

University of California, Riverside

Medical Waste Management Plan

Environmental Health and Safety

University of California, Riverside

For compliance with the State of California Medical Waste Management Act
California Health and Safety Code, Division 20, Chapter 6.1, and Part 14

1.0 Introduction

The State of California adopted the Medical Waste Management Act effective April 1, 1991. The Act establishes procedures for the proper handling, storage, treatment, and transportation of medical waste. The Act requires that large quantity generators, such as UCR, prepare, implement and maintain a Medical Waste Management Plan. The Medical Waste Management Plan establishes procedures and methods for on-site treatment, including steam sterilization and incineration, to properly treat medical waste to eliminate or minimize the risk of personnel exposure to or contamination by untreated medical waste.

The UCR Department of Environmental Health and Safety (EH&S) has prepared this Medical Waste Management Plan as guidance for employees at UCR who handle, store, treat, or transport medical waste to comply with the Medical Waste Management Act.

At UCR, medical waste is treated onsite by steam sterilization using registered and approved autoclaves, incineration in the permitted onsite incinerator, or transported offsite by a registered hazardous waste hauler for treatment at a permitted medical waste treatment facility. Note: Although there are numerous autoclaves on campus, only the autoclaves used for the treatment of “Medical Waste” will be registered and tested under this program. Contact EH&S at 827-5528 if there are any questions regarding medical waste.

2.0 Policy Statement

It is the policy of the University of California, Riverside to ensure the health and safety of all of its employees. The Medical Waste Management Plan has been developed to protect personnel by eliminating or minimizing their exposure to untreated medical waste, and to comply with the California Medical Waste Management Act (California Health and Safety Code, Division 20, Chapter 6.1 and part 14). Any potential exposures to untreated medical or biohazardous waste or sharps injuries must be reported immediately to EH&S at 827-5528. **The UCR policy is that all biohazardous or medical waste must be treated before disposal.**

3.0 Responsibility for Waste Management

The responsibility for waste management and pickup is as follows:

- EH&S (827-5518)
 - ⌚ Radioactive Waste
 - ⌚ Hazardous Waste
 - ⌚ Mixed Waste (Mixtures of medical and non-medical waste)
 - ⌚ Medical Waste

- Other
 - ⌚ Biological Waste Incineration (not medical waste, e.g. animal carcasses): Dan Rios 827-3600
 - ⌚ Human Specimens/Tissues: EH&S Biosafety Division: 827-5528
 - ⌚ Pharmaceutical Waste: Materials Management: 827-3001
 - ⌚ Solid Waste (waste which is not hazardous in any way): Building Services: 827-4219

Note: The Principal Investigator/Supervisor is ultimately responsible for ensuring proper handling, storage, treatment, and disposal of all waste generated in their facility.

4.0 Containment and Storage Requirements for Medical Waste

Containment and Storage

Solid Medical or Biohazardous Waste

Solid medical waste must be contained at the point of generation in **red biohazard bags (orange biohazard bags are illegal in California)**, separate from other types of waste.

Biohazard bags must be tied closed and placed in rigid containers with a tightly fitting lid, which must be labeled with “Biohazardous Waste” or “Biohazard” and the International Biohazard Symbol on the lid and sides, visible from any direction. It is recommended that medical waste be placed in double red bags to prevent spills if the primary bag fails.

Note: Waste containers must be covered by a tight-fitting lid that is removed only while the container is being filled or emptied. The waste container should only be filled to the point where the lid fits tightly at all times. The waste containers are never to be overfilled.

Do not remove medical or biohazardous waste until after treatment, except to eliminate a safety hazard or in the performance of an investigation by the EH&S Biosafety Division.

Liquid Medical or Biohazardous Waste

Liquid medical and biohazardous waste must be contained separately at the point of generation using flasks to contain the liquid waste.

Liquid waste must be stored in a container with a lid and then autoclaved or chemically disinfected before disposal. The liquid waste containers must be labeled with “Biohazardous Waste” or “Biohazard” and the International Biohazard Symbol on the lid and sides, visible from any direction.

Animal Carcasses

- Carcasses must be double-bagged in heavy (preferably 3.2 mil or .0032” thickness) plastic bags.
- Each bag should weigh no more than 50 pounds. More than one carcass may be placed in a bag as long as the weight does not exceed 50 pounds.
- Call Biology at 827-3600 before transporting waste.

- Transport waste to the freezer designated for the storage of animal carcasses. If the freezer is full, do not leave the carcasses; return the carcasses to your facility until there is space available and advise Biology at 827-3600 of the freezer's condition.
- Biology will dispose of the animal carcasses by incinerating in the Pathological Incinerator.
- DO NOT use plastic trash bags designed for domestic applications.
- DO NOT place carcasses in aluminum foil or cardboard boxes.
- DO NOT deposit paper, textile, or wood products that have slight contamination with animal blood in the freezer. (Contact your Chemical Hygiene Officer for proper disposal procedures).
- DO NOT deposit petri dishes, syringes, needles, human surgery specimens or tissues, or medical waste of any kind in the freezer. These materials will not be incinerated in the Pathological Incinerator. For questions regarding incineration contact Dan Rios at 827-3600.

Human Anatomical Remains (Pathological Waste)

If the recognizable human anatomical remains are not part of a Body Donation Program, they are labeled as "pathology waste" and are separated from other medical or hazardous wastes, including fixatives.

Pathological waste also includes human tissues. The waste must be placed in a red biohazard bag, and deposited into a secondary container with the words "pathology waste" or "path."

The container must be stored in a freezer until picked up by EH&S for transport to an approved incineration facility.

Once the specimens are considered waste, they must not be stored for more than ninety days at temperatures below 0°C.

Recognizable Human Anatomical Remains Obtained through a Body Donation Program

Recognizable human anatomical remains must be returned to a body donation program in compliance with the Anatomical Gift Act.

If the recognizable human remains are not part of a body donation program they must be disposed offsite by internment or incineration; **recognizable human remains will not be incinerated at UCR.**

Recognizable human anatomical remains are stored with the same labeling requirements as Pathological Waste. The waste must be placed in a red bag, and deposited into a secondary container with the words "pathology waste" or "path". The container must be stored in a freezer until picked up by EH&S for transport to an approved incineration facility. Once the specimens are considered waste, they must not be stored for more than ninety days at temperatures below 0°C. Please contact EH&S at 827-5528 if you have any questions.

Sharps

All sharps waste must be contained in sharps containers that are red, rigid and leak-proof with the words “sharps waste” or the International Biohazard Symbol and the word “biohazard” on the sharps container.

Sharps containers must be taped closed or tightly-lidded to prevent the loss of contents. Sharps must be rendered non-infectious before disposal by incineration or another method approved by the EH&S Biosafety Division. The treated sharps waste must be destroyed, or public access must be prevented.

Sharps containers ready for disposal must not be stored for more than seven (7) days without written approval of the Enforcement Agency. Sharps must be picked up by EH&S for disposal.

Storage and Disposal of Intact Pipettes and Pipette Tips

Due to the expense of sharps containers, intact pipettes and pipette tips potentially contaminated with biohazardous materials may be disposed of by placing a red biohazard bag in a cardboard box and placing the intact pipettes and tips in the box. Once the box is filled, it must be sealed and disposed of in a red bag to prevent puncture of the red bag by pipettes and pipette tips. The box can then be picked up by EH&S or treated by steam sterilization and disposed as solid waste. Broken pipettes must be disposed in a sharps container.

Mixed Waste

If mixed waste results from radiological waste mixed with medical waste, the medical waste part must be treated and the entire waste disposed as radiological waste.

If pathological waste is mixed with chemical waste (i.e. tissues with fixative), the chemical waste must be decanted off and disposed as hazardous chemical waste. The medical waste must be disposed of as pathology waste.

Chemotherapeutic Waste

A chemotherapeutic agent is an agent that kills or prevents reproduction of malignant cells. **All waste that is only trace contaminated with a chemotherapeutic agent must be placed in a specially marked, yellow collection container labeled with the words “Chemotherapy Waste” or “Chemo”.** When the container is full, without compacting, the locking lid must be secured to prevent the loss of contents before disposal. Gowns, gloves, and other trace contaminated non-sharp objects must also be deposited into the container. A chemotherapeutic waste container is considered empty if no material can be poured or drained from the container or inner liner when held in any direction, including being inverted. If the material in the container or liner is not pourable, no material or waste that can be removed by scraping must remain in the container or inner liner. Chemotherapeutic waste must be disposed through EH&S. Contact EH&S at 827-5419 for questions on Chemotherapeutic Waste Disposal.

Pharmaceutical Waste

A pharmaceutical is a prescription, or over-the-counter human or veterinary drug. This does not include radiological materials. Pharmaceutical waste should be labeled with the words

“Incineration Only” on the lid and sides, so that it is visible from all directions. Contact Materials Management at 827-3001 for questions on Pharmaceutical Waste Disposal.

Maximum storage time for biohazardous and medical waste biohazard bags and filled sharps containers is **seven (7) days** at a temperature **above 32 degrees Fahrenheit or zero (0) degrees Celsius**. This seven (7) day period begins when any waste has been placed in the container. Biohazardous and medical waste may be stored for a maximum of **ninety (90) days at or below 32 degrees Fahrenheit or 0 degrees Celsius**. The 90-day period begins when any waste has been placed in the container. If the materials are stored at or below 32 degrees Fahrenheit or 0 degrees Celsius, the freezers must have the temperature checked weekly to ensure that they are functioning properly. Contact EH&S at 827-5518 for disposal.

Security and Placarding of Biohazardous and Medical Waste Storage Facilities

The storage area used for biohazardous and medical waste accumulation must be secured to prevent access by unauthorized persons. Warning signs must be posted on entry doors. These warning signs must be in both English and Spanish and must state “CAUTION-BIOHAZARDOUS WASTE STORAGE-UNAUTHORIZED PERSONS KEEP OUT”, “CUIDADO-ZONA DE RESIDUOS-BIOLÓGICOS PELIGROSOS-PROHIBIDA LA ENTRADA A PERSONAS NO AUTORIZADAS.” Signs must be readily legible during daylight from a distance of at least 25 feet. Storage areas must be secured to deny access to unauthorized persons, animals, insects, wind and rain.

5.0 Treatment and Disposal of Medical Waste

All treatment and disposal must comply with the requirements of the Medical Waste Management Act and must be approved by the EH&S Biosafety Division and the Institutional Biosafety Committee. The UCR policy is that all biohazardous or medical waste must be treated before disposal.

Steam Sterilization

This method is suitable for medical waste that does not include human surgery specimens and tissues, fixed tissues, recognizable human remains, chemotherapy waste, sharps or pharmaceuticals. Steam sterilization is also inappropriate for mixed waste. Use only red bags with temperature indicators, such as autoclave tape, for medical waste. Sharps must be picked up for disposal by EH&S.

Standard Operating Procedures (SOPs) must be maintained for all autoclaves used to treat biohazardous and medical waste. The Autoclave SOP must include treatment time, temperature, pressure, type of waste treated, type of container used, closure on container, load size, pattern of loading, water content, description of the type of autoclave (make, model, capacity, etc.) and maximum load quantity. Autoclaves used for the treatment of biohazardous and medical waste must be spore tested monthly using *Bacillus stearothermophilus*, which must be placed in the center of the autoclave load and processed under standard operating conditions to confirm the attainment of adequate sterilization conditions, and then cultured to determine viability. See Attachment 3 for the method. EH&S will perform monthly spore testing for all autoclaves used to treat medical waste. Contact EH&S Biosafety at 827-5528 to schedule autoclave spore testing.

Autoclave cycle temperature documentation (charts, printouts) should indicate attainment of 121 degrees Centigrade (250 degrees Fahrenheit) for at least 30 minutes, depending on the quantity and density of the load, to attain sterilization of the entire load. The records should also include the amount and types of waste treated for each cycle.

Thermometers must be calibrated annually. Records of the calibration checks must be kept for a minimum of three years.

Heat-sensitive autoclave indicator tape must be used on each biohazard bag or sharps container that is processed onsite to indicate the attainment of adequate sterilization conditions. All records pertaining to onsite treatment of biohazardous and medical waste must be kept for at least 3 years.

If the heat-sensitive autoclave indicator tape does not change color, the thermometer indicates that proper sterilization has not taken place, or the autoclave fails to complete the cycle, the waste must be transported in secondary containment to an alternative medical waste treatment autoclave onsite, or the waste must be transported offsite for treatment by the medical waste hauler. The autoclave must then have maintenance, be posted as out of service, and be spore tested to indicate attainment of proper sterilization before being used for sterilization of biohazardous and medical waste again.

Treatment with Discharge to Public Sewer System

Medical waste in liquid or semi-liquid state can be discharged to the sanitary sewer if it is not a mixed waste containing radioactive, hazardous, or untreated biohazardous waste. Biohazardous waste of the following types (Subdivision (a) of Section 117635) may be treated by a chemical disinfection if the medical waste is liquid or semi-liquid and the chemical disinfection method is recognized by National Institutes of Health, the Centers for Disease Control and Prevention, or the American Biological Safety Association, and if the use of chemical disinfection as a treatment method is identified in the UCR Medical Waste Management Plan.

The biohazardous waste that may be treated by chemical disinfection includes, but is not limited to, all of the following laboratory waste:

- Human or animal specimen cultures from medical or pathology laboratories
- Cultures and stocks of infectious agents from research and industrial laboratories
- Wastes from the production of bacteria, viruses, spores, discarded live and attenuated vaccines used in human health care or research, and discarded animal vaccines

Only chlorine bleach is allowed to be disposed of down the drain for discharge into the Public Sewer System. All other chemical disinfectants or waste with any additional hazardous properties (chemical or radiological) must be picked up by EH&S for disposal as hazardous waste. Contact EH&S at 827-5518 for disposal.

Incineration

The onsite pathological incinerator is permitted with the South Coast Air Quality Management District. The pathological incinerator is suitable for biological, but not medical, waste that consists of animal carcasses.

The onsite incinerator tracking documents must include total throughput, waste logs, inspection checklist, incinerator standard operating procedures, maintenance records, inspection of ash, and maximum throughput to achieve minimum treatment standards.

The amounts and types of medical waste treated must be recorded and maintained for each incinerator treatment cycle. All records pertaining to onsite medical waste incineration must be kept for at least 3 years. Please contact Dan Rios at 827-3600 for questions.

Compactors or grinders must not be used to process unless it has been treated. Compaction and grinding of untreated medical waste is not allowed as it could potentially expose personnel to aerosols from potentially infectious materials.

6.0 Decontamination

Decontamination of Leaks or Spills

Any leak or spill of biohazardous or medical waste must be decontaminated using one of the following disinfectants for a minimum of 15-minutes contact time:

- Hypochlorite solution (500 ppm available chlorine)
- Phenolic solution (500 ppm of active agent)
- Iodoform solution (100 ppm available iodine)
- Quaternary ammonium solution (400 ppm active agent)

Please contact EH&S at 827-5528 for assistance.

Decontamination of Reusable Secondary Containers

Reusable secondary containers (garbage cans, bins, etc.) should be decontaminated each time they are emptied unless they are protected from contamination by disposable liners, bags, or other devices removed with the waste. These containers should be maintained clean.

Approved methods of decontamination include, but are not limited to, agitation to remove visible soil combined with one of the following procedures:

- Exposure to hot water of at least 82 degrees Centigrade (180 degrees Fahrenheit) for a minimum of fifteen (15) seconds
- Exposure to chemical sanitizer by rinsing with, or immersion in, one of the following for a minimum of three (3) minutes:
 - ⌚ Hypochlorite solution (500 ppm available chlorine)
 - ⌚ Phenolic solution (500 ppm of active agent)
 - ⌚ Iodoform solution (100 ppm available iodine)
 - ⌚ Quaternary ammonium solution (400 ppm active agent)

7.0 Emergency Action Plan

Personnel Exposures or Contamination

- Remove the exposed or contaminated personnel from the contaminated area, unless it is unsafe to do so due to the medical condition of the victim or potential hazard to the rescuer.
- If the incident occurs during normal working hours, notify the EH&S Biosafety Division at 827-5528. If after hours, notify UCR Police at 9-1-1.
- At all times, notify UCR Police at 9-1-1 if medical assistance is needed.
- Administer first aid as appropriate.
- Remove any contaminated clothing.
- Proceed to the nearest emergency eyewash/shower to flush contamination from the eyes and skin.
- Stand by to provide emergency information and assistance to Emergency Response Personnel.

Contamination of Equipment and Facilities

- DO NOT attempt any cleanup or decontamination procedures alone or without wearing Personal Protective Equipment (PPE), including respiratory protection if respiratory pathogens may be present. Unless the spill is minor and well defined, do not clean up the material without EH&S approval.
- Avoid spreading contamination by allowing access to the contaminated equipment or area only to individuals who are properly protected and trained to respond to all types of hazards that exist (e.g., biological, radioactive and chemical).
- Report details and request assistance by contacting EH&S Biosafety at 827-5528 if the incident is during normal working hours. Contact the UCR Police at 9-1-1 if the incident occurs after hours.
- If the spill involves a liquid, place absorbent material on the spill and decontaminate with an approved disinfectant for a minimum of 30-minutes contact time.
- If sharps are involved, use a mechanical means, such as tongs, forceps, or dustpan and broom. Do not use your hands to pickup any sharp items, even if gloves are worn.
- Decontaminate the equipment and area under EH&S direction using appropriate methods.
- Stand by to provide emergency information and assistance to Emergency Response Personnel.

Release to the Environment (air, water, soil)

- Stop the release, if safe to do so.
- Follow procedures described above for contamination of equipment and facility.

Equipment Failure

If equipment fails, medical waste will be handled by one of the following methods:

Medical waste can be stored at temperatures greater than 32 °F (0°C) for up to seven days before treatment. The medical waste may also be stored frozen for up to ninety days. Attempts will be made to complete repair within this time. Alternate approved autoclave facilities are available on

campus if equipment failures occur. If you need to know additional approved autoclave locations, please contact EH&S Biosafety at 827-5528.

If the on-site incinerator or autoclaves fail, waste must be removed and treated off-site by TCI. If TCI is unavailable, UCR must contract with Stericycle to have the waste hauled off-site and decontaminated. If a natural disaster occurs, or if there is a disruption in service, the waste must be packed on dry ice and retained up to seven days above 0°C.

Natural Disasters

In the event of a natural disaster, all research generating medical waste will be suspended until adequate medical waste treatment is available. Additional contingency plans for emergency situations (natural disasters, etc.) would be to contact the Riverside County, Department of Environmental Health, and the Local Solid Waste Management Enforcement Agency for guidance at (951) 955-8982.

Campus autoclaves are either connected by steam lines or use electrical power to generate steam. Many of the lab buildings on campus have auxiliary generators to provide power to autoclaves. In the event of an electrical or steam failure or other problems related to natural disasters, the EH&S Biosafety Division will coordinate with labs to address disposal options.

In the event of a spill, the biohazardous and/or medical waste will be disinfected using 10% bleach solution or another approved disinfectant for 30-minutes contact time. Spills and releases of a biohazardous agent will be handled by EH&S.

8.0 Transportation of Medical Waste

Transportation of Medical Waste

Medical waste must be transported in a closed, leak-proof secondary container to prevent release of materials and to limit personnel exposure to untreated medical waste. If there is a spill, decontaminate the area with disinfectants listed in Section 6.0. Proper tracking documentation is required for transportation of medical wastes on campus. Documentation must include a) the name, location, and phone number of the waste generator, b) a description and quantity of the waste, and c) the destination of the waste.

Limited Quantity Hauling Exemption

Medical waste is hauled from laboratories on the UCR campus for consolidation before shipment by TCI for off-site medical waste treatment. Biohazardous and medical waste is only accepted from UCR facilities. Laboratories must complete a waste tag and then contact EH&S for pickup.

Off-Campus Transportation

Transportation must be by an EH&S approved registered hazardous waste hauler. A completed tracking document must be maintained for all medical waste shipped offsite for disposal. All medical waste tracking documents and treatment records must be kept for a minimum of three (3) years.

9.0 Training

Personnel handling medical waste must be properly trained. Training must include:

Bloodborne Pathogens Training:

- Definitions
- Regulatory Requirements
- Biosafety Levels
- Bloodborne Pathogens
 - Ⓢ Modes of Transmission
 - Ⓢ Exposure Information
 - Ⓢ Hepatitis A, B, C
 - Ⓢ HIV
- Exposure Control Plan
- Methods of Compliance
 - Ⓢ Universal Precautions
 - Ⓢ Engineering Controls & Work Practices
 - Ⓢ Laboratory Practices
 - Ⓢ Personal Protective Equipment
 - Ⓢ Hepatitis B Vaccination
- Post Exposure Evaluation
- Sharps Injury Log
- Emergency Response
- Biohazardous Waste Management
- Decontamination of Media

Medical Waste Training:

- Definition of Medical Waste
- UCR Medical Waste Management Plan Review
- Safe Work Practices
- Selection and Use of Personal Protective Equipment (PPE)
- Signs and Labels
- Collection, Treatment and Disposal of Medical Waste
- Sterilization and Disinfection Techniques

10.0 Safe Work Practices

- Use appropriate Personal Protective Equipment (PPE)
- Follow Standard Operating Procedures (SOPs)
- Use good personal hygiene

Note: The Principal Investigator/Supervisor is ultimately responsible for ensuring proper personnel protective measures are in place to limit personnel exposure to untreated medical waste. Contact the EH&S Biosafety Division at 827-5528 if you have questions.

11.0 Medical Waste Tracking and Treatment Record keeping

All medical waste tracking and treatment records must be kept for a minimum of 3 years.

For a complete list of Definitions, review the Medical Waste Management Act on the EH&S Website at www.ehs.ucr.edu.

GLOSSARY

Biohazardous Waste

(See Section 117635 of the California Medical Waste Management Act)

“Biohazardous waste” means any of the following:

1. Laboratory waste, including, but not limited to, all of the following:
 - a) Human or animal specimen cultures from medical and pathology laboratories.
 - b) Cultures and stocks of infectious agents from research and industrial laboratories.
 - c) 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 identified by the department, and culture dishes and devices used to transfer, inoculate, and mixed cultures.
2. Human surgery specimens or tissues removed at surgery or autopsy, which are suspected by the attending physician and surgeon or dentist of being contaminated with infectious agents known to be contagious to humans.
3. Animal parts, tissues, fluids, or carcasses suspected by the attending veterinarian of being contaminated with infectious agents known to be contagious to humans.
4. Waste, which at the point of transport from the generator’s site, at the point of disposal, or thereafter, contains recognizable fluid blood, fluid blood products, containers or equipment containing blood that is fluid, or blood from animals known to be infected with diseases which are highly communicable to humans.
5. Waste containing discarded materials contaminated with excretion, exudates, 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 highly communicable to humans.
6. Waste which is hazardous only because it is comprised of human surgery specimens or tissues which have been fixed in formaldehyde or other fixatives, or only because the waste 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 is empty.
7. Waste that is hazardous only because it is comprised of pharmaceuticals.

Biologicals: Medicinal preparations made from living organisms and their products, including, but not limited to, serums, vaccines, antigens, and antitoxins.

Biological Waste: Animal or human specimens/tissues **and/or** cell cultures that are not defined as "Medical Waste."

Hazardous Waste: For the purpose of this procedure, any material (other than "Medical" or "Radioactive waste"), for which there is no further use at the point of generation and which is considered hazardous, by appropriate regulations, for being explosive, flammable, toxic, corrosive, oxidizing, irritant, carcinogenic, or otherwise harmful, and is likely to cause injury.

Laboratory Waste: Includes, but is not limited to, all of the following:

1. Human or animal specimen cultures from medical and pathological laboratories.
2. Cultures and stocks of infectious agents from research and industrial laboratories.

3. Wastes from the production of bacteria, viruses, or the use of spores, discarded live and attenuated vaccines, and culture dishes and devices used to transfer, inoculate, and mix cultures.

Medical Waste: The definition of medical waste as stated in the regulations is complex. In most of the situations encountered at UCR, the definition can be summarized as follows: Medical waste is waste that includes fluid blood or material of a biological origin with known or suspected infectious components.

According to the regulations, Medical Waste must meet **both** of the following requirements:

1. The waste is generated or produced as a result of any of the following actions:
 - a) Diagnosis, treatment, or immunization of human beings or animals.
 - b) Research pertaining to the diagnosis, treatment, or immunization of human beings or animals.
 - c) The production or testing of biologicals.
2. The waste is **either** of the following:
 - a) Biohazardous waste.
 - b) Sharps waste.

Specific examples of Medical Waste:

1. Waste containing microbiologic specimens sent to a laboratory for analysis.
2. Human surgery specimens or tissues removed at surgery or autopsy, which are suspected by the attending physician and surgeon or dentist of being contaminated with infectious agents known to be contagious to humans.
3. Animal parts, tissues, fluids, or carcasses suspected by the attending veterinarian of being contaminated with infectious agents known to be contagious to humans.
4. Waste which at the point of transport from the site of origin contains recognizable fluid blood (e.g., blood saturated drapes, sponges, any item so saturated with blood that upon compacting would exude blood in any form, any container or equipment for disposal that contains liquid blood).
5. In addition to the above, in Disease Specific Precaution Cases, all wastes soiled with body fluids.
6. Laboratory wastes, including cultures of infectious agents, which pose a substantial threat to health due to their volume and virulence.
7. Equipment, instruments, utensils, and other disposable materials which are likely to transmit infectious agents from the rooms of humans, or the enclosures of animals, which have been isolated because of suspected or diagnosed communicable disease.
8. Any other material which, in the determination of the EH&S Biosafety staff presents a significant danger of infection because it is contaminated with, or may be reasonably expected to be contaminated with, infectious agents.

Medical waste **does not include** any of the following:

1. Waste generated in food processing or biotechnology that does not contain an infectious agent.
2. Waste generated in biotechnology that does not contain human blood or blood products or animal blood or blood products suspected of being contaminated with infectious agents known to be communicable to humans.

3. Urine, feces, saliva, sputum, nasal secretions, sweat, tears, and vomitus, unless they contain fluid blood or are from humans who are required to be isolated by infection control due to highly communicable diseases.
4. Waste which is not biohazardous, such as paper towels, paper products, articles containing nonfluid blood, and other medical solid waste products commonly found in the facilities of medical waste generators.
5. Hazardous waste, radioactive waste, or household waste.
6. Waste generated from normal and legal veterinarian, agricultural, and animal livestock management practices on a farm or ranch.

For exclusions, please see Section 117700 of the California Medical Waste Management Act).

Mixed Waste: Mixtures of medical and nonmedical waste. Mixed waste is medical waste, **except** for all of the following:

1. Medical waste and hazardous waste is hazardous waste and is subject to regulation as specified in the statutes and regulations applicable to hazardous waste.
2. Medical waste and radioactive waste is radioactive waste and is subject to regulation as specified in the statutes and regulations applicable to radioactive waste.
3. Medical waste, hazardous waste and radioactive waste is mixed radioactive waste and is subject to regulation as specified in the statutes and regulations applicable to mixed radioactive waste.

Pathology Waste: Human surgery specimens or tissues that have been fixed in formaldehyde or other fixatives; recognizable human anatomical parts, with the exception of teeth, not deemed infectious by the attending physician, surgeon or dentist.

Radioactive Waste: Waste that releases ionizing radiation spontaneously.

Sharps Waste: Any device having acute rigid corners, edges, or protuberances capable of cutting or piercing, including but not limited to all of the following:

1. Hypodermic needles, hypodermic needles with syringes, needles with attached tubing, syringes contaminated with biohazardous waste, acupuncture needles and root canal files.
2. Blades, broken glass items, such as Pasteur pipettes and blood vials contaminated with biohazardous waste.

Treated Medical Waste: Medical waste that has been treated in accordance with Chapter 8 (starting with Section 118215) and that is not otherwise hazardous will be considered solid waste, not medical waste, as defined in Section 40191 of the Public Resources Code.

ATTACHMENT 1

AUTOCLAVE OPERATING CONDITIONS

LOCATION: _____ **MANUFACTURER** _____ **MODEL#** _____

a) TYPE OF WASTE: _____

b) WATER CONTENT: _____

c) TYPE OF CONTAINERS: _____

d) CLOSURE ON CONTAINERS: _____

e) PATTERN OF LOADING: _____

f) MAXIMUM LOAD QUANTITY: _____

g) AUTOCLAVE TIME: _____

h) TEMPERATURE: _____

i) PRESSURE: _____

j) ANY OTHER: _____

k) CONTACT PERSON: _____

l) TELEPHONE NUMBER: _____

The UCR Policy in the case of autoclave shutdown is to use an alternative approved/certified autoclave or to maintain medical waste below 32 °F (0 °C) for up to 90 days. Contact the “contact person” listed above or EH&S Biosafety at 827-5528 for any questions.

ATTACHMENT 2

OPERATING PROCEDURE FOR AUTOCLAVES USED TO TREAT MEDICAL WASTE

Medical/biohazardous waste from laboratories and animal facilities can be treated by autoclaving. Following are general procedures; specific procedures must be maintained by each facility.

Each autoclave must be operated as required by the operating conditions for that specific unit. These instructions must be posted next to each unit.

1. Place autoclave tape or other indicator on each red autoclave bag before treatment. Following treatment, the autoclave tape must be checked to verify the appropriate color change.
2. Place **red (Orange bags are illegal in California)** autoclave bags in a leak proof, heat-resistant container and load into the autoclave. Autoclaves must not be loaded beyond approved limits.
3. Place container of items to be autoclaved inside the autoclave. Close the autoclave door and ensure that it is closed firmly.
4. Autoclave on the appropriate cycle, (liquid or dry) depending on the items being autoclaved. Run the dry cycle for items with moisture content of 10% or less, such as paper, plastics, labware, etc. Run the liquid cycle for items that may boil and need a slow exhaust to prevent overflow.
5. Autoclave the medical or biohazardous waste at a minimum of 121 degrees Centigrade (250 degrees Fahrenheit), and 15 psi for a minimum of 30 minutes. Increase autoclave time by a minimum of 15 minutes for more dense loads or loads with a high liquid content.
6. Wait until the pressure has fallen to zero before opening the autoclave. When opening the autoclave door, take precautions to avoid exposure to steam and hot surfaces or liquids. Stand behind the autoclave door as you open it.
7. Allow liquids to cool several minutes before removing them from the autoclave. Use heat resistant gloves to remove items from the autoclave.
8. If the autoclave does not attain the minimum time and/or temperature, or the autoclave tape does not change color, a notation must be made in the comment section of the autoclave log. The load must then be re-autoclaved after placing new tape on the red bags. If minimum time and temperature is not achieved on the second cycle, users must contact EH&S Biosafety at 827-5528 and the person responsible for maintenance of the unit to initiate repairs. Waste should then be treated at an approved alternate autoclave.
9. Dispose of autoclaved red bags with the regular solid waste trash.
10. Complete the autoclave log for each autoclave cycle. The length of time that the unit maintains a temperature at or above 121 degrees Centigrade (250 degrees Fahrenheit) must be noted as the **time at 121°C** on the log. **All** other parameters must be noted as listed.
11. EH&S will Test monthly with **Bacillus stearothermophilus** and record the results in the autoclave log.
12. Check the calibration of the autoclave thermometer annually and record the results in the autoclave log. This should be completed by an authorized autoclave service company during routine servicing.
13. All records, including logs, calibration results and **Bacillus stearothermophilus** tests must be kept for a minimum of three years. Logs and records must be available upon request during inspections.

ATTACHMENT 3

AUTOCLAVE TESTING PROCEDURE

Autoclaves used for sterilizing medical waste must be tested for adequate sterilization parameters once a month. The California Medical Waste Management Act requires that the biological indicator **Bacillus stearothermophilus** be used for this purpose. Follow the procedure below.

1. Place the unopened **Bacillus stearothermophilus** biological indicator ampule in the center of a typical load of medical waste. The biological indicator must be commercially obtained and specifically designed for determining the effectiveness of sterilization procedures.
2. Autoclave the waste according to the autoclave procedure for treatment of medical waste.
3. Follow the manufacturer's directions for incubating and scoring results of the indicator ampules.
4. Record the result in the autoclave log. Log records must be maintained for a minimum of three years.
5. If the autoclaved ampule shows signs of bacterial growth, use of the autoclave must be discontinued until this procedure has been repeated. If a positive result is still obtained for the autoclaved ampule, the autoclave may not be used for sterilization of medical waste until serviced and proven by this test to be operating adequately.
6. Check the calibration of the autoclave thermometer annually and record the results in the autoclave log.

ATTACHMENT 4

DAILY AUTOCLAVE LOG

Instructions:

- Generator Name - Indicate Principal Investigator of lab.
- Location - Indicate lab where waste was generated.
- Time at 121°C - Minimum autoclave time (required by MWMA) is 30 minutes at 121°C. Indicate actual time at 121°C.
- Max. Temp. - Minimum temperature (required by MWMA) is 121°C (250°F.)
- Pressure - Should be 15 lbs per square inch or greater.
- Type of waste - Check the box that indicates the waste or material you are autoclaving. MW = Medical Waste, Bio = Biohazardous Waste, Sharps = Sharps Containers, Other = Non-Biohazardous or Non-Medical Wastes, such as sterilizing bottles and other materials.
- Wt. in lbs. - Approximate weight, in pounds, of medical waste being autoclaved.
- Monthly check for sterilization using **Bacillus stearothermophilus** at the center of the load.
- Comments - Record equipment breakdowns, power outages, incomplete treatment, reruns of loads, etc.
- Person using autoclave - Indicate the person who is placing the material in the autoclave, operating it, and recording the information.

Date/Time	Generator Name	Location	Time at 121 °C	Max. Temp.	Pressure	Type of Waste (check)				Wt in lbs.	Monthly Sterilization Check Pass/Fail	Comments	Person Using auto.
						MW	Bio	Sharps	Other				

A complete entry must be made in this log for each use of the autoclave.

DAILY AUTOCLAVE LOG

Date/Time	Generator Name	Location	Time at 121 °C	Max. Temp.	Pressure	Type of Waste (check)					Monthly Sterilization Check Pass/Fail	Comments	Person Using auto.
						MW	Bio	Sharps	Other	Wt in lbs.			

A complete entry must be made in this log for each use of the autoclave.

ATTACHMENT 5

GENERAL PROCEDURES FOR SPILL CLEANUP

1. Determine the nature and the extent of the spill - what has been spilled (i.e., chemical or biological agent), its concentration, quantity and location.
2. Evacuate the area immediately if necessary, to prevent exposure of additional persons to a particularly toxic or virulent agent.
3. Provide immediate medical treatment to those exposed (if required by the nature of the exposure).
4. Secure and post the spill area to prevent additional exposures and spread of the spill.
5. Put on appropriate personal protective equipment:
 - a. Always: glasses, gloves, lab coat or apron, shoe coverings.
 - b. As appropriate (depending on the nature of the spill): face shield or goggles, respirator, boots.
6. Contain the spill (e.g., by diking or ringing with absorbent material).
7. Decontaminate the spilled material if necessary (i.e., it is often prudent to decontaminate the spilled material before it is picked up).
8. Pick up the spilled material:
 - a. Solids:
 - (1) Pick up by mechanical means (e.g., pan and brush, forceps).
 - (2) Discard as medical, hazardous, or radioactive waste as appropriate.
 - b. Liquids:
 - (1) Absorb the spill with absorbent material as appropriate (e.g., paper towels, vermiculite).
 - (2) Discard as medical, hazardous, or radioactive waste as appropriate.
 - c. Broken glass and other sharps:
 - (1) Pick up by mechanical means (e.g., forceps, pan and brush), never by hand.
 - (2) Dispose as sharps.
9. Decontaminate the area.
10. Rinse/clean the area (if necessary) and absorb and collect waste materials.
11. Dispose of collected material and cleanup materials as medical, hazardous, or radioactive waste as appropriate.
12. Decontaminate reusable items (such as dust pans, brushes, and forceps).
13. Remove personal protective equipment.
 - a. Discard disposable items as medical, hazardous, or radioactive waste as appropriate.
 - b. Decontaminate reusable items (such as heavy rubber gloves, boots, aprons, gowns) before cleaning or laundering.
14. Wash all exposed skin thoroughly.
15. Obtain medical treatment and follow up as appropriate for the particular type of exposure.