**INFECTIOUS WASTE MANAGEMENT PLAN**

Marshall University Steven J. Kopp Hall

**I. FACILITY** – Physical address:

 Stephen J. Kopp Hall

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Huntington, WV 25701

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 Marshall University

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 Huntington, WV 25755

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 **II. OBJECTIVES OF THE WASTE MANAGEMENT PLAN**

The objectives of this plan are to:

1. Provide a safe environment for visitors, students, faculty and staff in Stephen J. Kopp Hall (hereafter referred to as the SKH).
2. 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**

1. Packaging - All medical waste shall be separated at the point of generation, including sharps, infectious materials and glass. 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.
* Solid medical waste - 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. Bags, boxes, liquid containers and sharps containers shall not be filled beyond 75% of their total capacity.
* Liquids - 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.
* Needles and sharps - Razor blades, lancets, syringes with/without needles, slide covers, glass tubes, inoculating loops, etc. will 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. Preferably red plastic sharps container with lid. When 75% full, close flap, place indicator tape for autoclaving.
* Pasteur pipettes - 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”.
1. Waste Labeling – A label on each bag, box, liquid container and/or sharps container is required and shall contain the following information:
* phone number and the room number that the waste originated from date packaged
* initials of the person packaging the waste,
* physical address of the SKH (1538 Charleston Ave, Huntington, WV, 25701)
* phone number, fax number and signature of the person autoclaving the waste
* date treated and the method of treatment
1. Handling and Transportation - All unautoclaved infectious medical waste shall be placed in appropriate containers and taken to Room 371 in SKH. Bags and boxes shall be placed into the large rigid, leak-proof and puncture resistant bin located in Room 371, to await autoclaving. Liquid containers and sharps containers shall be placed on a shelf of the black metal rack located in Room 371, to await autoclaving. All human and experimentally infected animal waste shall be placed in the contractor-provided biohazardous waste shipping containers which will have a red biohazard bag liner. These containers shall always be kept in SKH 371. When the containers become full and/or weigh 45 pounds, the tub shall be sealed, to await pick-up by the licensed infectious waste removal company.
2. Solid and Liquid Materials – Infectious solid and liquid waste will be transported within SKH to room 371 on lab carts. Hazardous waste bags will be placed inside a secondary container bins located in 371. Liquid material will be transported in the original container which will be placed within a larger secondary container (e.g. a polypropylene tub). Sealed red sharps boxes with indicator tape and placed the designated shelf. School of Pharmacy faculty, students or lab technicians will wear disposable nitrile (or other synthetic) gloves and lab coats during the handling and transportation of biohazardous materials.

Whole experimental animals cannot be used in or transported to SKH including carcasses from the Animal Research Facility (ARF) located in the Robert C. Byrd Biotechnology Science Center (BBSC; Marshall University, 1700 Third Avenue, Huntington, Cabell County, West Virginia, 25703). Disposal of experimental animal waste will be in accordance with infectious waste management plan of the BBSC at the site of generation.

1. Storage - The designated infectious waste storage area shall be SKH 371. SKH 371 is located within the large SKH 369 laboratory which is swipe card protected at all times. Therefore, access to 371 is restricted to those who have swipe card access. SKH371 is vermin-proof and water-proof and has been identified as a Biohazardous Storage Area with a sign prominently posted on the door.
2. Treatment – There will be two methods of disposal of infectious medical waste: (1) onsite, by bleach treatment or autoclaving in SKH 371.
* [Bleach Method](https://jcesom.marshall.edu/media/63248/marshall-university-bleach-policy.pdf) – Liquid biohazardous waste must be treated using one of the following disinfection methods prior to disposal in the sanitary sewer. Autoclaving after bleach treatment, though permissible, is not recommended. Bleach may be used as a disinfectant for biohazards at the designated concentrations above. This is done by adding 10% by volume of 5.25% bleach to the container, followed by 30 minutes incubation for decontamination. The resultant solution can then be discarded in the sewer followed by 5 minutes of flushing at maximum pressure with tap water.
* Autoclave Method - Infectious medical waste, except human and experimentally-infected animal waste, shall be steam-sterilized at 121.1o C (250 o F) and 15 lbs pressure for 90 minutes. The autoclave shall be tested every 40 hours (2400 minutes) of operation at full temperature and pressure with spores of *Bacillus geostearothermophilus*. If a liquid is treated with bleach before being autoclaved, or unknown to have been, the bleach must be neutralized. The recommended neutralization procedure for 10% bleach solutions is the addition of 0.1% (1 g/L) sodium metabisulfite/disodium disulfite or 1% (10 g/L) sodium or calcium thiosulfate to the bleach solution before sending it to be autoclaved. This can be performed by adding an equal volume of 2X solution of the neutralizing solution to the bleach.

Records of autoclave tests and spore test Certificates of Analysis shall be kept by Jeremy McAleer, PhD in the School of Pharmacy. Copies of the Certificates must be included in the annual report to the WV Department of Environmental Protection. A copy of the State permit should be posted near the autoclave in SKH 371. Only the autoclave located in SKH 371 will be used for the sterilization of infectious medical 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 autoclave will not be used.

Dr. McAleer, PhD or his designee will serve as the autoclave facility manager and be responsible for the sterilization and disposal of all infectious waste materials. Dr. McAleer or his designee will autoclave infectious materials that have been placed in the bin or on the shelves in SKH 371. During the handling of infectious materials, Dr. McAleer 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.

1. Disposal/Removal – We estimate that SKH will generate between 40 and 120 pounds of infectious medical waste per month. All labeled solid infectious medical waste that has been steam sterilized and rendered noninfectious, will then be weighed, with the weight, the date weighed and the name of the person doing the weighing recorded in the logbook and on the package label. Sterilized waste will be placed in black plastic bags (double-bagged), tied shut and placed directly into the Republic Services solid waste dumpster. All labeled liquid infectious medical waste that has been steam sterilized and rendered noninfectious may then be disposed of into the sanitary sewer.



This licensed biohazardous materials waste removal company shall dispose of the infectious medical waste by off-site incineration.

1. Contingency Plan - In the event that the SKH 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. In the event that the licensed biohazardous materials waste removal company should be unable to provide collection and disposal services we will contract with another licensed biohazardous waste disposal company to provide collection, treatment and disposal of the infectious medical waste.
2. Limited source of infectious waste - At no time shall personnel in SKH knowingly accept infectious medical waste from another facility. All infectious medical waste generated at this facility shall be properly packaged and labeled before leaving the premises.
3. Volume Reduction – In order to minimize the volume of infectious waste, the University Biosafety Officer shall provide training to educate School of Pharmacy personnel as to the proper segregation of infectious versus noninfectious waste

**IV. TRANSPORTATION OF INFECTIOUS MEDICAL WASTE**

1. Internal Transportation - All infectious medical waste shall be transported within SKH in closed containers. At no time shall any infectious medical waste be transported without being enclosed in a proper container.
2. External Transportation - External transportation of infectious medical waste from the SKH 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.**

1. An infectious medical waste spill containment and cleanup kit is located in the autoclave room (371) to allow for rapid and efficient cleanup of spills

The 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 5 lb bag of absorbent material (like “kitty litter”) will be placed at each location.
	2. one (1) gallon of hospital grade disinfectant (e.g. Chlorox) 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.
1. 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

* Jeremy McAleer at 304-696-7336
* Timothy Long at 304-696-7393
* Austin Hoffman at 304-696-2563 (work)
* Vincent Sollars at 304-696-7357
* 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 371.
	8. Clean and disinfect non-disposable items and cloth­ing using the CEB
	9. Laundry Guidelines.
	10. Remove cleanup outfits and place disposable items in a biohazard-labeled orange plastic bag; and
	11. Replenish the containment and cleanup kit.
	12. Complete a Spill Occurrence Report. Form is available on the Institutional Biosafety Committee web site: [IBC SPILL OCCURRENCE REPORT.doc (marshall.edu)](https://jcesom.marshall.edu/media/36216/Spill-Occurence-Form.pdf)
1. 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**

1. 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.
2. 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. CONTIGENCY DISPOSAL PLAN**

1. GreenLeaf Environmental Service will be contacted in the event that waste disposal is not possible on SKH premises (e.g., autoclave malfunction). .
2. Manifest - All infectious medical waste shipments collected by and disposed of off-site by GreenLeaf shall generate a manifest to track the material. In accordance with the West Virginia Infectious Waste Rule 64-CSR-56, Dr. McAleer or his designee will keep all manifest records on file for a minimum of three years. Only personnel trained on DOT requirements may sign the manifests.
3. Transportation - All infectious medical waste collected and transported off-site by GreenLeaf 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.
4. Handling - The infectious medical waste that GreenLeaf intends to remove shall be placed into the containers so as not to puncture them. GreenLeaf shall be responsible for replacing the containers with new containers and liners as necessary.
5. Disposal of Waste - Disposal of the infectious medical waste shall be by off-site autoclaving and/or incineration and land filling by GreenLeaf, as required by applicable state and federal laws.

Approved by the IBC on (1/28/2025)



