

Central Michigan University

Biohazardous Waste Management Plan



This document has been prepared to provide guidance to Central Michigan University (CMU) employees in the use and disposal of biohazardous materials in compliance with the regulatory requirements and guidelines established in the:

- Michigan Medical Waste Regulatory Act (Act 368 Part 138)
- Michigan Bloodborne Infectious Diseases Standard (R325.70001-R325.70016)
- 5th edition of Biosafety in Microbiological and Biomedical (BMBL) from the United States Department of Health and Human Services
- Guidelines for Research Involving Recombinant DNA Molecules from the National Institute of Health (NIH Guidelines)

Biohazardous Waste Management Plan

Table of Contents

<u>Section</u>	<u>Page Number</u>
<u>Introduction</u>	3
General Program Management	4
• Areas of Responsibility	4
• Biohazardous Waste Management Plan Availability	6
Biohazardous Waste-	
• Types of Biohazardous Waste Generated and /or Handled	6
• Segregation, Packaging, Labeling and Collection of Biohazardous Waste	6
• Methods of On-Site Storage	8
• Methods of On-Site Decontamination	9
• Disposal	10
Exposure Control Plan	10
• Biohazardous Waste Training	11
Appendices	
Appendix A: Biohazardous Waste Contact Information	12
Appendix B: Biohazard Waste Tag	13

Introduction

Central Michigan University defines the term “biohazardous waste” as any discarded materials which might include infectious agents or laboratory disposed materials regulated by federal, state, and local authorities. The following waste categories are considered to be biohazardous waste and are covered by the provisions of the CMU Biohazardous Waste Management Plan (BWMP).

- **According to the Michigan Medical Waste Recovery Act (MMWRA), medical waste includes:**
 1. Cultures and stocks of infectious agents and associated biologicals, including laboratory waste, biological production waste, discarded live and attenuated viruses, culture dishes, and related devices.
 2. Liquid human and animal waste, including blood and blood products and body fluids, but not including urine or materials stained with blood or body fluids.
 3. Pathological waste: a.) defined as human organs, tissues, body parts other than teeth, products of conception, and fluids removed by trauma or during surgery, autopsy or other medical procedure, and not chemically-fixed (i.e. formaldehyde). b.) animal carcasses, organs, tissues, and body parts.
 4. Sharps: defined as needles, syringes, scalpels, and intravenous tubing with needles attached regardless of whether they are contaminated or not. Additionally, any object that is contaminated and sharp enough to puncture the skin (i.e. microscope slides, lab slides, cover slips, etc.).
 5. Contaminated animal wastes that may contain agents infectious to humans, these being primarily research animals.

- **Regulated waste** as defined by the Michigan Occupational Safety and Health Administration (MIOSHA) Blood borne Infectious Diseases Standard includes:
 1. Liquid or semi-liquid blood or potentially infectious materials;

2. Contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed;
 3. Items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling;
 4. Contaminated sharps which includes any contaminated object that can penetrate the skin and cause infection;
 5. Pathological and microbiological wastes containing blood or potentially infectious materials.
- **Laboratory waste and regulated waste** as defined in the NIH Guidelines for Research Involving Recombinant DNA Molecules and the CDC/NIH Biosafety in Microbiological and Biomedical Laboratories. In general, this category includes contaminated waste that is potentially infectious and /or hazardous to humans, animals, or plants.

CMU requires that all employees involved in the generation, handling and disposal of biohazardous waste comply with the provisions of the BWMP.

General Program Management

Areas of Responsibility

The proper segregation, treatment and disposal of biohazardous waste is the responsibility of all responsible CMU personnel. This division of responsibility includes:

1. The Biosafety Officer (BSO), Radiation Safety Officer (RSO), and Chemical Hygiene Officer (CHO) in conjunction with the Hazardous Waste Manager and the Animal Facility Coordinators or their designees (refer to Appendix A for contact information).
2. Supervisory Personnel (including Department Chairs, Directors, Principal Investigators, Managers, and Supervisors).
3. Employees.

The CMU Biosafety Officer or designee will:

- Oversee the implementation of the BWMP;
- Develop, in coordination with administrators, additional biohazardous waste-related policies and procedures as needed to support the effective implementation of this plan and maintain compliance with regulatory requirements;
- Provide biological safety training for CMU employees
- Sign applicable biohazardous waste manifests
- Revise the plan within 30 days each time there is a change in the following:
 - a. A person or site named in the plan;
 - b. The type of waste handled, or the methods of handling waste in a CMU facility;
 - c. Applicable regulations.

Supervisory Personnel

- Assure that all employees who generate, handle, treat and/or dispose of biohazardous waste receive biohazardous waste training
- Assure that all employees under their supervision who generate, handle, treat and /or dispose of biohazardous waste follow the procedures outlined in this plan.

Employees

Employees who generate, handle, treat, and/or dispose of biohazardous waste are responsible for:

- Following the procedures and practices outlined in this document;
- Receiving appropriate training for handling biohazardous waste.

Biohazardous Waste Management Plan Availability

The BWMP is available to all CMU employees. CMU employees can request a copy by calling the Biosafety Officer at 774-3279. The BWMP is available at this web address:

https://www.emich.edu/office_provost/ORGS/Lab_Safety/Biological_Safety/Pages/Waste.aspx

Biohazardous Waste

Potential Types of Biohazardous Waste Generated and /or Handled by Central Michigan University

1. Cultures and stocks of infectious agents and associated biologicals, including laboratory waste, biological production wastes, culture dishes, and related devices.
2. Liquid human and animal waste, including blood, blood products and body fluids, (not including urine) or materials stained with blood or body fluids.
3. Research or teaching animal carcasses, organs and body parts.
4. Sharps, which means needles, syringes, scalpels, or any item sharp enough to penetrate the skin and is contaminated with potentially infectious material.
5. Wastes generated in recombinant DNA research.
6. Animal carcasses, wastes, or bedding generated while conducting infectious disease or recombinant DNA research.

Segregation, Packaging, Labeling, and Collection of Biohazardous Waste

A. General Methods

1. Biohazardous waste is to be packaged, contained and located in a manner that prevents and protects the waste from release at the producing facility at any time before ultimate disposal.
2. Primary containers (other than approved biohazard bags) used for biohazardous waste collection, storage and disposal are to be labeled with a **biohazard symbol** and/or the words

“BIOHAZARDOUS WASTE” in letters not less than one inch high. The required background color of all primary containers is red or orange (e.g., biohazard bags). A biohazard bag that may contain liquids must be contained in a secondary, leak-proof container with a biohazard sticker to meet all regulations.

3. All non-sharps waste containers slated for disposal are required to be labeled with a completed Biohazardous Waste Tag (refer to Appendix B)

B. Waste Type-Specific Management Methods

1. Liquid cultures and stocks of materials contaminated with infectious agents and associated biologicals, including laboratory waste, biological production wastes, discarded live and attenuated viruses and microorganisms, and recombinant DNA waste shall be stored in closable, puncture resistant, containers and **decontaminated by autoclaving**. After autoclaving, decontaminated liquid waste can be disposed of in a sanitary sewer if no other hazardous materials are present (e.g. chemicals and /or radioactive materials). For information on the disposal of mixed radioactive or chemical biohazardous waste, contact: The Office of Laboratory and Field Safety for guidance.
2. All solid cultures and stocks of materials contaminated with infectious agents, culture dishes and related devices other than sharps, can be stored in leak-proof, biohazard bags prior to decontamination. If rupture of bags or leakage is possible, the use of a secondary leak-proof container or bag is required.
3. Biohazardous waste, with the exception of liquids and sharps, may be disposed of in the dumpster provided the waste has been decontaminated by a validated autoclave cycle, securely packaged in bags or containers and the biohazard warning labels have been removed. Decontaminated waste in biohazardous bags with an “Autoclaved” bag indicator must be placed inside a non see-through (opaque) plastic bag or other secondary non-transparent container (box) prior to disposal in the dumpster.

4. It is imperative that the waste is sufficiently autoclaved (darkening of the indicator) prior to disposal. Only autoclavable biohazard bags with a temperature indicator are acceptable.
 - All blood, blood products and body fluids shall be disposed of by one of the following methods:
 - Chemical disinfection or autoclaving followed by flushing down a sanitary sewer
 - Decontamination by autoclaving followed by landfill disposal.
5. Animal waste (carcasses or tissue) must be double bagged and placed in a secondary container and designated for pick up by Stericycle or another licensed waste hauler.
6. Sharps will be disposed of through Stericycle. Place discarded needles and syringes into approved sharps containers. An approved sharps container is one that is leak proof, puncture-resistant, closable, bears the biohazard symbol and is manufactured as a sharps container (this does not include plastic bleach bottles, milk bottles, etc.). Do not clip, bend, break, or recap sharps. A sharps container is discarded when:
 - It is $\frac{3}{4}$ full and within 90 days of the date that the first sharp was placed in it. (Label sharps containers with the date that the first sharp is inserted in the container as well as disposal date).
7. All waste generated in recombinant DNA research will be stored, treated and disposed of in the same manner as comparable waste types (i.e. liquid, solid, sharps) generated in infectious disease research.

Methods of Storage

Biohazardous waste cannot be stored on the premises for more than 90 days. All containers and equipment (e.g. incubators, refrigerators) used for storage shall be labeled with the biohazard sticker and or symbol. The preferable background color of all primary medical waste containers is red or orange fluorescent (e.g., biohazard bags).

Methods of Decontamination

Decontamination by Autoclave

1. Biohazardous waste, other than sharps and animal carcasses, may be decontaminated on-site by autoclaving. To use this on-site treatment method, personnel must use an autoclave that has been tested and approved for biohazardous waste decontamination. Routine spore strip (or equivalent) testing will be performed to demonstrate the effectiveness of the decontamination. A log book will be maintained of the test results and the parameters used to demonstrate effectiveness of the decontamination process. These parameters must be followed by all personnel using the autoclave for waste decontamination purposes.
2. For questions or more information, contact the Biosafety Officer at 774-3279.

Disposal

Autoclaved and properly decontaminated biohazardous waste may be disposed of in a type II MSW sanitary landfill or incinerated off.

Central Michigan University utilizes approved and licensed waste disposal companies to transport and dispose of biohazardous waste.

Currently CMU is utilizing:

Stericycle

2695 Elmridge Drive NW

Walker, MI 49534

Phone: 844 296-7580

Exposure Control Plan

In accordance with MIOSHA regulations, CMU has an Exposure Control Plan (ECP) for bloodborne pathogens (BBP). The ECP covers the protocols, training, personal protective equipment, and engineering controls required to prevent or control aerosols of BBP.

Personnel are encouraged to visit the Risk Management and Environmental Health and Safety (RM/EHS) website at: <https://www.cmich.edu/fas/fsr/rm/EHS/Pages/default.aspx> for information regarding BBP training and other safety training programs available at Central Michigan University.

Proposals for work with infectious agents or recombinant DNA must be approved through the Institutional Biosafety Committee (IBC). The IBC will not approve any work that does not comply with applicable regulations.

Biohazardous Waste Training

- All personnel who generate, handle or dispose of biohazardous waste must complete training in the provisions of this plan. The training topics will include:
- Purpose and overview of the CMU BWMP
- Types of biohazardous waste generated, treated or disposed of at the work site
- Segregation, packaging, storage and transport of biohazardous waste that is generated, treated or disposed of at the work site
- Treatment and disposal methods for biohazardous waste that is generated treated or disposed of at the work site
- Contact the Biosafety Officer at 774-3279 to receive the appropriate training

In accordance with the Michigan Medical Waste Regulatory Act, new personnel must complete biohazardous waste training before they assume duties that involve the handling of biohazardous waste.

Employees will receive updated information when a change in the BWMP occurs that directly affects their duties.

Training Records

Training records will be maintained for all CMU personnel completing biohazardous waste training.

Training must be renewed every 3 years minimum of three years through the Office of Research Compliance.

Appendix A

Contact information:

Biological Safety and Biohazardous Waste: Tom Schultz, Biosafety Officer: 774-3279

Chemical Safety or Radiation Safety: Jennifer Walton, Director, Office of Laboratory and Field Safety: 774-4189

For information regarding packaging, storage, or pickup of animal waste or sharps in the vivarium contact: Animal Facility Coordinator Carol Stevens for the College of Health Professions at 774-3015.

Chemical Waste Pickup: Hazardous Waste Manager, Contact the Office of Risk Management/Environmental Health and Safety 989 774-3313

Bloodborne Pathogens: Dany Sineway, Manager, Risk Management/Environmental Health and Safety & Emergency Management 774-3313

For information regarding transport packaging contact Stericycle at 844 296-7580

Schedule:

Stericycle pickups are scheduled every 90 days. Items for disposal must be placed in the designated areas no later than the day before the scheduled pickup date in order to be processed, labeled, properly boxed and ready for pickup on the scheduled date.

Appendix B

Biological Waste Tag

Project Leader _____

Dept. _____

Building & Room No. _____

Phone _____

Filled out by _____

Date _____

Cultures/Biologicals

Consistency: Liquid ____ Viscous/Oily/Semi-solid ____ Solid ____

Biohazardous agent (s)

Approximate Volume

Animals:

Category

Describe

____ Biohazardous Agents _____

____ Animals
Type: _____ #: _____

____ Bedding, Feces, Feed

____ Chemically-contaminated animals
or tissue. List chemical in ppm

____ Tissue or Blood Specimen

____ Non-infectious, non-hazardous

____ Autoclaved

____ Plastics (syringes, vials,
gloves, etc)

Please indicate special handling or storage precautions on the back of this form: