LAWRENCE
LIVERMORE
NATIONAL
LABORATORY

LLNL-TR-813384

Updated Medical Waste Management Plans and Emergency Action Plans for the Lawrence Livermore National Laboratory Main Site

M. N. Liccese

August 6, 2020

This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Lawrence Livermore National Laboratory

August 19, 2020

Mr. Javier Magana
Alameda County Department of Environmental Health
Office of Solid and Medical Waste Management
1131 Harbor Bay Parkway, Room 200
Alameda, CA 94502-6577

Subject: *Updated Medical Waste Management Plans and Emergency Action Plans for the Lawrence Livermore National Laboratory Main Site*

Dear Mr. Magana:

Attached are the updated Medical Waste Management Plans and Emergency Action Plans for Lawrence Livermore National Laboratory's (LLNL) Biosafety Level 2 (BSL-2) facilities and Biosafety Level 3 (BSL-3) facility. For your reference, a redline version of each document has also been provided.

Minor changes such as facility personnel, contact information, and titles for those that support onsite Biosafety Labs at LLNL have been made to the document. It should be noted that the most recent versions of the Medical Waste Large Quantity Generator Registration Application Form and Medical Waste Management Plan were incorporated and sourced from the Alameda County Department of Environmental Health website. Substantive changes are identified below:

Summary of Document(s) Updates with Location

Document(s)	Update	Location in Document(s)
BSL-2 and BSL-3	Change in monthly waste estimates	Section II
BSL-2	Building 132-N no longer classified as a BSL-2 facility	Table 2 and Appendix A
BSL-2	Addition of previously permitted autoclave to Building 366	Table 3

The final copies of the Plans reflecting the abovementioned changes are included as attachments.

If you have any questions regarding this submittal, please contact Paul Roy at (925) 423-1165.

Sincerely,

DocuSigned by:
Lisa Woodrow
LISA E. WOODROW

Lisa Woodrow
Associate Director
Environment, Safety & Health

ESH-EFA-WP-20-20269 – LW/ML:js

Attachments:
1. Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 2 Facilities
2. Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 3 Facility
3. Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 2 Facilities – REDLINE VERSION
4. Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 3 Facility – REDLINE VERSION

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Warner, John
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Attachment 1

Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 2 Facilities

LLNL-TR-813384
External

Medical Waste Management and Emergency Action Plan for the Lawrence Livermore National Laboratory Biosafety Level 2 (and Lower) Facilities

Environmental Functional Area

August 2020

Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA27344.

ESH-EFA-WP-20-20269ML:js

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APPENDICES

1.0 Medical Waste Generator Registration Form

Alameda County
Department of Environmental Health
Office of Solid/Medical Waste Management
1131 Harbor Bay Parkway ● Alameda, CA 94502
Phone: (510) 567-6790 ● Fax: (510) 337-9234
www.acgov.org/aceh

MEDICAL WASTE GENERATOR REGISTRATION APPLICATION FORM

WHO IS REQUIRED TO REGISTER?

Each **Large Quantity Generator (LQG)** shall register with the enforcement agency pursuant to the California Health and Safety Code, Division 104, Part 14, California Medical Waste Management Act ([H&SC § 117950(a)]. The Large Quantity Generator (LQG) registration is valid for one year [H&SC § 117970(b)]. Facilities that generate equal to or more than 200 pounds in any month of the year of medical/biohazardous waste are categorized as Large Quantity Generators (LQG).

A medical waste **Common Storage Facility** that collects the accumulated waste of more than one medical waste generator shall be registered with the enforcement agency (H&SC § 117908).

Each **Small Quantity Generator (SQG) using on-site treatment** such as steam sterilization shall register with the enforcement agency [H&SC § 117925(a)].

To register, complete this form and submit to Alameda County Department of Environmental Health, Office of Solid/Medical Waste Management.

Type of Application: ☐ New Registration/Permit ☑ Renewal ☐ Change of Ownership

I. FACILITY INFORMATION

Facility Name:	Lawrence Livermore National Laboratory		
Address:	7000 East Avenue	City/Zip	Livermore, 94550
Mailing Address:	P.O. Box 808	City/Zip	Livermore, 94550
Contact Person:	Lisa Woodrow	Telephone:	
Email Address:	woodrow2@llnl.gov	Fax:	

II. GENERATOR CATEGORIES REQUIRING REGISTRATION (Please check all that apply)

Application Type: Please indicate the category of medical waste generator that best describes your facility.

☐ **Large Quantity Generator with NO Onsite Treatment** – This facility generates 200 pounds or more of medical/biohazardous waste in any month of a 12-month period and medical waste is NOT treated onsite.

☑ **Large Quantity Generator with Onsite Treatment** – This facility is a LQG and medical/biohazardous waste is treated at this facility

☐ **Small Quantity Generator with Onsite Treatment** – This facility generates less than 200 pounds of medical waste per month in every 12-month period and medical/biohazardous waste is treated at this facility

☐ **Common Storage Facility** – This office building/complex/facility operates an area designated for the storage of medical/biohazardous waste. This area is shared by multiple independently operated SQGs. The medical waste is transported offsite by a registered medical waste hauler.

(Provide a list of generators that this Common Storage Facility serves. Add an additional sheet for more generators.) Number of generators served: see below

GENERATOR NAME	ADDRESS	PHONE NUMBER
Please see facility contact information in Appendix A	7000 East Avenue, Livermore CA 94550	Please see facility contact information in Appendix A

III. TYPES OF MEDICAL/BIOHAZARDOUS WASTES GENERATED (Please check all that apply)

Please indicate the type(s) of medical waste generated by this facility. Check all that apply.

☑ **Fluid Blood Products** (This includes dressings, containers or equipment containing fluid blood, fluid blood products, or blood from animals known to be infected with diseases which are highly communicable to humans.)

☑ **Laboratory Wastes** (Specimen or biologic cultures, stocks of infectious agents, live and attenuated vaccines and culture mediums, test tubes, vacuum tubes)

☑ **Sharps** (syringes, needles, blades, broken glass)

☑ **Contaminated Animals** (Animal carcasses body parts, bedding materials)

☑ **Surgical Specimens** (Human or animal parts or tissues removed surgically or by autopsy)

☐ **Isolation Wastes** (Wastes contaminated with excretion, exudates or from animals infected and isolated due to the highly communicable diseases listed by the Centers for Disease Control)

☑ **Trace Chemotherapeutic Wastes** (Gloves, gowns, towels and I.V. solutions bags and empty tubings, etc. contaminated with trace amounts of chemotherapeutic agents)

☑ **Pharmaceutical Wastes** (Outdated, unused California-only regulated pharmaceuticals)

☑ **Other** (Please specify.) Trauma scene waste is generated infrequently

IV. QUANTITY OF MEDICAL/BIOHAZARDOUS WASTES GENERATED:

This facility generates this amount of regulated medical waste per month: 795 lbs.

V. OUR WASTE IS: (Please check all that apply)

☑ Picked up by a registered transporter; name and address: Clean Harbors, 42 Longwater Drive, Norwell MA 02061 and Stericycle, 1345 Doolittle Drive, Suite C, San Leandro CA 94577

- Refer to California Dept. of Public Health website for a list of authorized haulers: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/Transporters.aspx

☐ Mailed via Mail-Back System; name:

- Refer to California Dept. of Public Health website for mail back information: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/MailBack.aspx

☑ Treated onsite by autoclave steam sterilization or by alternative treatment method Tissue digester/chemical treatment

VI. NAME AND ADDRESS OF TREATMENT/DISPOSAL FACILITY:

If medical waste is disposed of or treated offsite, provide the following information:

Type of waste(s) (See Section III): Biohazardous, Pathology, Sharps, Pharmaceutical, Trace Chemotherapeutic wastes, and Trauma Scene waste (generated infrequently).

1. Name and address of registered Hazardous/Medical Waste Hauler:
   1. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061
   2. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
2. Name and address of Treatment/Disposal Facility:
   1. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
   2. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061

MW Generator Registration
Form Page 2 of 3
September 2018

VII. MEDICAL WASTE MANAGEMENT PLAN

All generators required to register must have on file with the enforcement agency a current Medical Waste Management Plan. The Medical Waste Management Plan shall include an Emergency Action Plan, which delineates the procedures for properly handling on-site spills and releases of medical waste (H&SC §117943). The Emergency Action Plan should address surface cleanup, protective clothing and equipment to be used, and disinfecting procedures. The Medical Waste Management Plan must be updated as facility operations or personnel information changes occur. Please indicate the status of your Medical Waste Management Plan:

☐ A review of the Medical Waste Management Plan previously submitted to Alameda County DEH was conducted and it was determined that a plan update is not required.

☑ The Medical Waste Management Plan has been updated and is attached.

☐ An approved Medical Waste Management Plan will be submitted to the Alameda County DEH with the Certificate of Return to Compliance from the last onsite inspection.

(Please check all that apply)

VIII. CERTIFICATION

I declare under penalty of law that to the best of my knowledge, the statements made herein are correct and true.

Authorized Representative:

Print Name: Lisa Woodrow Title: ES&H Associate Director Date: 8/24/2020

Signature: DocuSigned by: Lisa Woodrow 49DAEE508E524DF...

The fee page is available on our website at http://acgov.org/aceh/solid/medical_waste_management.htm. Make the check payable to Alameda County Department of Environmental Health. For other forms of payment, please refer to our website at http://acgov.org/aceh/billing/index.htm.

Mail the application and fee to: Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

FOR OFFICIAL USE ONLY

FA# _____ PR#_____ PAYMENT MADE: AMOUNT: _____ DATE PAID: _____

APPROVED BY: _____ DATE APPROVED: _____

2.0 Medical Waste Management Plan

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Alameda, CA 94502 - (510) 567-6700

Ronald Browder, Director of Environmental Health
Phone: (510) 567-6790 Fax: (510) 337-9234

MEDICAL WASTE MANAGEMENT PLAN

(as required in Sections 117935 & 117960 Medical Waste Management Act)

FACILITY INFORMATION:

Facility Name: LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)
Address: 7000 East Avenue
City: Livermore State: CA Zip Code: 94550
Type of Business: Research & Development (Department of Energy National Laboratory)
Phone Number: (925) 424-5971 Email Address: woodrow2@llnl.gov

Name of Authorized Representative: Lisa Woodrow
Phone Number: (925) 424-5971 Email Address: woodrow2@llnl.gov

Name of Person Responsible for Implementation of the Medical Waste Management Plan (MWMP): Crystal Quinly
Phone Number: (925) 424-3279 Email Address: quinly2@llnl.gov

SECTION 1: TYPES OF MEDICAL WASTE GENERATED AT THIS FACILITY

☐ ***Biohazardous waste***, including**:**

- ***Regulated/biohazardous/medical waste*** - material from the medical treatment of a human or animal suspected of being infected with a contagious pathogen; material from biomedical research; waste suspected of contamination with a highly communicable disease.
- ***Laboratory waste*** - specimen or microbiological cultures; stocks of infectious agents; live and attenuated vaccines and culture mediums.
- ***Blood or blood products*** - fluid human blood and blood products; containers or equipment containing human blood that is fluid.
- ***Infectious waste*** - material contaminated with excretion, exudates or secretions from humans or animals isolated due to a highly communicable disease.

☐ ***Sharps*** - hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste.

☐ ***Pharmaceutical waste*** - a prescription or over-the-counter human or veterinary drug medication.

■ ***Pathology waste*** - human body parts; human or animal surgery specimen or tissues that may be contaminated with infectious agents.

■ ***Trace chemotherapeutic waste*** - waste that is contaminated through contact with chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty.

■ ***Other (specify)*** – Trauma scene waste is generated infrequently.

SECTION 2. TYPE OF FACILITY

1. This facility is classified as a:

   ☐ **Small Quantity Generator** (*less than 200 pounds per month*) with NO Onsite Treatment of Medical Waste

   ☐ **Small Quantity Generator** (*less than 200 pounds per month*) WITH Onsite Treatment

   ☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - less than 100 licensed beds with NO Onsite Treatment

   ☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - 100-200 licensed beds with NO Onsite Treatment

   ☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) – Over 200 licensed beds with NO Onsite Treatment

   ■ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - Less than 100 licensed beds WITH Onsite Treatment

   ☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - 100-200 licensed beds WITH Onsite Treatment

   ☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) – Over 200 licensed beds WITH Onsite Treatment

2. The ***estimated quantity of medical waste*** generated (including sharps waste and pharmaceutical waste) by this facility on a monthly basis is ~795 pounds.

3. Describe the method of handling: ***segregation***, ***containment*** *or* ***packaging, labeling, collection***, and ***storage*** of **each type** of biohazardous/medical waste within your facility. Table 1 describes the methods used to handle each type of medical waste at LLNL.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Biohazardous	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 7 days at >32°F or up to 90 days at ≤32°F.	**SOLID WASTE**		
		• Solid biohazardous waste is collected in red biohazard bags that are manufacturer-certified to meet the American Society for Testing and Materials (ASTM) D1709 dart drop test. • Red biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • If being shipped offsite for treatment, biohazardous waste will be packaged into Department of Transportation (DOT)-compliant containers lined with biohazard bags that are marked and certified as meeting ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved solid biohazardous waste is then disposed of as Municipal Solid Waste. **Alternative:** • Incinerated offsite.
		LIQUID WASTE		
		• Liquid biohazardous waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid containers used to collect liquid biohazardous waste are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD."	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and discharged to the sanitary sewer. **Alternative**: • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid biohazardous waste is then released to the sanitary sewer.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (cont.)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Pathology	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 90 days at ≤32°F.	**SOLID WASTE**		
		• Solid pathology waste is collected in red or white biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • If being shipped offsite for treatment, pathology waste will be packaged into DOT-compliant containers lined with red or white biohazard bags that are marked and certified as meeting ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite. **Alternative**: • Animal carcasses meeting the definition of pathology waste may be autoclaved onsite followed by off-site incineration. OR • Animal carcasses meeting the definition of pathology waste may be treated in the onsite medical waste-permitted tissue digester.
		LIQUID WASTE		
		• Liquid pathology waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid secondary containers, when used, are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and released to sanitary sewer. **Alternative:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid pathology waste is then disposed of to the sanitary sewer.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (cont.)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Pharmaceutical	**Segregation:** • Pharmaceuticals regulated as medical waste are separated from those regulated under Resource Conservation and Recovery Act (RCRA) and other regulations. **Storage:** • Radioactive and Hazardous Waste Management (RHWM) **s**tore**s** pharmaceutical waste for up to 90 days after the container is full and ready for disposal and disposes at least annually.	• Pharmaceuticals are placed into rigid containers for storage and handling. • When shipped offsite for treatment, pharmaceuticals are packaged in DOT-compliant containers.	• Rigid storage containers are labeled with the words "HIGH HEAT" or "INCINERATION ONLY" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
Sharps	**Segregation:** • Segregated from other waste at the point of generation. **Storage:** • Sharps waste containers may be stored for up to 30 days after the container is ¾ full and ready for treatment.	**SHARPS WASTE (Other than Trace Chemotherapeutic Sharps Waste)** • Sharps waste is collected in United States Food and Drug Administration (USFDA)-approved sharps containers. • When shipped offsite for treatment, sharps containers are packaged in DOT-compliant containers.	• USFDA-approved containers meet the USFDA labeling requirements. • If contaminated with chemotherapeutic agents, sharps are labeled: "Chemotherapy Waste," or "CHEMO" and managed as trace chemotherapy waste as described below.	**Primary:** • Sharps waste rendered non-infectious by autoclaving and is sent offsite for incineration.
		TRACE CHEMOTHERAPEUTIC SHARPS WASTE • Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, is collected in USFDA-approved sharps containers.	• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, is labeled: "Chemotherapy Waste" or "CHEMO."	• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents is sent offsite for incineration.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (cont.)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Trace chemotherapeutic	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • Trace chemotherapeutic waste containers are stored for up to 90 days after the container is full and ready for treatment and disposal.	**SOLID WASTE**		
		• Solid trace chemotherapeutic waste is collected in red or yellow biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers lined with red or yellow biohazard bags that are marked and certified as meeting ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
		LIQUID WASTE		
		• Liquid trace chemotherapeutic waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers.	• Rigid containers used to collect liquid trace chemotherapeutic waste are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
Trauma scene	• Rarely generated at LLNL and shipped directly offsite.	• Managed by a registered trauma scene waste management practitioner.	N/A	• Transported to an offsite hospital by a registered trauma scene waste management practitioner as soon as it is safe to do so.

TRANSPORTATION OF MEDICAL WASTE ONSITE AND OFFSITE

Biohazardous/biohazardous sharps waste that will be autoclaved onsite is autoclaved within the facility where it is generated and/or delivered to the B361 Central Services Designated Waste Accumulation Area. The biohazardous/biohazardous sharps waste pickups are completed weekly from various laboratory locations onsite. For onsite transportation of medical waste, LLNL uses government vehicles driven by trained hazardous waste technicians. LLNL is a closed facility with restricted access to the public and therefore is not subject to Department of Transportation (DOT) regulations for onsite movement of medical waste per 49 CFR 171.1(d)(4) exemption which states:

(d) Functions not subject to the requirements of the Hazardous Materials Regulations (HMR). The following are examples of activities to which the HMR do not apply:

(1) Rail and motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted, except to the extent that the movement is on or crosses a public road or is on track that is part of the general railroad system of transportation, unless access to the public road is restricted by signals, lights, gates, or similar controls.

Any movement of medical waste that will leave the boundary of LLNL will always be in full DOT compliance. Medical waste which requires offsite treatment such as sharps, pharmaceutical, and trace chemotherapeutic waste, is transported to the Radioactive and Hazardous Waste Management (RHWM) facility for offsite shipment. In coordination with RHWM, offsite shipments of medical waste* can also be shipped directly from laboratory facilities. California registered hazardous waste haulers are used to transport waste offsite for treatment and disposal, in accordance with DOT requirements.

Medical waste shipments are tracked using the Waste Disposal Requisition (WDR) and manifest systems. The tracking records are kept onsite for a minimum of three years.

***Note:** Offsite shipment of untreated medical waste from some BSL-2 laboratories may require use of Centers for Disease Control and Prevention (CDC)-authorized medical waste haulers. In this rare event, LLNL will contact the CDC for guidance and assistance.

4. MEDICAL WASTE STORAGE

Is this facility a Common Storage Facility that accumulates onsite, for collection by a registered biohazardous waste hauler, medical waste from onsite Small Quantity Generators (SQG) who would otherwise operate independently?

☐ Yes ■ No

If "Yes," complete the following information for each SQG that uses this Common Storage Facility (attach additional pages if needed):

	Name of Business/Doctor/Nurse	Address/Office	City
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

5. Describe all ***disinfection procedures*** used in your facility for treatment or cleaning of reusable medical waste receptacles and medical waste spills.

The disinfection processes LLNL uses at its medical waste facilities involves steam sterilization and chemical treatment. Approved chemical sanitizers are used for disinfection, for cleaning up medical waste spills, and for decontamination of reusable rigid containers, previously used for the storage of medical waste. As specified in Health & Safety Code (H&SC) 118295, decontamination of containers may be achieved by exposure to hot water at 180°F for 15 seconds or exposure to chemical sanitizers. Typical sanitizers used include:

- Hypochlorite solution (500 ppm available chlorine)
- Phenolic solution (500 ppm active agent)
- Iodoform solution (100 ppm available iodine)
- Quaternary ammonium solution (400 ppm active agent)
- Hydrogen peroxide liquid
- Vaporous hydrogen peroxide
- Formalin liquid
- Formaldehyde gas
- Chlorhexidine
- Chlorine dioxide gas

6. Describe the ***designated accumulation area(s)*** used for the storage of medical waste. (**Note:** A ***designated accumulation area*** is an area used for the storage of medical waste containers prior to transportation or treatment shall be secured so as to deny access to unauthorized persons. See Section 118310 for more detailed requirements.)

As appropriate (based on the quantity of medical waste generated and need for storage), LLNL sets up designated accumulation areas for storage of medical wastes prior to transport or treatment. LLNL designated accumulation areas are secured in order to prevent access by unauthorized persons. Warning signs are posted around designated accumulation areas on, or adjacent to, the exterior of entry doors, gates, or lids. The storage area may be secured by use of locks on entry doors, gates, or receptacle lids.

The wording of warning signs posted around the designated accumulation areas is in English, "CAUTION—BIOHAZARDOUS WASTE STORAGE AREA—UNAUTHORIZED PERSONS KEEP OUT," and Spanish, "CUIDADO—ZONA DE RESIDUOS—BIOLOGICOS PELIGROSOS—PROHIBIDA LA ENTRADA A PERSONAS NO AUTORIZADAS," During daylight hours, these signs are visible at a distance of 25 feet.

7. **Onsite Medical Waste Treatment** (Check all that apply):

☐ This facility treats medical wastes on-site. ■ Yes ☐ No

If yes, what treatment method(s) are utilized?

■ Steam sterilization (e.g., autoclave)

☐ Microwave Technology

■ Other approved alternative treatment (Specify) Tissue digester & Chemical treatment

The locations of the autoclaves used to treat biohazardous wastes generated at LLNL permitted facilities are listed in **Table 3,** followed by a description of the waste retention tank system (WRTS) used to collect treated waste.

Note: Liquid effluent from the tissue digester is discharged to the WRTS upon successful cycle completion. Any solid material (e.g., small bone or teeth fragments) present in the tissue digester after a completed run is collected by a basket within the tissue digester and not released to the WRTS. After the run, the contents of the basket are managed through the Biohazardous Waste stream process outlined in Table 1.

■ This facility uses a ***registered biohazardous/medical waste hauler*** to haul regulated waste to an offsite treatment facility.

Hauler Name: Clean Harbors Environmental Services, Inc.
Address: 42 Longwater Dr.
City/State/Zip: Norwell, MA 02061
Phone: (781) 792-5000
Offsite Treatment Facility: Clean Harbors Environmental Services, Inc.

■ Describe the training program for employees that use treatment equipment at this facility.

LLNL personnel who treat medical waste receive training as follows:

- Operators of medical waste treatment equipment are trained on the equipment's use, proper personal protective equipment (PPE) to wear, if necessary, and how to clean up spills to ensure that the equipment is being operated in a safe and effective manner.
- Annual refresher training is provided to the operators.
- Training complies with applicable federal Occupational Safety and Health Administration (OSHA) regulations, including those found in Section 1910 of Title 29 of the Code of Federal Regulations.
- Training records are retained for a minimum of 2 years in the LLNL training database (LTRAIN).

The specific LLNL training courses for operators of medical waste treatment equipment include, but are not limited to, the following:

- **All medical waste treatment equipment operators**:
  - HS4686-W, *Personal Protective Equipment (PPE)*
  - HS4405-W, *Blood and Bloodborne Pathogens*
- **Tissue Digester Operators**:
  - NA3004, *Tissue Digester Operators Training*
- **Autoclave Operators:**
  - EP0012-W, *Medical Waste Treatment: Autoclave Operator Training*

■ Describe the closure plan for the termination of treatment at this facility.

☐ Decontamination procedures as specified in Section 118295, sub (a) or (b);
☐ Statement certifying that the information is complete and correct;
■ A copy of the Medical Waste Closure Plan is attached;
☐ Contact Alameda County LEA Inspector to arrange a final walkthrough.

See Appendix B.

SECTION 3. EMERGENCY ACTION PLAN

Note: Large Quantity Generators are required to have an Emergency Action Plan. While not required for Small Quantity Generators (SQG), it is recommended that SQGs complete this section as a good management practice.

In the case of an emergency, such as equipment breakdown on the part of the registered hauler or natural disaster, medical waste will be (check one):

■ Stored for up to seven (7) days on the premises. Sufficient storage space is available in:

In the rare event when the Emergency Action Plan is required/implemented, all facilities will cease medical waste generating activities if necessary. LLNL can store biohazardous waste onsite at <32°F for up to 90 days and/or use established processes for shipping medical wastes offsite for treatment and disposal at a permitted facility within seven days of an emergency.

See **Appendix A** for more details.

■ The following alternate registered biohazardous/medical waste hauler will be utilized:

Name: Stericycle
Address: 1345 Doolittle Drive, Ste. C
City/State/Zip: San Leandro, CA 94577

■ Describe in detail how this facility manages medical waste spills (e.g., gloves, mask, gown, disinfectant):

LLNL manages medical waste spills by ensuring containment, cleanup, decontamination, onsite treatment, and disposal of cleanup residue. The initial step to a medical waste spill response includes notifying people in the spill area to avoid exposure. Notification is followed by the cleanup steps summarized in **Appendix A**, Section 5 of the Emergency Action Plan.

■ Describe in detail how this facility handles, treats and disposes of liquid/semi-liquid laboratory waste:

LLNL segregates liquid or semi-liquid biohazardous laboratory wastes at the point of generation and manages these wastes via the following methods:

- Collect liquid/semi-liquid wastes as described in Table 1.
- Securely close containers of liquid/semi-liquid wastes to prevent leakage or loss during storage or transport.
- **Liquid/semi-liquid biohazardous or pathology waste**:
  - Primary Method for Treatment and Disposal:
    - Chemically disinfect liquid waste at the point of generation using a chemical disinfection method recognized by the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC) or American Biological Safety Association (ABSA) International.
    - Chemically treated liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits.
  - Alternative Method for Treatment and Disposal:
    - Liquid/semi-liquid waste may also be treated onsite by autoclaving.
    - Successfully autoclaved liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits.
- **Liquid/semi-liquid trace chemotherapeutic waste:**
  - Liquid/semi-liquid trace chemotherapeutic waste is collected as described in **Table 1.**
  - Liquid/semi-liquid trace chemotherapeutic waste is incinerated offsite.
  - If the chemical disinfection of the medical waste causes the waste to become a hazardous waste, the waste will be managed in accordance with the requirements of Chapter 6.5 (commencing with Section 25100) of Division 20.

■ Describe employee training provided by employer.

Bloodborne Pathogen Training Provided? ■Yes □ No □ OTHER (please describe below)

Specific training requirements vary based on job duties and types of waste generated. The courses LLNL offers employees who generate medical waste include the following:

- **Medical Waste Generators:**
  - HS4435/HS4435-RW, *Working Safely in Biosafety Level 1 Laboratories*
  - HS4436/HS4436-RW, *Working Safely in Biosafety Level 2 Laboratories*
  - HS4438-P, *Biosafety Level 2 Proficiency Evaluation*
  - HS4686-W, *Personal Protective Equipment (PPE)*
  - HS4405-W, *Blood and Bloodborne Pathogens*
  - EP1006-W: *Waste Management Overview*

SECTION 4. CATEGORIZING PHARMACEUTICALS

■ Describe the steps taken to categorize and properly dispose of the pharmaceutical wastes generated at this facility, specifically, how this facility will separate pharmaceuticals classified by the federal Drug Enforcement Agency (DEA) as “controlled substances” from the standard regulated waste stream (if applicable):

The steps LLNL takes to categorize, segregate, and manage pharmaceutical wastes are as follows:

- Pharmaceutical wastes classified by the DEA as “controlled substances” are managed and disposed of in compliance with DEA and United States Food and Drug Administration (USFDA) requirements.
- Pharmaceutical wastes containing Resource Conservation and Recovery Act (RCRA)-regulated and/or, radioactive constituents are managed in accordance with the requirements for hazardous waste and radioactive waste respectively.
- Pharmaceutical wastes are managed in a manner that secures the pharmaceutical waste by denying access to unauthorized individuals. Any suspected or confirmed tampering of, unauthorized access to, or loss of any pharmaceutical waste is reported to the Alameda County Department of Environmental Health (ACDEH).
- LLNL uses a tracking document for pharmaceutical wastes shipped offsite for treatment and disposal and will notify ACDEH of discrepancies between the items received by the offsite facility and the items shipped by LLNL.

Medical Waste Management Act Mixed Waste

Waste consisting of medical and non-medical waste will be handled as medical waste except as follows:

- Medical waste mixed with hazardous waste will be managed as hazardous waste.
- Medical waste mixed with radioactive waste will be managed as radioactive waste.
- Medical waste mixed with hazardous and radioactive waste will be treated as radioactive mixed waste.

Non-medical wastes such as those regulated by the RCRA or the California Hazardous Waste Control Act (HWCA) generated in the permitted medical waste facilities will be managed by LLNL’s RHWM personnel.

☐ The following ***registered biohazardous/medical waste hauler*** will be utilized to haul pharmaceutical wastes.

Name: Clean Harbors Environmental Services, Inc.

Address: 42 Longwater Drive

City/State/Zip: Norwell, MA 02061

I hereby certify that to the best of my knowledge and belief, the statements made herein are true and correct.

Signature: DocuSigned by: Lisa Woodrow 49DAEE508E524DF...

Print Name: Lisa Woodrow Date: 8/24/2020

OFFICIAL USE ONLY

Date received: _____ ☐ Approved ☐ Approved with changes: _____

Additional requirements: _____

Inspector signature: _____ Date: _____

The locations of potential major medical waste generator facilities at LLNL are shown in **Table 2**.

Table 2. Locations of Potential Major Medical Waste Generator Facilities

Item Number	Building Number	Parent Organization	Typical Medical Waste Generated	Medical Waste Potentially Generated
1	132S	GS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
2	151	Physical and Life Sciences (PLS)	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
3	153	Engineering (ENG)	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
4	154	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic

Table 2. Locations of Potential Major Medical Waste Generator Facilities (cont.)

Item Number	Building Number	Parent Organization	Typical Medical Waste Generated	Medical Waste Potentially Generated
5	361	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical 4. Pathology 5. Trace chemotherapeutic	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
6	362	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
7	364	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical 4. Pathology 5. Trace chemotherapeutic	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
8	365	GS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
9	366	PLS/GS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
10	663	Environment, Safety & Health (ES&H)	1. Biohazardous 2. Pharmaceutical 3. Sharps	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps

Table 3 shows the location, make and model number of each autoclave used to treat LLNL's medical waste onsite. Each autoclave is operated by trained and experienced individuals who know the operating requirements specified in H&SC Sections 117967 and 118215. Such requirements include, but are not limited to the following:

- Steam sterilizer temperature, pressure, and contact time necessary to achieve sterilization of the entire load.
- Annual calibration and calibration records retention for a minimum of two years.
- Use of a heat sensitive tape on each biohazard bag or sharps container to indicate the waste went through heat treatment.
- Use of the biological indicator (BI) Geobacillus stearothermophilus or other indicator of adequate sterilization as approved by the department, at least monthly to confirm attainment of adequate sterilization. The BI shall be placed at the center of the load processed under standard operating conditions.

Item	Building	Room	Autoclave Make	Model Number
11	361	1634A	Steris/AMSCO	Century Medium Vacuum Steam Sterilizer
22	364	1704	Steris	FINN-AQUA BPS GMP Sterilizer
33	365	101	AMSCO	Eagle Series 3043 Vacamatic
44	365	109	Tuttnauer/Brinkman	3870E
55	365	111	Tuttnauer/Brinkman	3870E
66	365	112	Tuttnauer/Brinkman	3870E
77	366	103	Tuttnauer/Brinkman	3870E

Table 3. Location and Types of Autoclaves

Waste Retention Tank System

- A waste retention tank system (WRTS) is used to collect effluent wastewater from the laboratory sinks, floor drains, and the large capacity autoclave in B365.

Note: No intentional release of infectious materials is planned. Effluent from the laboratories is treated prior to release to the WRTS.

- The WRTS consists of two tanks each with an approximate capacity of 950 gallons. The tanks sit within a concrete berm with an overflow capacity of approximately 1300 gallons.

- Each tank has a level sensor that will alarm to the B511 console, which is staffed at all times by the LLNL Maintenance Mechanics, in the event either tank nears its capacity.

- Water in the tanks is routinely analyzed for pH, cyanide, and Total Threshold Limit

Concentration (TTLC) metals by the RHWM Technician. Based on the results of this analysis, the water will either be managed through RHWM or chlorinated and released to the sanitary sewer.

  - Prior to discharge to the sanitary sewer, the water is treated with sodium hypochlorite [1 part concentrated bleach (≥5.25%) sodium hypochlorite to 99 parts water] for 48 hours to inactivate any environmental microorganisms that may be present.
  - Wastewater that is hazardous or does not meet sewer discharge requirements is managed through RHWM.

- The WRTS is not an effluent treatment system.
  - No intentional release of infectious material is permitted from the laboratories. All infectious materials must be treated by an appropriate method known to inactivate the material prior to release to the WRTS.

APPENDIX A

Emergency Action Plan

Lawrence Livermore National Laboratory
All Medical Waste Generator Facilities

Medical Waste
Emergency Action Plan

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1. Purpose:

This plan is to be followed to ensure proper disposal of medical waste in the event of equipment breakdowns, natural disasters, or other occurrences in accordance with Health & Safety Code (H&SC) 118235.

2. Types of Medical Waste Generated that could be encountered at each Facility:

A. The **360 Complex** is a group of buildings that are operated by the Physical and Life Science (PLS) and Global Security (GS) Directorates and they generate and treat a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pathology waste
- Trace chemotherapy waste
- Pharmaceutical waste

B. The **Building 151 Complex** is a group of buildings that are operated by the PLS Directorate, which generates a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

C. The **Health Services Department (HSD)** generates a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

D. Personnel in **Building 132 South (B-132S)** generates and treats a variety of medical wastes, including the following (**Note:** only liquid waste is treated at this location by chemical disinfection.):
- Biohazardous waste
- Sharps waste
- Pathology waste
- Pharmaceutical waste

E. Personnel in **Building 366** may generate the following wastes:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

F. **Building 365,** which is also part of the Global Security Principal directorate, generates and treats a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

G. The **Building 153** of Engineering (ENG) Directorate generates a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

3. Possible Accident/Emergency Scenarios:

- Autoclave failure
- Spills/releases
- Natural disasters (earthquake, fire, etc.)
- Unauthorized discharge to sink
- Personnel accident/injury

4. Response:

- Identify emergency scenario.
- Address immediate safety concerns and, if safe to do so, ensure that medical waste is contained. Block floor drains and sink drains, if necessary.
- Obtain assistance from responsible persons listed below. If there is any doubt about safely managing the emergency, immediately contact the LLNL Fire Department by dialing 911 from a Lab phone or (925) 447-6880 from a cell phone. Notify the Health and Safety (H&S) Team, at phone #925-423-8336 or 925-422-7595 (off hours).
- In the unlikely event that all autoclaves are inoperable, medical waste may be stored onsite at LLNL or transported offsite within 7 days for treatment using established processes for shipping medical waste offsite. Radioactive and Hazardous Waste Management (RHWM) will coordinate transportation service to a permitted offsite incineration facility.
- Properly dispose of medical waste in accordance with Table 1 of the plan. Contact the supervisor, and your Environmental Analyst for assistance in proper waste classification and disposal, as necessary.
- Identify the cause of the problem and take steps to prevent reoccurrence.

5. Spill clean-up and decontamination:

LLNL's Emergency Action Plan is implemented by trained and experienced personnel in response to medical waste spills to ensure containment, cleanup/decontamination and proper disposal. Initial steps include notifying people in the spill area so as to avoid exposure, containing the spill, and cleanup/decontamination. Specific management steps to respond to a medical waste spill at LLNL's medical waste facilities are summarized below:

- Use of appropriate PPE varies according to the level of hazard involved. In general, it may involve some or all of the following: coveralls, lab coat, apron, gloves, shoe covers, respiratory protection, face shields, and protective eyewear. LLNL's Industrial Hygienists can provide guidance in the use of PPE. If there is any doubt about spill response, the LLNL Fire Department will respond. Medical waste will be recovered from the spill site and placed into a new biohazard bag and/or container.
- Waste from clean-up operations is segregated based on contents (i.e., medical waste with added bleach, versus waste containing medical waste components only). **Note:** Any materials potentially containing chlorine, such as clean-up clothing, should not be autoclaved.
- Remove protective clothing, place into the proper waste stream.

6. In the event of a natural disaster that may interfere with the treatment and disposal of medical waste, all non-essential medical waste generating activities will be suspended immediately.

7. References**:**

a. California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)
b. LLNL Emergency Plan.

Facility Contact information

General Contacts for the 360 Complex

1	-	Kurt Dreger, PLS Assurance Manager	(925) 424-3744	Pager #04763
2	-	Stephanie Lopez, Global Security Assurance Manager	(925) 424-6799	
3	-	Tuijauna Mitchell-Hall, BBTD Deputy Director for Operations	(925) 424-4469	
4	-	Lauralye Casipit, H&S Tech	(925) 422-5784	Pager #05425
5	-	Jose Segura, RHWM Tech	(925) 423-2588	Pager #57952
6	-	Adrian Garibay, Env. Analyst	(925) 423-6542	
7	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
8	-	George Anderson, Chair IBC/IACUC	(925) 423-4285	
9	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

Contacts for B-361 (Central Service Labware Cleaning Facility)

1	-	Morgan Mabery, Medical Waste Treatment Operator	(925) 423-3812	

Contacts for B-364

1	-	Tuijauna Mitchell-Hall, BBTD Deputy Director for Operations	(925) 424-4469	Pager #05058
2	-	Summer McCloy, Sr. Scientist	(925) 424-4283	Pager #63920
3	-	Nicole Collette, Supervisor	(925) 423-2353	
4	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
5	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716
6	-	Priscilla Yung, Industrial Hygienist	(925) 424-5553	

Contacts for B-365

1	-	Stephanie Lopez, Global Security Principal Directorate Assurance Manager	(925) 424-6799	
2	-	Patsy Gilbert, Facility Manager	(925) 423-3162	Pager #10040
3	-	Adrian Garibay, Env. Analyst	(925) 423-6542	
4	-	Amy Rasley, Senior Laboratory Coordinator	(925) 423-1284	
5	-	Jose Segura, RHWM Tech	(925) 423-2588	Pager #57952
6	-	Lauralye Casipit, Health & Safety Tech	(925) 422-5784	Pager #05245
7	-	Christine Ward, Industrial Hygienist	(925) 422-0036	Pager #62240
8	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
9	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

Contacts for B-366

1	-	Stephanie Lopez, Global Security Principal Directorate Assurance Manager	(925) 424-6799	
2	-	Jose Segura, RHWM Tech	(925) 423-2588	Pager #57952
3	-	Adrian Garibay, Env. Analyst	(925) 423-6542	
4	-	Lauralye Casipit, H&S Tech	(925) 422-5784	Pager #05425
5	-	Priscilla Yung, Industrial Hygienist	(925) 424-5553	
6	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544

7	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

Contacts for the 151 Complex

1	-	Kurt Dreger, PLS Assurance Manager	(925) 424-3744	Pager #04763
2	-	Tuijauna Mitchell-Hall, BBTD Deputy Director for Operations	(925) 424-4469	
3	-	Brian Sammis, H&S Tech	(925) 422-5513	Pager #05431
4	-	Christian Arroyo, RHWM Tech	(925) 424-2620	Pager #61768
5	-	Adrian Garibay, Env. Analyst	(925) 724-6976	
6	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
7	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716
8	-	Geoffrey Won, Industrial Hygienist	(925) 422-6857	

Contacts for B-153: Engineering

1	-	Roberta M. Logrande	(925) 424-5285	Pager #05139
2	-	Sean Mok, H&S Tech	(925) 424-2268	Pager #04275
3	-	Steve Hart, RHWM Tech	(925) 424-4907	Pager #66344
4	-	Gino Aluzzi, Env. Analyst	(925) 423-9161	
5	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
6	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716
7	-	Robert Dillman, Assurance Manager	(925) 422-8277	Pager #51740
8	-	Benjamin Lee, Industrial Hygienist	(925) 423-4925	

Contacts for HSD (B-663: Health Services Department)

1	-	Marty Greist-Joel, Registered Nurse	(925) 422-7459	
2	-	Stephen Ebisuzaki, Health and Safety Tech	(925) 424-4875	Pager #04035
3	-	David Diaz, RHWM Tech	(925) 423-1546	
4	-	Marissa Liccese, Env. Analyst	(925) 423-9496	
5	-	Rick Watts, Department. Head	(925) 423-6903	Pager #04474
6	-	Vicki Salvo, Assurance Manager	(925) 423-5432	
7	-	Davin Gaskin, Industrial Hygienist	(925) 423-0612	

Contacts for B-132 South

1	-	Stephanie Lopez, Global Security Principal Directorate Assurance Manager	(925) 424-6799	
2	-	Robert Wiebers, RHWM Tech	(925) 423-4079	Pager #01158
3	-	Kathy Tucker, Env. Analyst	(925) 422-6342	Pager #00457
4	-	Suzanne Vance, H&S Tech	(925) 422-0875	
5	-	Christine Ward, Industrial Hygienist	(925) 422-0036	Pager #62240
6	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
7	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

APPENDIX B

Medical Waste Closure Plan
for
BSL-2 Treatment Units at LLNL

Lawrence Livermore National Laboratory
7000 East Avenue
Livermore, CA 94550

1. Introduction

2. Lawrence Livermore National Laboratory (LLNL) will use this Closure Plan to close its medical waste treatment units. This Closure Plan is needed because of the requirements of the California medical waste regulations found in Health & Safety Code (H&SC) 117960(j) and 22 CCR 65625(a)(14). Each medical waste treatment unit to be closed will follow this plan. The plan includes steps for notifying the regulators of start and completion of closure activities, inspections, closure procedures, and where the final medical waste will be sent. As required by H&SC 118295(a) and (b), this closure plan also contains procedures for decontaminating containers and spills that may be necessary during closure activities. The goal of these closure activities is to ensure the medical waste treatment units are left in acceptable sanitary conditions and are clean closed.

3. Notification of Intent to Close Medical Waste Treatment Unit

   At least 30 days prior to start of closure, LLNL will send a written notification to the Alameda County Department of Environmental Health (ACDEH) containing the following information:

   - Date of final closure.
   - Reason(s) for treatment unit(s) closure.
   - Disposition of final medical waste by removal and treatment/disposal at an authorized facility or onsite treatment/disposal.
   - Disinfection and decontamination procedures.

4. Closure Inspection(s)

   LLNL will schedule pre-closure medical waste inspection with ACDEH, which may include the following:

   - Review of medical waste tracking documents.
   - Inspection of areas where medical wastes were treated.
   - Inspection of medical waste treatment units.
   - Review of disinfection/decontamination procedures.
   - Review of waste treatment records.

   If violations are noted during pre-closure inspection, LLNL will schedule a re-inspection of the facility with ACDEH after violations have been corrected.

5. Closure Process

   LLNL will identify the maximum inventory of medical wastes to be disposed or treated as part of the closure process. Specific steps of the closure process are as follows:
   - Removing the last inventory of medical waste for offsite treatment and/or disposal.
   - Following the steps specified in the H&SC to treat medical waste onsite by disinfection and confirming the effectiveness of decontamination.

- Making sure all treatment units subject to closure meet all the closure provisions and achieve the closure performance standards as required by regulations.

LLNL routinely washes and decontaminates reusable rigid containers not protected with disposable liners, bags or other devices removed with the waste. The same disinfection procedure will be used during facility closure. Approved methods for disinfection/decontamination include, but are not limited to the methods specified in H&SC 118295 and summarized below:

- Exposure to hot water of at least 82° Centigrade (180° Fahrenheit) for a minimum of 15 seconds, **or**
- Exposure to chemical sanitizer by rinsing with, or immersion in, one of the following for a minimum of three minutes:
    1. Hypochlorite solution (500 ppm available chlorine).
    2. Phenolic solution (500 ppm active agent).
    3. Iodoform solution (100 ppm available iodine).
    4. Quaternary ammonium solution (400 ppm active agent).
    5. Hydrogen peroxide liquid.
    6. Vaporous hydrogen peroxide
    7. Formalin liquid.
    8. Formaldehyde gas
- Ensuring a thorough cleanup and removal of medical waste prior to closure of the treatment units.
- Identifying and mitigating all known releases of medical waste at or near the treatment units being closed.
- Ensuring no medical waste or contaminated materials are left behind after completing the closure of a medical waste unit.
- Terminating the permit to operate medical waste treatment units once ACDEH approves the closure.

This Closure Plan must be followed whenever a permitted medical waste treatment unit is to be closed. The Closure Plan will be kept at LLNL throughout the active life of each permitted medical waste treatment unit.

Title 22 Code of California Regulations, Section 65625(a) (22 CCR 65625(a) requires preparation of this Closure Plan, including a written cost estimate for closing treatment units. This Plan meets all these requirements except preparing a closure cost estimate because as a federal facility, LLNL is not required to prepare a cost estimate. In addition, the 22 CCR 65625(a)(14) requirement to revise the cost estimate whenever the closure plan changes and increases the closure costs is not applicable to LLNL.

6. Shipping Final Medical Waste

   Although LLNL may ship medical wastes from treatment unit closure activities to other permitted treatment facilities, the primary offsite facilities that will receive LLNL's medical waste for incineration are:

   Stericycle
   1345 Doolittle Drive, Suite C
   San Leandro, CA 94577
   (866) 783-7422

   Clean Harbors Environmental Services, Inc.
   11600 North Aptus Road
   Aragonite, UT 84029
   (801) 323-8100

   LLNL will mainly use the two permitted treatment facilities listed above to treat medical waste from its closure activities.

7. Conclusion

   This Closure Plan specifies procedures LLNL will use to close its medical waste treatment units. All medical wastes generated during the closure activities will be sent to an approved medical waste treatment or disposal facility. LLNL will also ensure no nuisance conditions such as odors exist after the facility is closed. The Closure Plan includes specific steps for onsite treatment and decontamination. LLNL will send a written notice to ACDEH at least 30 days in advance of its planned closure date. A written notification of completion of closure activities will also be sent to ACDEH within 30 days stating that all applicable closure standards have been achieved. Medical wastes from closure activities that require offsite treatment or disposal will be sent to two facilities: Stericycle and Clean Harbors Environmental.

8. Reference

   California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)

Attachment 2

Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 3 Facility

LLNL-TR-813384
External

Medical Waste Management and Emergency Action Plan for the Lawrence Livermore National Laboratory Biosafety Level 3 Facility

Environmental Functional Area

August 2020

Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA27344.

ESH-EFA-WP-20-20269 ML:js

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APPENDICES

1.0 Medical Waste Generator Registration Form

Alameda County
Department of Environmental Health
Office of Solid/Medical Waste Management
1131 Harbor Bay Parkway ● Alameda, CA 94502
Phone: (510) 567-6790 ● Fax: (510) 337-9234
www.acgov.org/aceh

MEDICAL WASTE GENERATOR REGISTRATION APPLICATION FORM

WHO IS REQUIRED TO REGISTER?

Each **Large Quantity Generator (LQG)** shall register with the enforcement agency pursuant to the California Health and Safety Code, Division 104, Part 14, California Medical Waste Management Act ([H&SC § 117950(a)]. The Large Quantity Generator (LQG) registration is valid for one year [H&SC § 117970(b)]. Facilities that generate equal to or more than 200 pounds in any month of the year of medical/biohazardous waste are categorized as Large Quantity Generators (LQG).

A medical waste **Common Storage Facility** that collects the accumulated waste of more than one medical waste generator shall be registered with the enforcement agency (H&SC § 117908).

Each **Small Quantity Generator (SQG) using on-site treatment** such as steam sterilization shall register with the enforcement agency [H&SC § 117925(a)].

To register, complete this form and submit to Alameda County Department of Environmental Health, Office of Solid/Medical Waste Management.

Type of Application: ☐ New Registration/Permit ☑ Renewal ☐ Change of Ownership

I. FACILITY INFORMATION

Facility Name:	Lawrence Livermore National Laboratory		
Address:	7000 East Avenue	City/Zip	Livermore, 94550
Mailing Address:	P.O. Box 808	City/Zip	Livermore, 94550
Contact Person:	Lisa Woodrow	Telephone:	
Email Address:	woodrow2@llnl.gov	Fax:	

II. GENERATOR CATEGORIES REQUIRING REGISTRATION (Please check all that apply)

Application Type: Please indicate the category of medical waste generator that best describes your facility.

☐ **Large Quantity Generator with NO Onsite Treatment** – This facility generates 200 pounds or more of medical/biohazardous waste in any month of a 12-month period and medical waste is NOT treated onsite.

☑ **Large Quantity Generator with Onsite Treatment** – This facility is a LQG and medical/biohazardous waste is treated at this facility

☐ **Small Quantity Generator with Onsite Treatment** – This facility generates less than 200 pounds of medical waste per month in every 12-month period and medical/biohazardous waste is treated at this facility

☐ **Common Storage Facility** – This office building/complex/facility operates an area designated for the storage of medical/biohazardous waste. This area is shared by multiple independently operated SQGs. The medical waste is transported offsite by a registered medical waste hauler.

(Provide a list of generators that this Common Storage Facility serves. Add an additional sheet for more generators.) Number of generators served: see below

GENERATOR NAME	ADDRESS	PHONE NUMBER
Please see facility contact information in Appendix A	7000 East Avenue, Livermore CA 94550	Please see facility contact information in Appendix A

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III. TYPES OF MEDICAL/BIOHAZARDOUS WASTES GENERATED (Please check all that apply)

Please indicate the type(s) of medical waste generated by this facility. Check all that apply.

☑ **Fluid Blood Products** (This includes dressings, containers or equipment containing fluid blood, fluid blood products, or blood from animals known to be infected with diseases which are highly communicable to humans.)

☑ **Laboratory Wastes** (Specimen or biologic cultures, stocks of infectious agents, live and attenuated vaccines and culture mediums, test tubes, vacuum tubes)

☑ **Sharps** (syringes, needles, blades, broken glass)

☑ **Contaminated Animals** (Animal carcasses body parts, bedding materials)

☑ **Surgical Specimens** (Human or animal parts or tissues removed surgically or by autopsy)

☐ **Isolation Wastes** (Wastes contaminated with excretion, exudates or from animals infected and isolated due to the highly communicable diseases listed by the Centers for Disease Control)

☑ **Trace Chemotherapeutic Wastes** (Gloves, gowns, towels and I.V. solutions bags and empty tubings, etc. contaminated with trace amounts of chemotherapeutic agents)

☑ **Pharmaceutical Wastes** (Outdated, unused California-only regulated pharmaceuticals)

☑ **Other** (Please specify.) Trauma scene waste is generated infrequently

IV. QUANTITY OF MEDICAL/BIOHAZARDOUS WASTES GENERATED:

This facility generates this amount of regulated medical waste per month: 795 lbs.

V. OUR WASTE IS: (Please check all that apply)

☑ Picked up by a registered transporter; name and address: Clean Harbors, 42 Longwater Drive, Norwell MA 02061 and Stericycle, 1345 Doolittle Drive, Suite C, San Leandro CA 94577

- Refer to California Dept. of Public Health website for a list of authorized haulers: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/Transporters.aspx

☐ Mailed via Mail-Back System; name:

- Refer to California Dept. of Public Health website for mail back information: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/MailBack.aspx

☑ Treated onsite by autoclave steam sterilization or by alternative treatment method Tissue digester/chemical treatment

VI. NAME AND ADDRESS OF TREATMENT/DISPOSAL FACILITY:

If medical waste is disposed of or treated offsite, provide the following information:

Type of waste(s) (See Section III): Biohazardous, Pathology, Sharps, Pharmaceutical, Trace Chemotherapeutic wastes, and Trauma Scene waste (generated infrequently).

1. Name and address of registered Hazardous/Medical Waste Hauler:
   1. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061
   2. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
2. Name and address of Treatment/Disposal Facility:
   1. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
   2. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061

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VII. MEDICAL WASTE MANAGEMENT PLAN

All generators required to register must have on file with the enforcement agency a current Medical Waste Management Plan. The Medical Waste Management Plan shall include an Emergency Action Plan, which delineates the procedures for properly handling on-site spills and releases of medical waste (H&SC §117943). The Emergency Action Plan should address surface cleanup, protective clothing and equipment to be used, and disinfecting procedures. The Medical Waste Management Plan must be updated as facility operations or personnel information changes occur. Please indicate the status of your Medical Waste Management Plan:

☐ A review of the Medical Waste Management Plan previously submitted to Alameda County DEH was conducted and it was determined that a plan update is not required.

☑ The Medical Waste Management Plan has been updated and is attached.

☐ An approved Medical Waste Management Plan will be submitted to the Alameda County DEH with the Certificate of Return to Compliance from the last onsite inspection.

(Please check all that apply)

VIII. CERTIFICATION

I declare under penalty of law that to the best of my knowledge, the statements made herein are correct and true.

Authorized Representative:

Print Name: Lisa Woodrow Title: ES&H Associate Director Date: 8/24/2020

Signature: DocuSigned by: Lisa Woodrow 49DAEE508E524DF...

The fee page is available on our website at http://acgov.org/aceh/solid/medical_waste_management.htm. Make the check payable to Alameda County Department of Environmental Health. For other forms of payment, please refer to our website at http://acgov.org/aceh/billing/index.htm.

Mail the application and fee to: Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

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FA# _____ PR#_____ PAYMENT MADE: AMOUNT: _____ DATE PAID: _____

APPROVED BY: _____ DATE APPROVED: _____

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2.0 Medical Waste Management Plan

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Alameda, CA 94502 - (510) 567-6700

Ronald Browder, Director of Environmental Health
Phone: (510) 567-6790 Fax: (510) 337-9234

MEDICAL WASTE MANAGEMENT PLAN

(as required in Sections 117935 & 117960 Medical Waste Management Act)

FACILITY INFORMATION:

Facility Name: LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)
Address: 7000 East Avenue
City: Livermore State: CA Zip Code: 94550
Type of Business: Research & Development (Department of Energy National Laboratory)
Phone Number: (925) 424-5971 Email Address: woodrow2@llnl.gov

Name of Authorized Representative: Lisa Woodrow
Phone Number: (925) 424-5971 Email Address: woodrow2@llnl.gov

Name of Person Responsible for Implementation of the Medical Waste Management Plan (MWMP): Crystal Quinly
Phone Number: (925) 424-3279 Email Address: quinly2@llnl.gov

SECTION 1: TYPES OF MEDICAL WASTE GENERATED AT THIS FACILITY

- ***Biohazardous waste,*** including:
  - ***Regulated/biohazardous/medical waste*** - material from the medical treatment of a human or animal suspected of being infected with a contagious pathogen; material from biomedical research; waste suspected of contamination with a highly communicable disease.
  - ***Laboratory waste*** - specimen or microbiological cultures; stocks of infectious agents; live and attenuated vaccines and culture mediums.
  - ***Blood or blood products*** - fluid human blood and blood products; containers or equipment containing human blood that is fluid.
  - ***Infectious waste*** - material contaminated with excretion, exudates or secretions from humans or animals isolated due to a highly communicable disease.
- ***Sharps*** - hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste.
- ***Pharmaceutical waste*** - a prescription or over-the-counter human or veterinary drug medication.
- ***Pathology waste*** - human body parts; human or animal surgery specimen or tissues that

may be contaminated with infectious agents.

■ ***Trace chemotherapeutic waste*** - waste that is contaminated through contact with chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty.

■ ***Other (specify)*** – Trauma scene waste is generated infrequently.

SECTION 2. TYPE OF FACILITY

1. This facility is classified as a:

   ☐ **Small Quantity Generator** (*less than 200 pounds per month*) with NO Onsite Treatment of Medical Waste

   ☐ **Small Quantity Generator** (*less than 200 pounds per month*) WITH Onsite Treatment

   ☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - less than 100 licensed beds with NO Onsite Treatment

   ☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - 100-200 licensed beds with NO Onsite Treatment

   ☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) – Over 200 licensed beds with NO Onsite Treatment

   ■ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - Less than 100 licensed beds WITH Onsite Treatment

   ☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - 100-200 licensed beds WITH Onsite Treatment

   ☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) – Over 200 licensed beds WITH Onsite Treatment

2. The ***estimated quantity of medical waste*** generated (including sharps waste and pharmaceutical waste) by this facility on a monthly basis is ~795 pounds.

3. Describe the method of handling: ***segregation***, ***containment*** *or* ***packaging, labeling, collection***, and ***storage*** of **each type** of biohazardous/medical waste within your facility. Table 1 describes the methods used to handle each type of medical waste at LLNL.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Biohazardous	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 7 days at >32°F or up to 90 days at ≤32°F.	**SOLID WASTE**		
		• Solid biohazardous waste is collected in red biohazard bags that are manufacturer-certified to meet the American Society for Testing and Materials (ASTM) D1709 dart drop test. • Red biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair.	• Biohazard bags are marked with the international biohazard symbol and "BIOHAZARD." • Rigid secondary containers are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved solid biohazardous waste is then disposed of as Municipal Solid Waste.
		LIQUID WASTE		
		• Liquid biohazardous waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid containers used to collect liquid biohazardous waste are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD."	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and discharged to the sanitary sewer. **Alternative**: • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid biohazardous waste is then discharged to the sanitary sewer.
Pathology	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 90 days at ≤32°F.	**SOLID WASTE**		
		• Solid pathology waste is collected in red or white biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. This bag is lined with a digestible biohazard bag which will be placed into the tissue digester. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Animal carcasses are treated in the tissue digester. **Alternative:** • In the event the tissue digester is non-functional, carcasses meeting the definition of pathology waste are kept in freezers prior to being sent offsite for treatment by incineration.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (cont.)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
		LIQUID WASTE		
		• Liquid pathology waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid secondary containers, when used, are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and released to sanitary sewer. **Alternative:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid pathology waste is then disposed of to the sanitary sewer.
Pharmaceutical	**Segregation:** • Pharmaceuticals regulated as medical waste are separated from those regulated under Resource Conservation and Recovery Act (RCRA) and other regulations. **Storage:** • Radioactive and Hazardous Waste Management (RHWM) **s**tore**s** pharmaceutical waste for up to 90 days after the container is full and ready for disposal and disposes at least annually.	• Pharmaceuticals are placed into rigid containers for storage and handling. • When shipped offsite for treatment, pharmaceuticals are packaged in Department of Transportation (DOT)-compliant containers.	• Rigid storage containers are labeled with the words "HIGH HEAT" or "INCINERATION ONLY" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
		SOLID WASTE		
Sharps	**Segregation:** • Segregated from other waste at the point of generation. **Storage:** • Sharps waste containers may be stored for up to 30 days after the container is ¾ full and ready for treatment.	• Sharps waste is collected in a United States Food and Drug Administration (USFDA)-approved sharps container that meets USFDA-approved labeling requirements. When full and closed, sharps containers are placed into red biohazard bags for treatment. • When shipped offsite for treatment, sharps containers are packaged in DOT-compliant containers.	• USFDA-approved containers meet the USFDA labeling requirements. If contaminated with chemotherapeutic agents, sharps are labeled: "Chemotherapy Waste" or "CHEMO" and managed as trace chemotherapy waste as described below.	**Primary:** • Sharps waste rendered non-infectious by autoclaving is sent offsite for incineration.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (cont.)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
		TRACE CHEMOTHERAPEUTIC SHARPS WASTE		
		• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, is collected in USFDA-approved sharps containers.	• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, are labeled: "Chemotherapy Waste" or "CHEMO."	• Sharps waste contaminated through contact with, or having previously contained chemotherapeutic agents is sent offsite for incineration.
Trace chemotherapeutic	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • Trace chemotherapeutic waste containers are stored for up to 90 days after the container is full and ready for treatment and disposal.	**SOLID WASTE**		
		• Solid trace chemotherapeutic waste is collected in red or yellow biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers lined with biohazard bags that are marked and certified as ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
		LIQUID WASTE		
		• Liquid trace chemotherapeutic waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers.	• Rigid containers used to collect liquid trace chemotherapeutic waste are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
Trauma scene	• Rarely generated at LLNL and shipped directly offsite.	• Managed by a registered trauma scene waste management practitioner.	N/A	• Transported to an offsite hospital by a registered trauma scene waste management practitioner as soon as it is safe to do so.

TRANSPORTATION OF MEDICAL WASTE ONSITE AND OFFSITE

Biohazardous and sharps waste generated in the Biosafety Level (BSL)-3 facility are treated in B368 via autoclaving. Liquid biohazardous and pathology waste are treated via chemical disinfection or autoclaving. Animal carcasses are treated in the tissue digester. Medical wastes that require offsite treatment are transported to the Radioactive and Hazardous Waste Management (RHWM) facility using LLNL's government vehicles driven by trained hazardous waste technicians. LLNL is a closed facility with restricted access to the public and therefore is not subject to Department of Transportation (DOT) regulations for onsite movement of medical waste per 49 CFR 171.1(d)(4) exemption which states:

(d) Functions not subject to the requirements of the Hazardous Materials Regulations (HMR). The following are examples of activities to which the HMR do not apply:

(1) Rail and motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted, except to the extent that the movement is on or crosses a public road or is on track that is part of the general railroad system of transportation, unless access to the public road is restricted by signals, lights, gates, or similar controls.

Any movement of medical waste that will leave the boundary of LLNL will always be in full DOT compliance. RHWM ships these medical wastes offsite for treatment or disposal using a California registered hazardous waste hauler and in accordance with DOT requirements.

Offsite medical waste shipments are tracked using the Waste Disposal Requisition (WDR) and manifest systems. The tracking records are kept onsite for a minimum of three years.

***Note**: Offsite shipment of untreated medical waste from the BSL-3 laboratory will require the use of Centers for Disease Control and Prevention (CDC)-authorized medical waste haulers. In the rare event that a shipment of untreated BSL-3 medical waste is required, LLNL will contact the CDC for guidance and assistance.

4. MEDICAL WASTE STORAGE

Is this facility a Common Storage Facility that accumulates onsite, for collection by a registered biohazardous waste hauler, medical waste from onsite Small Quantity Generators (SQG) who would otherwise operate independently?

☐ Yes ■ No

If "Yes," complete the following information for each SQG that uses this Common Storage Facility (attach additional pages if needed):

	Name of Business/Doctor/Nurse	Address/Office	City
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

5. Describe all ***disinfection procedures*** used in your facility for treatment or cleaning of reusable medical waste receptacles and medical waste spills.

The disinfection processes LLNL uses at its medical waste facilities involves steam sterilization and chemical treatment. Approved chemical sanitizers are used for disinfection, for medical waste spills and for decontamination of reusable rigid containers, previously used for the storage of medical waste. As specified in Health & Safety Code (H&SC) 118295, decontamination of containers may be achieved by exposure to hot water at 180°F for 15 seconds or exposure to any of the following chemical sanitizers:

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

- Hydrogen peroxide liquid
- Vaporous hydrogen peroxide
- Formalin liquid
- Formaldehyde gas

6. Describe the ***designated accumulation area(s)*** used for the storage of medical waste. (**Note:** A ***designated accumulation area*** is an area used for the storage of medical waste containers prior to transportation or treatment shall be secured so as to deny access to unauthorized persons. See Section 118310 for more detailed requirements.)

As appropriate (based on the quantity of medical waste generated and need for storage), LLNL sets up designated accumulation areas for storage of medical wastes prior to transport or treatment. LLNL designated accumulation areas are secured to prevent access by unauthorized persons. Warning signs are posted around designated accumulation areas on, or adjacent to, the exterior of entry doors, gates, or lids. The storage area may be secured by use of accountable locks and keys for the BSL-3 laboratory.

The wording of warning signs posted around the designated accumulation areas is in English, "CAUTION—BIOHAZARDOUS WASTE STORAGE AREA—UNAUTHORIZED PERSONS KEEP OUT," and Spanish, "CUIDADO—ZONA DE RESIDUOS—BIOLOGICOS PELIGROSOS—PROHIBIDA LA ENTRADA A PERSONAS NO AUTORIZADAS," During daylight hours, these signs are visible at a distance of 25 feet.

7. **Onsite Medical Waste Treatment** (Check all that apply):

☐ This facility treats medical wastes on-site. ■ Yes ☐ No

If yes, what treatment method(s) are utilized?

■ Steam sterilization (e.g., autoclave)

☐ Microwave Technology

■ Other approved alternative treatment (Specify) Tissue digester & Chemical treatment

The location of the autoclave used to treat medical wastes generated at the LLNL BSL-3 facility is listed in **Table 3,** followed by the description of the waste retention tank system (WRTS) used to collect treated waste.

Note: Liquid effluent from the tissue digester is discharged to the WRTS upon successful cycle completion. Any solid material (e.g., small bone or teeth fragments) present in the tissue digester after a completed run is collected by a basket within the tissue digester and not released to the WRTS. After the run, the contents of the basket are managed through the Biohazardous Waste stream process outlined in **Table 1.**

■ This facility uses a *registered hazardous waste hauler* to haul medical waste to an offsite treatment facility

Hauler Name: Clean Harbors Environmental Services, Inc.
Address: 42 Longwater Dr.
City/State/Zip: Norwell, MA 02061
Phone: (781) 792-5000
Offsite Treatment Facility: Clean Harbors Environmental Services, Inc.

■ Describe the training program for employees that use treatment equipment at this facility.

LLNL personnel who treat medical waste receive training as follows:

- Operators of medical waste treatment equipment are trained on the equipment's use, proper personal protective equipment (PPE) to wear, if necessary, and how to clean up spills to ensure that the equipment is being operated in a safe and effective manner.
- Annual refresher training is provided to the operators.
- Training complies with applicable federal Occupational Safety and Health Administration (OSHA) regulations, including those found in Section 1910 of Title 29 of the Code of Federal Regulations.
- Training records are retained for a minimum of 2 years in the LLNL training database (LTRAIN).

The specific LLNL training plan courses for operators of medical waste treatment units include, but are not limited to, the following:

- **All medical waste treatment equipment operators**:
  - HS4686-W, *Personal Protective Equipment (PPE)*
  - HS4405-W, *Blood and Bloodborne Pathogens*
- **Tissue Digester Operators**:
  - NA3004, *Tissue Digester Operators Training*
- **Autoclave Operators**:
  - EP0012-W, *Medical Waste Treatment: Autoclave Operator Training*

■ Describe the closure plan for the termination of treatment at this facility.

☐ Decontamination procedures as specified in Section 118295, sub (a) or (b);
☐ Statement certifying that the information is complete and correct;
■ A copy of the Medical Waste Closure Plan is attached;
☐ Contact Alameda County LEA Inspector to arrange a final walkthrough.

See Appendix B.

SECTION 3. EMERGENCY ACTION PLAN

Note: Large Quantity Generators are required to have an Emergency Action Plan. While not required for Small Quantity Generators (SQG), it is recommended that SQGs complete this section as a good management practice.

In the case of an emergency, such as equipment breakdown on the part of the registered hauler or natural disaster, medical waste will be (check one):

- ■ Stored for up to seven (7) days on the premises. Sufficient storage space is available in:

  In the rare event when the Emergency Action Plan is required/implemented, all permitted facilities will cease medical waste generating activities if necessary. LLNL can store medical waste onsite at ≤32°F for up to 90 days and/or use established processes for shipping medical wastes offsite for treatment and disposal at a permitted facility within seven days of an emergency.
  See **Appendix A** for more details.

- ■ The following alternate registered biohazardous/medical waste hauler will be utilized:

  Name: Stericycle
  Address: 1345 Doolittle Dr., Ste. C
  City/State/Zip: San Leandro, CA 94577

- ■ Describe in detail how this facility manages medical waste spills (e.g., gloves, mask, gown, disinfectant):

  LLNL manages medical waste spills by ensuring containment, cleanup, decontamination, onsite treatment, and disposal of cleanup residue. The initial step to a medical spill response includes notifying people in the spill area to avoid exposure. Notification is followed by the cleanup steps summarized in **Appendix A**, Section 6 of the Emergency Action Plan.

- ■ Describe in detail how this facility handles, treats and disposes of liquid/semi-liquid laboratory waste:

  LLNL segregates liquid or semi-liquid biohazardous laboratory wastes at the point of generation and manages these wastes via the following methods:
  - Collect liquid/semi-liquid wastes as described in **Table 1.**
  - Securely close containers of liquid/semi liquid wastes to prevent leakage or loss during storage or transport.
  - **Liquid/semi-liquid biohazardous or pathology waste:**

Primary Method for Treatment and Disposal:

- Chemically disinfect liquid waste at the point of generation using a chemical disinfection method recognized by the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC) or American Biological Safety Association (ABSA) International.
- Chemically treated liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits. Alternative Method for Treatment and Disposal
- Liquid/semi-liquid waste may also be treated onsite by autoclaving.
- Successfully autoclaved liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits.

- **Liquid/semi-liquid trace chemotherapeutic waste:**
  - Liquid/semi-liquid trace chemotherapeutic waste is collected as described in **Table 1.**
  - Liquid/semi-liquid trace chemotherapeutic waste is incinerated offsite.
  - If the chemical disinfection of the medical waste causes the waste to become a hazardous waste, the waste will be managed in accordance with the requirements of Chapter 6.5 (commencing with Section 25100) of Division 20.

Note: Please refer to pages 18 and 19 for additional information.

■ Describe employee training provided by employer.

Bloodborne Pathogen Training Provided? ■Yes □ No □ OTHER (please describe below)

Specific training requirements vary based on job assignments and types of waste generated. The courses LLNL offers employees who generate medical waste include the following:

- **Medical Waste Generators:**
  - HS4435/HS4435-RW, *Working Safely in Biosafety Level 1 Laboratories*
  - HS4436/HS4436-RW, *Working Safely in Biosafety Level 2 Laboratories*
  - HS4438-P, *Biosafety Level 2 Proficiency Evaluation*
  - HS4686-W, *Personal Protective Equipment (PPE)*
  - HS4405-W, *Blood and Bloodborne Pathogens*
  - EP1006-W, *Waste Management Overview*

SECTION 4. CATEGORIZING PHARMACEUTICALS

■ Describe the steps taken to categorize and properly dispose of the pharmaceutical wastes generated at this facility, specifically, how this facility will separate pharmaceuticals classified by the federal Drug Enforcement Agency (DEA) as "controlled substances" from the standard regulated waste stream (if applicable):

The steps LLNL takes to categorize, segregate, and manage pharmaceutical wastes are as follows:

- Pharmaceutical wastes classified by the DEA as "controlled substances" are managed and disposed of in compliance with DEA and United States Food and Drug Administration (USFDA) requirements.
- Pharmaceutical wastes containing Resource Conservation and Recovery Act (RCRA)-regulated and/or, radioactive constituents are managed in accordance with the requirements for hazardous waste and radioactive waste respectively.
- Pharmaceutical wastes are managed in a manner that secures the pharmaceutical waste by denying access to unauthorized individuals. Any suspected or confirmed tampering of, unauthorized access to, or loss of any pharmaceutical waste is reported to the Alameda County Department of Environmental Health (ACDEH).
- LLNL uses a tracking document for pharmaceutical wastes shipped offsite for treatment and disposal and will notify ACDEH of discrepancies between the items received by the offsite facility receives and the items shipped by LLNL.

Medical Waste Management Act Mixed Waste

Waste consisting of medical and nonmedical waste will be handled as medical waste except as follows:

- Medical waste mixed with hazardous waste will be managed as hazardous waste.
- Medical waste mixed with radioactive waste will be managed as radioactive waste.
- Medical waste mixed with hazardous and radioactive waste will be treated as radioactive mixed waste.

Non-medical wastes such as those regulated by the RCRA or the California Hazardous Waste Control Act (HWCA) generated in the permitted medical waste facilities will be managed by LLNL's RHWM personnel.

■ The following ***registered biohazardous/medical waste hauler*** will be utilized to haul pharmaceutical wastes.

Name: Clean Harbors Environmental Services, Inc.

Address: 42 Longwater Drive

City/State/Zip: Norwell, MA 02061

I hereby certify that to the best of my knowledge and belief, the statements made herein are true and correct.

Signature: DocuSigned by: Lisa Woodrow 49DAEE508E524DF...

Print Name: Lisa Woodrow Date: 8/24/2020

OFFICIAL USE ONLY

Date received: _____ □ Approved □ Approved with changes: _____

Additional requirements: _____

Inspector signature: _____ Date: _____

The location of the BSL-3 medical waste generator facility at LLNL is shown in **Table 2.**

Table 2. Medical Waste Generator BSL-3 Facility Location

Building Number	Parent Organization	Typical Medical Waste Currently Generated	Medical Waste Potentially Generated
368	Global Security	1. Biohazardous 2. Sharps 3. Pharmaceutical 4. Pathology	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic

Table 3 shows the location, make, and model number of the autoclave and tissue digester used to treat waste in B368 as described in Table 1. This autoclave is operated by trained and experienced individuals who know the operating requirements specified in H&SC Sections 117967 and 118215. Such requirements include, but are not limited the following:

- Steam sterilizer temperature, pressure, and contact time.
- Annual calibration and calibration records retention for a minimum of two years.
- Use of a heat-sensitive tape on each biohazard bag or sharps container to indicate the waste went through heat treatment.
- Use of the biological indicator (BI) *Geobacillus strearothermophilus* or other indicator of adequate sterilization as approved by the department, at least monthly to confirm attainment of adequate sterilization. The BI shall be placed at the center of the load processed under standard operating conditions.

Table 3. Location of Autoclave and Tissue Digester Used at the BSL-3 Facility

Item	Building	Room	Autoclave/Tissue Digester Make	Model Number
1	368	Anteroom/Mechanical	Steris AMSCO autoclave	SF1161331127000061
2	368	Rodent laboratory	MR^2 Tissue digester	100-Lab Waste-30 Tissue Digester™

Waste Retention Tank System

- A waste retention tank system (WRTS) is used to collect effluent wastewater from the BSL-3 laboratories (i.e., sinks, floor drains) and tissue digester.

Note: No intentional release of infectious materials is planned. Effluent from the laboratories is treated prior to release to the WRTS. Additionally, the tissue digester does not release its contents unless the digester cycle has completed successfully.

- The WRTS consists of two tanks each with an approximate capacity of 950 gallons. The tanks sit within a concrete berm with an overflow capacity of approximately 1300

gallons.

- Each tank has a level sensor that will alarm to the B511 console, which is staffed at all times by the LLNL Maintenance Mechanics, in the event either tank nears its capacity.
- Water in the tanks is routinely analyzed for pH, cyanide, and Total Threshold Limit Concentration (TTLC) metals by the RHWM Technician. Based on the results of this analysis, the water will either be managed through RHWM or chlorinated and released to the sanitary sewer.
  - Prior to discharge to the sanitary sewer, the water is treated with sodium hypochlorite [1 part concentrated bleach (≥5.25%) sodium hypochlorite to 99 parts water] for 48 hours to inactivate any environmental microorganisms that may be present.
  - Wastewater that is hazardous, or does not meet sewer discharge requirements is managed through RHWM.
- The WRTS is not an effluent treatment system.
  - No intentional release of infectious material is permitted from the laboratories. All infectious materials must be treated by an appropriate method known to inactivate the material prior to release to the WRTS.

APPENDIX A

Emergency Action Plan
Global Security Principal Directorate

Biosafety Level 3 Facility

Lawrence Livermore National Laboratory (LLNL)
Global Security Principal Directorate
Biosafety Level 3 Laboratory (BSL-3)

Medical Waste Emergency Action Plan

1. Purpose:

This plan is to be followed to ensure proper disposal of medical waste in the event of equipment breakdowns, natural disasters, or other occurrences in accordance with Health & Safety Code (H&SC) 118235.

2. Types of Medical Waste Managed at the BSL-3 Facility:

The LLNL Global Security Principal Directorate generates and treats a variety of medical wastes as a result of research conducted in the BSL-3 laboratories. The medical waste types include (but are not limited to) the following:

- Biohazardous waste
- Sharps waste
- Pathology waste
- Pharmaceutical waste

3. Responsible Persons at the BSL-3 Facility:

General Contacts for the Global Security Principal Directorate

1	Amy Rasley Senior Laboratory Coordinator	(925) 423-1284	
2	Patsy Gilbert, Facility Manager	(925) 423-3162	Pager #10040
3	Stephanie Lopez, Global Security Assurance Manager	(925)424-6799	
4	Dave Abacherli Back-up Facility Point of Contact	(925) 423-7630	Pager# 02552
5	George Anderson, Chair IBC/IACUC Biosafety Committee	(925) 423-4285	
6	Jose Segura, Radioactive and Hazardous Waste Management (RHWM) Technician	(925) 423-2588	Pager #57952
7	Christine Ward, Industrial Hygienist	(925) 422-0036	Pager #62240
8	Lauralye Casipit, Health and Safety (H&S) Technician	(925) 422-5784	Pager # 05425
9	Alex Ruiz, Environmental Analyst	(925)424-2869	
10	John Warner, Biological Safety Officer	(925) 423-8036 (925) 960-3623 (cell)	Pager #04544
11	Carolyn Hall, Biological Safety Officer	(925) 423-8076 (925) 724-8536 (cell)	Pager #02716

> Obtain assistance from Responsible Persons listed above. If there is any doubt about safely managing the emergency, contact the LLNL Fire Department immediately by dialing 911 (from a Lab phone) or (925)-447-6880 (from a cell phone).

4. Possible Accident/Emergency Scenarios:

   - Personnel accident/injury (e.g., needle stick, caustic chemical splash).
   - Spills/releases.
   - Equipment failure.
   - Discharge to effluent tanks of waste not fully inactivated.
   - Natural disaster (earthquake, fire, etc.).

5. Response:

   - Cease routine operations.
   - Assess the nature of the emergency and the associated hazards (if it is safe to do so).
   - Notify all personnel in the immediate area. Evacuate the immediate room or area if the accident is hazardous to anyone or if you are in doubt about the extent of the hazard. When an inhalation hazard is present, hold your breath as much as possible while evacuating the area.
   - Obtain assistance from Responsible Persons listed above in Section 3. If there is any doubt about safely managing the emergency, contact the LLNL Fire Department immediately by dialing 911 (from a Lab phone) or (925) 447-6880 (from a cell phone).
   - Administer first aid when necessary. Remove contaminated clothing and shoes, wash hands, face and other contaminated portions of the body (with appropriate disinfectant and soap) before entering the change/shower rooms. If eyes or other parts of the body have been contaminated, flush the affected areas with water for 15 minutes.
   - Notify the Biosafety Officer, John Warner; Senior Laboratory Coordinator, Amy Rasley (at [925]-423-1284) and Facility Manager, Patsy Gilbert (at [925]-423-3162). Also notify the H&S Technician, Lauralye Casipit, (at [925] 422-5784, pager number: 05425) from the nearest phone.

6. Spill clean-up and decontamination:

   - Post a spill sign at the entrance.
   - Secure the area of the spill to prevent people from entering. Report to the LLNL Health Services Department for evaluation, immediately following possible exposure.
   - Personal protective equipment (PPE) requirements vary contingent upon the level of hazard involved. Call the Environment, Safety & Health (ES&H) Team 2 Industrial Hygienist (Christine Ward) at (925) 422-0036 and Biosafety Officer (John Warner) at (925) 960-3623 for guidance in the use of PPE. If there is any doubt about safely

managing the emergency, immediately contact the LLNL Fire Department by dialing 911 from a Lab phone or (925) 447-6880 from a cell phone.

- Recover all medical waste from spill site, and place into new biohazard bag or container.
- Disinfect all cleanup equipment or dispose of cleanup equipment as biohazardous waste.
- Disinfect the spill site with a 1:9 solution of household bleach and water. Disinfection should start from the outside in, thus preventing further contamination. Check with the RHWM Technician or Environmental Analyst on the proper classification and segregation of waste generated from the cleanup activities. Waste must be segregated based on contents (i.e., medical waste with added bleach, versus waste containing medical waste components only).
- Remove PPE, place into biohazard bag, and disinfect.
- If the waste is to be steam-sterilized, arrange for sterilization in the Facility autoclave. In the event that the Facility autoclave becomes inoperable or inaccessible, medical waste may be stored (pending the repair of the sterilization equipment or decontamination of the affected areas) in freezers located in the BSL-3 Facility.
- Properly dispose of biohazardous waste after sterilization.
  - The BSL-3 facility requires that solid biohazardous waste materials are double-autoclaved before disposal (e.g., autoclaved in B368 and then again in B365). After waste from the BSL-3 facility has been autoclaved twice, it is disposed of as Municipal Solid Waste.
  - Sterilized liquid media, other than whole blood (human or animal) in quantities of more than 50 mL, may be disposed of to the sanitary sewer. Most sterilized solids can go to the municipal trash.
  - Sterilized whole blood (human or animal), in glass tubes will be managed as sharps waste through the RHWM Program.

7. Equipment Failures:

   If the autoclave or the tissue digester breaks down, biohazardous waste that can be autoclaved will be moved to B365 after informing Biosafety Officer (John Warner) at (925) 960-3623. If the tissue digester becomes inoperable, pathology waste can be autoclaved, and the inactivated carcasses sent for offsite incineration.

   If the tissue digester and autoclaves were both inoperable, offsite shipment of non-inactivated medical waste would be coordinated through the Centers for Disease Control and Prevention (CDC).

   If sterilization equipment malfunctions during the course of a treatment run wherein biohazardous items were being sterilized, the partially-treated load (including any waste discharged to retention tank that is not fully inactivated) will be presumed infectious. The following steps and precautions will be taken when sterilization equipment fails containing potentially biohazardous media:

- The work area will be stabilized.
- Warning signs will be posted, notifying others that the equipment holds potentially infectious matter.
- Individuals listed on the Responsible Persons roster (Section 3) will be notified.
- The area Supervisor, in concert with the Responsible Persons Team, will devise a recovery strategy that addresses the following:
  - Biological agents present.
  - Employee exposure prevention.
  - Safe method for extracting potentially infectious material.
  - Equipment decontamination (being cognizant of all potentially contaminated surfaces and ancillary components that may be accessed by maintenance personnel).
  - Interim management plan for recovered wastes and/or reusable materials.
  - Plans for restoring normal operations.

8. Natural Disasters:

   In the event of a natural disaster that may interfere with the treatment and disposal of medical waste, all non-essential medical waste generating activities will be suspended immediately.

9. References:

   a. California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)
   b. LLNL Emergency Plan.

APPENDIX B

Medical Waste Closure Plan
for
BSL-3 Treatment Units at LLNL

Lawrence Livermore National Laboratory
7000 East Avenue
Livermore, CA 94550

1. Introduction

Lawrence Livermore National Laboratory (LLNL) will use this Closure Plan to close its medical waste treatment units. This Closure Plan is needed because of the requirements of the California medical waste regulations found in Health & Safety Code (H&SC) 117960(j) and 22 CCR 65625(a)(14). Each medical waste treatment unit to be closed will follow this plan. The plan includes steps for notifying the regulators of start and completion of closure activities, inspections, closure procedures, and where the final medical waste will be sent. As required by H&SC 118295(a) and (b), this closure plan also contains procedures for decontaminating containers and spills that may be necessary during closure activities. The goal of these closure activities is to ensure the medical waste treatment units are left in acceptable sanitary conditions and are clean closed.

2. Notification of Intent to Close Medical Treatment Unit

At least 30 days prior to start of closure, LLNL will send a written notification to the Alameda County Department of Environmental Health (ACDEH) containing the following information:

- Date of final closure.
- Reason(s) for treatment unit(s) closure.
- Disposition of final medical waste by removal and disposal at an authorized facility or onsite treatment/disposal.
- Disinfection and decontamination procedures.

3. Closure Inspection(s)

LLNL will schedule a pre-closure medical waste inspection with ACDEH, which may include the following:

- Review of medical waste tracking documents.
- Inspection of areas where medical wastes were treated.
- Inspection of medical waste treatment units.
- Review of disinfection/decontamination procedures.
- Review of waste treatment records.

If violations are noted during pre-closure inspection, LLNL will schedule a re-inspection of the facility with ACDEH after violations have been corrected.

4. Closure Process

LLNL will identify the maximum inventory of medical wastes to be disposed or treated as part of the closure process. Specific steps of the closure process are as follows:

- Removing the last inventory medical waste for offsite disposal and/or treatment.
- Following the steps specified by H&SC to treat medical waste onsite by disinfection and confirming the effectiveness of decontamination.
- Making sure all treatment units subject to closure meet all the closure provisions and achieve the closure performance standards as required by regulations.

- Coordinate closure procedures with the Centers for Disease Control and Prevention (CDC).

LLNL routinely washes and decontaminates reusable rigid containers not protected with disposable liners, bags or other devices removed with the waste. The same disinfection procedure will be used during facility closure. Approved methods for disinfection/ decontamination include, but are not limited to the methods specified in H&SC 118295 and are summarized below:

- Exposure to hot water of at least 82° Centigrade (180° Fahrenheit) for a minimum of 15 seconds, **or**
- Exposure to chemical sanitizer by rinsing with, or immersion in, one of the following for a minimum of 3 minutes:
    1. Hypochlorite solution (500 ppm available chlorine).
    2. Phenolic solution (500 ppm active agent).
    3. Iodoform solution (100 ppm available iodine).
    4. Quaternary ammonium solution (400 ppm active agent).
    5. Vaporous hydrogen peroxide.
    6. Formalin Vapor.
- Ensuring a thorough cleanup and removal of medical waste prior to closure of the treatment units.
- Identifying and mitigating all known releases of medical waste at or near the treatment units being closed.
- Ensuring no medical waste or contaminated materials is left behind after completing the closure a medical waste unit.
- Terminating the permit to operate medical treatment units once ACDEH approves the closure.

This Closure Plan must be followed whenever a permitted medical waste treatment unit is to be closed. The Closure Plan will be kept at LLNL throughout the active life of each permitted medical waste treatment unit.

Title 22 Code of California Regulations, Section 65625(a) (22 CCR 65625(a) requires preparation of this Closure Plan, including a written cost estimate for closing treatment units. This plan meets all these requirements except preparing a closure cost estimate because as a federal facility, LLNL is not required to prepare a cost estimate. In addition, the 22 CCR 65625(a)(14) requirement to revise the cost estimate whenever the closure plan changes and increases the closure costs is not applicable to LLNL.

5. Shipping Final Medical Waste

Although LLNL may ship medical wastes from treatment unit closure activities to other permitted treatment facilities, the primary offsite facilities that will receive LLNL's medical waste for incineration are:

Stericycle
1345 Doolittle Drive, Suite C
San Leandro, CA 94577
(866) 783-7422

Clean Harbors Environmental Services, Inc.
11600 North Aptus Road
Aragonite, UT 84029
(801) 323-8100

LLNL will mainly use the two permitted treatment facilities listed above to treat medical waste from its closure activities.

6. Conclusion

This Closure Plan specifies procedures LLNL will use to close its medical waste treatment units. All medical wastes generated during the closure activities will be sent to an approved medical waste treatment or disposal facility in accordance with federal, state, and local regulations (where applicable). LLNL will also ensure no nuisance conditions such as odors exist after the facility is closed. The Closure Plan includes specific steps for onsite treatment and decontamination. LLNL will send a written notice to ACDEH at least 30 days in advance of its planned closure date. A written notification of completion of closure activities will also be sent to ACDEH within 30 days stating that all applicable closure standards have been achieved. Medical wastes from closure activities that require offsite treatment or disposal will be sent to two facilities: Stericycle and Clean Harbors Environmental.

7. Reference:

California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)

Attachment 3

Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 2 Facilities REDLINE VERSION

LLNL-AR-~~785698~~XXXXXX
External

LAWRENCE LIVERMORE NATIONAL LABORATORY

Medical Waste Management and Emergency Action Plan for the Lawrence Livermore National Laboratory Biosafety Level 2 (and Lower) Facilities

Environmental Functional Area

August ~~2019~~2020

Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA27344.

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APPENDICES

1.0 Medical Waste Generator Registration Form

Alameda County
Department of Environmental Health
Office of Solid/Medical Waste Management
1131 Harbor Bay Parkway ● Alameda, CA 94502
Phone: (510) 567-6790 ● Fax: (510) 337-9234
www.acgov.org/aceh

MEDICAL WASTE GENERATOR REGISTRATION APPLICATION FORM

WHO IS REQUIRED TO REGISTER?

Each **Large Quantity Generator (LQG)** shall register with the enforcement agency pursuant to the California Health and Safety Code, Division 104, Part 14, California Medical Waste Management Act ([H&SC § 117950(a)]. The Large Quantity Generator (LQG) registration is valid for one year [H&SC § 117970(b)]. Facilities that generate equal to or more than 200 pounds in any month of the year of medical/biohazardous waste are categorized as Large Quantity Generators (LQG).

A medical waste **Common Storage Facility** that collects the accumulated waste of more than one medical waste generator shall be registered with the enforcement agency (H&SC § 117908).

Each **Small Quantity Generator (SQG) using on-site treatment** such as steam sterilization shall register with the enforcement agency [H&SC § 117925(a)].

To register, complete this form and submit to Alameda County Department of Environmental Health, Office of Solid/Medical Waste Management.

Type of Application: ☐ New Registration/Permit ☑ Renewal ☐ Change of Ownership

I. FACILITY INFORMATION

Facility Name:	Lawrence Livermore National Laboratory		
Address:	7000 East Avenue	City/Zip	Livermore, 94550
Mailing Address:	P.O. Box 808	City/Zip	Livermore, 94550
Contact Person:	Lisa Woodrow	Telephone:	
Email Address:	woodrow2@llnl.gov	Fax:	

II. GENERATOR CATEGORIES REQUIRING REGISTRATION **(Please check all that apply)**

Application Type: Please indicate the category of medical waste generator that best describes your facility.

☐ **Large Quantity Generator with NO Onsite Treatment** – This facility generates 200 pounds or more of medical/biohazardous waste in any month of a 12-month period and medical waste is NOT treated onsite.

☑ **Large Quantity Generator with Onsite Treatment** – This facility is a LQG and medical/biohazardous waste is treated at this facility

☐ **Small Quantity Generator with Onsite Treatment** – This facility generates less than 200 pounds of medical waste per month in every 12-month period and medical/biohazardous waste is treated at this facility

☐ **Common Storage Facility** – This office building/complex/facility operates an area designated for the storage of medical/biohazardous waste. This area is shared by multiple independently operated SQGs. The medical waste is transported offsite by a registered medical waste hauler.

(Provide a list of generators that this Common Storage Facility serves. Add an additional sheet for more generators.) Number of generators served: see below

GENERATOR NAME	ADDRESS	PHONE NUMBER
Please see facility contact information in Appe	7000 East Avenue, Livermore CA 94550	Please see facility contact information i

III. TYPES OF MEDICAL/BIOHAZARDOUS WASTES GENERATED

Please indicate the type(s) of medical waste generated by this facility. Check all that apply.

☒ **Fluid Blood Products** (This includes dressings, containers or equipment containing fluid blood, fluid blood products, or blood from animals known to be infected with diseases which are highly communicable to humans.)

☒ **Laboratory Wastes** (Specimen or biologic cultures, stocks of infectious agents, live and attenuated vaccines and culture mediums, test tubes, vacuum tubes)

☒ **Sharps** (syringes, needles, blades, broken glass)

☒ **Contaminated Animals** (Animal carcasses body parts, bedding materials)

☒ **Surgical Specimens** (Human or animal parts or tissues removed surgically or by autopsy)

☐ **Isolation Wastes** (Wastes contaminated with excretion, exudates or from animals infected and isolated due to the highly communicable diseases listed by the Centers for Disease Control)

☒ **Trace Chemotherapeutic Wastes** (Gloves, gowns, towels and I.V. solutions bags and empty tubings, etc. contaminated with trace amounts of chemotherapeutic agents)

☒ **Pharmaceutical Wastes** (Outdated, unused California-only regulated pharmaceuticals)

☒ **Other** (Please specify.) Trauma scene waste is generated infrequently.

IV. QUANTITY OF MEDICAL/BIOHAZARDOUS WASTES GENERATED:

This facility generates this amount of regulated medical waste per month: ~540 lbs.

V. OUR WASTE IS:

☒ Picked up by a registered transporter; name and address: Clean Harbors, 42 Longwater Drive Norwell, MA 02061 and Stericycle, 1345 Doolittle Drive, Suite C San Leandro, CA 94577

- Refer to California Dept. of Public Health website for a list of authorized haulers: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/Transporters.aspx

☐ Mailed via Mail-Back System; name:

- Refer to California Dept. of Public Health website for mail back information: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/MailBack.aspx

☒ Treated onsite by autoclave steam sterilization or by alternative treatment method Tissue digester/chemical treatment

VI. NAME AND ADDRESS OF TREATMENT/DISPOSAL FACILITY:

If medical waste is disposed of or treated offsite, provide the following information:

Type of waste(s) (See Section III): Biohazardous, Pathology, Sharps, Pharmaceutical, Trace Chemotherapeutic wastes and Trauma Scene waste (generated infrequently).

1. Name and address of registered Hazardous/Medical Waste Hauler:
   1. Clean Harbors Environmental Services, Inc., 42 Longwater Drive, Norwell, MA 02061
   2. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
2. Name and address of Treatment/Disposal Facility:
   1. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
   2. Clean Harbors Environmental, 11600 North Aptus Road, Aragonite, UT 94029

III. TYPES OF MEDICAL/BIOHAZARDOUS WASTES GENERATED (Please check all that apply)

Please indicate the type(s) of medical waste generated by this facility. Check all that apply.

☑ **Fluid Blood Products** (This includes dressings, containers or equipment containing fluid blood, fluid blood products, or blood from animals known to be infected with diseases which are highly communicable to humans.)

☑ **Laboratory Wastes** (Specimen or biologic cultures, stocks of infectious agents, live and attenuated vaccines and culture mediums, test tubes, vacuum tubes)

☑ **Sharps** (syringes, needles, blades, broken glass)

☑ **Contaminated Animals** (Animal carcasses body parts, bedding materials)

☑ **Surgical Specimens** (Human or animal parts or tissues removed surgically or by autopsy)

☐ **Isolation Wastes** (Wastes contaminated with excretion, exudates or from animals infected and isolated due to the highly communicable diseases listed by the Centers for Disease Control)

☑ **Trace Chemotherapeutic Wastes** (Gloves, gowns, towels and I.V. solutions bags and empty tubings, etc. contaminated with trace amounts of chemotherapeutic agents)

☑ **Pharmaceutical Wastes** (Outdated, unused California-only regulated pharmaceuticals)

☑ **Other** (Please specify.) Trauma scene waste is generated infrequently

IV. QUANTITY OF MEDICAL/BIOHAZARDOUS WASTES GENERATED:

This facility generates this amount of regulated medical waste per month: 795 lbs.

V. OUR WASTE IS: (Please check all that apply)

☑ Picked up by a registered transporter; name and address: Clean Harbors, 42 Longwater Drive, Norwell MA 0

- Refer to California Dept. of Public Health website for a list of authorized haulers: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/Transporters.aspx

☐ Mailed via Mail-Back System; name:

- Refer to California Dept. of Public Health website for mail back information: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/MailBack.aspx

☑ Treated onsite by autoclave steam sterilization or by alternative treatment method Tissue digester/chemic

VI. NAME AND ADDRESS OF TREATMENT/DISPOSAL FACILITY:

If medical waste is disposed of or treated offsite, provide the following information:

Type of waste(s) (See Section III): Biohazardous, Pathology, Sharps, Pharmaceutical, Trace Chemotherapeu

1. Name and address of registered Hazardous/Medical Waste Hauler:
   1. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061
   2. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
2. Name and address of Treatment/Disposal Facility:
   1. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
   2. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061

MW Generator Registration
Form Page 2 of 3
September 2018

VII. MEDICAL WASTE MANAGEMENT PLAN

All generators required to register must have on file with the enforcement agency a current Medical Waste Management Plan. The Medical Waste Management Plan shall include an Emergency Action Plan, which delineates the procedures for properly handling on-site spills and releases of medical waste (H&SC §117943). The Emergency Action Plan should address surface cleanup, protective clothing and equipment to be used, and disinfecting procedures. The Medical Waste Management Plan must be updated as facility operations or personnel information changes occur. Please indicate the status of your Medical Waste Management Plan:

☐ A review of the Medical Waste Management Plan previously submitted to Alameda County DEH was conducted and it was determined that a plan update is not required.

☑ The Medical Waste Management Plan has been updated and is attached.

☐ An approved Medical Waste Management Plan will be submitted to the Alameda County DEH with the Certificate of Return to Compliance from the last onsite inspection.

VIII. CERTIFICATION

I declare under penalty of law that to the best of my knowledge, the statements made herein are correct and true.

Authorized Representative:

Print Name: Frances Alston, Ph.D. Title: ES&H Director Date: _____

Signature: _____

The fee page is available on our website at http://acgov.org/aceh/solid/medical_waste_management.htm. Make the check payable to Alameda County Department of Environmental Health. For other forms of payment, please refer to our website at http://acgov.org/aceh/billing/index.htm.

Mail the application and fee to: Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

FOR OFFICIAL USE ONLY

FA# _____ PR#_____ PAYMENT MADE: AMOUNT: _____ DATE PAID: _____

APPROVED BY: _____ DATE APPROVED: _____

VII. MEDICAL WASTE MANAGEMENT PLAN

All generators required to register must have on file with the enforcement agency a current Medical Waste Management Plan. The Medical Waste Management Plan shall include an Emergency Action Plan, which delineates the procedures for properly handling on-site spills and releases of medical waste (H&SC §117943). The Emergency Action Plan should address surface cleanup, protective clothing and equipment to be used, and disinfecting procedures. The Medical Waste Management Plan must be updated as facility operations or personnel information changes occur. Please indicate the status of your Medical Waste Management Plan:

- ☐ A review of the Medical Waste Management Plan previously submitted to Alameda County DEH was conducted and it was determined that a plan update is not required.
- ☑ The Medical Waste Management Plan has been updated and is attached.
- ☐ An approved Medical Waste Management Plan will be submitted to the Alameda County DEH with the Certificate of Return to Compliance from the last onsite inspection.

(Please check all that apply)

VIII. CERTIFICATION

I declare under penalty of law that to the best of my knowledge, the statements made herein are correct and true.

Authorized Representative:

Print Name: Lisa Woodrow Title: ES&H Director Date: _____

Signature: _____

The fee page is available on our website at http://acgov.org/aceh/solid/medical_waste_management.htm. Make the check payable to Alameda County Department of Environmental Health. For other forms of payment, please refer to our website at http://acgov.org/aceh/billing/index.htm.

Mail the application and fee to: Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

FOR OFFICIAL USE ONLY

FA# _____ PR#_____ PAYMENT MADE: AMOUNT: _____ DATE PAID: _____

APPROVED BY: _____ DATE APPROVED: _____

MW Generator Registration
Form Page 3 of 3
September 2018

2.0 Medical Waste Management Plan

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Alameda, CA 94502 - (510) 567-6700

Ronald Browder, Director of Environmental Health
Phone: (510) 567-6790 Fax: (510) 337-9234

MEDICAL WASTE MANAGEMENT PLAN

(as required in Sections 117935 & 117960 Medical Waste Management Act)

FACILITY INFORMATION:

Facility Name: LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)
Address: 7000 East Avenue
City: Livermore State: CA Zip Code: 94550
Type of Business: Research & Development (Department of Energy National Laboratory)
Phone Number: (925) 424-5971 Email Address: ~~woodrow2@llnl.gov~~

Name of Authorized Representative: Lisa Woodrow
Phone Number: (925) 424-5971 Email Address: woodrow2@llnl.gov

Name of Person Responsible for Implementation of the Medical Waste Management Plan (MWMP): Crystal Quinly
Phone Number: (925) 424-3279 Email Address: quinly2@llnl.gov

SECTION 1: TYPES OF MEDICAL WASTE GENERATED AT THIS FACILITY

☐ ***Biohazardous waste,*** including:

- ***Regulated/biohazardous/medical waste*** - material from the medical treatment of a human or animal suspected of being infected with a contagious pathogen; material from biomedical research; waste suspected of contamination with a highly communicable disease.
- ***Laboratory waste*** - specimen or
- microbiological cultures; stocks of infectious agents; live and attenuated vaccines and culture mediums.
- ***Blood or blood products*** - fluid human blood and blood products; containers or equipment containing human blood that is fluid.
- ***Infectious waste*** - material contaminated with excretion, exudates or secretions from humans or animals isolated due to a highly communicable disease.

☐ ***Sharps*** - hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste.

■ ***Pharmaceutical waste*** - a prescription or over-the-counter human or veterinary drug medication.

■ ***Pathology waste*** - human body parts; human or animal surgery specimen or tissues that may be contaminated with infectious agents.

■ ***Trace chemotherapeutic waste*** - waste that is contaminated through contact with chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty.

■ ***Other (specify)*** – Trauma scene waste is generated infrequently.

SECTION 2. TYPE OF FACILITY

1. This facility is classified as a:

☐ **Small Quantity Generator** (*less than 200 pounds per month*) with NO Onsite Treatment of Medical Waste

☐ **Small Quantity Generator** (*less than 200 pounds per month*) WITH Onsite Treatment

☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - less than 100 licensed beds with NO Onsite Treatment

☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - 100-200 licensed beds with NO Onsite Treatment

☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) – Over 200 licensed beds with NO Onsite Treatment

▣ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - Less than 100 licensed beds WITH Onsite Treatment

☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - 100-200 licensed beds WITH Onsite Treatment

☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) – Over 200 licensed beds WITH Onsite Treatment

~~1.~~2. The ***estimated quantity of medical waste*** generated (including sharps waste and pharmaceutical waste) by this facility on a monthly basis

~~2.~~3. is ~795 pounds.

ALAMEDA COUNTY
HEALTH CARE SERVICES AGENCY
Alex Briscoe, Agency Director

DEPARTMENT of ENVIRONMENTAL HEALTH
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway
Alameda, CA 94502
(510) 567-6790
Fax (510) 337-9234

MEDICAL WASTE MANAGEMENT PLAN

FACILITY INFORMATION:

Facility Name: LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)
Address: 7000 East Avenue
City: Livermore State: CA Zip Code: 94550
Type of Business: Research & Development (Department of Energy National Laboratory)
Phone Number: (925) 422 33434-5971 Email Address: alston7@llnl.govwoodrow2@llnl.gov

Name of Authorized Representative: Frances Alston, Ph. D.Lisa Woodrow
Phone Number: (925) 422 3343424-5971 Email Address:
alston7@llnl.govwoodrow2@llnl.gov

Name of Person Responsible for Implementation of the Medical Waste Management Plan: Brian PerkinsCrystal Quinly

SECTION I. TYPES OF MEDICAL WASTE GENERATED AT THIS FACILITY (Check all that apply):

☐ ***Biohazardous waste,*** including:

- ○ ***Regulated/biomedical/clinical waste*** - material from the medical treatment of a human or animal suspected of being infected with a contagious pathogen; material from biomedical research; waste suspected of contamination with a highly communicable disease.
- ○ ***Laboratory waste*** - specimen or microbiological cultures; stocks of infectious agents; live and attenuated vaccines and culture mediums.
- ○ ***Blood or blood products*** - fluid human blood and blood products; containers or equipment containing human blood that is fluid.
- ○ ***Infectious waste*** - material contaminated with excretion, exudates or secretions from humans or animals isolated due to a highly communicable disease.

☐ ***Sharps*** - hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste.

☐ ***Pharmaceutical waste*** - any prescription or over-the-counter medication which has no value (excludes material sent to a reverse distributor).

☒ ***Pathology waste*** - human body parts; human or animal surgery specimen that may be contaminated with infectious agents; surgery specimen or tissues that have been fixed in formaldehyde or another fixative.

☒ ***Trace chemotherapeutic waste*** - waste that is contaminated through contact with chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty.

☒ ***Other (specify)*** Trauma scene waste is generated infrequently.

SECTION II. TYPE OF FACILITY

3. This facility is classified as a:

☐ Small Quantity Generator (*less than 200 pounds per month*) with NO Onsite Treatment of Medical Waste

☐ Small Quantity Generator WITH Onsite Treatment

☐ Large Quantity Generator (*more than 200 pounds per month*) less than 100 Licensed Beds with NO Onsite Treatment

☐ Large Quantity Generator (*more than 200 pounds per month*) 100-200 licensed beds with NO Onsite Treatment

☐ Large Quantity Generator (*more than 200 pounds per month*) Over 200 licensed Beds with NO Onsite Treatment

☒ Large Quantity Generator (*more than 200 pounds per month*) less than 100 Licensed Beds WITH Onsite Treatment

☐ Large Quantity Generator (*more than 200 pounds per month*) 100-200 licensed beds WITH Onsite Treatment

☐ Large Quantity Generator (*more than 200 pounds per month*) Over 200 licensed Beds WITH Onsite Treatment

4. The *estimated quantity of medical waste* generated (including sharps waste) by this facility on a monthly basis is ~540 [LMN1] pounds.

~~5.~~4. Describe the method of handling: ***segregation***, ***containment*** *or* ***packaging***, ***labeling***, ***collection***, and ***storage*** of **each type** of biohazardous/medical waste within your facility. Table 1 describes the methods used to handle each type of medical waste at LLNL.~~Describe the method of handling: *segregation*, *containment or packaging*, *labeling*, *collection*, and *storage* of each **type** of medical waste within your facility. Table 1 describes the methods used to handle each type of medical waste at LLNL.~~

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
		SOLID WASTE		
Biohazardous	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 7 days at >32°F or up to 90 days at ≤32°F.	• Solid biohazardous waste is collected in red biohazard bags that are manufacturer-certified to meet the American Society for Testing and Materials (ASTM) D1709 dart drop test. • Red biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • If being shipped offsite for treatment, biohazardous waste will be packaged into Department of Transportation (DOT)-compliant containers lined with biohazard bags that are marked and certified as meeting ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved solid biohazardous waste is then disposed of as Municipal Solid Waste. **Alternative:** • Incinerated offsite.
		LIQUID WASTE		
		• Liquid biohazardous waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid containers used to collect liquid biohazardous waste are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD."	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and discharged to the sanitary sewer. **Alternative**: • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid biohazardous waste is then released to the sanitary sewer.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (con't)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Pathology	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 90 days at ≤32°F.	**SOLID WASTE**		
		• Solid pathology waste is collected in red or white biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • If being shipped offsite for treatment, pathology waste will be packaged into DOT-compliant containers lined with red or white biohazard bags that are marked and certified as meeting ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite. **Alternative**: • Animal carcasses meeting the definition of pathology waste may be autoclaved onsite followed by off-site incineration. OR • Animal carcasses meeting the definition of pathology waste may be treated in the onsite medical waste-permitted tissue digester.
		LIQUID WASTE		
		• Liquid pathology waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid secondary containers, when used, are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and released to sanitary sewer. **Alternative:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid pathology waste is then disposed of to the sanitary sewer.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (con't)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Pharmaceutical	**Segregation:** • Pharmaceuticals regulated as medical waste are separated from those regulated under Resource Conservation and Recovery Act (RCRA) and other regulations. **Storage:** • Radioactive and Hazardous Waste Management (RHWM) stores pharmaceutical waste for up to 90 days after the container is full and ready for disposal and disposes at least annually.	• Pharmaceuticals are placed into rigid containers for storage and handling. • When shipped offsite for treatment, pharmaceuticals are packaged in DOT-compliant containers.	• Rigid storage containers are labeled with the words "HIGH HEAT" or "INCINERATION ONLY" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
Sharps	**Segregation:** • Segregated from other waste at the point of generation. **Storage:** • Sharps waste containers may be stored for up to 30 days after the container is ¾ full and ready for treatment.	**SHARPS WASTE (Other than Trace Chemotherapeutic Sharps Waste)** • Sharps waste is collected in United States Food and Drug Administration (USFDA)-approved sharps containers. • When shipped offsite for treatment, sharps containers are packaged in DOT-compliant containers.	• USFDA-approved containers meet the USFDA labeling requirements. • If contaminated with chemotherapeutic agents, sharps are labeled: "Chemotherapy Waste," or "CHEMO" and managed as trace chemotherapy waste as described below.	**Primary:** • Sharps waste rendered non-infectious by autoclaving and is sent offsite for incineration.
		TRACE CHEMOTHERAPEUTIC SHARPS WASTE • Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, is collected in USFDA-approved sharps containers.	• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, is labeled: "Chemotherapy Waste" or "CHEMO."	• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents is sent offsite for incineration.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (con't)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
		SOLID WASTE		
Trace chemotherapeutic	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • Trace chemotherapeutic waste containers are stored for up to 90 days after the container is full and ready for treatment and disposal.	• Solid trace chemotherapeutic waste is collected in red or yellow biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers lined with red or yellow biohazard bags that are marked and certified as meeting ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
		LIQUID WASTE		
		• Liquid trace chemotherapeutic waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers.	• Rigid containers used to collect liquid trace chemotherapeutic waste are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
Trauma scene	• Rarely generated at LLNL and shipped directly offsite.	• Managed by a registered trauma scene waste management practitioner.	N/A	• Transported to an offsite hospital by a registered trauma scene waste management practitioner as soon as it is safe to do so.

TRANSPORTATION OF MEDICAL WASTE ONSITE AND OFFSITE

Biohazardous/biohazardous sharps waste that will be autoclaved onsite is autoclaved within the facility where it is generated and/or delivered to the B361 Central Services Designated Waste Accumulation Area. The biohazardous/biohazardous sharps waste pickups are completed weekly from various laboratory locations onsite. For onsite transportation of medical waste, LLNL uses government vehicles driven by trained hazardous waste technicians. LLNL is a closed facility with restricted access to the public and therefore is not subject to Department of Transportation (DOT) regulations for onsite movement of medical waste per 49 CFR 171.1(d)(4) exemption which states:

(d) Functions not subject to the requirements of the Hazardous Materials Regulations (HMR). The following are examples of activities to which the HMR do not apply:

(1) Rail and motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted, except to the extent that the movement is on or crosses a public road or is on track that is part of the general railroad system of transportation, unless access to the public road is restricted by signals, lights, gates, or similar controls.

Any movement of medical waste that will leave the boundary of LLNL will always be in full DOT compliance. Medical waste which requires offsite treatment such as sharps, pharmaceutical, and trace chemotherapeutic waste, is transported to the Radioactive and Hazardous Waste Management (RHWM) facility for offsite shipment. In coordination with RHWM, offsite shipments of medical waste* can also be shipped directly from laboratory facilities. California registered hazardous waste haulers are used to transport waste offsite for treatment and disposal, in accordance with DOT requirements.

Medical waste shipments are tracked using the Waste Disposal Requisition (WDR) and manifest systems. The tracking records are kept onsite for a minimum of three years.

***Note:** Offsite shipment of untreated medical waste from some BSL-2 laboratories may require use of Centers for Disease Control and Prevention (CDC)-authorized medical waste haulers. In this rare event, LLNL will contact the CDC for guidance and assistance.

5. Medical Waste Storage

Is this facility a Common Storage Facility that accumulates onsite, for collection by a registered biohazardous waste hauler, medical waste from onsite Small Quantity Generators (SQG) who would otherwise operate independently?

☐ Yes ■ No

If "Yes," complete the following information for each SQG that uses this Common Storage Facility (attach additional pages if needed):

	Name of Business/Doctor/Nurse	Address/Office	City
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

~~6. Medical Waste Storage~~

~~Is this facility a Common Storage Facility that accumulates onsite, for collection by a registered hazardous waste hauler, medical waste from onsite Small Quantity Generators (SQG) who would otherwise operate independently?~~

~~☐ Yes ■ No~~

~~If "Yes," complete the following information for each SQG that uses this Common Storage Facility (attach additional pages if needed)~~

	~~**Business Name**~~	~~**Address**~~	~~**City**~~
~~1~~			
~~2~~			
~~3~~			
~~4~~			
~~5~~			
~~6~~			
~~7~~			
~~8~~			

9			
10			
11			
12			
13			
14			
15			

Describe all ***disinfection procedures*** used in your facility for treatment or cleaning of reusable medical waste receptacles and medical waste spills. Describe all *disinfection procedures* used in your facility for treatment or cleaning of reusable medical waste receptacles and medical waste spills.

6.

The disinfection processes LLNL uses at its medical waste facilities involves steam sterilization and chemical treatment. Approved chemical sanitizers are used for disinfection, for cleaning up medical waste spills, and for decontamination of reusable rigid containers, previously used for the storage of medical waste. As specified in Health & Safety Code (H&SC) 118295, decontamination of containers may be achieved by exposure to hot water at 180°F for 15 minutes or exposure to chemical sanitizers. Typical sanitizers used include:

- Hypochlorite solution (500 ppm available chlorine)
- Phenolic solution (500 ppm active agent)
- Iodoform solution (100 ppm available iodine)
- Quaternary ammonium solution (400 ppm active agent)
- Hydrogen peroxide liquid[AGW2]
- Vaporous hydrogen peroxide
- Formalin liquid
- Formaldehyde gas
- Chlorhexidine
- Chlorine dioxide gas

7. Describe the ***designated accumulation area(s)*** used for the storage of medical waste. (**Note:** A ***designated accumulation area*** is an area used for the storage of medical waste containers prior to transportation or treatment shall be secured so as to deny access to unauthorized persons. See Section 118310 for more detailed requirements.) Describe the *designated accumulation area(s)* used for the storage of medical waste. (NOTE: *Designated accumulation area* is an area used for the storage of medical waste containers prior to transportation or treatment shall be secured so as to deny access to unauthorized persons. See Section 118310 for more detailed requirements.)

As appropriate (based on the quantity of medical waste generated and need for storage), LLNL sets up designated accumulation areas for storage of medical wastes prior to transport or treatment. LLNL designated accumulation areas are secured in order to prevent access by unauthorized persons. Warning signs are posted around designated accumulation areas on, or adjacent to, the exterior of entry doors, gates, or lids. The storage area may be secured by use of locks on entry doors, gates, or receptacle lids.

The wording of warning signs posted around the designated accumulation areas is in English, "CAUTION—BIOHAZARDOUS WASTE STORAGE AREA—UNAUTHORIZED PERSONS KEEP OUT," and Spanish, "CUIDADO—ZONA DE RESIDUOS—BIOLOGICOS PELIGROSOS—PROHIBIDA LA ENTRADA A PERSONAS NO AUTORIZADAS," During daylight hours, these signs are visible at a distance of 25 feet.

8. **Onsite Medical Waste Treatment** (Check all that apply):

☐ This facility treats medical wastes on-site. ■ Yes ☐ No

If yes, what treatment method(s) are utilized?

■ Steam sterilization (e.g., autoclave)

☐ Microwave Technology

■ Other approved alternative treatment (Specify) Tissue digester & Chemical treatment

~~8. *Onsite Medical Waste Treatment* (Check all that apply):~~

~~☐ This facility treats medical wastes onsite. ■ Yes ☐ No~~

~~If yes, what treatment method(s) are utilized?~~

~~☐ Incineration~~

~~■ Steam sterilization (e.g., autoclave)~~

~~☐ Microwave Technology~~

~~■ Other approved alternative treatment (Specify) Tissue digester & Chemical treatment~~

The locations of the autoclaves used to treat biohazardous wastes generated at LLNL permitted facilities are listed in **Table 3,** followed by a description of the waste retention tank system (WRTS) used to collect treated waste.

Note: Liquid effluent from the tissue digester is discharged to the WRTS upon successful cycle completion. Any solid material (e.g., small bone or teeth fragments) present in the tissue digester after a completed run is collected by a basket within the tissue digester and not released to the WRTS. After the run, the contents of the basket are managed through the Biohazardous Waste stream process outlined in Table 1.

■ This facility uses a ***registered biohazardous/medical waste hauler*** to haul regulated waste to an offsite treatment facility. ~~This facility uses a *registered hazardous waste hauler* to haul medical waste to an offsite treatment facility.~~

Hauler Name: Clean Harbors Environmental Services, Inc.
Address: 42 Longwater Dr.
City/State/Zip: Norwell, MA 02061
Phone: (781) 792-5000
Offsite Treatment Facility: Clean Harbors Environmental Services, Inc.

□

■ Describe the training program for employees that use treatment equipment at this facility. Describe the training program for use of treatment equipment at this facility:

LLNL personnel who treat medical waste receive training as follows:

- Operators of medical waste treatment equipment are trained on the equipment's use, proper personal protective equipment (PPE) to wear, if necessary, and how to clean up spills to ensure that the equipment is being operated in a safe and effective manner.
- Annual refresher training is provided to the operators.
- Training complies with applicable federal Occupational Safety and Health Administration (OSHA) regulations, including those found in Section 1910 of Title 29 of the Code of Federal Regulations.
- Training records are retained for a minimum of three years in the LLNL training database (LTRAIN).

The specific LLNL training courses for operators of medical waste treatment equipment include, but are not limited to, the following:

- **All medical waste treatment equipment operators**:
  - HS4686-W, *Personal Protective Equipment (PPE)*
  - HS4405-W, *Blood and Bloodborne Pathogens*
- **Tissue Digester Operators**:
  - NA3004, Tissue Digester Operators Training
- **Autoclave Operators:**
  - EP0012-W, Medical Waste Treatment: Autoclave Operator Training

■ Describe the closure plan for the termination of treatment at this facility.

☐ Decontamination procedures as specified in Section 118295, sub (a) or (b);
☐ Statement certifying that the information is complete and correct;
■ A copy of the Medical Waste Closure Plan is attached;
☐ Contact Alameda County LEA Inspector to arrange a final walkthrough.

■ Describe the closure plan for the termination of treatment at this facility:

See **Appendix B.**

SECTION 3III. EMERGENCY ACTION PLAN

Note: Large Quantity Generators are required to have an Emergency Action Plan. While not required for Small Quantity Generators (SQG), it is recommended that SQGs complete this section as a good management practice.

In the case of an emergency, such as equipment breakdown on the part of the registered hauler or natural disaster, medical waste will be (check one):

■ Stored for up to seven (7) days on the premises. Sufficient storage space is available in:

Note: Large Quantity Generators are required to have an Emergency Action Plan. While not

~~required for Small Quantity Generators (SQG), it is recommended that SQGs complete this section as a good management practice.~~

~~In the case of an emergency, such as equipment breakdown on the part of the registered hauler or natural disaster, medical waste will be (check one):~~

~~☐ Stored for up to seven days on the premises. Sufficient storage space is available in:~~

In the rare event when the Emergency Action Plan is required/implemented, all facilities will cease medical waste generating activities if necessary. LLNL can store biohazardous waste onsite at <32°F for up to 90 days and/or use established processes for shipping medical wastes offsite for treatment and disposal at a permitted facility within seven days of an emergency.

See **Appendix A** for more details.

☐ The following alternate registered biohazardous/medical waste hauler will be utilized:~~The following *alternate registered medical waste hauler* will be utilized:~~

Name: Stericycle
Address: 1345 Doolittle Drive, Ste. C
City/State/Zip: San Leandro, CA 94577

■ Describe in detail how this facility manages medical waste spills (e.g., gloves, mask, gown, disinfectant):~~Describe in detail how this facility manages medical waste spills (e.g., gloves, mask, gown, disinfectant):~~

LLNL manages medical waste spills by ensuring containment, cleanup, decontamination, onsite treatment, and disposal of cleanup residue. The initial step to a medical waste spill response includes notifying people in the spill area to avoid exposure. Notification is followed by the cleanup steps summarized in **Appendix A**, Section 5 of the Emergency Action Plan.

☐ Describe in detail how this facility handles, treats and disposes of liquid/semi-liquid laboratory waste:~~Describe in detail how this facility handles, treats and disposes of liquid/semi-liquid laboratory waste:~~

LLNL segregates liquid or semi-liquid biohazardous laboratory wastes at the point of generation and manages these wastes via the following methods:

- Collect liquid/semi-liquid wastes as described in Table 1.
- Securely close containers of liquid/semi-liquid wastes to prevent leakage or loss during storage or transport.
- **Liquid/semi-liquid biohazardous or pathology waste**:
  - Primary Method for Treatment and Disposal:
    - Chemically disinfect liquid waste at the point of generation using a chemical disinfection method recognized by the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC) or American Biological Safety Association (ABSA) International[AGW3].
    - Chemically-treated liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits.
  - Alternative Method for Treatment and Disposal:
    - Liquid/semi-liquid waste may also be treated onsite by autoclaving.

    - Successfully autoclaved liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits.

- **Liquid/semi-liquid trace chemotherapeutic waste:**
  - Liquid/semi-liquid trace chemotherapeutic waste is collected as described in **Table 1.**
  - Liquid/semi-liquid trace chemotherapeutic waste is incinerated offsite.
  - If the chemical disinfection of the medical waste causes the waste to become a hazardous waste, the waste will be managed in accordance with the requirements of Chapter 6.5 (commencing with Section 25100) of Division 20.

■ Describe employee training provided by employer.

Bloodborne Pathogen Training Provided? ■Yes ☐ No ☐ OTHER (please describe below):

Specific training requirements vary based on job duties and types of waste generated. The courses LLNL offers employees who generate medical waste include the following:

- **Medical Waste Generators:**
  - HS4435/HS4435-RW, *Working Safely in Biosafety Level 1 Laboratories*
  - HS4436/HS4436-RW, *Working Safely in Biosafety Level 2 Laboratories*
  - HS4438-P, *Biosafety Level 2 Proficiency Evaluation*
  - HS4686-W, *Personal Protective Equipment (PPE)*
  - HS4405-W, *Blood and Bloodborne Pathogens*
  - EP1006-W: *Waste Management Overview*

SECTION 4IV. CATEGORIZING PHARMACEUTICALS

■ Describe the steps taken to categorize and properly dispose of the pharmaceutical wastes generated at this facility, specifically, how this facility will separate pharmaceuticals classified by the federal Drug Enforcement Agency (DEA) as "controlled substances" from the standard regulated waste stream (if applicable):Describe the steps taken to categorize and properly dispose of the pharmaceutical wastes generated at this facility, specifically, how this facility will separate pharmaceuticals classified by the federal Drug Enforcement Agency (DEA) as "controlled substances" from the standard regulated waste stream.

The steps LLNL takes to categorize, segregate, and manage pharmaceutical wastes are as follows:

- Pharmaceutical wastes classified by the DEA as "controlled substances" are managed and disposed of in compliance with DEA and United States Food and Drug Administration (USFDA) requirements.
- Pharmaceutical wastes containing Resource Conservation and Recovery Act (RCRA)-regulated and/or, radioactive constituents are managed in accordance with the requirements for hazardous waste and radioactive waste respectively.
- Pharmaceutical wastes are managed in a manner that secures the pharmaceutical waste by denying access to unauthorized individuals. Any suspected or confirmed tampering of, unauthorized access to, or loss of any pharmaceutical waste is reported to the Alameda County Department of Environmental Health (ACDEH).
- LLNL uses a tracking document for pharmaceutical wastes shipped offsite for treatment and disposal and will notify ACDEH of discrepancies between the items received by the offsite facility and the items shipped by LLNL.

Medical Waste Management Act Mixed Waste

Waste consisting of medical and non-medical waste will be handled as medical waste except as follows:

- Medical waste mixed with hazardous waste will be managed as hazardous waste.
- Medical waste mixed with radioactive waste will be managed as radioactive waste.
- Medical waste mixed with hazardous and radioactive waste will be treated as radioactive mixed waste.

Non-medical wastes such as those regulated by the RCRA or the California Hazardous Waste Control Act (HWCA) generated in the permitted medical waste facilities will be managed by LLNL's RHWM personnel.

☐ The following ***registered biohazardous/medical waste hauler*** will be utilized to haul pharmaceutical wastes. ~~The following *registered hazardous waste hauler* will be utilized to haul pharmaceutical waste:~~

Name: Clean Harbors Environmental Services, Inc.

Address: 42 Longwater Drive

City/State/Zip: Norwell, MA 02061

I hereby certify that to the best of my knowledge and belief, the statements made herein are true and correct.

Signature: _____

Print Name: _____ **Date:** ~~**I hereby certify that to the**~~ _____

OFFICIAL USE ONLY

Date received: _____ ☐ Approved ☐ Approved with changes: _____

Additional requirements: _____

Inspector signature: _____ Date: _____

~~**best of my knowledge and belief, the statements made herein are true and correct.**~~

~~**Signature**~~

~~Frances Alston, Ph.D.~~Lisa Woodrow ~~Date~~

The locations of potential major medical waste generator facilities at LLNL are shown in **Table 2**.

Table 2. Locations of Potential Major Medical Waste Generator Facilities

Item Number	Building Number	Parent Organization	Typical Medical Waste Generated	Medical Waste Potentially Generated
~~1~~	~~132N~~	~~Global Security (GS)~~	~~1. Biohazardous~~ ~~2. Sharps~~ ~~3. Pharmaceutical~~ ~~4. Pathology~~	~~1. Biohazardous~~ ~~2. Pathology~~ ~~3. Pharmaceutical~~ ~~4. Sharps~~ ~~5. Trace chemotherapeutic~~
~~2~~1	132S	GS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~4~~2	151	Physical and Life Sciences (PLS)	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~5~~3	153	Engineering (ENG)	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~6~~4	154	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic

Table 2. Locations of Potential Major Medical Waste Generator Facilities (con't)

Item Number	Building Number	Parent Organization	Typical Medical Waste Generated	Medical Waste Potentially Generated
~~7~~5	361	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical 4. Pathology 5. Trace chemotherapeutic	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~8~~6	362	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~9~~7	364	PLS	1. Biohazardous 2. Sharps 3. Pharmaceutical 4. Pathology 5. Trace chemotherapeutic	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~10~~8	365	GS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~11~~9	366	PLS/GS	1. Biohazardous 2. Sharps 3. Pharmaceutical	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic
~~12~~10	663	Environment, Safety & Health (ES&H)	1. Biohazardous 2. Pharmaceutical 3. Sharps	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps

Table 3 shows the location, make and model number of each autoclave used to treat LLNL's medical waste onsite. Each autoclave is operated by trained and experienced individuals who know the operating requirements specified in H&SC Sections 117967 and 118215. Such requirements include, but are not limited to the following:

- Steam sterilizer temperature, pressure, and contact time necessary to achieve sterilization of the entire load.
- Annual calibration and calibration records retention for a minimum of two years.
- Use of a heat sensitive tape on each biohazard bag or sharps container to indicate the waste went through heat treatment.
- Use of the biological indicator (BI) Geobacillus stearothermophilus or other indicator of adequate sterilization as approved by the department, at least monthly to confirm attainment of adequate sterilization. The BI shall be placed at the center of the load processed under standard operating conditions.

Item	Building	Room	Autoclave Make	Model Number
11	361	1634A	Steris/AMSCO	Century Medium Vacuum Steam Sterilizer
22	364	1704	Steris	FINN-AQUA BPS GMP Sterilizer
33	365	101	AMSCO	Eagle Series 3043 Vacamatic
44	365	109	Tuttnauer/Brinkman	3870E
55	365	111	Tuttnauer/Brinkman	3870E
66	365	112	Tuttnauer/Brinkman	3870E
77	366	103	Tuttnauer/Brinkman	3870E

Table 3. Location and Types of Autoclaves

Waste Retention Tank System

- A waste retention tank system (WRTS) is used to collect effluent wastewater from the laboratory sinks, floor drains, and the large capacity autoclave in B365.

Note: No intentional release of infectious materials is planned. Effluent from the laboratories is treated prior to release to the WRTS.

- The WRTS consists of two tanks each with an approximate capacity of 950 gallons. The tanks sit within a concrete berm with an overflow capacity of approximately 1300 gallons.

- Each tank has a level sensor that will alarm to the B511 console, which is staffed at all times by the LLNL Maintenance Mechanics, in the event either tank nears its capacity.

- Water in the tanks is routinely analyzed for pH, cyanide, and Total Threshold Limit

Concentration (TTLC) metals by the RHWM Technician. Based on the results of this analysis, the water will either be managed through RHWM or chlorinated and released to the sanitary sewer.

  - Prior to discharge to the sanitary sewer, the water is treated with sodium hypochlorite [1 part concentrated bleach (≥5.25%) sodium hypochlorite to 99 parts water] for 48 hours to inactivate any environmental microorganisms that may be present.
  - Wastewater that is ~~hazardous,or~~hazardous, or does not meet sewer discharge requirements is managed through RHWM.

- The WRTS is not an effluent treatment system.
  - No intentional release of infectious material is permitted from the laboratories. All infectious materials must be treated by an appropriate method known to inactivate the material prior to release to the WRTS.

APPENDIX A

Emergency Action Plan

Lawrence Livermore National Laboratory
All Medical Waste Generator Facilities

Medical Waste
Emergency Action Plan

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1. Purpose:

This plan is to be followed to ensure proper disposal of medical waste in the event of equipment breakdowns, natural disasters, or other occurrences in accordance with Health & Safety Code (H&SC) 118235.

2. Types of Medical Waste Generated that could be encountered at each Facility[AGW4][RP5]:

A. The **360 Complex**[AGW6][RP7] is a group of buildings that are operated by the Physical and Life Science (PLS[AGW8][RP9]) and Global Security (GS) Directorates and they generate and treat a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pathology waste
- Trace chemotherapy waste
- Pharmaceutical waste

B. The **Building 151 Complex**[AGW10][RP11] is a group of buildings that are operated by the PLS Directorate, which generates a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

C. The **Health Services Department (HSD)** generates a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste~~e~~
- Pharmaceutical waste

~~Personnel in **Building 132 North (B-132N)** generates a variety of medical wastes, including the following:~~
- ~~Biohazardous waste~~
- ~~Sharps waste~~
- ~~Pathology waste~~
- ~~Pharmaceutical waste~~

D. Personnel in ~~**Building 132 North (B-132N) and**~~ **Building 132 South (B-132S)** generate~~s~~ and treat~~s~~ ~~a~~ variety of medical wastes, including the following (**Note:** only liquid waste is treated at this location by chemical disinfection.):
- Biohazardous waste

- Sharps waste
- Pathology waste
- ~~Pharmaceutical waste~~
-

E. Personnel in **Building 366** may generate the following wastes:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

F. **Building 365,** which is also part of the Global Security Principal directorate, generates and treats a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

G. The **Building 153** of Engineering (ENG) Directorate generates a variety of medical wastes, including the following:
- Biohazardous waste
- Sharps waste
- Pharmaceutical waste

3. Possible Accident/Emergency Scenarios:

- Autoclave failure
- Spills/releases
- Natural disasters (earthquake, fire, etc.)
- Unauthorized discharge to sink
- Personnel accident/injury

4. Response:

- Identify emergency scenario.
- Address immediate safety concerns and, if safe to do so, ensure that medical waste is contained. Block floor drains and sink drains, if necessary.
- Obtain assistance from responsible persons listed below. If there is any doubt about safely managing the emergency, immediately contact the LLNL Fire Department by dialing 911 from a Lab phone or (925) 447-6880 from a cell phone. Notify the Health and Safety (H&S) Team, at phone #925-423-8336 or 925-422-7595 (off hours).
- In the unlikely event that all autoclaves are inoperable, medical waste may be stored onsite at LLNL or transported offsite within 7 days for treatment using established processes for shipping medical waste offsite. Radioactive and Hazardous Waste Management (RHWM) will coordinate transportation service to a permitted offsite incineration facility.
- Properly dispose of medical waste in accordance with Table 1 of the plan. Contact the supervisor, and your Environmental Analyst for assistance in proper waste classification and disposal, as necessary.
- Identify the cause of the problem and take steps to prevent reoccurrence.

5. Spill clean-up and decontamination:

LLNL's Emergency Action Plan is implemented by trained and experienced personnel in response to medical waste spills to ensure containment, cleanup/decontamination and proper disposal. Initial steps include notifying people in the spill area so as to avoid exposure, containing the spill, and cleanup/decontamination. Specific management steps to respond to a medical waste spill at LLNL's medical waste facilities are summarized below:

- Use of appropriate PPE varies according to the level of hazard involved. In general, it may involve some or all of the following: coveralls, lab coat, apron, gloves, shoe covers, respiratory protection, face shields, and protective eyewear. LLNL's Industrial Hygienists can provide guidance in the use of PPE. If there is any doubt about spill response, the LLNL Fire Department will respond. Medical waste will be recovered from the spill site and placed into a new biohazard bag and/or container.
- Waste from clean-up operations is segregated based on contents (i.e., medical waste with added bleach, versus waste containing medical waste components only). **Note:** Any materials potentially containing chlorine, such as clean-up clothing, should not be autoclaved.
- Remove protective clothing, place into the proper waste stream.

6. In the event of a natural disaster that may interfere with the treatment and disposal of medical waste, all non-essential medical waste generating activities will be suspended immediately.

7. References**:**

a. California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)
b. LLNL Emergency Plan.

Facility Contact information

General Contacts for the 360 Complex

1	-	Kurt Dreger, PLS Assurance Manager	(925) 424-3744	Pager #04763
2	-	Stephanie Lopez, Global Security Assurance Manager	(925) 424-6799	
3	-	Tuijauna Mitchell-Hall, BBTD Deputy Director for Operations	(925) 424-4469	
4	-	Lauralye Casipit, H&S Tech	(925) 422-5784	Pager #05425
5	-	~~Christian Arroyo~~Jose Segura, RHWM Tech	(925) 423-2588~~(925) 424-2620~~	Pager #5795~~61768~~
6	-	~~Alex Ruiz~~Adrian Garibay, Env. Analyst	(925) 423-6542~~724-6976~~	
7	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
8	-	George Anderson, Chair IBC/IACUC	(925) 423-4285	
9	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

Contacts for B-361 (Central Service Labware Cleaning Facility)

1	-	Morgan Mabery, Medical Waste Treatment Operator	(925) 423-3812	

Contacts for B-364[AGW12]

1	-	Tuijauna Mitchell-Hall, BBTD Deputy Director for Operations	(925) 424-4469	Pager #05058
2	-	Summer McCloy, ~~–~~Sr. Scientist	(925) 424-4283	Pager #63920
3	-	Nicole Collette, Supervisor	(925) 423-2353	
4	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
5	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716
6	-	~~Shelly Zhang~~Priscilla Yung, Industrial Hygienist	(925) 424-5553~~925-423-37861~~	~~Pager #53280~~

Contacts for B-365

1	-	Stephanie Lopez, Global Security Principal Directorate Assurance Manager	(925) 424-6799	
2	-	Patsy Gilbert, Facility Manager	(925) 423-3162	Pager #10040
3	-	Adrian Garibay~~Alex Ruiz~~, Env. Analyst	(925) 423-6542~~(925) 724-6976~~	
4	-	Amy Rasley, Senior Laboratory Coordinator	(925) 423-1284	
5	-	~~Christian Arroyo~~Jose Segura, RHWM Tech	(925) 423-2588~~(925) 424-2620~~	Pager #57952~~61768~~
6	-	Lauralye Casipit, Health & Safety Tech	(925) 422-5784	Pager #05245
7	-	Christine Ward, Industrial Hygienist	(925) 422-0036	Pager #62240
8	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
9	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

Contacts for B-366

1	-	Stephanie Lopez, Global Security Principal Directorate Assurance Manager	(925) 424-6799	
2	-	~~Christian Arroyo~~Jose Segura, RHWM Tech	(925) 423-2588~~(925) 424-2620~~	Pager #57952~~61768~~
3	-	A~~drian Garibay~~lex Ruiz, Env. Analyst	(925) 423-6542~~(925) 724-6976~~	

4	-	Lauralye Casipit, H&S Tech	(925) 422-5784	Pager #05425
5	-	~~Shelley Zhang~~Priscilla Yung, Industrial Hygienist	(925) ~~423-7861~~424-5553	~~Pager #53280~~
6	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
7	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

Contacts for the 151 Complex

1	-	Kurt Dreger, PLS Assurance Manager	(925) 424-3744	Pager #04763
2	-	Tuijauna Mitchell-Hall, BBTD Deputy Director for Operations	(925) 424-4469	
3	-	Brian Sammis~~Ron Estrellado~~, H&S Tech	(925) 422-5513	Pager #05431
4	-	~~Robert Erler~~Christian Arroyo, RHWM Tech	(925) 42~~43~~-2620~~1291~~	Pager #6176~~58376~~
5	-	Adrian Garibay~~lex Ruiz~~, Env. Analyst	(925) 724-6976	
6	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
7	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716
8	-	Geoffrey Won, Industrial Hygienist	(925) 422-6857	

Contacts for B-153: Engineering

1	-	Roberta M. Logrande	(925) 424-5285	Pager #05139
2	-	Sean Mok, H&S Tech	(925) 424-2268	Pager #04275
3	-	Steve Hart~~-~~, RHWM Tech	(925) 424-4907	Pager #66344
4	-	Gino Aluzzi, Env. Analyst	(925) 423-9161	
5	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
6	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716
7	-	Robert Dillman, Assurance Manager	(925) 422-8277	Pager #51740
8	-	~~Diane Cuyle~~Benjamin Lee, Industrial Hygienist	(925) 42~~34-6094~~4925	

Contacts for HSD (B-663: Health Services Department)[LMN13]

1	-	Marty Greist-Joel, Registered Nurse	(925) 422-7459	
2	-	Stephen Ebisuzaki, Health and Safety Tech	(925) 424-4875	Pager #04035
3	-	David Diaz, RHWM Tech	(925) 423-1546	
4	-	~~Aaron Felish~~Marissa Liccese, Env.	(925) 42~~3~~2-9~~4~~99~~6~~57	

		Analyst		
5	-	Rick Watts, Department. Head	(925) 423-6903	Pager #04474
6	-	Vicki Salvo, Assurance Manager	(925) 423-5432	
7	-	Davin Gaskin, Industrial Hygienist	(925) 423-0612	

~~Contacts for B-132 North~~

~~1~~	~~-~~	~~Stephanie Lopez, Global Security Principal Directorate Assurance Manager~~	~~(925) 424-6799~~	
~~2~~	~~-~~	~~Robert Wiebers, RHWM Tech~~	~~(925) 423-4079~~	~~Pager #01158~~
~~3~~	~~-~~	~~Sabre Coleman, Env. Analyst~~	~~(925) 422-3430~~	
~~4~~	~~-~~	~~Kimberlee Braden, H&S Tech~~	~~(925) 422-9117~~	~~Pager #05431~~
~~5~~	~~-~~	~~Christine Ward, Industrial Hygienist~~	~~(925) 422-0036~~	~~Pager #62240~~
~~6~~	~~-~~	~~John Warner, Biological Safety Officer~~	~~(925) 423-8036~~	~~Pager #04544~~
~~7~~	~~-~~	~~Carolyn Hall, Biological Safety Officer~~	~~(925) 423-8076~~	~~Pager #02716~~

Contacts for B-132 South

1	-	Stephanie Lopez, Global Security Principal Directorate Assurance Manager	(925) 424-6799	
2	-	Robert Wiebers, RHWM Tech	(925) 423-4079	Pager #01158
3	-	Kathy Tucker, Env. Analyst	(925) 422-6342	Pager #00457
4	-	Suzanne Vance, H&S Tech	(925) 422-0875	
5	-	Christine Ward, Industrial Hygienist	(925) 422-0036	Pager #62240
6	-	John Warner, Biological Safety Officer	(925) 423-8036	Pager #04544
7	-	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

APPENDIX B

Medical Waste Closure Plan
for
BSL-2 Treatment Units at LLNL

Lawrence Livermore National Laboratory
7000 East Avenue
Livermore, CA 94550

1. Introduction

2. Lawrence Livermore National Laboratory (LLNL) will use this Closure Plan to close its medical waste treatment units. This Closure Plan is needed because of the requirements of the California medical waste regulations found in Health & Safety Code (H&SC) 117960(j) and 22 CCR 65625(a)(14). Each medical waste treatment unit to be closed will follow this plan. The plan includes steps for notifying the regulators of start and completion of closure activities, inspections, closure procedures, and where the final medical waste will be sent. As required by H&SC 118295(a) and (b), this closure plan also contains procedures for decontaminating containers and spills that may be necessary during closure activities. The goal of these closure activities is to ensure the medical waste treatment units are left in acceptable sanitary conditions and are clean closed.

3. Notification of Intent to Close Medical Waste Treatment Unit

   At least 30 days prior to start of closure, LLNL will send a written notification to the Alameda County Department of Environmental Health (ACDEH) containing the following information:

   - Date of final closure.
   - Reason(s) for treatment unit(s) closure.
   - Disposition of final medical waste by removal and treatment/disposal at an authorized facility or onsite treatment/disposal.
   - Disinfection and decontamination procedures.

4. Closure Inspection(s)

   LLNL will schedule pre-closure medical waste inspection with ACDEH, which may include the following:

   - Review of medical waste tracking documents.
   - Inspection of areas where medical wastes were treated.
   - Inspection of medical waste treatment units.
   - Review of disinfection/decontamination procedures.
   - Review of waste treatment records.

   If violations are noted during pre-closure inspection, LLNL will schedule a re-inspection of the facility with ACDEH after violations have been corrected.

5. Closure Process

   LLNL will identify the maximum inventory of medical wastes to be disposed or treated as part of the closure process. Specific steps of the closure process are as follows:
   - Removing the last inventory of medical waste for offsite treatment and/or disposal.
   - Following the steps specified in the H&SC to treat medical waste onsite by disinfection and confirming the effectiveness of decontamination.

- Making sure all treatment units subject to closure meet all the closure provisions and achieve the closure performance standards as required by regulations.

LLNL routinely washes and decontaminates reusable rigid containers not protected with disposable liners, bags or other devices removed with the waste. The same disinfection procedure will be used during facility closure. Approved methods for disinfection/decontamination include, but are not limited to the methods specified in H&SC 118295 and summarized below:

- Exposure to hot water of at least 82° Centigrade (180° Fahrenheit) for a minimum of 15 seconds, **or**
- Exposure to chemical sanitizer by rinsing with, or immersion in, one of the following for a minimum of three minutes[AGW14][RP15]:
    1. Hypochlorite solution (500 ppm available chlorine).
    2. Phenolic solution (500 ppm active agent).
    3. Iodoform solution (100 ppm available iodine).
    4. Quaternary ammonium solution (400 ppm active agent).
    5. [AGW16][RP17]hydrogen peroxide liquid.
    6. Vaporous hydrogen peroxide
    7. Formalinliquid[AGW18][RP19].
    8. Formaldehyde gas
- Ensuring a thorough cleanup and removal of medical waste prior to closure of the treatment units.
- Identifying and mitigating all known releases of medical waste at or near the treatment units being closed.
- Ensuring no medical waste or contaminated materials are left behind after completing the closure of a medical waste unit.
- Terminating the permit to operate medical waste treatment units once ACDEH approves the closure.

This Closure Plan must be followed whenever a permitted medical waste treatment unit is to be closed. The Closure Plan will be kept at LLNL throughout the active life of each permitted medical waste treatment unit.

Title 22 Code of California Regulations, Section 65625(a) (22 CCR 65625(a) requires preparation of this Closure Plan, including a written cost estimate for closing treatment units. This Plan meets all these requirements except preparing a closure cost estimate because as a federal facility, LLNL is not required to prepare a cost estimate. In addition, the 22 CCR 65625(a)(14) requirement to revise the cost estimate whenever the closure plan changes and increases the closure costs is not applicable to LLNL.

6. Shipping Final Medical Waste

   Although LLNL may ship medical wastes from treatment unit closure activities to other permitted treatment facilities, the primary offsite facilities that will receive LLNL's medical waste for incineration are:

   Stericycle
   1345 Doolittle Drive, Suite C
   San Leandro, CA 94577
   (866) 783-7422

   Clean Harbors Environmental Services, Inc.
   11600 North Aptus Road
   Aragonite, UT 84029
   (801) 323-8100

   LLNL will mainly use the two permitted treatment facilities listed above to treat medical waste from its closure activities.

7. Conclusion

   This Closure Plan specifies procedures LLNL will use to close its medical waste treatment units. All medical wastes generated during the closure activities will be sent to an approved medical waste treatment or disposal facility. LLNL will also ensure no nuisance conditions such as odors exist after the facility is closed. The Closure Plan includes specific steps for onsite treatment and decontamination. LLNL will send a written notice to ACDEH at least 30 days in advance of its planned closure date. A written notification of completion of closure activities will also be sent to ACDEH within 30 days stating that all applicable closure standards have been achieved. Medical wastes from closure activities that require offsite treatment or disposal will be sent to two facilities: Stericycle and Clean Harbors Environmental.

8. Reference

   California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)

Attachment 4

Medical Waste Management Plan and Emergency Action Plan for the Biosafety Level 3 Facilities REDLINE VERSION

LLNL-AR-~~785697~~XXXXXX
External

LAWRENCE LIVERMORE NATIONAL LABORATORY

Medical Waste Management and Emergency Action Plan for the Lawrence Livermore National Laboratory Biosafety Level 3 Facility

Environmental Functional Area

August ~~2019~~2020

Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA27344.

ESH-EFA-WP-20~~19~~-20269~~XXXXX~~~~16473~~ ML~~PR~~:js~~XX~~~~ld~~

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APPENDICES

1.0 Medical Waste Generator Registration Form

Alameda County
Department of Environmental Health
Office of Solid/Medical Waste Management
1131 Harbor Bay Parkway ● Alameda, CA 94502
Phone: (510) 567-6790 ● Fax: (510) 337-9234
www.acgov.org/aceh

MEDICAL WASTE GENERATOR REGISTRATION APPLICATION FORM

WHO IS REQUIRED TO REGISTER?

Each **Large Quantity Generator (LQG)** shall register with the enforcement agency pursuant to the California Health and Safety Code, Division 104, Part 14, California Medical Waste Management Act ([H&SC § 117950(a)]. The Large Quantity Generator (LQG) registration is valid for one year [H&SC § 117970(b)]. Facilities that generate equal to or more than 200 pounds in any month of the year of medical/biohazardous waste are categorized as Large Quantity Generators (LQG).

A medical waste **Common Storage Facility** that collects the accumulated waste of more than one medical waste generator shall be registered with the enforcement agency (H&SC § 117908).

Each **Small Quantity Generator (SQG) using on-site treatment** such as steam sterilization shall register with the enforcement agency [H&SC § 117925(a)].

To register, complete this form and submit to Alameda County Department of Environmental Health, Office of Solid/Medical Waste Management.

Type of Application: ☐ New Registration/Permit ☑ Renewal ☐ Change of Ownership

I. FACILITY INFORMATION

Facility Name:	Lawrence Livermore National Laboratory		
Address:	7000 East Avenue	City/Zip	Livermore, 94550
Mailing Address:	P.O. Box 808	City/Zip	Livermore, 94550
Contact Person:	Lisa Woodrow	Telephone:	
Email Address:	woodrow2@llnl.gov	Fax:	

II. GENERATOR CATEGORIES REQUIRING REGISTRATION **(Please check all that apply)**

Application Type: Please indicate the category of medical waste generator that best describes your facility.

☐ **Large Quantity Generator with NO Onsite Treatment** – This facility generates 200 pounds or more of medical/biohazardous waste in any month of a 12-month period and medical waste is NOT treated onsite.

☑ **Large Quantity Generator with Onsite Treatment** – This facility is a LQG and medical/biohazardous waste is treated at this facility

☐ **Small Quantity Generator with Onsite Treatment** – This facility generates less than 200 pounds of medical waste per month in every 12-month period and medical/biohazardous waste is treated at this facility

☐ **Common Storage Facility** – This office building/complex/facility operates an area designated for the storage of medical/biohazardous waste. This area is shared by multiple independently operated SQGs. The medical waste is transported offsite by a registered medical waste hauler.

(Provide a list of generators that this Common Storage Facility serves. Add an additional sheet for more generators.) Number of generators served: see below

GENERATOR NAME	ADDRESS	PHONE NUMBER
Please see facility contact information in Appe	7000 East Avenue, Livermore CA 94550	Please see facility contact information i

Alameda County
Department of Environmental Health
Office of Solid/Medical Waste Management
1131 Harbor Bay Parkway ● Alameda, CA 94502
Phone: (510) 567-6790 ● Fax: (510) 337-9234
www.acgov.org/aceh

MEDICAL WASTE GENERATOR REGISTRATION APPLICATION FORM

WHO IS REQUIRED TO REGISTER?

insert photos of application form!! (3)

III. TYPES OF MEDICAL/BIOHAZARDOUS WASTES GENERATED (Please check all that apply)

Please indicate the type(s) of medical waste generated by this facility. Check all that apply.

☑ **Fluid Blood Products** (This includes dressings, containers or equipment containing fluid blood, fluid blood products, or blood from animals known to be infected with diseases which are highly communicable to humans.)

☑ **Laboratory Wastes** (Specimen or biologic cultures, stocks of infectious agents, live and attenuated vaccines and culture mediums, test tubes, vacuum tubes)

☑ **Sharps** (syringes, needles, blades, broken glass)

☑ **Contaminated Animals** (Animal carcasses body parts, bedding materials)

☑ **Surgical Specimens** (Human or animal parts or tissues removed surgically or by autopsy)

☐ **Isolation Wastes** (Wastes contaminated with excretion, exudates or from animals infected and isolated due to the highly communicable diseases listed by the Centers for Disease Control)

☑ **Trace Chemotherapeutic Wastes** (Gloves, gowns, towels and I.V. solutions bags and empty tubings, etc. contaminated with trace amounts of chemotherapeutic agents)

☑ **Pharmaceutical Wastes** (Outdated, unused California-only regulated pharmaceuticals)

☑ **Other** (Please specify.) Trauma scene waste is generated infrequently

IV. QUANTITY OF MEDICAL/BIOHAZARDOUS WASTES GENERATED:

This facility generates this amount of regulated medical waste per month: 795 lbs.

V. OUR WASTE IS: (Please check all that apply)

☑ Picked up by a registered transporter; name and address: Clean Harbors, 42 Longwater Drive, Norwell MA 0

- Refer to California Dept. of Public Health website for a list of authorized haulers: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/Transporters.aspx

☐ Mailed via Mail-Back System; name:

- Refer to California Dept. of Public Health website for mail back information: http://www.cdph.ca.gov/certlic/medicalwaste/Pages/MailBack.aspx

☑ Treated onsite by autoclave steam sterilization or by alternative treatment method Tissue digester/chemic

VI. NAME AND ADDRESS OF TREATMENT/DISPOSAL FACILITY:

If medical waste is disposed of or treated offsite, provide the following information:

Type of waste(s) (See Section III): Biohazardous, Pathology, Sharps, Pharmaceutical, Trace Chemotherapeu

1. Name and address of registered Hazardous/Medical Waste Hauler:
   1. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061
   2. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
2. Name and address of Treatment/Disposal Facility:
   1. Stericycle, 1345 Doolittle Drive, Suite C, San Leandro, CA 94577
   2. Clean Harbors Environmental Services Inc., 42 Longwater Drive, Norwell, MA 02061

MW Generator Registration
Form Page 2 of 3
September 2018

VII. MEDICAL WASTE MANAGEMENT PLAN

All generators required to register must have on file with the enforcement agency a current Medical Waste Management Plan. The Medical Waste Management Plan shall include an Emergency Action Plan, which delineates the procedures for properly handling on-site spills and releases of medical waste (H&SC §117943). The Emergency Action Plan should address surface cleanup, protective clothing and equipment to be used, and disinfecting procedures. The Medical Waste Management Plan must be updated as facility operations or personnel information changes occur. Please indicate the status of your Medical Waste Management Plan:

☐ A review of the Medical Waste Management Plan previously submitted to Alameda County DEH was conducted and it was determined that a plan update is not required.

☑ The Medical Waste Management Plan has been updated and is attached.

☐ An approved Medical Waste Management Plan will be submitted to the Alameda County DEH with the Certificate of Return to Compliance from the last onsite inspection.

VIII. CERTIFICATION

I declare under penalty of law that to the best of my knowledge, the statements made herein are correct and true.

Authorized Representative:

Print Name: Frances Alston, Ph.D. Title: ES&H Director Date: _____

Signature: _____

The fee page is available on our website at http://acgov.org/aceh/solid/medical_waste_management.htm. Make the check payable to Alameda County Department of Environmental Health. For other forms of payment, please refer to our website at http://acgov.org/aceh/billing/index.htm.

Mail the application and fee to: Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

FOR OFFICIAL USE ONLY

FA# _____ PR#_____ PAYMENT MADE: AMOUNT: _____ DATE PAID: _____

APPROVED BY: _____ DATE APPROVED: _____

2.0 Medical Waste Management Plan

Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Alameda, CA 94502 - (510) 567-6700

Ronald Browder, Director of Environmental Health
Phone: (510) 567-6790 Fax: (510) 337-9234

MEDICAL WASTE MANAGEMENT PLAN

(as required in Sections 117935 & 117960 Medical Waste Management Act)

FACILITY INFORMATION:

Facility Name: LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL)
Address: 7000 East Avenue
City: Livermore State: CA Zip Code: 94550
Type of Business: Research & Development (Department of Energy National Laboratory)
Phone Number: (925) 424-5971 Email Address: woodrow2@llnl.gov

Name of Authorized Representative: Lisa Woodrow
Phone Number: (925) 424-5971 Email Address: woodrow2@llnl.gov

Name of Person Responsible for Implementation of the Medical Waste Management Plan (MWMP): Crystal Quinly
Phone Number: (925) 424-3279 Email Address: quinly2@llnl.gov

SECTION 1: TYPES OF MEDICAL WASTE GENERATED AT THIS FACILITY

■ ***Biohazardous waste,*** including:

- ***Regulated/biohazardous/medical waste*** - material from the medical treatment of a human or animal suspected of being infected with a contagious pathogen; material from biomedical research; waste suspected of contamination with a highly communicable disease.
- ***Laboratory waste*** - specimen or microbiological cultures; stocks of infectious agents; live and attenuated vaccines and culture mediums.
- ***Blood or blood products*** - fluid human blood and blood products; containers or equipment containing human blood that is fluid.
- ***Infectious waste*** - material contaminated with excretion, exudates or secretions from humans or animals isolated due to a highly communicable disease.

■ ***Sharps*** - hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste.

HEALTH CARE SERVICES AGENCY ENVIRONMENAL PROTECTION
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City: Livermore State: CA Zip Code: 94550
Type of Business: Research & Development (Department of Energy National Laboratory)
Phone Number: (925) 424-597122 3343 Email Address: woodrow2alston7@llnl.gov

Name of Authorized Representative: Frances Alston, Ph. D.Lisa Woodrow
Phone Number: (925) 424-5971 (925) 422-3343 Email Address: woodrow2alston7@llnl.gov

Name of Person Responsible for Implementation of the Medical Waste Management Plan: Crystal Quinly Brian Perkins
Phone Number: (925) 424-2270 2 2188 Email Address: quinly2perkins15@llnl.gov

SECTION I. TYPES OF MEDICAL WASTE GENERATED AT THIS FACILITY (Check all that apply):

- ☐ ***Biohazardous waste,*** including:
  - ***Regulated/biomedical/clinical waste*** - material from the medical treatment of a human or animal suspected of being infected with a contagious pathogen; material from biomedical research; waste suspected of contamination with a highly communicable disease.
  - ***Laboratory waste*** - specimen or microbiological cultures; stocks of infectious agents; live and attenuated vaccines and culture mediums.
  - ***Blood or blood products*** - fluid human blood and blood products; containers or equipment containing human blood that is fluid.
  - ***Infectious waste*** - material contaminated with excretion, exudates or secretions from humans or animals isolated due to a highly communicable disease.

- ☐ ***Sharps*** - hypodermic needles, hypodermic needles with syringes, blades, needles with attached tubing, acupuncture needles, root canal files, broken glass items used in health care such as Pasteur pipettes and blood vials contaminated with biohazardous waste.

- ☐ ***Pharmaceutical waste*** - any prescription or over-the-counter medication which has no value (excludes material sent to a reverse distributor).

☐ ***Pharmaceutical waste*** - a prescription or over-the-counter human or

veterinary drug medication.

■ ***Pathology waste*** - human body parts; human or animal surgery specimen or tissues that may be contaminated with infectious agents.

■ ***Trace chemotherapeutic waste*** - waste that is contaminated through contact with chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty.

■ ***Other (specify)*** – Trauma scene waste is generated infrequently.

~~■ ***Pathology waste*** - human body parts; human or animal surgery specimen that may be contaminated with infectious agents; surgery specimen or tissues that have been fixed in formaldehyde or another fixative.~~

~~■ ***Trace chemotherapeutic waste*** - waste that is contaminated through contact with chemotherapeutic agents, including, but not limited to, gloves, disposable gowns, towels, and intravenous solution bags and attached tubing that are empty.~~

~~■ ***Other (specify)*** Trauma scene waste is generated infrequently.~~

SECTION 2II. TYPE OF FACILITY

1. This facility is classified as a:

☐ **Small Quantity Generator** (*less than 200 pounds per month*) with NO Onsite Treatment of Medical Waste

☐ **Small Quantity Generator** (*less than 200 pounds per month*) WITH Onsite Treatment

☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - less than 100 licensed beds with NO Onsite Treatment

☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) - 100-200 licensed beds with NO Onsite Treatment

☐ **Large Quantity Generator** (*greater than 200 pounds in any given month of the year*) – Over 200 licensed beds with NO Onsite Treatment

▣ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - Less than 100 licensed beds WITH Onsite Treatment

☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) - 100-200 licensed beds WITH Onsite Treatment

☐ **Large Quantity Generator** (greater than 200 pounds in any month of the year) – Over 200 licensed beds WITH Onsite Treatment

~~1.~~ The ***estimated quantity of medical waste*** generated (including sharps waste and pharmaceutical waste) by this facility on a monthly basis is ~795 pounds.~~This facility is classified as a:~~

- ☐ Small Quantity Generator (*less than 200 pounds per month*) with NO Onsite Treatment of Medical Waste
- ☐ Small Quantity Generator WITH Onsite Treatment
- ☐ Large Quantity Generator (*more than 200 pounds per month*) less than 100 Licensed Beds with NO Onsite Treatment
- ☐ Large Quantity Generator (*more than 200 pounds per month*) 100-200 licensed beds with NO Onsite Treatment
- ☐ Large Quantity Generator (*more than 200 pounds per month*) Over 200 licensed Beds with NO Onsite Treatment
- ■ Large Quantity Generator (*more than 200 pounds per month*) less than 100 Licensed Beds WITH Onsite Treatment
- ☐ Large Quantity Generator (*more than 200 pounds per month*) 100-200 licensed beds WITH Onsite Treatment
- ☐ Large Quantity Generator (*more than 200 pounds per month*) Over 200 licensed Beds WITH Onsite Treatment

2. The estimated quantity of medical waste generated (including sharps waste) by this facility on a monthly basis is ~540 pounds.

3. Describe the method of handling: ***segregation***, ***containment*** *or* ***packaging***, ***labeling***, ***collection***, and ***storage*** of **each type** of biohazardous/medical waste within your facility. Table 1 describes the methods used to handle each type of medical waste at LLNL. ~~Describe the method of handling: *segregation*, *containment or packaging*, *labeling*, *collection*, and *storage* of each **type** of medical waste within your facility. Table 1 describes the methods used to handle each type of medical waste at LLNL.~~

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
Biohazardous	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 7 days at >32°F or up to 90 days at ≤32°F.	**SOLID WASTE**		
		• Solid biohazardous waste is collected in red biohazard bags that are manufacturer-certified to meet the American Society for Testing and Materials (ASTM) D1709 dart drop test. • Red biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair.	• Biohazard bags are marked with the international biohazard symbol and "BIOHAZARD." • Rigid secondary containers are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved solid biohazardous waste is then disposed of as Municipal Solid Waste.
		LIQUID WASTE		
		• Liquid biohazardous waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid containers used to collect liquid biohazardous waste are labeled with the words "Biohazardous Waste" or with the international biohazard symbol and the word "BIOHAZARD."	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and discharged to the sanitary sewer. **Alternative**: • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid biohazardous waste is then discharged to the sanitary sewer.
Pathology	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • May be stored for up to 90 days at ≤32°F.	**SOLID WASTE**		
		• Solid pathology waste is collected in red or white biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. This bag is lined with a digestible biohazard bag which will be placed into the tissue digester. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Animal carcasses are treated in the tissue digester. **Alternative:** • In the event the tissue digester is non-functional, carcasses meeting the definition of pathology waste are kept in freezers prior to being sent offsite for treatment by incineration.

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (con't)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
		LIQUID WASTE		
		• Liquid pathology waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid.	• Rigid secondary containers, when used, are labeled with the words "Pathology Waste" or "PATH" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Chemical disinfection (see #5 below for list of chemical sanitizers) onsite at the point of generation and released to sanitary sewer. **Alternative:** • Autoclaved onsite in an Alameda County permitted autoclave. • Autoclaved liquid pathology waste is then disposed of to the sanitary sewer.
Pharmaceutical	**Segregation:** • Pharmaceuticals regulated as medical waste are separated from those regulated under Resource Conservation and Recovery Act (RCRA) and other regulations. **Storage:** • Radioactive and Hazardous Waste Management (RHWM) stores pharmaceutical waste for up to 90 days after the container is full and ready for disposal and disposes at least annually.	• Pharmaceuticals are placed into rigid containers for storage and handling. • When shipped offsite for treatment, pharmaceuticals are packaged in Department of Transportation (DOT)-compliant containers.	• Rigid storage containers are labeled with the words "HIGH HEAT" or "INCINERATION ONLY" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
		SOLID WASTE		
Sharps	**Segregation:** • Segregated from other waste at the point of generation. **Storage:** • Sharps waste containers may be stored for up to 30	• Sharps waste is collected in a United States Food and Drug Administration (USFDA)-approved sharps container that meets USFDA-approved labeling requirements. When full and closed, sharps containers are placed into red biohazard bags for treatment.	• USFDA-approved containers meet the USFDA labeling requirements. If contaminated with chemotherapeutic agents, sharps are labeled: "Chemotherapy Waste" or "CHEMO" and managed as trace chemotherapy waste as described below.	**Primary:** • Sharps waste rendered non-infectious by autoclaving is sent offsite for incineration.

	days after the container is ¾ full and ready for treatment.	• When shipped offsite for treatment, sharps containers are packaged in DOT-compliant containers.		

Table 1. Methods Used to Handle Each Type of Medical Waste at LLNL's Facilities (con't)

Type	Segregation & Storage	Containment/Packaging/Collection	Labeling	Treatment
		TRACE CHEMOTHERAPEUTIC SHARPS WASTE		
		• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, is collected in USFDA-approved sharps containers.	• Sharps waste contaminated through contact with, or having previously contained, chemotherapeutic agents, are labeled: "Chemotherapy Waste" or "CHEMO."	• Sharps waste contaminated through contact with, or having previously contained chemotherapeutic agents is sent offsite for incineration.
Trace chemotherapeutic	**Segregation:** • Segregated from other waste and into solid or liquid waste streams at the point of generation. **Storage:** • Trace chemotherapeutic waste containers are stored for up to 90 days after the container is full and ready for treatment and disposal.	**SOLID WASTE**		
		• Solid trace chemotherapeutic waste is collected in red or yellow biohazard bags that are manufacturer-certified to meet the ASTM D1709 dart drop test. • Biohazard bags are placed into rigid, leak-resistant secondary containers with tight-fitting lids for storage, handling, or transport. Containers are kept clean and in good repair. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers lined with biohazard bags that are marked and certified as ASTM D1709 and ASTM D1922. ○ Bags will be secured to prevent leakage or expulsion of contents.	• Biohazard bags are marked with the international biohazard symbol and the word "BIOHAZARD." • Rigid secondary containers are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
		LIQUID WASTE		
		• Liquid trace chemotherapeutic waste is collected in a rigid-walled, leak-resistant container with a tight-fitting lid. • When shipped offsite for treatment, trace chemotherapeutic waste will be packaged into DOT-compliant containers.	• Rigid containers used to collect liquid trace chemotherapeutic waste are labeled with the words "Chemotherapy Waste" or "CHEMO" on the lid and all sides so as to be visible from any lateral direction.	**Primary:** • Incinerated offsite.
Trauma scene	• Rarely generated at LLNL and shipped directly offsite.	• Managed by a registered trauma scene waste management practitioner.	N/A	• Transported to an offsite hospital by a registered trauma scene waste management practitioner as soon as it is safe to do so.

TRANSPORTATION OF MEDICAL WASTE ONSITE AND OFFSITE

Biohazardous and sharps waste generated in the Biosafety Level (BSL)-3 facility are treated in B368 via autoclaving. Liquid biohazardous and pathology waste are treated via chemical disinfection or autoclaving. Animal carcasses are treated in the tissue digester. Medical wastes that require offsite treatment are transported to the Radioactive and Hazardous Waste Management (RHWM) facility using LLNL's government vehicles driven by trained hazardous waste technicians. LLNL is a closed facility with restricted access to the public and therefore is not subject to Department of Transportation (DOT) regulations for onsite movement of medical waste per 49 CFR 171.1(d)(4) exemption which states:

(d) Functions not subject to the requirements of the Hazardous Materials Regulations (HMR). The following are examples of activities to which the HMR do not apply:

(1) Rail and motor vehicle movements of a hazardous material exclusively within a contiguous facility boundary where public access is restricted, except to the extent that the movement is on or crosses a public road or is on track that is part of the general railroad system of transportation, unless access to the public road is restricted by signals, lights, gates, or similar controls.

Any movement of medical waste that will leave the boundary of LLNL will always be in full DOT compliance. RHWM ships these medical wastes offsite for treatment or disposal using a California registered hazardous waste hauler and in accordance with DOT requirements.

Offsite medical waste shipments are tracked using the Waste Disposal Requisition (WDR) and manifest systems. The tracking records are kept onsite for a minimum of three years.

*__Note__: Offsite shipment of untreated medical waste from the BSL-3 laboratory will require the use of Centers for Disease Control and Prevention (CDC)-authorized medical waste haulers. In the rare event that a shipment of untreated BSL-3 medical waste is required, LLNL will contact the CDC for guidance and assistance.

4. MEDICAL WASTE STORAGE

Is this facility a Common Storage Facility that accumulates onsite, for collection by a registered biohazardous waste hauler, medical waste from onsite Small Quantity Generators (SQG) who would otherwise operate independently?~~Is this facility a Common Storage Facility that accumulates onsite, for collection by a registered hazardous waste hauler, medical waste from onsite Small Quantity Generators (SQG) who would otherwise operate independently?~~

☐ Yes ■ No

If "Yes," complete the following information for each SQG that uses this Common Storage Facility (attach additional pages if needed):

	Name of Business/Doctor/Nurse	Address/Office	City
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			

	~~Business Name~~	~~Address~~	~~City~~
~~1~~			
~~2~~			
~~3~~			
~~4~~			
~~5~~			
~~6~~			
~~7~~			
~~8~~			
~~9~~			
~~10~~			
~~11~~			
~~12~~			

~~13~~			
~~14~~			
~~15~~			

5. Describe all ***disinfection procedures*** used in your facility for treatment or cleaning of reusable medical waste receptacles and medical waste spills.~~Describe all *disinfection procedures* used in your facility for treatment or cleaning of reusable medical waste receptacles and medical waste spills.~~

The disinfection processes LLNL uses at its medical waste facilities involves steam sterilization and chemical treatment. Approved chemical sanitizers are used for disinfection, for medical waste spills and for decontamination of reusable rigid containers, previously used for the storage of medical waste. As specified in Health & Safety Code (H&SC) 118295, decontamination of containers may be achieved by exposure to hot water at 180°F for 15 seconds~~minutes~~ or exposure to any of the following chemical sanitizers:

- Hypochlorite solution (500 ppm available chlorine)
- Phenolic solution (500 ppm active agent)
- Iodoform solution (100 ppm available iodine)
- Quaternary ammonium solution (400 ppm active agent)
- Hydrogen peroxide liquid
- Vaporous hydrogen peroxide
- Formalin liquid
- Formaldehyde gas

~~6.~~ Describe the ***designated accumulation area(s)*** used for the storage of medical waste. (**Note:** A ***designated accumulation area*** is an area used for the storage of medical waste containers prior to transportation or treatment shall be secured so as to deny access to unauthorized persons. See Section 118310 for more detailed requirements.)~~Describe the *designated accumulation area(s)* used for the storage of medical waste. (NOTE: *Designated accumulation area* is an area used for the storage of medical waste containers prior to transportation or treatment shall be secured so as to deny access to unauthorized persons. See Section 118310 for more detailed requirements.)~~

6.

As appropriate (based on the quantity of medical waste generated and need for storage), LLNL sets up designated accumulation areas for storage of medical wastes prior to transport or treatment. LLNL designated accumulation areas are secured to prevent access by unauthorized persons. Warning signs are posted around designated accumulation areas on, or adjacent to, the exterior of entry doors, gates, or lids. The storage area may be secured by use of accountable locks and keys for the BSL-3 laboratory.

The wording of warning signs posted around the designated accumulation areas is in English, “CAUTION—BIOHAZARDOUS WASTE STORAGE AREA—UNAUTHORIZED PERSONS KEEP OUT,” and Spanish, “CUIDADO—ZONA DE

RESIDUOS—BIOLOGICOS PELIGROSOS—PROHIBIDA LA ENTRADA A PERSONAS NO AUTORIZADAS," During daylight hours, these signs are visible at a distance of 25 feet.

7. **Onsite Medical Waste Treatment** (Check all that apply):

☐ This facility treats medical wastes on-site. ■ Yes ☐ No

If yes, what treatment method(s) are utilized?

■ Steam sterilization (e.g., autoclave)

☐ Microwave Technology

~~7.~~ ■ Other approved alternative treatment (Specify) Tissue digester & Chemical treatment~~*Onsite Medical Waste Treatment* (Check all that apply):~~

~~☐ This facility treats medical wastes onsite. ■ Yes ☐ No~~

~~If yes, what treatment method(s) are utilized?~~

~~☐ Incineration~~

~~■ Steam sterilization (e.g., autoclave)~~

~~☐ Microwave Technology~~

~~■ Other approved alternative treatment (Specify) Tissue digester & Chemical treatment~~

The location of the autoclave used to treat medical wastes generated at the LLNL BSL-3 facility is listed in **Table 3,** followed by the description of the waste retention tank system (WRTS) used to collect treated waste.

Note: Liquid effluent from the tissue digester is discharged to the WRTS upon successful cycle completion. Any solid material (e.g., small bone or teeth fragments) present in the tissue digester after a completed run is collected by a basket within the tissue digester and not released to the WRTS. After the run, the contents of the basket are managed through the Biohazardous Waste stream process outlined in **Table 1.**

■ This facility uses a *registered hazardous waste hauler* to haul medical waste to an offsite treatment facility

Hauler Name: Clean Harbors Environmental Services, Inc.
Address: 42 Longwater Dr.
City/State/Zip: Norwell, MA 02061
Phone: (781) 792-5000
Offsite Treatment Facility: Clean Harbors Environmental Services, Inc.

■ Describe the training program for employees that use treatment equipment at this facility.~~Describe the training program for use of treatment equipment at this facility:~~

LLNL personnel who treat medical waste receive training as follows:

- Operators of medical waste treatment equipment are trained on the equipment's use, proper personal protective equipment (PPE) to wear, if necessary, and how to clean up spills to ensure that the equipment is being operated in a safe and effective manner.
- Annual refresher training is provided to the operators.
- Training complies with applicable federal Occupational Safety and Health Administration (OSHA) regulations, including those found in Section 1910 of Title 29 of the Code of Federal Regulations.
- Training records are retained for a minimum of two years in the LLNL training database (LTRAIN).

The specific LLNL training plan courses for operators of medical waste treatment units include, but are not limited to, the following:

- **All medical waste treatment equipment operators**:
  - HS4686-W, *Personal Protective Equipment (PPE)*
  - HS4405-W, *Blood and Bloodborne Pathogens*
- **Tissue Digester Operators**:
  - NA3004, *Tissue Digester Operators Training*
- **Autoclave Operators**:
  - EP0012-W, *Medical Waste Treatment: Autoclave Operator Training*

■ Describe the closure plan for the termination of treatment at this facility.

☐ Decontamination procedures as specified in Section 118295, sub (a) or (b);
☐ Statement certifying that the information is complete and correct;
■ A copy of the Medical Waste Closure Plan is attached;
☐ Contact Alameda County LEA Inspector to arrange a final walkthrough.

See **Appendix B.** ~~■ Describe the closure plan for the termination of treatment at this facility:~~

~~See **Appendix B.**~~

SECTION 3~~III~~. EMERGENCY ACTION PLAN

Note: Large Quantity Generators are required to have an Emergency Action Plan. While not required for Small Quantity Generators (SQG), it is recommended that SQGs complete this section as a good management practice.

In the case of an emergency, such as equipment breakdown on the part of the registered hauler or natural disaster, medical waste will be (check one):

☐ Stored for up to seven (7) days on the premises. Sufficient storage space is available in:

~~**Note:** Large Quantity Generators are required to have an Emergency Action Plan. While not required for Small Quantity Generators (SQG), it is recommended that SQGs complete this section as a good management practice.~~

~~In the case of an emergency, such as equipment breakdown on the part of the registered hauler or natural disaster, medical waste will be (check one):~~

~~☐ Stored for up to seven days on the premises. Sufficient storage space is available in:~~

In the rare event when the Emergency Action Plan is required/implemented, all permitted facilities will cease medical waste generating activities if necessary. LLNL can store medical waste onsite at ≤32°F for up to 90 days and/or use established processes for shipping medical wastes offsite for treatment and disposal at a permitted facility within seven days of an emergency.

See **Appendix A** for more details.

☐ The following alternate registered biohazardous/medical waste hauler will be utilized:~~The following *alternate registered medical waste hauler* will be utilized:~~

Name: Stericycle
Address: 1345 Doolittle Dr., Ste. C
City/State/Zip: San Leandro, CA 94577

☐ Describe in detail how this facility manages medical waste spills (e.g., gloves, mask, gown, disinfectant):~~Describe in detail how this facility manages medical waste spills (e.g., gloves, mask, gown, disinfectant):~~

LLNL manages medical waste spills by ensuring containment, cleanup, decontamination, onsite treatment, and disposal of cleanup residue. The initial step to a medical spill response includes notifying people in the spill area to avoid exposure. Notification is followed by the cleanup steps summarized in **Appendix A**, Section 6 of the Emergency Action Plan.

- Describe in detail how this facility handles, treats and disposes of liquid/semi-liquid laboratory waste:

LLNL segregates liquid or semi-liquid biohazardous laboratory wastes at the point of generation and manages these wastes via the following methods:

- Collect liquid/semi-liquid wastes as described in **Table 1.**
- Securely close containers of liquid/semi liquid wastes to prevent leakage or loss during storage or transport.
- **Liquid/semi-liquid biohazardous or pathology waste:**
  Primary Method for Treatment and Disposal:
  - Chemically disinfect liquid waste at the point of generation using a chemical disinfection method recognized by the National Institutes of Health (NIH), Centers for Disease Control and Prevention (CDC) or American Biological Safety Association (ABSA) International[AGW1][RP2].
  - Chemically-treated liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits.

  Alternative Method for Treatment and Disposal
  - Liquid/semi-liquid waste may also be treated onsite by autoclaving.
  - Successfully autoclaved liquid/semi-liquid waste is discharged to the sanitary sewer, if in compliance with the sewer discharge limits.

- **Liquid/semi-liquid trace chemotherapeutic waste:**
  - Liquid/semi-liquid trace chemotherapeutic waste is collected as described in **Table 1.**
  - Liquid/semi-liquid trace chemotherapeutic waste is incinerated offsite.
  - If the chemical disinfection of the medical waste causes the waste to become a hazardous waste, the waste will be managed in accordance with the requirements of Chapter 6.5 (commencing with Section 25100) of Division 20.

Note~~OTE~~: Please refer to pages 18 and 19 for additional information.

- Describe employee training provided by employer.

Bloodborne Pathogen Training Provided? ☒ Yes ☐ No ☐ OTHER (please describe ~~, bdescribe b~~elow)~~:~~

Specific training requirements vary based on job assignments and types of waste generated. The courses LLNL offers employees who generate medical waste include the following:

- **Medical Waste Generators:**
  - HS4435/HS4435-RW, *Working Safely in Biosafety Level 1 Laboratories*
  - HS4436/HS4436-RW, *Working Safely in Biosafety Level 2 Laboratories*
  - HS4438-P, *Biosafety Level 2 Proficiency Evaluation*

- HS4686-W, *Personal Protective Equipment (PPE)*
- HS4405-W, *Blood and Bloodborne Pathogens*
- EP1006-W, *Waste Management Overview*

SECTION ~~IV~~4. CATEGORIZING PHARMACEUTICALS

- Describe the steps taken to categorize and properly dispose of the pharmaceutical wastes generated at this facility, specifically, how this facility will separate pharmaceuticals classified by the federal Drug Enforcement Agency (DEA) as "controlled substances" from the standard regulated waste stream (if applicable):~~Describe [cs3][RP4] the steps taken to categorize and properly dispose of the pharmaceutical wastes generated at this facility, specifically, how this facility will separate pharmaceuticals classified by the federal Drug Enforcement Agency (DEA) as "controlled substances" from the standard regulated waste stream.~~

  The steps LLNL takes to categorize, segregate, and manage pharmaceutical wastes are as follows:

  - Pharmaceutical wastes classified by the DEA as "controlled substances" are managed and disposed of in compliance with DEA and United States Food and Drug Administration (USFDA) requirements.
  - Pharmaceutical wastes containing Resource Conservation and Recovery Act (RCRA)-regulated and/or, radioactive constituents are managed in accordance with the requirements for hazardous waste and radioactive waste respectively.
  - Pharmaceutical wastes are managed in a manner that secures the pharmaceutical waste by denying access to unauthorized individuals. Any suspected or confirmed tampering of, unauthorized access to, or loss of any pharmaceutical waste is reported to the Alameda County Department of Environmental Health (ACDEH).
  - LLNL uses a tracking document for pharmaceutical wastes shipped offsite for treatment and disposal and will notify ACDEH of discrepancies between the items received by the offsite facility receives and the items shipped by LLNL.

Medical Waste Management~~Medical~~ Act Mixed Waste

Waste consisting of medical and nonmedical waste will be handled as medical waste except as follows:

- Medical waste mixed with hazardous waste will be managed as hazardous waste.
- Medical waste mixed with radioactive waste will be managed as radioactive waste.
- Medical waste mixed with hazardous and radioactive waste will be treated as radioactive mixed waste.

Non-medical wastes such as those regulated by the RCRA or the California Hazardous Waste Control Act (HWCA) generated in the permitted medical waste facilities will be managed by LLNL's ~~Radioactive and~~ RHWM personnel.

☐ The following ***registered biohazardous/medical waste hauler*** will be utilized to haul pharmaceutical wastes.

Name: Clean Harbors Environmental Services, Inc.

Address: 42 Longwater Drive

City/State/Zip: Norwell, MA 02061

I hereby certify that to the best of my knowledge and belief, the statements made herein are true and correct.

Signature: _____

Print Name: _____ Date: _____

☐ ~~The following *registered hazardous waste hauler* will be utilized to haul pharmaceutical waste:~~

~~Name: Clean Harbors Environmental Services, Inc.~~

~~Address: 42 Longwater Drive~~

~~City/State/Zip: Norwell, MA 02061~~

~~I hereby certify that to the best of my knowledge and belief, the statements made herein are true and correct.~~

~~**Signature**~~

~~Frances Alston, Ph.D. Date~~

OFFICIAL USE ONLY

Date received: _____ □ Approved □ Approved with changes: _____

Additional requirements: _____

Inspector signature: _____ Date: _____

The location of the BSL-3 medical waste generator facility at LLNL is shown in **Table 2.~~2.~~**

Table 2. Medical Waste Generator BSL-3 Facility Location

Building Number	Parent Organization	Typical Medical Waste Currently Generated	Medical Waste Potentially Generated
368	Global Security	1. Biohazardous 2. Sharps 3. Pharmaceutical 4. Pathology	1. Biohazardous 2. Pathology 3. Pharmaceutical 4. Sharps 5. Trace chemotherapeutic

Table 3 shows the location, make, and model number of the autoclave and tissue digester used to treat waste in B368 as described ~~above~~ in Table 1. This autoclave is operated by trained and experienced individuals who know the operating requirements specified in H&SC Sections 117967 and 118215. Such requirements include, but are not limited the following:

- Steam sterilizer temperature, pressure, and contact time.
- Annual calibration and calibration records retention for a minimum of two years.
- Use of a heat-sensitive tape on each biohazard bag or sharps container to indicate the waste went through heat treatment.
- Use of the biological indicator (BI) *Geobacillus strearothermophilus* or other indicator of adequate sterilization as approved by the department, at least monthly to confirm attainment of adequate sterilization. The BI shall be placed at the center of the load processed under standard operating conditions.

Table 3. Location of Autoclave and Tissue Digester Used at the BSL-3 Facility

Item	Building	Room	Autoclave/Tissue Digester Make	Model Number
1	368	Anteroom/Mechanical	Steris AMSCO autoclave	SF1161331127000061
2	368	Rodent laboratory	MR^2 Tissue digester	100-Lab Waste-30 Tissue Digester™

Waste Retention Tank System

- A waste retention tank system (WRTS) is used to collect effluent wastewater from the BSL-3 laboratories (i.e., sinks, floor drains) and tissue digester.

Note: No intentional release of infectious materials is planned. Effluent from the laboratories is treated prior to release to the WRTS. Additionally, the tissue digester does not release its contents unless the digester cycle has completed successfully.

- The WRTS consists of two tanks each with an approximate capacity of 950 gallons.

The tanks sit within a concrete berm with an overflow capacity of approximately 1300 gallons.

- Each tank has a level sensor that will alarm to the B511 console, which is staffed at all times by the LLNL Maintenance Mechanics, in the event either tank nears its capacity.
- Water in the tanks is routinely analyzed for pH, cyanide, and Total Threshold Limit Concentration (TTLC) metals by the RHWM Technician. Based on the results of this analysis, the water will either be managed through RHWM or chlorinated and released to the sanitary sewer.
  - Prior to discharge to the sanitary sewer, the water is treated with sodium hypochlorite [1 part concentrated bleach (≥5.25%) sodium hypochlorite to 99 parts water] for 48 hours to inactivate any environmental microorganisms that may be present.
  - Wastewater that is hazardous, or does not meet sewer discharge requirements is managed through RHWM.
- The WRTS is not an effluent treatment system.
  - No intentional release of infectious material is permitted from the laboratories. All infectious materials must be treated by an appropriate method known to inactivate the material prior to release to the WRTS.

APPENDIX A

Emergency Action Plan
Global Security Principal Directorate

Biosafety Level 3 Facility

Lawrence Livermore National Laboratory (LLNL)
Global Security Principal Directorate
Biosafety Level 3 Laboratory (BSL-3)

Medical Waste Emergency Action Plan

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1. Purpose:

This plan is to be followed to ensure proper disposal of medical waste in the event of equipment breakdowns, natural disasters, or other occurrences in accordance with Health & Safety Code (H&SC) 118235.

2. Types of Medical Waste Managed at the BSL-3 Facility:

The LLNL Global Security Principal Directorate generates and treats a variety of medical wastes as a result of research conducted in the BSL-3 laboratories. The medical waste types include (but are not limited to) the following:

- Biohazardous waste
- Sharps waste
- Pathology waste
- Pharmaceutical waste

3. Responsible Persons at the BSL-3 Facility:

General Contacts for the Global Security Principal Directorate

1	Amy Rasley Senior Laboratory Coordinator	(925) 423-1284	
2	Patsy Gilbert, Facility Manager	(925) 423-3162	Pager #10040
3	Stephanie Lopez, Global Security Assurance Manager	(925)424-6799	
4	,Dave Abacherli Back-up Facility Point of Contact	(925) 423-7630	Pager# 02552
5	George Anderson, Chair IBC/IACUC Biosafety Committee	(925) 423-4285	
6	~~Christian Arroyo~~Jose Segura, Radioactive and Hazardous Waste Management (RHWM) Technician	(925) 423-2588~~4-2620~~	Pager #~~6176~~57952
7	Christine Ward, Industrial Hygienist	(925) 422-0036	Pager #62240
8	Lauralye Casipit, Health and Safety (H&S) Technician	(925) 422-5784	Pager # 05425
9	Alex Ruiz, Environmental Analyst	(925)424-2869	
10	John Warner, Biological Safety Officer	(925) 423-8036 (925) 960-3623 (cell)	Pager #04544
11	Carolyn Hall, Biological Safety Officer	(925) 423-8076	Pager #02716

		(925) 724-8536 (cell)	

Obtain assistance from Responsible Persons listed above. If there is any doubt about safely managing the emergency, contact the LLNL Fire Department immediately by dialing 911 (from a Lab phone) or (925)-447-6880 (from a cell phone).

4. Possible Accident/Emergency Scenarios:

   - Personnel accident/injury (e.g., needle stick, caustic chemical splash).
   - Spills/releases.
   - Equipment failure.
   - Discharge to effluent tanks of waste not fully inactivated.
   - Natural disaster (earthquake, fire, etc.).

5. Response:

   - Cease routine operations.
   - Assess the nature of the emergency and the associated hazards (if it is safe to do so).
   - Notify all personnel in the immediate area. Evacuate the immediate room or area if the accident is hazardous to anyone or if you are in doubt about the extent of the hazard. When an inhalation hazard is present, hold your breath as much as possible while evacuating the area.
   - Obtain assistance from Responsible Persons listed above in Section 3. If there is any doubt about safely managing the emergency, contact the LLNL Fire Department immediately by dialing 911 (from a Lab phone) or (925) 447-6880 (from a cell phone).
   - Administer first aid when necessary. Remove contaminated clothing and shoes, wash hands, face and other contaminated portions of the body (with appropriate disinfectant and soap) before entering the change/shower rooms. If eyes or other parts of the body have been contaminated, flush the affected areas with water for 15 minutes.
   - Notify the Biosafety Officer, John Warner; Senior Laboratory Coordinator, Amy Rasley (at [925]-423-1284) and Facility Manager, Patsy Gilbert (at [925]-423-3162). Also notify the H&S Technician, Lauralye Casipit, (at [925] 422-5784, pager number: 05425) from the nearest phone.

6. Spill clean-up and decontamination:

   - Post a spill sign at the entrance.
   - Secure the area of the spill to prevent people from entering. Report to the LLNL Health Services Department for evaluation, immediately following possible exposure.
   - Personal protective equipment (PPE) requirements vary contingent upon the level of hazard involved. Call the Environment, Safety & Health (ES&H) Team 2 Industrial

Hygienist (Christine Ward) at (925) 422-0036 and Biosafety Officer (John Warner) at (925) 960-3623 for guidance in the use of PPE. If there is any doubt about safely managing the emergency, immediately contact the LLNL Fire Department by dialing 911 from a Lab phone or (925) 447-6880 from a cell phone.

- Recover all medical waste from spill site, and place into new biohazard bag or container.
- Disinfect all cleanup equipment or dispose of cleanup equipment as biohazardous waste.
- Disinfect the spill site with a 1:9 solution of household bleach and water. Disinfection should start from the outside in, thus preventing further contamination. Check with the RHWM Technician or Environmental Analyst on the proper classification and segregation of waste generated from the cleanup activities. Waste must be segregated based on contents (i.e., medical waste with added bleach, versus waste containing medical waste components only).
- Remove PPE, place into biohazard bag, and disinfect.
- If the waste is to be steam-sterilized, arrange for sterilization in the Facility autoclave. In the event that the Facility autoclave becomes inoperable or inaccessible, medical waste may be stored (pending the repair of the sterilization equipment or decontamination of the affected areas) in freezers located in the BSL-3 Facility.
- Properly dispose of biohazardous waste after sterilization.
  - The BSL-3 facility requires that solid biohazardous waste materials are double-autoclaved before disposal (e.g., autoclaved in B368 and then again in B365). After waste from the BSL-3 facility has been autoclaved twice, it is disposed of as Municipal Solid Waste.
  - Sterilized liquid media, other than whole blood (human or animal) in quantities of more than 50 mL, may be disposed of to the sanitary sewer. Most sterilized solids can go to the municipal trash.
  - Sterilized whole blood (human or animal), in glass tubes will be managed as sharps waste through the RHWM Program.

7. Equipment Failures:

If the autoclave or the tissue digester breaks down, biohazardous waste that can be autoclaved will be moved to B365 after informing Biosafety Officer (John Warner) at (925) 960-3623. If the tissue digester becomes inoperable, pathology waste can be autoclaved, and the inactivated carcasses sent for offsite incineration.

If the tissue digester and autoclaves were both inoperable, offsite shipment of non-inactivated medical waste would be coordinated through the Centers for Disease Control and Prevention (CDC).

If sterilization equipment malfunctions during the course of a treatment run wherein biohazardous items were being sterilized, the partially-treated load (including any waste discharged to retention tank that is not fully inactivated) will be presumed infectious. The

following steps and precautions will be taken when sterilization equipment fails containing potentially biohazardous media:

- The work area will be stabilized.
- Warning signs will be posted, notifying others that the equipment holds potentially infectious matter.
- Individuals listed on the Responsible Persons roster (Section 3) will be notified.
- The area Supervisor, in concert with the Responsible Persons Team, will devise a recovery strategy that addresses the following:
  - Biological agents present.
  - Employee exposure prevention.
  - Safe method for extracting potentially infectious material.
  - Equipment decontamination (being cognizant of all potentially contaminated surfaces and ancillary components that may be accessed by maintenance personnel).
  - Interim management plan for recovered wastes and/or reusable materials.
  - Plans for restoring normal operations.

8. Natural Disasters:

   In the event of a natural disaster that may interfere with the treatment and disposal of medical waste, all non-essential medical waste generating activities will be suspended immediately.

9. References:

   a. California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)
   b. LLNL Emergency Plan.

APPENDIX B

Medical Waste Closure Plan
for
BSL-3 Treatment Units at LLNL

Lawrence Livermore National Laboratory
7000 East Avenue
Livermore, CA 94550

1. Introduction

Lawrence Livermore National Laboratory (LLNL) will use this Closure Plan to close its medical waste treatment units. This Closure Plan is needed because of the requirements of the California medical waste regulations found in Health & Safety Code (H&SC) 117960(j) and 22 CCR 65625(a)(14). Each medical waste treatment unit to be closed will follow this plan. The plan includes steps for notifying the regulators of start and completion of closure activities, inspections, closure procedures, and where the final medical waste will be sent. As required by H&SC 118295(a) and (b), this closure plan also contains procedures for decontaminating containers and spills that may be necessary during closure activities. The goal of these closure activities is to ensure the medical waste treatment units are left in acceptable sanitary conditions and are clean closed.

2. Notification of Intent to Close Medical Treatment Unit

At least 30 days prior to start of closure, LLNL will send a written notification to the Alameda County Department of Environmental Health (ACDEH) containing the following information:

- Date of final closure.
- Reason(s) for treatment unit(s) closure.
- Disposition of final medical waste by removal and disposal at an authorized facility or onsite treatment/disposal.
- Disinfection and decontamination procedures.

3. Closure Inspection(s)

LLNL will schedule a pre-closure medical waste inspection with ACDEH, which may include the following:

- Review of medical waste tracking documents.
- Inspection of areas where medical wastes were treated.
- Inspection of medical waste treatment units.
- Review of disinfection/decontamination procedures.
- Review of waste treatment records.

If violations are noted during pre-closure inspection, LLNL will schedule a re-inspection of the facility with ACDEH after violations have been corrected.

4. Closure Process

LLNL will identify the maximum inventory of medical wastes to be disposed or treated as part of the closure process. Specific steps of the closure process are as follows:

- Removing the last inventory medical waste for offsite disposal and/or treatment.
- Following the steps specified by H&SC to treat medical waste onsite by disinfection and confirming the effectiveness of decontamination.
- Making sure all treatment units subject to closure meet all the closure provisions and achieve the closure performance standards as required by regulations.

- Coordinate closure procedures with the Centers for Disease Control and Prevention (CDC).

LLNL routinely washes and decontaminates reusable rigid containers not protected with disposable liners, bags or other devices removed with the waste. The same disinfection procedure will be used during facility closure. Approved methods for disinfection/ decontamination include, but are not limited to the methods specified in H&SC 118295 and are summarized below:

- Exposure to hot water of at least 82° Centigrade (180° Fahrenheit) for a minimum of 15 seconds, **or**
- Exposure to chemical sanitizer by rinsing with, or immersion in, one of the following for a minimum of 3~~three~~ minutes:
    1. Hypochlorite solution (500 ppm available chlorine).
    2. Phenolic solution (500 ppm active agent).
    3. Iodoform solution (100 ppm available iodine).
    4. Quaternary ammonium solution (400 ppm active agent).
    5. Vaporous hydrogen peroxide.
    6. Formalin Vapor.
- Ensuring a thorough cleanup and removal of medical waste prior to closure of the treatment units.
- Identifying and mitigating all known releases of medical waste at or near the treatment units being closed.
- Ensuring no medical waste or contaminated materials is left behind after completing the closure a medical waste unit.
- Terminating the permit to operate medical treatment units once ACDEH approves the closure.

This Closure Plan must be followed whenever a permitted medical waste treatment unit is to be closed. The Closure Plan will be kept at LLNL throughout the active life of each permitted medical waste treatment unit.

Title 22 Code of California Regulations, Section 65625(a) (22 CCR 65625(a) requires preparation of this Closure Plan, including a written cost estimate for closing treatment units. This plan meets all these requirements except preparing a closure cost estimate because as a federal facility, LLNL is not required to prepare a cost estimate. In addition, the 22 CCR 65625(a)(14) requirement to revise the cost estimate whenever the closure plan changes and increases the closure costs is not applicable to LLNL.

5. Shipping Final Medical Waste

Although LLNL may ship medical wastes from treatment unit closure activities to other permitted treatment facilities, the primary offsite facilities that will receive LLNL's medical waste for incineration are:

Stericycle
1345 Doolittle Drive, Suite C
San Leandro, CA 94577
(866) 783-7422

Clean Harbors Environmental Services, Inc.
11600 North Aptus Road
Aragonite, UT 84029
(801) 323-8100

LLNL will mainly use the two permitted treatment facilities listed above to treat medical waste from its closure activities.

6. Conclusion

This Closure Plan specifies procedures LLNL will use to close its medical waste treatment units. All medical wastes generated during the closure activities will be sent to an approved medical waste treatment or disposal facility in accordance with federal, state, and local regulations (where applicable). LLNL will also ensure no nuisance conditions such as odors exist after the facility is closed. The Closure Plan includes specific steps for onsite treatment and decontamination. LLNL will send a written notice to ACDEH at least 30 days in advance of its planned closure date. A written notification of completion of closure activities will also be sent to ACDEH within 30 days stating that all applicable closure standards have been achieved. Medical wastes from closure activities that require offsite treatment or disposal will be sent to two facilities: Stericycle and Clean Harbors Environmental.

7. Reference:

California Health & Safety Code Sections 117600-118630, Medical Waste Management Act (*current revision*)