segregated from other biohazard waste and placed into two (2) leak-proof orange plastic bags (double-bagged) in such a manner as to not puncture the bags. The bags must meet the American Society for Testing and Materials drop weight test (ASTM-D-959-9) of 125 lbs and be labeled with the international biohazard symbol and words "Biohazard" or "Biohazardous Materials".

Bags, boxes, liquid containers and sharps containers shall not be filled beyond 75% of their total capacity. All bags, boxes, liquid containers and sharps containers must be labeled with the supplied form label which states the origin of the waste and the signature of the operator processing the waste.

B. Handling - All unautoclaved infectious medical waste (except certain pathological and animal waste from the Animal Resource Facility (ARF)) must be placed in bags, boxes, liquid containers, or sharps containers and taken to Room 119A of the Biotech Center for autoclaving. Bags and boxes shall be placed into the large rigid, leak-proof and puncture resistant gray bin located in Room 119A, to await autoclaving. Liquid containers and sharps containers shall be placed on a shelf of the gray metal cart located in Room 119A, to await

autoclaving.

The autoclave room technician will be responsible for the sterilization and disposal of biohazardous waste materials. During the handling of non-sterile biohazardous materials, the technician will at a minimum wear a lab coat and heavy duty gloves (e.g. Playtex Living Gloves) and observe all BSL1 operating procedures. Goggles shall be used when there is a risk of splashing. Individual lab technicians will wear disposable nitrile (or other synthetic) gloves and lab coats during the handling and transportation of biohazardous materials. Solid materials will be transported to the autoclave room 119A in double-bagged biohazard waste bags placed inside a secondary container. Use of lab carts is recommended. Liquid material will be transported in the original container which will be placed within a larger secondary container (e.g. a polypropylene tub).

Certain human pathological waste and waste derived from animals require sterilization by incineration. This rule applies to: (1) All human pathological waste greater than one half inch in diameter. (2) Whole animals that are deliberately exposed to infectious agents or recombinant DNA and tissues larger than one-half inch in diameter derived from said animals. Both types of waste shall be placed in contractor-provided biohazardous waste shipping containers, which will have a red biohazard bag liner. The shipping containers shall always be kept in the refrigerated storage area, Room 116A in the ARF. At such times as they become full or weigh 50 pounds, the tubs shall be sealed to await pick-up and disposal by the licensed biohazard waste removal company. **The waste company shall then dispose of these waste types by incineration.** Human tissue, whole animals or animal tissue smaller than one-half inch in diameter may be sterilized by autoclaving in the Biotech Center Room 121.

C. Labeling – The label on each bag, box, liquid container and/or sharps container shall contain the following information

- department name
- phone number and the room number that the waste originated from
- date packaged
- initials of the person packaging the waste
- physical address of the Robert C. Byrd Biotechnology Science Center (Marshall University, 1700 Third Avenue, Huntington, Cabell County, West Virginia, 25703)
- phone number and/or fax number
- signature of the person autoclaving the waste
- date treated and the method of treatment

D. Treatment – All unautoclaved infectious medical waste, except certain pathological and animal waste (as described in Section IIB), shall be steam-sterilized at 121.1° C (250 ° F) and 15 pounds pressure for 90 minutes. The autoclaves shall be tested every 40 hours (2400 minutes) of operation with *Bacillus geostearothermophilus* spore test kit. Only the autoclaves located in Biotech Center Room 119 and Room 121 will be used for the sterilization of infectious medical waste. Biotech Center satellite labs located on 2nd, 3rd and 4th floors may not be used to sterilize infectious waste. In case of an unanticipated power failure, autoclaves will operate on emergency power to the Biotech. For planned outages of power, steam or water, the autoclaves will not be used until the affected service is restored.

E. Disposal – All labeled solid infectious medical waste that has been steam sterilized and rendered noninfectious, will then be weighed, and recorded in the log book with the weight, the date weighed, and the name of the person doing the weighing. Sterilized waste will be placed in black plastic bags (double-bagged), tied shut and placed either directly into the Rumpke solid waste dumpster for immediate pick-up or into the refrigerated storage area (Room 116A ARF) if the Rumpke Dumpster will not have an immediate pick-up. Infectious medical waste that is also considered sharp will be autoclaved in puncture-resistant containers before being double-bagged as above for disposal. All labeled liquid infectious medical waste that has been steam sterilized and rendered noninfectious may then be disposed of into the sanitary sewer.

F. At no time shall the Biotech Center at Marshall University knowingly accept infectious medical waste from another facility outside of Marshall University. All infectious medical waste generated at this facility shall be properly packaged and labeled before leaving the premises.

G. Storage - The designated storage area shall be Room 116A (the walk-in refrigerator) in the ARF. Access to the facility is restricted, it is vermin-proof and water-proof, and has been identified as a Biohazardous Storage Area with a sign prominently posted on the door. Once a month, or whatever schedule is deemed appropriate, the shipping containers in the storage area shall be picked up by the licensed biohazardous waste removal company. The containers shall not be stored any longer than thirty (30) days. The Biotech Center will generate between 900 and 1,000 pounds of infectious medical waste per month.

H. Waste Removal - the Biotech Center shall contract with a licensed biohazardous materials waste removal company to remove infectious medical waste generated at the Biotech Center, to be disposed of according to local, state and federal regulations. The current biohazard waste disposal company under contract is Stericycle, Inc.

The corporate office is: Stericycle, Inc.
4010 Commercial Ave
Northbrook, IL 60007
(877) 783-7490

The disposal facility is: Stericycle
1901 Pine Ave. SE
Warren, OH 44483

This licensed biohazardous materials waste removal company shall dispose of the infectious medical waste by off-site autoclaving and/or incineration as required.

I. Contingency Plans - In the event that the Biotech Center shall be unable to autoclave their infectious medical waste, our currently contracted licensed biohazardous materials waste company shall be contracted with to provide collection, treatment, and disposal of the

infectious medical waste generated at the Biotech Center. In the event that the licensed biohazardous materials waste removal company should be unable to provide collection and disposal of the Biotech Center infectious medical waste, we will contract with another licensed biohazardous waste disposal company to provide collection, treatment, and disposal of the infectious medical waste.

J. Separation - All medical waste shall be separated at the point of generation, including sharps, infectious materials, and glass. Solid infectious medical waste shall be placed into orange biohazard bags. Liquid infectious waste shall be placed into leak-proof, break-resistant, and tightly capped containers. Contaminated broken glass and sharps shall be placed into a leak-proof and puncture-resistant container. Non-contaminated waste shall be placed into the regular trash. Non-contaminated broken glass shall be placed into boxes labeled as containing uncontaminated broken glass and placed into the regular trash.

K. Volume Reduction - Training shall be provided to educate personnel as to the proper segregation of infectious versus noninfectious waste for the purpose of reducing the amount of declared infectious waste.

IV. TRANSPORTATION OF INFECTIOUS MEDICAL WASTE

A. Internal Transportation - All infectious medical waste shall be transported through the Biotech Center in closed containers and provided secondary containment where applicable. Use of lab carts is recommended. At no time shall any infectious medical waste be transported without being enclosed in a proper container.

B. External Transportation - External transportation of infectious medical waste from the Biotech Center shall only be done by a licensed biohazardous materials waste removal company to their off-site treatment facility.

V. MANAGEMENT OF SPILLS OF INFECTIOUS MEDICAL WASTE.

A. Infectious medical waste spill containment and cleanup kits will be located in each satellite autoclave room (Rooms 238, 333, and 432) and in the main autoclave facility on the first floor (Rooms 116, 119, 121, and 126) of the BBSC to allow for rapid and efficient cleanup of spills. Each containment/spill kit must contain the following materials:

(1) an amount of absorbent material sufficient to absorb a minimum of ten gallons of liquid for every cubic foot of infectious medical waste. A 5lb bag of absorbent material (like "kitty litter") will be placed at each location.

(2) one (1) gallon of hospital grade disinfectant (e.g. Clorox) in a sprayer capable of dispersing its charge in a mist or in a stream at a distance. The disinfectant shall be hospital-grade and effective against mycobacteria.

(3) a minimum of six (6) biohazard-labeled orange plastic bags. The bags shall meet the American Society for Testing and Materials drop weight test (ASTM-D-959-80) using one

hundred twenty-five (125) pounds or shall be three (3) mils thick or the equivalent and shall be accompanied by autoclave tape or devices and labels or tags. These bags shall be large enough to enclose any box or other container normally used for infectious medical waste management by that facility.

(4) two (2) new sets of overalls, and adequate numbers of disposable gloves, disposable waterproof shoe covers, boots, caps, and devices to protect the eyes and respiratory tract, and tape for sealing wrists and ankles. The overalls, shoe covers and caps shall be oversized or fitted to the infectious medical waste workers or transporters, and shall be made of materials impermeable to liquids. There will also be one set of heavy duty boots made of thick rubber and one set of gloves shall be of heavy neoprene or equivalent material. Reusable boots, gloves, and breathing devices may be reused if disinfected between uses.

(5) a disposable broom and dustpan.

(6) one hundred (100) yards of boundary marking tape.

(7) a first aid kit with bandages, antibiotic cream, sterile wipes, and disposable gloves.

B. Immediately following a spill of infectious medical waste or its discovery, all personnel must leave the area until any aerosol settles or until the spill is cleaned up. Personnel must notify one of the following

- Julia Schreiber at 304-696-3714 (work) or 304-617-7922 (cell)
- Austin Hoffman at 304-696-2563 (work) or 304-412-5788 (cell)
- Dr. Vincent Sollars at 304-696-7357 (work) or 681-203-4119 (cell)
- MUPD at 304-696-4357.

Cleanup personnel shall implement the following procedures for cleaning up a spill:

- (1) Secure the area from entry by unauthorized persons
- (2) Put on cleanup outfits appropriate for the level and nature of the spill, prepare disinfectant solution, and collect necessary equipment
- (3) Spray all broken containers and spills of infectious medical waste with disinfectant and allow contact with the disinfectant for at least 15 minutes
- (4) Place broken containers and spillage in the packing bags in the kit
- (5) Remove liquids with absorbent material and wipe spill area dry
- (6) Disinfect area again and allow to air dry

- (7) Transport all waste to the autoclave room 119A
- (8) Clean and disinfect non-disposable items and clothing using the BBSC Laundry Guidelines
- (9) Remove cleanup outfits and place disposable items in a biohazard-labeled orange plastic bag
- (10) Replenish the containment and cleanup kit
- (11) Complete a Spill Occurrence Report. Form is available on the Institutional Biosafety Committee web site: [IBC SPILL OCCURRENCE REPORT.doc \(marshall.edu\)](http://www.marshall.edu/IBC_SPILL_OCCURRENCE_REPORT.doc)

C. Small Spills. When a spill involves a single container of infectious medical waste with a weight of less than fifty (50) lbs., or a volume of spilled liquid of less than one (1) quart, the individual responsible for the cleanup should select protective equipment and procedures that are appropriate to the level and nature of the spill. Any proposed alternate procedures for small quantity spills should provide protection to the health of workers and the public equivalent to that provided by the procedures above. A Spill Occurrence Report must be submitted after cleanup is complete.

VI. TRAINING

A. The Marshall University Institutional Biosafety Committee shall be responsible for training employees on the proper handling and treatment of infectious medical waste. All employees involved in research, laboratory work, housekeeping or maintenance shall be required to attend and complete education on the OSHA Bloodborne Pathogens Standards, the Joan C. Edwards School of Medicine at Marshall University's Bloodborne Pathogen Exposure Control Plan, and Personal Protective Equipment training.

B. All personnel who will be permitted to sign the shipping manifests shall receive Haz Mat training, as mandated by the DOT, and every three years after that to maintain their certification.

VII. DISPOSAL PLAN

A. Stericycle agrees to provide the Biotech Center with biohazardous materials waste collection and disposal through once a month pickups, or whatever schedule is deemed appropriate, at the Biotech Center, 1700 Third Avenue, Huntington, Cabell County, West Virginia, 25703. Stericycle shall supply the Biotech Center with reusable 30 gallon polypropylene tubs containing red liners with Biohazard labels. No more than 45 pounds of waste may be placed in each container.

B. Manifest - All infectious medical waste shipments collected by and disposed of off-site by Stericycle shall generate a manifest to track the material. In accordance with the West Virginia Infectious Waste Rule 64-CSR-56, all manifest records will be retained for a minimum of three years. Only personnel trained on DOT requirements may sign the manifests.

C. Transportation - All infectious medical waste collected and transported off-site by Stericycle shall be in an enclosed, licensed and identified vehicle specifically used for this purpose. All transportation shall be in accordance with all State and Federal regulatory agencies.

D. Handling - The infectious medical waste that Stericycle intends to remove shall be placed into the containers so as not to puncture them. Stericycle shall be responsible for replacing the containers with new containers and liners as necessary.

E. Disposal of Waste - Disposal of the infectious medical waste shall be by off-site autoclaving and/or incineration and land filling by Stericycle, as required by applicable state and federal laws. Pathological specimens (larger than one-half inch in diameter) and infected animal carcasses will be incinerated by Stericycle.

Approved by the IBC on (8/15/2023)