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MEDICAL WASTE MANAGEMENT PLAN

University of California, Davis

Version 3.4

Reviewed by Krisztina Forward SVM Safety Officer 2/2025

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TABLE OF CONTENTS

I.	Introduction	1
	A. Purpose	1
	B. Applicability	1
	C. Roles and Responsibilities	1
	D. Reference	2
II.	Waste Identification	3
	A. Biohazard Waste	3
	B. Sharps Waste	4
	C. Pathology Waste	4
	D. Pharmaceutical Waste	4
	E. Trace Chemotherapeutic Waste	4
	F. Mixed Waste	5
III.	Waste Management	5
	A. Solid Autoclave Waste	5
	B. Sharps Biohazard Waste	6
	C. Non-Biohazard Material Sharps	7
	D. Solid Incineration Waste	7
	E. Pharmaceutical Waste	8
	F. Liquid Mixed Waste	8
IV.	Waste Maintenance	9
	A. Accumulation Site	9
	B. Exceptions	9
	C. Documentation	10
	D. Emergency Action Plan	10
	E. Medical Waste Treatment Facilities	10
V.	Waste Supplies and Equipment	11
	A. Collection Bag	11
	B. Sharps Container	11
	C. Biohazard Waste Secondary Container	11
	D. Pharmaceutical Waste Container	11
	E. Contracted Vendor	12
	F. Terminal Autoclaves	12
VI.	Waste Training	12
	A. Safety Training	12
	B. Certification	13

MEDICAL WASTE MANAGEMENT PLAN

I. Introduction

A. Purpose

The purpose of this plan is to specify the procedures used to handle and dispose of medical waste at the University of California, Davis (UC Davis). UC Davis conducts a wide range of agricultural, biomedical, veterinary, and basic scientific research, and is home to veterinary clinics. UC Davis is a large-quantity generator that produces approximately 200,000 pounds of autoclavable solid biohazard waste, and 75,000 pounds of pathology waste, trace chemotherapeutic waste, and pharmaceutical incineration waste per year. The California National Primate Research Center (CNPRC) on the UC Davis campus treats approximately 40,000 pounds of biohazardous medical waste onsite annually, in California Department of Public Health (CDPH) permitted autoclaves. Throughout campus, liquid medical waste is treated with an agent-appropriate disinfectant for an appropriate amount of time, and then either drain-disposed or directed into the appropriate hazardous waste stream. Medical waste is transferred to one of the accumulation sites where the transport/treatment vendors pick up the medical waste.

B. Applicability

The Medical Waste Management Plan applies to ALL departments, laboratories, and personnel conducting research that results in the generation and disposal of medical waste materials. Medical waste materials include biohazard waste, sharps waste, pathology waste, trace chemotherapeutic waste, pharmaceutical waste, and mixed waste.

C. Roles and Responsibilities

The Biological Safety Officer oversees the Medical Waste Management Plan. The Biosafety Officers are trained on the contents of this plan and are able to train and assist the UC Davis community to safely and correctly dispose of biohazardous waste.

Principal Investigators (PIs) and their research group are responsible for:

- Maintaining current approvals from any institutional regulatory committees i.e., the Institutional Review Board (IRB), the Institutional Biosafety Committee (IBC), the

Institutional Animal Care and Use Committee (IACUC), the Stem Cell Research Oversight committee (SCRO), etc. that are required for operations and practices at the facility.

- Complying with the Medical Waste Management Act: California Health and Safety Code, Division 104, Part 14: Medical Waste, Sections 117600 – 118360, the California Code of Regulations, Title 8, Section 5193: Bloodborne Pathogen Standard, and all other federal, state, and institutional requirements involving biohazardous waste disposal.
- Adhering to all the procedures in this Medical Waste Management Plan.
- Ensuring all personnel complete and maintain the required safety training prior to handling, generating, or transporting medical waste, in addition to laboratory-specific training.
- Immediately reporting exposure or spills involving biohazardous materials, including biohazard waste.

All personnel generating medical waste are responsible for reading and complying with the requirements set out in this plan.

Each medical waste accumulation site has a representative who is responsible for maintenance of the biohazard accumulation waste storage site and facilitates the pick-up of medical waste with UCD-approved medical waste vendors. Personnel responsible for accumulations sites, or other assigned personnel will complete the UC Davis Medical Waste Management Training. Upon completion, these individuals will help manage and maintain the storage site to ensure regulatory compliance. Online Bloodborne Pathogen training through UC Davis is also required for individuals handling human blood or human source materials.

D. Reference

The Medical Waste Management Act (MWMA) California Health and Safety Code, Sections 117600 – 118360 governs the management of medical waste in all jurisdictions of the state. The most current version of the [MWMA](#) can be found on the CDPH - [Medical Waste Management Program webpage](#).

II. Waste Identification

A. Biohazard Waste

Biohazard waste is:

- Regulated medical waste, clinical waste, liquid waste, or biomedical waste that is a waste or reusable material derived from the medical treatment of a human, or from an animal that is suspected by the attending veterinarian of being infected with a pathogen that is also infectious to humans, which includes diagnosis and immunization; or from biomedical research, which includes the production and testing of biological products.
- Regulated medical, clinical, or biomedical waste suspected of containing a highly communicable disease.
- Laboratory waste such as human specimen cultures or animal specimen cultures that are infected with pathogens that are also infectious to humans; cultures and stocks of infectious agents from research; wastes from the production of bacteria, viruses, spores, discarded live and attenuated vaccines used in human health care or research, discarded animal vaccines, including Brucellosis and Contagious Ecthyma, as defined by the department; culture dishes, devices used to transfer, inoculate, and mix cultures; and wastes identified by Section 173.134 of Title 49 of the Code of Federal Regulations as Category B “once wasted” for laboratory wastes.
- Waste that, at the point of transport from the generator’s site or at the point of disposal contains recognizable fluid human blood, fluid human blood products, containers, or equipment containing human blood that is fluid, or blood from animals suspected by the attending veterinarian of being contaminated with infectious agents known to be contagious to humans.
- Waste containing discarded materials contaminated with excretion, exudate, or secretions from humans or animals that are required to be isolated by the infection control staff, the attending physician and surgeon, the attending veterinarian, or the local health officer, to protect others from highly communicable diseases or diseases of animals that are communicable to humans.

B. Sharps Waste

Sharps waste is any device that has acute rigid corners, edges, or protuberances capable of cutting or piercing, including but not limited to, hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, broken glass items used in research, such as Pasteur pipettes and blood vials contaminated with biohazardous waste, and any item capable of cutting or piercing from trauma scene waste.

C. Pathology Waste

Pathology waste includes:

- Human body parts, with the exception of teeth, removed during surgery, surgery specimens or tissues removed during surgery or autopsy, that are suspected by the health care professional of being contaminated with infectious agents known to be contagious to humans, or having been fixed in formaldehyde or another fixative.
- Animal parts, tissues, fluids, or carcasses suspected by the attending veterinarian of being contaminated with infectious agents known to be contagious to humans.

D. Pharmaceutical Waste

Pharmaceutical waste includes:

- Prescription or over-the-counter human or veterinary drug, including but not limited to, a drug as defined in Section 109925 of the Federal Food, Drug, and Cosmetic Act, as amended in 21 U.S.C.A. Sec. 321(g)(1).
- “Pharmaceutical” does not include any pharmaceutical that is regulated pursuant to either of the following:
 - The Federal Resource Conservation and Recovery Act of 1976, as amended in 42 U.S.C.A. Sec. 6901 et seq. This waste stream shall be handled as a hazardous waste under the authority of Chapter 6.5, commencing with Section 25100 of Division 20.
 - The Radiation Control Law, Chapter 8 commencing with Section 114960 of Part 9.

E. Trace Chemotherapeutic Waste

Any waste that is contaminated through contact with, or having previously contained, chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty. A biohazardous waste that meets

the conditions of this paragraph is not subject to the hazardous waste requirements of Chapter 6.5 (commencing with Section 25100) of Division 20.

F. Mixed Waste

Mixed waste includes:

- Solid or liquid waste of biohazardous agents mixed with hazardous chemicals is hazardous waste and subject to regulation as specified in the statutes and regulations applicable to hazardous waste.
- Solid or liquid waste of biohazardous agents mixed with radioactive material is radioactive waste and is subject to regulation as specified in the statutes and regulations applicable to radioactive waste.
- Mixed medical waste, hazardous waste, and radioactive waste is subject to regulation as specified in the statutes and regulations applicable to hazardous waste and radioactive waste.

III. Waste Management

A. Solid Autoclave Waste

Solid autoclave waste includes non-pathological, non-pharmaceutical, non-chemotherapeutic, and non-mixed biohazard wastes. The following procedures must be followed when handling solid autoclave waste:

- All biohazard waste must be stored in a red biohazard bag that is marked with the international biohazard symbol. The outermost bag in a UCD-approved medical waste vendors offsite transport container must be labeled as passing both American Society for Testing Materials (ASTM) 1709 and ASTM 1922 standards. When a bag is ready for disposal, twist the bag and tie it with an overhand knot, plastic zip tie, or nonporous tape (bag must be twisted and then folded over on itself before taping). Bags must be tied to prevent leakage or expulsion of contents during all future storage, handling, or transport procedures.
- A biohazard waste bag must be packaged for disposal when it reaches 75% capacity ($\frac{3}{4}$ -full) or seven days in storage, whichever comes first. Do not keep biohazardous waste in a laboratory for more than seven days even if the bag is not $\frac{3}{4}$ -full.
- All red biohazard waste bags must be contained within a solid secondary container at all

times. The secondary container must have a tight-fitting lid, be composed of a nonporous smooth and cleanable rigid material and marked with biohazard symbol/word stickers on all visible sides. All biohazard secondary containers are to be routinely cleaned and decontaminated. If a secondary biohazard waste container becomes contaminated with biohazardous materials, immediately decontaminate it with an appropriate disinfectant.

- Biohazard waste must be transported to the accumulation waste site using a solid secondary container, labeled with a biohazard sticker and a tight-fitting lid. The transfer container must be composed of smooth, non-porous material that is readily able to be decontaminated, and leak proof. Laboratories may transport waste using the same secondary container that is used in the lab to hold the waste, so long as it undergoes a complete surface decontamination prior to entry into public walkways.
- Never carry a biohazard bag by hand or place the biohazard bag on top of a transport cart.
- Do not leave medical waste in a public area unsecured and unprotected.
- At the medical waste accumulation site, biohazard waste bags are placed into labeled, Biohazard (autoclave only) transport barrels, provided and maintained by UCD-approved medical waste vendors. Many of the accumulation sites line these transport containers with a compliant biohazard bag labeled as passing both ASTM 1709 and ASTM 1922 standards. This bag is secured shut prior to snapping the barrel lid closed and labeling it with the vendor transport stickers.
- If a biohazardous spill occurs, place absorbent materials, such as paper towels, onto the spill area. Pour a freshly diluted 10% solution of bleach onto the absorbent paper towels, soaking the absorbent towels, and work from the outside of the spill toward the center. Allow the 10% bleach to be in contact with the spill surface for 30 minutes. After the appropriate amount of time, remove the paper towels and discard as biohazardous waste, then clean and rinse the spill area completely. For detailed guidance refer to [SafetyNet #127: Biological and Biohazardous Spill Response](#).

B. Sharps Biohazard Waste

The following procedures must be followed when handling sharps biohazard waste:

- Dispose sharps contaminated with biohazard waste, including blood or other potentially infectious bodily fluids in leak- and puncture-proof sharps container labeled with a biohazard sticker. Do not dispose of sharps contaminated with hazardous chemicals or radioactive

materials.

- Do not fill sharps container above recommended fill line, or more than $\frac{3}{4}$ full.
- When the container is $\frac{3}{4}$ full, tightly close and shut the lid before disposal to the accumulation area. Do not keep full sharps container for more than thirty days.
- Do not bring sharps container that is open, broken, or overfilled into the accumulation waste area. Broken lids can be fixed by using a strong adhesive tape i.e., packing tape or duct tape.

C. Non-Biohazard Material Sharps

Sharps can become contaminated with other materials besides biohazard. The following list explains different types of non-biohazard waste, and how to handle each. For more information and disposal schedules for these types of waste, visit the [UC Davis WASTE program website](#).

- Sharps that have come into contact with extremely or acutely hazardous chemicals must be disposed as hazardous waste sharps. Use a compliant sharps container and remove any biohazard label or markings on the container. Label the container “CHEMICAL HAZARDOUS SHARPS” and dispose as solid waste to EH&S Hazardous Chemical Waste.
- Sharps that have come into contact with radioactive materials must be disposed as radioactive waste sharps. Use a non-red sharps container and remove any biohazard label or markings on the container. Label the container “RADIOACTIVE SHARPS” and dispose as radioactive waste. This waste is subject to regulation as specified in the statutes and regulations applicable to radioactive waste.
- Sharps that are not hazardous or biological must still be properly disposed of in a sharps container. These containers are collected by the UC Davis Hazardous Materials and Waste Management group and discarded as medical waste.

D. Solid Incineration Waste

Solid incineration waste includes pathology and trace chemotherapy waste, which is both non-pharmaceutical and non-mixed waste. The following procedures must be followed when handling solid incineration waste:

- Incineration waste can be stored in either a red biohazard bag, or one that is colored for the specific type of waste, such as white for pathology or yellow for trace chemotherapy. When a bag is ready for disposal, twist and tie the bag with an overhand knot, plastic zip tie, or nonporous tape (bag must be twisted and then folded over on itself before taping). Bags must

be tied to prevent leakage or expulsion of contents during all future storage, handling, or transport procedures.

- Pathology waste will be segregated in a waste bag that is within a secondary container. The container will be labeled with the words “Pathology Waste” or “PATH” on the lid and sides, so it can be seen from any lateral direction. Transport of waste to an accumulation site will only be discarded into a transport barrel that is labeled as “Pathology Waste” or “PATH”.
- Trace chemotherapy waste will be segregated for storage, and when placed in a secondary container, that container shall be labeled with the words “Trace Chemotherapy Waste” or “TRACE CHEMO” on the lid and sides, so it can be seen from any lateral direction. Trace Chemotherapy waste will only be discarded into a yellow transport barrel, as provided by the vendor, labeled as “Trace Chemotherapy Waste” or “TRACE CHEMO”.
- Waste will not be stored at or below 0° Centigrade (32° Fahrenheit) at any onsite location for more than 89 days, after which time it will be appropriately transported to a medical waste accumulation site, transferred to an appropriate barrel, and picked up by UCD-approved medical waste vendors within 24 hours.

E. Pharmaceutical Waste

The following procedures must be followed when handling pharmaceutical waste:

- Nonradioactive pharmaceutical wastes that are not subject to the Federal Resource Conservation and Recovery Act of 1976, as amended in Public Law 94-580, and that are regulated as medical waste are placed in a pharmaceutical container labeled “HIGH HEAT” or “INCINERATION ONLY,” or with another label approved by the CDPH, on the lid and sides, so it can be seen from any lateral direction. This ensures treatment of the pharmaceutical waste.
- Pharmaceutical wastes classified by the Drug Enforcement Administration (DEA) as “controlled substances” shall be disposed of in compliance with DEA requirements.

F. Liquid Mixed Waste

Liquid mixed waste might be decontaminated to neutralize the biohazardous agents with an agent- appropriate disinfectant, only if the disinfectant is chemically compatible with the hazardous or radioactive components of the mixed waste material. If there are chemical incompatibility issues with the waste, then the biohazardous component of the waste will not be

treated. In either scenario the liquid waste will still be discarded as mixed waste and subject to regulation as specified in the statutes and regulations applicable to hazardous waste and/or radioactive waste.

IV. Waste Maintenance

A. Accumulation Site

Each medical waste accumulation site **must be locked and secured at all times**. The accumulation waste sites at all UC Davis facilities are solely for the temporary storage of waste generated through UC Davis-specific activities. Maintenance, upkeep, and security of the accumulation site is the responsibility of all laboratory personnel at UC Davis who are properly trained to access the site.

Medical waste at each accumulation site is picked up by UCD-approved medical waste vendors. If the barrels from the storage sites are full, not picked up by the vendor, or there are other issues in the storage sites, the laboratory personnel must contact the medical waste accumulation site manager to make the necessary arrangements for immediate pick up.

If biohazard bags or sharps containers are compromised, the laboratory is expected to clean up the spilled materials. UC Davis Biosafety can be contacted for assistance, but the laboratories generating biohazard waste are trained to respond to such emergencies.

B. Exceptions

The UC Davis campus medical waste accumulation sites are **not** designed for the disposal of the items listed below. **Note:** For these items, the laboratory must contact EH&S at 530-752-1493 or at <http://safetyservices.ucdavis.edu/section/research> for assistance prior to generating and disposing of such waste.

The following types of waste are not currently handled, generated, or stored at medical waste accumulation sites.

- Human surgical specimens -- Human surgery specimens or tissues removed at surgery or autopsy suspected of contamination with infectious agents known to be contagious to humans. Contact the [UC Davis Body Donation program](#) to dispose of the specimens.
- Fixed human tissues -- Human surgery or autopsy tissues which have been fixed in formalin or another fixative. Contact the [UC Davis Body Donation program](#) to dispose of the tissues.
- Bulk Chemotherapy Waste – Medical waste which still contains scrapable or pourable

amounts of chemotherapeutics, or had contact with chemotherapeutic agents, including tubing, bags, bottles, and vials containing trace amounts. Bulk chemotherapy is hazardous waste, and must be disposed in a black pharmaceutical waste container. Please utilize the [UC Davis WASTE program](#) for disposal.

- Radioactive Waste – Medical waste contaminated with radioactive waste shall be disposed of through EHS. For any questions please contact hazwaste@ucdavis.edu.

C. Documentation

Tracking documents for each accumulation site is kept by the responsible parties who will reconcile and verify the accuracy against the vendor's invoice to ensure the waste was treated at the terminal site, and will be kept for a minimum of two years.

D. Emergency Action Plan

In the event that service to UC Davis by the medical waste transporter and treatment facility is disrupted, UC Davis will make a good faith effort to dispose of medical waste within seven days.

UC Davis should take the following steps:

- Determine if regular service from the contracted transporter and treatment facility can be resumed promptly, or whether alternative procedures for storage and treatment will be required.

If it is determined that alternative procedures are required, UC Davis should:

- Contact the California Department of Health Services Medical Waste Management Division, and the Office of Emergency Services for updates on available alternatives.
- Attempt to secure the services of another transporter and/or treatment facility until regular service is reestablished (e.g. Clean Harbors).

If the onsite treatment facilities at CNPRC are non-operational or must be closed, then all waste will be directed to a medical waste accumulation site for treatment by UCD-approved medical waste vendors. Once these treatment areas cease to be used for treatment of medical waste, they will be disinfected by 500ppm available chlorine.

E. Medical Waste Treatment Facilities

Medical waste treatment may occur at a location of the following:

- Stericycle Inc., 2355 Waukegan Road, Bannockburn, IL 60015 (Tel: 1-847-367-5910)

- Clean Harbors Environmental Services, Inc., 42 Longwater Drive, Norwell, MA 02061 (Tel: 1-855-633-9783).
- California Animal Health & Food Safety (CAHFS) - Davis Laboratory, 620 Garrod Dr, Davis, CA 95616 (Tel: 530-752-8700) – Incinerator
- California National Primate Research Center (CNPRC) - One Shields Avenue, Davis, CA 95616-8542 (Tel: 530-752-0447) – Autoclave

V. Waste Supplies and Equipment

The UC Davis departments or individual principal investigators supply secondary containers, bags, or medical waste stickers needed for the disposal of medical waste.

A. Collection Bag

Collection bags are red for biohazard, pathology, or trace chemotherapy. Alternatively, pathology waste may be collected in white bags, and trace chemotherapy can be collected in yellow bags.

B. Sharps Container

Sharps containers can be any color, must be properly labeled, rigid, leak-proof, puncture proof, and closable. Biohazard sharp waste is collected in containers with the biohazard symbol and the word “biohazard” on the front. Trace chemotherapy should be collected in yellow sharps containers. These containers will never be lined with a plastic bag or inner liner.

C. Biohazard Waste Secondary Container

Secondary containers can be any color, must be labeled with a biohazard sticker visible on the lid and all lateral sides, must have a tight-fitting lid, must be leak and puncture-proof, and be composed of nonporous material.

D. Pharmaceutical Waste Container

Pharmaceutical waste containers must be a United States Food and Drug Administration (USFDA) approved sharps container that meets USFDA labeling requirements and must be maintained in a manner to secure the pharmaceutical waste contents from access by unauthorized individuals.

E. Contracted Vendor

UCD-approved medical waste vendors provide compliant medical waste transport barrels to each medical waste accumulation site. These barrels possess appropriate labeling and a tight-fitting lid. Sharps containers can be placed directly inside these barrels if they have a sealed gasket around the lid, otherwise they must be placed in a compliant biohazard bag within the transport barrel.

- The contact information of the CDPH permitted medical waste hauler companies, contracted by the University of California Davis, are Stericycle Inc., 2355 Waukegan Road, Bannockburn, IL 60015 (Tel: 1-847-367-5910) and Clean Harbors Environmental Services, Inc., 42 Longwater Drive, Norwell, MA 02061 (Tel: 1-855-633-9783).

F. Terminal Autoclaves

These are tested monthly at the CNPRC with a biological indicator by CNPRC staff and undergo annual calibration/verification by a third-party vendor. Each autoclave load of medical waste from laboratories and animal facilities is documented in a log at each autoclave site. The logbook notes the time, temperature, and pressure associated with each load. The CNPRC is responsible for the operation, maintenance, and compliance of these autoclaves.

VI. Waste Training

A. Safety Training

In addition to receiving laboratory-specific training for handling medical waste, all personnel handling human medical waste must take the following Environmental Health & Safety (EH&S) safety training courses:

- Bloodborne Pathogens (annually) for those handling unfixed human materials.
- Medical Waste Management (every three years) for those handling regulated medical waste.

At a minimum, all laboratory personnel handling medical waste must complete a UC Davis Medical Waste Management training course within 90 days from the start of employment, and every three years thereafter, or as needed. All personnel handling unfixed human materials will participate in the CAL/OSHA Bloodborne Pathogen Standard training prior to the start of

employment, and annually thereafter. All training records will be kept by the lab, or administrative staff.

Terminal autoclave operators at CNPRC undergo annual terminal autoclave use and safety training, which entails a documented review of site-specific information. This training is coordinated and maintained by the CNPRC safety staff.

B. Certification

The information outlined in this medical waste management plan is complete and correct to the best of our knowledge.