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Guidelines for Waste Accumulation Areas (WAAs) at LBL

Revision 1
Effective Date: June 1, 1994

Environment, Health and Safety Division
Lawrence Berkeley Laboratory
University of California
Berkeley, CA 94720

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Guidelines for Waste Accumulation Areas (WAAs) at LBL

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Revision 1
Effective Date: June 1, 1994

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A Waste Accumulation Area

1. Introduction

1.1 Purpose

The purpose of this document is to set conditions for establishing and maintaining areas for the accumulation of hazardous waste at LBL. Areas designed for accumulation of these wastes for up to 90 days in quantities greater than 55 gallons (208 liters) of hazardous waste, one quart (0.946 liter) of extremely hazardous waste, or one quart (0.946 liter) of acutely hazardous waste are called Waste Accumulation Areas (WAAs). Areas designed for accumulation of wastes in smaller amounts are called Satellite Accumulation Areas (SAAs). This document provides guidelines for

- employee and organizational responsibilities for WAAs,
- constructing a WAA,
- storing waste in a WAA,
- operating and maintaining a WAA, and
- responding to spills in a WAA.

1.2 Background

Hazardous waste, by definition, can cause serious injury to human health and the environment. Everyone connected with a WAA must exercise great care to ensure that hazardous wastes are handled safely and correctly at all times.

A casual attitude toward environmental pollution is neither socially nor legally acceptable. Environmental regulators have criminally prosecuted polluters, and the courts are subjecting convicted polluters to heavy fines and even prison terms. Thus, it is vitally important that everyone concerned with hazardous waste understand his/her responsibilities with regard to that waste.

2. Governing Documents and References

2.1 Governing Documents

- Title 22, California Code of Regulations, Division 4.5
- Environmental Protection Agency, Title 40, Code of Federal Regulations, Parts 260–265

2.2 References

- *Guidelines for Generators of Hazardous Waste at LBL*, PUB-3092, latest revision
 - *Occurrence Reporting*, LBID-1694, latest revision
 - *Aldrich Catalog of Fine Chemicals*
 - *NIOSH Registry of Toxic Effects of Chemical Substances*
 - *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals*
 - *LBL Master Emergency Plan*, Pub-237, latest revision
-

3. Definitions

3.1 Acutely Hazardous Wastes	Any wastes defined as acutely hazardous by 22 CCR, Chapter 11, Article 4.
3.2 Certification	The person who signs his or her name on the Hazardous Waste Disposal Requisition (see Appendix B) certifies that the contents of the waste package are described exactly and correctly on the tag. This description (and the signature) are legally binding.
3.3 Controlled Area (for Radiation Protection)	An area where radioactive materials or elevated radiation fields may be present.
3.4 Corrosive Wastes	Aqueous wastes with $\text{pH} \leq 2$ or ≥ 12.5 (or nonaqueous wastes that produce a solution with these pH values when mixed with an equivalent weight of water). Corrosive wastes also include wastes that can corrode steel at a rate of 0.64 cm (0.25 inch) per year.
3.5 Cradle-to-Grave Tracking	The term for the system whereby carefully detailed records are maintained documenting the generation, storage, treatment, and disposal of all hazardous waste generated at a facility. These records cover hazardous waste from the point of origin (generation) to its final offsite destination and disposal.
3.6 Extremely Hazardous Waste	Any hazardous waste or mixture of hazardous wastes that, if human exposure should occur, may result in death, disabling personal injury, or serious illness caused by the hazardous waste or mixture of hazardous wastes because of its quantity, concentration, or chemical characteristics. (From 22 CCR 66260.10; see 22 CCR 66261.110 for criteria.)

Continued on next page.

3. Definitions (continued)

3.7 Hazardous Wastes

- Wastes that exhibit one or more of the criteria for identification of "hazardous waste" (22 CCR 66261.21-66261.24). These criteria are
 - toxicity
 - ignitability
 - reactivity
 - corrosivity
- Wastes listed in the California Code of Regulations (22 CCR 66261) and the Code of Federal Regulations (40 CFR Part 261). These wastes include certain discarded commercial chemical products, off-specification products, container residues, and spill residues.

3.8 Identification

The description of the waste in a container. When you fill out the Hazardous Waste Label and the Hazardous Waste Disposal Requisition, you identify your waste.

3.9 Ignitable Wastes

- Liquids with a flash point of less than 140°F
- Solids that ignite spontaneously through reaction with moisture or through friction, and that burn vigorously
- Flammable gases
- Oxidizers

3.10 Knowledge of Process

The ability of the generator to characterize waste on the basis of the chemical materials from which the waste was derived or the process by which the waste was generated. It also includes being able to verify the characterization with the documented procedures used and data accumulated during the waste-generation process.

3.11 Reactive Wastes

Wastes that are unstable or explosive, that react with water, or that generate toxic vapors when mixed with water.

Continued on next page.

3. Definitions (continued)

3.12 Satellite Accumulation Area (SAA)	An area in an individual laboratory, shop, or other facility designated by the generator for the accumulation of waste, not to exceed 208 liters (55 gallons) of hazardous waste or 0.95 liter (1 quart) of extremely or acutely hazardous waste. The area must be at or near the point of waste generation. Waste can accumulate in SAAs for up to 275 days. Even a single small bottle of a hazardous waste is considered an SAA.
3.13 SAA Start Date	The date that waste is first placed in a container in the SAA.
3.14 Secondary Containment	A container designed to hold one or more containers for the collection of liquid waste. Each secondary containment structure must be able to contain 10% of the total volume of all containers or the entire volume of the largest container, whichever is greatest.
3.15 Segregate	In this document, segregate means "do not mix" chemically unrelated or incompatible materials in the same container.
3.16 Separate	In this document, separate means "set apart physically" containers of incompatible waste.
3.17 Storage Time Limit	According to California and Federal codes, the storage time limit for accumulation of waste in a WAA is 90 days, but this time period includes the time needed for transfer of waste to the HWHF and eventual shipment off site. Therefore, the LBL HWHF procedures place a time limit of 60 days at the WAA. This time limit must be adhered to.
3.18 Toxic Wastes	Wastes that pose a hazard to human health or the environment because of carcinogenicity, acute or chronic toxicity, bioaccumulative properties, or persistence in the environment.

Continued on next page.

3. Definitions (continued)

3.19 WAA Receival or Accumulation Start Date	The date that a container transferred from an SAA to a WAA is received by the manager of the WAA, or the date waste is first placed in a container at a WAA collection point.
3.20 Waste Accumulation Area (WAA)	An officially designated area for the accumulation and storage of large quantities of hazardous waste. Specific regulations apply to WAAs, including security, labeling and signage, contingency plans, and emergency equipment. Wastes can be accumulated in WAAs for up to 60 days.
3.21 Waste Container	Anything that collects waste. Waste containers include drums, carboys, cans, bottles, boxes, plastic bags, metal transport containers, and any other container approved as appropriate for the type of waste handled.
3.22 Waste- Generating Organization	The program, facility, or group that generates the waste.
3.23 Waste Generator	The individual or operation responsible for actually generating the hazardous waste within an organization. LBL as a whole is viewed as a waste generator by environmental regulatory agencies. Within LBL, each researcher, laboratory, shop, and facility, as a potential point of origin for hazardous waste, is a waste generator.
3.24 Waste Stream	Waste generated from an industrial process or application, laboratory experiment, or routine laboratory procedure, with roughly constant and unchanging hazardous characteristics.

4. Responsibilities

-
4.1
Waste-Generating
Organization	• Assures that the waste is properly segregated, identified, packaged, and stored while in the area of generation (including the WAA).• Transports waste from the area of generation to the WAA.• Ensures that all generators in their area receive proper training and are familiar with the latest revision of PUB-3092, <i>Guidelines for Generators of Hazardous Waste at LBL</i>.
-
4.2
Waste
Generator	• Identifies hazardous waste produced by an operation or experiment.• Places all waste in the WAA.• Notifies the HWHF Technician of the amount, type, and concentration of waste taken to the WAA by entering the information on the accumulation sheet or the Hazardous Waste Label.• Contacts the Hazardous Waste Specialist in EH&S's Environmental Protection Group (EPG) to ensure that the waste preparation procedures being used meet current environmental standards.
-
4.3
Organizational
Manager for
WAA (and
Alternate)	These individuals are designated by management of the waste-generating organization as being responsible for all activities associated with that organization's WAA, including, but not limited to, • the daily walkthrough• maintenance of all logs• maintenance of all required labeling• training of individual generators on procedures for use of their WAA.
-
4.4
Compliance Unit
Manager [EH&S
Waste Management
Group (WMG)]	• Is responsible for interpreting environmental legal requirements for waste generators and for providing guidance on compliance issues.
-

Continued on next page.

4. Responsibilities (continued)

4.5 Hazardous Waste Specialist (EPG)

- Provides management and staff of the waste-generating organization with current guidelines for preparing and storing hazardous waste.
- Provides technical support and training to the waste-generating organization on proper ways to segregate, identify, package, store, and transport hazardous waste.
- Advises and assists generators in preparing hazardous waste for transfer from work area to WAA, accumulation, and storage at WAA
- Advises on the establishment of all WAAs and coordinates approval with the Hazardous Waste Operations Unit Manager.
- Conducts QA surveillance, including inspections and reviews of the waste-handling process, for all LBL WAAs.

4.6 Hazardous Waste Operations Unit Manager (EH&S WMG)

- Maintains all documents related to WAAs.
- Reviews all waste-related activities.

4.7 Senior HWHF Technician (EH&S WMG)

- Works with the Hazardous Waste Specialist and Hazardous Waste Operations Unit Manager in support of waste-related activities.
 - Sends copies of weekly inspections to Organizational Managers of WAAs.
 - Assists organizations in managing hazardous wastes and in operating WAAs.
 - Assists, when called upon, in the packaging, labeling, and sampling of hazardous waste.
 - Verifies that wastes have been removed from WAAs.
 - Conducts weekly inspections of WAAs.
-

5. Guidelines and Rules Specific to WAAs

5.1 Responsibilities for Constructing a WAA

The following responsibilities apply specifically to the construction of a WAA.

5.1.1 Organizational Manager

- Consults with the Hazardous Waste Specialist and the Hazardous Waste Operations Unit Manager during the planning, design, and construction of the WAA.
- Reviews with other EH&S staff, as appropriate, the construction plans from the perspectives of the staffs' technical disciplines.
- Identifies the waste that will be accumulated in the WAA and the containers that will be needed. (All potential waste should be identified before construction of a WAA begins.)

5.1.2 Hazardous Waste Operations Unit Manager

- Assists the Organizational Manager and the Hazardous Waste Specialist by gathering information on the types, amounts, and locations of hazardous waste being generated.
- Works with the Hazardous Waste Specialist to provide information to the Organizational Manager on WAA design and construction regulations.
- Advises on construction design and location to ensure that all equipment requirements and all containment, enclosure, and siting criteria have been met.
- Reviews the final plans for vehicle accessibility during waste pickup.

5.1.3 Hazardous Waste Specialist

- Works with the Hazardous Waste Operations Unit Manager to provide information to the Organizational Manager on WAA design and construction regulations.
- Reviews and interprets applicable environmental regulations.
- Surveys, with the Organizational Manager, the types and amounts of waste being generated.
- Advises on WAA construction design and location to ensure that all equipment requirements and all containment, enclosure, and siting criteria have been met.
- Coordinates WAA approval with Hazardous Waste Operations Unit Manager.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.2 Constructing a WAA

A WAA should be constructed in the area of any organization that routinely generates significant amounts of hazardous waste. The actual need for a WAA is best determined by consultation between the management of the waste-generating organization, the Hazardous Waste Operations Unit Manager, and the Hazardous Waste Specialist. **A WAA cannot be established without prior EH&S approval.**

Sometimes only a temporary WAA is needed, such as in construction areas or in areas where waste generation is irregular or infrequent. However, a temporary WAA must still satisfy the minimum legal requirements for a hazardous-waste storage area. These minimum requirements, which are specific to the particular types of waste being generated, will be determined by the Hazardous Waste Specialist.

Once the need has been established for a WAA, whether temporary or permanent, the waste-generating organization is responsible for constructing the WAA.

5.2.1 Construction Criteria

During the planning and design stages for a WAA, the responsible organization must work with the HWHF staff and the Hazardous Waste Specialist to ensure that appropriate safety and environmental criteria are incorporated into the final design. For details of construction requirements, contact the Hazardous Waste Specialist. The physical requirements for WAAs are summarized below.

- secondary containment
- shelter from the elements
- limited access
- appropriate signs
- conditions for separation of incompatibles
- at least 50 feet from the nearest drainage system opening (sanitary sewer, storm drains)
- sufficient access to allow pickup of waste
- washable surface (concrete or asphalt)
- at least 50 feet from the facility property line if flammable or reactive waste is being accumulated.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.2.2

Safety Equipment and Documentation

The following safety equipment must be maintained at all WAAs.

- fire extinguisher
- emergency spill kit
- emergency eyewash and safety shower
- telephone (either at the WAA or nearby, with a sign indicating the direction to the nearest phone)
- protective equipment (e.g., gloves, safety glasses)
- hazard warning signs (e.g., Flammables, Hazardous Waste Area)
- posted procedures for collection (identification, segregation, dating)
- posted contingency plan for dealing with spills and other accidental releases of hazardous wastes
- posted names and telephone numbers (day and night) of responsible individuals (WAA supervisor and alternate)

5.3

Storing Waste in a WAA

Hazardous waste that has been properly segregated, identified, and packaged may be stored in a WAA at LBL for up to 60 days. Within that time period, a Hazardous Waste Disposal Requisition must be sent to the HWHF to schedule removal of the waste from the WAA by HWHF personnel.

The main elements of waste storage in a WAA include

- segregation of wastes
- separation of wastes
- containers for separation and segregation of wastes
- chemical identification and characterization
- labeling
- packaging in a WAA
- storage time limits
- transfer of waste to a WAA
- transport of waste to the HWHF
- spill prevention

These subjects are discussed below.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.4 Segregation of Wastes

Because of the need to **segregate** wastes into specific hazard categories, each WAA must establish a different container for each waste stream. Wastes in the same hazard class (for example, halogenated solvents) can be combined with each other in a single waste container.

5.4.1 Why Segregation is Important

Segregation is important for three reasons: **safety, disposability, and recyclability.**

- *Safety.* When chemicals are mixed without regard to their compatibility, safety hazards can result: for example, the resulting mixture could explode or produce toxic gases. A safe rule for mixing chemicals is: **When in doubt, don't mix.**
- *Disposal Requirements.* Certain chemicals can be disposed of relatively cheaply. But that same chemical, if contaminated with certain other chemicals, becomes very expensive or difficult to dispose. For example, some wastes can be sent to a landfill, while others require incineration. Mixing wastes together limits disposal options and increases disposal costs.
- *Recyclability.* As with disposability, certain chemicals can be recycled at great savings to LBL, but small amounts of other chemicals mixed into these chemicals render the original chemical unrecyclable. For example, waste oil is recyclable, but a few tablespoons of halogenated solvent in a 55-gallon barrel of waste oil will render that barrel of oil unrecyclable.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.4.2 *How to Segregate Wastes*

The simplest and most effective way you as a generator can reduce waste disposal costs is to set up your operation to properly segregate your waste materials as they are collected. Segregation of waste also helps minimize hazardous waste. The following guidelines will help you to segregate your waste.

- Segregate nonhalogenated waste solvents (acetone, alcohol, etc.) from halogenated (containing chlorine, fluorine, bromine, or iodine) solvents.
- Keep waste oil free of contamination by halogenated solvents or water.
- Keep acids and acid plating solutions free of cyanides.
- Separate acids and caustics contaminated with metals from those without metal contamination. Contaminated acid and caustic waste solutions must be segregated from uncontaminated acid and caustic waste solutions.

Keeping waste materials segregated requires only a reasonable amount of forethought and effort, but requires it of every individual in the operation.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.5 Separation of Wastes

Separate your hazardous wastes into the classes designated on the Hazardous Waste Disposal Requisition (Appendix B). Separation of chemicals in the WAA is important to preclude cross-contamination of incompatible chemicals in the event of spills. Incompatible wastes must not be placed in the same secondary containment bin.

Separate hazardous wastes by chemical category, following the rules listed below.

5.5.1 Flammables

- Separate all spontaneous ignition sources and explosives from everything else. Package separately in such a way as to contain and isolate any ignition that may occur. **Explosives are not handled at the HWHF.** Contact EH&S for information on disposing of explosives. Appendix B provides detailed lists of potentially explosive chemicals.
- Separate strong oxidizers from all fuels and package separately.
- Separate all extremely hazardous toxic chemical gases and compressed gases from potential fire hazards.
- Separate peroxide-forming chemicals from all other combustible materials. Package separately.

Note: If you discover a potential explosive or reactive in your WAA, contact the Fire Department at extension 7911 **immediately**.

5.5.2 Other Hazardous Wastes

- Separate acids from bases and package separately.
- Separate all water reactives from everything else. Package separately; protect from water. Place a **WATER REACTIVE** warning on packages.
- Separate extremely hazardous noncorrosive materials from corrosive materials.
- Separate extremely toxic chemicals and poisons from all other wastes.

See the Hazardous Waste Disposal Requisition (Appendix B) for further details.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.6

Containers for Separation and Segregation of Wastes

Set up your waste containers based on the following rules.

Waste Type	Approved Container	How to Obtain
Liquid wastes (large quantities)	55-gal DOT 17E drum	Contact EH&S
Solid wastes (large quantities)	55-gal DOT 17H drum	Contact EH&S
Liquid wastes, bulk, nonflammable	5-gallon plastic or glass carboy, depending on chemical to be contained (one carboy for each hazard category)	Stores items 8125-45694 (plastic), 8125-27825 (glass)
Liquid wastes, bulk, flammable	Red metal or plastic 2- or 5-gallon flam can	Stores items 7960-30361 (2-gallon), 7960-30344 (5-gallon)
Liquid wastes, bulk, halogenated solvents	Stainless steel 2- or 5-gallon can	Contact EH&S
Asbestos and asbestos-containing materials (floor tile, transite, etc.)	Double plastic bags labeled ASBESTOS	Stores item 8105 series (depending on size)
Mercury	Do not remove mercury from original device or equipment. Send item intact for disposal.	
PCB-containing wastes	Call the EH&S PCB Coordinator for details.	Call x7615
Water-reactive metals	Closed container filled with mineral oil	

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.7 Chemical Identification and Characterization

The waste-generating organization is responsible for identifying and characterizing wastes. When necessary, the HWHF Technician will assist the generator by taking samples and arranging for appropriate analyses of waste. See the latest revision of PUB-3092, *Guidelines for Generators of Hazardous Waste at LBL*, for details.

Waste can be identified in three ways:

- chemical name and structural formula, with volume and concentrations
- manufacturer and specific product
- complete generic description of the material

The generator is also responsible for requesting chemical analyses on all unknown materials to determine their hazardous components before these materials are picked up by the HWHF technician. A copy of the laboratory report must accompany the HWHF Hazardous Waste Disposal Requisition. For assistance in having unknown materials identified, contact the Hazardous Waste Specialist. Further details on chemical identification and analysis of wastes is provided in the latest revision of PUB-3092, *Guidelines for Generators of Hazardous Waste at LBL*.

5.8 Labeling 5.8.1 Hazardous Waste Label

The following rules apply to labeling in WAAs.

- Attach a Hazardous Waste label (Figure 5-1), available from LBL Crafts Stores (Building 78, x 5087) to each of your hazardous chemical waste containers. The Hazardous Waste label (Crafts Stores item No. 4280-72601) identifies the contents of the container and specifies the amount of every waste constituent placed in it.
- Complete the following sections on the Hazardous Waste label. Write legibly, using a permanent-ink marker.
 - Generator's name and building
 - Phone number
 - Contents
 - WAA receipt or accumulation start date (filled in when waste is first added to a container in a WAA, or when waste is received at the WAA from an SAA collection point)
 - Hazardous properties
 - Waste form

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

Figure 5-1

Hazardous Waste Label

HAZARDOUS WASTE

HANDLE WITH CARE!

① Generator _____ ⑤ Phone # _____

② Contents _____

③ SAA start date _____

④ WAA receipt or accumulation start date* _____

HWHF receipt date _____

Sample analysis # _____

Disposal requisition # _____

Hazardous properties
Check all that apply

☐ Toxic
☐ Corrosive
☐ Ignitable
☐ Reactive
☐ Other _____

Waste form

☐ Solid
☐ Liquid
☐ Gas

*Receipt Date from SAA or Accumulation Start Date in the WAA
 Lawrence Berkeley Laboratory #1 Cyclotron Rd., Berkeley, CA 94720

- ① **Generator:** Enter name and building of person generating the waste.
- ② **Contents:** Give chemical name, material name, or waste stream description. Describe composition of waste.
- ③ **SAA start date:** For use when waste is accumulated in an SAA. Enter "N/A" for WAAs.
- ④ **WAA receipt or accumulation start date:** Enter date waste from SAA is received at WAA, or date waste is first placed in a container at a WAA collection point.
- ⑤ **Phone Number:** Enter generator's LBL phone number.
- ⑥ **Hazardous properties:** Check appropriate boxes.
- ⑦ **Waste form:** Check appropriate box.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.8.2 Identifying Waste Materials

Identify waste materials on the Hazardous Waste label in one of three ways:

- Chemical name and concentration. If the material is a mixture, estimate concentrations of all constituents. Concentrations may be stated in molarity, percent by weight or volume (percent is assumed to be by weight unless volume is stated), weight per volume (grams or milligrams per liter, pounds per gallon), or parts per million or billion.
- Manufacturer and specific product (for example, trade name or number, catalog number, etc.), including all hazardous materials listed in the MSDS for the specific product. Chemical identification information of manufactured products may also be found in the *Aldrich Catalog of Fine Chemicals*, the *NIOSH Registry of Toxic Effects of Chemical Substances*, and *The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals*.
- Complete generic description of material only if the material is a mixture with a well-known standard composition. The description should indicate whether the material is new, has exceeded shelf life, is spent, etc. If the material is a process waste, such as a cleaning agent or an etching bath, list all of the potential contaminants from the process in addition to the known constituents—for example, "chromic acid dip-tank waste with copper." For machine coolants, identify the metals for which the coolants were used.

The generic description must be sufficiently complete to adequately characterize the waste material. For example, "photochemicals" is insufficient because a wide variety of chemicals is used in photoprocessing. The description must be more specific, such as "alkaline photo developer" or "photo fixer with chromate bleach."

Solvent-collection drums have no formulation and cannot be identified generically.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.8.3 Label Requirements on Collection Containers

- Each collection container in your WAA must have a Hazardous Waste label attached to it. Smaller containers to be packed into collection containers do not require a Hazardous Waste label, but the contents of these containers must be identified on the collection container's Hazardous Waste label.
- Each waste collection container used for multiple types of wastes (e.g., more than one type of solvent) should have a Record of Waste Accumulation form (Figure 5-2) attached. Each time you place waste in a container, enter onto this form the date, your initials, and the type and amount of waste being added. For waste organic solvents only, use the Waste Organic Solvents tag shown in Figure 5-3, available from HWHF staff, extension 7625.
- Other labels, such as CARCINOGENIC WASTE, PCB WASTE, or FLAMMABLE LIQUID, must be attached to the package as appropriate. See the Hazardous Waste Disposal Requisition (Appendix A), Chapter 5 (Chemical Safety) in PUB-3000, or Section E in PUB-5341. If you have any questions regarding appropriate labeling, contact the Hazardous Waste Specialist.
- Please note that the dating requirements on the Hazardous Waste label differ for WAAs and SAAs. The following short table summarizes the dating requirements on the Hazardous Waste label for WAAs.

Term	WAA Definition	WAA Usage
WAA receipt or accumulation start date	Date when waste is first added to container in the WAA, or the date the container is received from an SAA	Fill in current date when waste is first added to container or date container is received.
SAA start date	Does not apply to WAAs	Enter "NA" (for "not applicable").

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

Figure 5-2

Record of Waste Accumulation Form

**LAWRENCE BERKELEY LABORATORY
RECORD OF WASTE ACCUMULATION**

Container Description: _____

[illegible]

(HWHF 10/13/93 RA)

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

Figure 5-3

Waste Organic Solvents Tag

WASTE ORGANIC SOLVENTS ONLY	
Bldg. 99 Room 201	
Please list chemicals and amounts (print)	
CHEMICAL	AMOUNT
Ethyl Acetate	3.6 L
Methanol	0.9 L
Hexane	2.2 L
Acetone	6.7 + 1 L
Ethyl Ether	0.5 L
Instructions on reverse side ¹	
RL-6523 GPO 880-766	

INSTRUCTIONS
1. Do not dispose of extremely toxic organic chemicals in this container (example mercaptan compounds).
2. List persons using this container (please print):
Smith
Jones
Chu
Nesbitt
3. Refer questions on chemical waste disposal to EH&S, Waste Disposal, extension 6146.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.9 Packaging in a WAA

The generator is responsible for packaging the waste so that it may be safely transported to the HWHF and stored pending disposal. HWHF personnel will remove waste from the WAA only if it is packaged in tightly closed, properly labeled, approved containers that show no signs of damage, deterioration, rusting, or leaking.

5.10 Storage Time Limits

Hazardous waste may be accumulated in a WAA at LBL for a maximum of 60 days and stored at LBL in a WAA for no more than 90 days, unless special permits are obtained from environmental regulatory agencies. The beginning of the 90-day storage period is called the WAA receipt or accumulation start date, which is the date when waste is first placed in the container. This date is recorded on the Hazardous Waste label attached to the container. If you are transferring waste from a SAA to a WAA, the WAA receipt date is the date the waste is added to the WAA, not the date the waste was first added to the SAA collection container.

5.11 Transfer of Waste to a WAA

Transfer of hazardous waste from the point of generation to a WAA must be by a method agreed on between the generator and the Waste Management staff. In most cases, the generator may take waste to the WAA and add it to the appropriate labeled containers, which will remain at the WAA until filled or until the 60-day limit is reached. When placing waste in the container, the generator must enter on the Record of Waste Accumulation form (see Figure 5-2) the date, generator's initials, and type and amount of waste being added at that time.

5.12 Transport of Waste to the HWHF

Waste is transported from the WAA to the HWHF by HWHF staff and contract vendors. Before HWHF staff or contract vendors will pick up waste containers from a WAA, the HWHF Technician or contract vendor must inspect the waste package and sign the Hazardous Waste Disposal Requisition (see Appendix B), verifying that the package is safe to transport. HWHF staff will review the requisition and, if it is approved, schedule a pickup date. No waste will be accepted without complete labels and an accurately completed Requisition.

Continued on next page.

5. Guidelines and Rules Specific to WAAs (continued)

5.13 Spill Prevention

A properly designed WAA must have secondary containment to prevent accidental release of hazardous substances to the environment. Secondary containment can be provided as a built-in feature of the WAA storage building or by use of a specially designed fiberglass hazardous-waste containment tray, equipped to hold up to 60 gallons of liquid, placed under each pallet of hazardous waste materials. The containment tray is available for purchase through an outside vendor; HWHF staff can advise the generator on spill-prevention equipment.

A concrete berm surrounding the perimeter of the WAA may be provided for additional protection, if necessary.

Spill-prevention methods include the following, which are also regulatory requirements.

- Keep all containers closed except when adding waste.
 - Generators must assure that loose funnels are removed from the openings of liquid waste drums and that caps or lids are secured after each addition of waste. If screw-in funnels are used, the lid must be closed except when adding waste.
 - The written contingency plan and emergency kit must be readily accessible.
 - Emergency equipment (for example, safety shower and eyewash) must be accessible and in good working order.
-

6. Operating and Maintaining a WAA

6.1 General

The waste-generating organization is responsible for operating and maintaining the WAA in such a way that hazardous waste is properly handled and is not released to the environment.

The waste-generating organization must designate an Organizational Manager to operate and maintain the WAA. This designated individual, along with appropriate technicians, as noted below, will make formal inspections of the WAAs, prepare containers for pickup by the HWHF, and maintain a current contingency plan.

6.2 Inspections

Two types of inspections are required: a daily walkthrough, and a weekly survey. The daily walkthrough, performed by the Organizational Manager or his/her designee, is an LBL policy designed to promote identification of potential problems within 24 hours of occurrence. Problems identified during the daily walkthrough must be logged on the Daily Inspection Checklist and corrected immediately, if possible. It is a regulatory requirement that deficiencies be corrected in a timely manner and that records be kept documenting all repairs and other corrections made. Figure 6-1 shows the Daily Inspection Checklist. Daily Inspection Checklists must be kept for at least three years in binders labeled "WAA Daily Inspection Checklists." These binders must be readily available at all times for inspection by EH&S staff and regulatory personnel.

The weekly inspection must be performed by one of the HWHF Technicians. The inspections are to be logged on the Hazardous Waste Accumulation Area Weekly Inspection Checklist, shown in Figure 6-2. These records must be kept by EH&S for at least three years and must be available for inspection by regulatory agencies.

Continued on next page.

6. Operating and Maintaining a WAA (continued)

Figure 6-1

WAA Daily Inspection Checklist (see Appendix D for a full-sized form)

LAWRENCE BERKELEY LABORATORY WAA DAILY INSPECTION CHECKLIST

Inspector: _____

Week of: _____

Building/Location: _____

Through: _____

(If box is not initialed, document the details in the comments section below.)

1. I have received performance based training on inspections of Waste Accumulation Areas (WAAs) that qualifies me to perform this daily inspection and complete this checklist.
2. I have verified that all waste within the WAA is within the LBL allowable accumulation time limit of 60 days.
3. I have verified that the containers holding waste are in good condition (i.e. free from severe rust and apparent structural defects) and are closed unless waste is being added or removed (i.e. lids on, rings in place, caps on funnels, etc.).
4. I have verified that secondary containment is provided for all liquid wastes and that it is compatible with the stored wastes and that the secondary containment basin is free of liquid and debris.
5. I have verified that all information on waste container labels is legible, not faded, and that the labels have been completely filled in (i.e. accumulation start dates, waste type, generator name, etc.)
6. I have verified that the access to the WAA is limited and that the entrance gates or doors are locked.

M	T	W	T	F

Item #	Deficiency Description	Comments Corrective Action	Date Corrected	Corrected By

I, _____ have conducted daily inspections of the Waste Accumulation Area described above. I certify that I have received all required training (unless listed in the deficiency section) that enables me to be competent in my required duties. I will ensure that any corrective actions required will be started within three working days of being discovered.

WAA Inspector: _____

Date: _____

Continued on next page.

6. Operating and Maintaining a WAA (continued)

Figure 6-2

Hazardous Waste Accumulation Area Weekly Inspection Checklist

LAWRENCE BERKELEY LABORATORY WEEKLY WAA INSPECTION CHECKLIST

HWHF Technician: _____

Date: _____

Building/Location: _____

(If NO is checked, document the details in the comments section below.)

		Yes	No
1.	I have received performance based training on inspections of Waste Accumulation Areas (WAAs) that qualifies me to perform this weekly inspection and complete this checklist.	_____	_____
2.	I have verified that all waste within the WAA is within the LBL allowable accumulation time limit of 60 days.	_____	_____
3.	I have verified that appropriate WAA-designation and hazardous warning signs are posted.	_____	_____
4.	I have verified that the containers holding waste are in good condition (i.e. free from severe rust and apparent structural defects) and are closed unless waste is being added or removed (i.e. lids on, rings in place, caps on funnels, etc.).	_____	_____
5.	I have verified that waste is stored in containers that are compatible with the waste (i.e. will not react with or impair the ability of containers to contain the waste).	_____	_____
6.	I have verified that the waste containers have labels that state "Hazardous Waste" and any necessary additional signs regarding the particular hazardous properties of the waste (i.e. ignitable, reactive, etc.).	_____	_____
7.	I have verified that unauthorized access to the waste is prevented (i.e. locked drum lids, locked WAA doors, etc.).	_____	_____
8.	I have verified that secondary containment is provided for all liquid wastes and that it is compatible with the stored wastes and that the secondary containment is free of liquid and debris or sign of spills.	_____	_____
9.	I have verified that all information on waste container labels is legible, not faded, and that the labels have been completely filled in (i.e. accumulation start dates, waste type, generator name, etc.).	_____	_____
10.	I have verified that current copy of the contingency plan is present and has been updated in the past year.	_____	_____
11.	I have verified that adequate aisle space and access for waste pickup is maintained.	_____	_____

Item #	Deficiency Description	Comments Corrective Action	Date Corrected	Corrected By

I, _____ have conducted an inspection of a Waste Accumulation Area as described above. I certify that I have received all required training (unless listed in the deficiency section) that enables me to be competent in my required duties. I will ensure that any corrective actions required will be started within three working days of being discovered.

HWHF Technician: _____

Date: _____

I, _____ have reviewed this inspection checklist. I certify that the above listed HWHF Technician has received all required training for accomplishment of his duties. I will verify that any corrective actions required are started within three working days of being discovered.

Compliance Specialist: _____

Date: _____

Continued on next page.

6. Operating and Maintaining a WAA (continued)

6.2 Inspections (continued)

Weekly inspections of WAAs are required by both Federal and state regulations, which are designed to ensure environmental protection and safe operation. The following items must be checked:

- Use of appropriate containers and proper packaging of waste in containers. Lids on containers must be securely closed. Containers must be checked to ensure that they are compatible with the waste and that the waste has been packaged correctly.
- Separation of incompatible wastes. There should be adequate separation in the WAA between any incompatible wastes and between ignitable wastes and sources of ignition. Aisle space between pallets should be adequate to conduct routine maintenance and inspection activities and for any necessary emergency response.
- All safety equipment must be in its proper location, easily accessible, and in good operating condition.
- A Hazardous Waste label, completely filled out, must be affixed to each container.
- Drums and containers must be off the ground, on pallets, racks, or counters.
- Containers must show no signs of deterioration, rusting, dents, or leaking. All spills must be identified and acted on immediately.
- The date, building, location, and name of the person conducting the inspection must be written on the inspection sheet.

Continued on next page.

6. Operating and Maintaining a WAA (continued)

6.3 Record Keeping

The Organizational Manager must keep the following records relating to the WAA:

- WAA Daily Inspection Checklists (described above)
- copies of all Hazardous Waste Disposal Requisitions
- copies of all Record of Waste Accumulation forms
- Waste profiles, with profile numbers, for their facility.

All records must be kept for at least three years. They should be kept in the Organizational Manager's office, and they should be organized well enough that regulatory personnel would have no trouble reviewing the records for the WAA for at least three years.

6.4 Preparing Containers for Pickup

The Organizational Manager must arrange for waste to be picked up from the WAA within 60 days of the Accumulation Start Date by faxing the completed Hazardous Waste Disposal Requisition and other supporting documentation as necessary (Waste Profile Worksheet, Laboratory Waste Analysis Request Form, Record of Waste Accumulation Form) to EH&S, x 4838. When inspecting and approving containers for pickup by the HWHF, the HWHF Technician must ensure that the containers meet appropriate safety criteria. In case of error, the generator will repack the waste under the direction of the HWHF Technician.

Continued on next page.

6. Operating and Maintaining a WAA (continued)

6.5 Maintaining a Current WAA Contingency Plan

The Organizational Manager, working with the Hazardous Waste Specialist, must develop a contingency plan for dealing with spills or other accidental releases of hazardous waste in the WAA. This contingency plan must be based on the types of hazardous wastes accumulated in the WAA and must be updated as necessary to reflect any changes in the waste streams. The contingency plan, and all updates, must be approved by the Waste Management Compliance Unit Manager. Originals of WAA contingency plans are filed with the Compliance Unit Manager.

The contingency plan must include the following:

- a list of emergency equipment (spill kit inventory, eyewash and safety shower, fire extinguisher)
- a map showing the location of each item of emergency equipment
- a list of wastes specific to the WAA, listing generic and brand name, hazard class, average and maximum quantities, and spill response category associated with each type of waste,
- a description of the proper response procedure to a spill of each type and quantity of waste
- a map of evacuation routes out of the building (away from the WAA)

The following must be posted prominently within the WAA, in clear waterproof plastic protective sleeves, in a manner so that they are easily visible from outside the WAA:

- the contingency plan itself in its entirety
- a list of emergency equipment
- a map showing the location of each item of emergency equipment
- a map of evacuation routes out of the building (away from the WAA)

The contingency plan must not conflict with any elements of LBL's *Master Emergency Plan* (Pub-237 Rev.) or the Building Emergency Plan for the building or area in which the WAA is located.

7. Responding to Spills in a WAA

7.1 General

If a spill does occur, the primary aim of the response must be to protect human health and the environment. Spills are categorized as either small spills or large spills.

7.2 Small Spills

A small spill is defined as one in which

- the nature and hazards of the spilled material are known,
- the material does not have a perceived threat to human health or the environment, and
- the spill is small enough to be cleaned up quickly and safely by one or two people within one hour.

If a small spill does occur, the responsible program individual should immediately determine the source, type, and amount of spilled material and then follow the procedure outlined in the relevant contingency plan for cleaning up a spill of that type of waste. If there is any uncertainty about safely managing the spill, the responsible individual should call the following number immediately:

- ICS phones: 7911 (LBL Fire Department)
- Campus phones: 9911

EH&S personnel will investigate the incident, confirm the type and amount of material spilled, and determine if the spill is a reportable incident, as defined by environmental regulatory agencies. DOE reporting rules for all spills are detailed in LBL's *Occurrence Reporting* document, LBID-1694 Rev.

Should the spill be reportable, EH&S personnel will handle all notification and reporting requirements of the appropriate environmental agencies.

Continued on next page.

7. Responding to Spills in a WAA (continued)

7.3 Large Spills

A large spill is defined as one in which

- the nature of the material and the potential hazards are not known or are in question,
- the spill is perceived as an immediate actual or potential threat to public health or the environment, or
- the spilled material requires more than one or two people to clean up the spill safely within one hour.

In the event of a large spill or fire, the Fire Department should be called immediately at the emergency number:

- ICS phones: 7911 (LBL Fire Department)
- Campus phones: 9911

Provide the Fire Department with the following information:

- location of spill
- source of spill
- type of material
- amount of spilled material
- any exposure to personnel.

The LBL Fire Department will contact all EH&S personnel necessary to assist with response to the spill.

7.4 Reporting and Follow-Up

Following any spill, the Division Director of the affected division will be informed of the incident so that he or she can determine the need and level of the occurrence for reporting purposes.

EH&S personnel will determine whether or not the spill requires notification to the appropriate environmental agencies and will handle all such notifications and reports.

EH&S personnel will also

- verify cleanup,
 - conduct follow-up sampling, if necessary, and,
 - in consultation with the generator, recommend actions to be taken by the waste-generating organization to correct the problem and avoid similar incidents in the future.
-

Appendix A: Location of Waste Accumulation Areas (WAAs)

Building	Location	Division	Contact	Phone
3	Calvin, roof	Structural Biology	Brian Volkman	4332
10	10B, southwest side of Buiding 10	ICSD	Don Fike	5100
25	West side of building	Engineering	Al Kanzaki	5562
27	South side of building	Administration	Mac Morgan	6023
62	East side of building	MSD, CSD	Peter Ruegg	5395
76 C&M	East side of building	Administration	Mike Botello	7939
76 Paint	East side of building	Administration	Paul Stonas	6026
76 Motor Pool	South side of building, lower level	Administration	Fred Schirmer	5475
77A Plating	South side of building	Engineering	Al Harcourt	7660
77 Paint	West side at Paint Shop	Engineering	Leszek Lewicki	5907

Appendix B
Hazardous Waste Disposal Requisition

Lawrence Berkeley Laboratory Revised 10/20/93
Hazardous Waste Disposal Requisition
FAX 4838 • Questions: HWHF 5251

EH&S USE ONLY

HWHF Requisition No. _____

Date Received _____

GENERATOR INFORMATION

Operating Account No. [†]_____ Payroll Account [†]_____ Has this information been FAXED before? ☐ Yes ☐ No

Name (printed) _____ Department _____ Div. _____

Project _____

Phone _____ Date _____ Waste Location Bldg. Room Additional Description

INSTRUCTIONS: Please provide all information requested. (See reverse for detailed instructions.) List no more than one waste stream per line (use additional lines to describe container contents, if needed). *Your signature is required and certifies that to the best of your knowledge, the chemical composition provided for each item is correct. Information marked with an (†) is REQUIRED, but used for information purposes only. Complete all entries or your request will be returned for clarification.*

WASTE INFORMATION		Number of Containers	Size of Container	Unit	Total Waste Quantity	Waste Units	Chemical Compatibility Code (see reverse)	Liquid, Solid, or Gas	Supporting Document Code/Profile Number	Waste generated from DOE-funded activities	Recurring	One-time	PPE	Surplus
1	Waste Description (Use proper chemical name. Do not use abbreviations.) Earliest Accumulation Start Date _____													
2	 Earliest Accumulation Start Date _____													
3	 Earliest Accumulation Start Date _____													
4	 Earliest Accumulation Start Date _____													
5	 Earliest Accumulation Start Date _____													

*CODE: 1 Process knowledge 2 MSDS 3a Waste Profile ID Number 3b Waste Profile Worksheet 4 Laboratory Analysis Report

SUPPORTING DOCUMENTATION:

I certify that to the best of my knowledge, the chemical composition provided for each item is correct.

 Generator Signature

EH&S USE ONLY

Compliance Review Representative _____ Date _____ HWHF Representative _____ Date _____

NETWORKWORD: ENVIRON PROTECTION: HWHF DISPOSAL REQUISITION

Hazardous Waste Disposal Requisition (p. 2)

How to Fill Out This Form

Generator Information

Operating Account No.: Fill in the account number you charge to for this project.

Payroll No.: Fill in your payroll number. *Note:* These first two items are required but are provided for information only.

Has this information been FAXED before?: Check yes only if this is a second submission for the waste described in this requisition.

Name: Fill in your name.

Department: Optional. Fill in if the waste-generating project is wholly within one department.

Division: Fill in the Division responsible for the waste-generating project.

Project: Fill in the project, facility, activity, or group that has generated the waste.

Phone: Fill in your phone number.

Date: Fill in the date that you FAX this requisition to EH&S.

Waste Location: List the building and room number where the waste is located. Use the "Additional Description" for waste that is not adequately located by building and room (for example, waste stored in a yard adjoining a building).

Waste Information

Waste Description: List one waste stream per line. Use the proper chemical name of the waste only. Provide any additional information that may be helpful in describing the waste (for example, "waste in bags").

Earliest Accumulation Start Date: List the first date waste was placed in any container described on this line.

Number of Containers: List the number of containers of this type of waste.

Container Size and Unit: Using both columns, list (in either metric or English units) the container size. For example, if the waste was in a 5-gallon container you would write "5" under "Size of Container" and "gal" under "Unit."

If you have different container sizes for this waste stream, list them all. For example, if you had 5-gallon and 1-liter containers, you would write "5" and "gal" as above, and "1" and "L" under the "5" and "gal," respectively.

Total Waste Quantity and Waste Units: Add up the volume of waste described under "Container Size" and "Unit," and list it here. If you have mixed units in the "Container Size" and "Unit Size" columns, you will have to convert them to one unit. In the example above, either "gal" or "L" are acceptable.

Chemical Compatibility Code: Fill in the proper chemical compatibility code, using the table on the next page.

Liquid, Solid, or Gas: Fill in "L," "S," or "G," as appropriate.

Supporting Document Code/Profile Number: Fill in the proper number (1 through 4), based on the code list at the bottom of the requisition form. See "Supporting Documentation Requirements" below for more information.

% Generated from DOE-funded Activities: List the percent of the waste generated by DOE-funded activities. If not all the waste is generated by DOE-funded activities, estimate the percent.

Check if Applicable: Recurring: A waste that continues to be generated. Or a-time: Waste generated only once, e.g., from a decontamination or decommissioning process. PPE: Contaminated personal protective equipment, such as gloves, coveralls, etc. Surplus: An unopened container of new material, with the manufacturer's product label intact, (i.e., virgin material), or other useable material. Please attempt to reuse surplus materials by advertising on the Chemical Exchange Database before requesting disposal.

Supporting Documentation Requirements

Each waste container must have the contents described on the Hazardous Waste label, and *supporting documentation must be attached to the container in a plastic pouch OR be on file at the HWHF*. Supporting documentation can be one of the following:

(A) Process knowledge of wastes whose composition is documented by the procedures generating them; (B) records of accumulation - a log that contains an entry each time waste is added to a container; (C) an MSDS for all chemicals/ materials used in an experiment or process; (D) an MSDS for spent or unused materials; (E) a generic description when the material has a well-known standard composition (e.g., waste batteries or waste mercury-contaminated glassware); (F) analytic results from a certified laboratory, or (G) Radioactive Waste tag (for mixed waste only).

Waste Profiling. If the paperwork submitted supports the description of the waste stream adequately, and the waste stream will not change over time, HWHF staff will assign a waste stream profile number. If not, HWHF staff will contact the generator for clarification and/or to arrange for laboratory analysis of the waste stream. Once a profile number is assigned, the generator enters it under the supporting document code/profile number column on the requisition form.

Pickup and Transportation

An LBL Hazardous Waste Disposal Requisition form must be Faxed to the HWHF. Extension 4838 is dedicated to this purpose.

Keep two copies of the requisition form; attach one copy to the containers to be picked up, and put the other copy in your file or work binder as a generator record.

Hazardous Waste Disposal Requisition (p. 3)

Chemical Compatibility Guide

Separating chemicals into compatible groups can be a complicated procedure. There are several in-depth guides available. For the purposes of packaging chemicals for removal from the Laboratory, EH&S provides a simplified guide on the following page. The table below summarizes the categories you should use in the "Chemical Compatibility Code" column on the Requisition form. Additional information on proper segregation of chemicals can be found in references such as the Material Safety Data Sheets (MSDSs), Aldrich Catalog Handbook of Fine Chemicals, the NIOSH Registry of Toxic Effects of Chemical Substances, or the Merck Index. Laboratory personnel will be able to segregate most chemicals into safe, compatible groups for shipping or short-term storage. For potentially explosive chemicals, contact Industrial Hygiene at extension 5829 for assistance. Contact the HWHF for questions about separation and segregation of waste.

CHEMICAL COMPATIBILITY CODES

I. Solvents: Flammable Liquids, Combustible Liquids, Halogenated Solvents	V. Poisons: Organics, Metallics, Inorganic Cyanides
II. Flammable Solids: Organics, Metals, Solids that are dangerous when wet, Sulfides, Phosphorous Allotropes, Organometallic Compounds, Inorganics	VI. Potential Reactives (Explosives): Trinitros, Azides, Amides, Monomeric Isocyanates
III. Oxidizers: Nitrates, Chlorates, Perchlorates, Oxides, Oxidizing Acids	VII. Other Chemical Waste: Separate organics from inorganics. Separate liquids from solids.
IV. Corrosives:
Acids (Mineral, Organic, Reactive Corrosives);
Bases (Inorganics, Organics, Hydrazine Solutions)	VIII. Debris: Separate organics from inorganics and label packaging with all contaminants present.

LBL Hazardous Waste Disposal Packaging Requirements

The following requirements must be met as a condition for pickup and disposal of chemicals by the Environment, Health and Safety (EH&S) Division. If you have questions or unusual problems, please call EH&S at extension 5251 for assistance.

1. It is Laboratory policy not to flush any hazardous substances down the LBL sewer system. EH&S must review and approve the disposal of all hazardous substances to the sanitary sewer for compliance, as well as for safety issues. Washing contaminated glassware is an example. Highly toxic, malodorous, or lachrymatory chemicals should not be disposed of down the drain. Laboratory drains are generally interconnected; a substance that goes down one sink may well come up as a vapor in another. There is a very real hazard of chemicals from two sources contacting one another; the sulfide poured into one drain may contact the acid poured into another, with unpleasant consequences for all in the building. Some simple reactions can even cause explosions (e.g., ammonia plus iodine, silver nitrate plus ethanol, or picric acid plus lead salts).
2. Chemicals must be separated into compatible groups. A compatibility guide is provided above, and a more detailed version is listed on the next page for reference.
3. Leaking containers of any sort will not be accepted.
4. Dry materials (gloves, wipes, pipettes, etc.) must be securely contained in double plastic bags and overpacked in a cardboard box. Packages that are wet or have sharp protruding objects will not be accepted.
5. Unknown chemicals cannot be accepted by the Hazardous Waste Handling Facility (HWHF). The responsible department must make every effort to identify the material designated for disposal. If all the user's attempts to identify the waste chemicals have failed, EH&S will aid in the sampling of said waste and will charge the user's account for analysis. For more information call the HWHF Manager at extension 5877.
6. **Explosives are not accepted by the HWHF.** See the Chemical Compatibility Guide in this Requisition for a list of explosives.
7. Each breakable container must be properly boxed. Place all bottles in plastic bags. Then place the bags in a sturdy container and use an absorbent cushioning material that is compatible with the chemicals.
8. Each container must be labeled with a Hazardous Waste label listing content, amount, physical state, and the percentage breakdown when dealing with a mixture.
9. Containers must be of a reasonable size and weight so that one person is able to handle them safely. Containers that exceed 45 pounds or 18 inches on a side cannot be safely handled by one person and will not be accepted. Arrangements must be made with the HWHF for transportation of large items.
10. Avoid accumulating laboratory chemicals! Request frequent chemical pickup.
11. Do not accumulate any wastes for over 60 days at a Waste Accumulation Area (WAA) or over 275 days at a Satellite Accumulation Area (SAA).

Hazardous Waste Disposal Requisition (p. 4)

Chemical Compatibility Guide

Identifying and recognizing the hazards of each chemical is critical in order to handle these materials safely. To meet safety and environmental requirements, the following basic categories must be used for segregating and separating your waste.

- I. Solvents
 - A. Flammable Liquids
 - 1. Aliphatic: Acetone, Isopropanol, Methyl Ethyl Ketone, Methanol
 - 2. Aromatic: Toluene, Xylene, Benzene, Propyl Benzene
 - 3. Monohalogenated Solvents: Chlorobenzene, Ethyl Chloride, Acetyl Chloride
 - 4. Monomers: Styrene, Ethylene, Vinyl Acetylene, Vinyl Pyridine
 - 5. Reactives: Isopropyl Ether, Phenyl Manganese Chloride, Hydrazine Anhydrous, Ethyl Ether, Divinyl Ether
 - B. Combustible Liquids
 - 1. Glycols: Ethylene Glycol Dibutyl Ether, Ethylene Glycol Monomethyl Ether
 - 2. Mineral Spirits
 - C. Halogenated Solvents: Carbon Tetrachloride, 1,1,1-Trichloroethane, Ethyl Chloroacetate
- II. Flammable Solids
 - A. Organic Flammable Solids: Cellulose Acetate, Nitrocellulose (At least 20% wet)
 - B. Flammable Metals: Manganese, Magnesium, Yttrium, Zirconium
 - C. Flammable Solids (Dangerous when wet): Sodium, Lithium, Calcium, Lithium Hydride
 - D. Flammable Sulfides: Sodium Sulfide, Potassium Sulfide, Ammonium Sulfide
 - E. Phosphorous Allotropes: Phosphorus (Yellow, Red, White), Aluminum Phosphide, Phosphorus Sulfide, Phosphorus Pentasulfide
 - F. Organometallic Compounds: Lithium Butoxide, Lithium Metoxide, Sodium Ethoxy, Sodium Butylate, Potassium Methylate
 - G. Inorganic Flammable Solids: Sodium Phosphide, Aluminum Hydride, Sodium Borohydride, Boron Lithium Aluminum Alloy
- III. Oxidizers
 - A. Nitrates: Potassium Nitrate, Calcium Nitrate, Sodium Nitrate, Zinc Nitrate, Thallium Nitrate
 - B. Chlorates: Potassium Chlorate, Lithium Chlorate, Calcium Chlorate, Strontium Chlorate
 - C. Perchlorates: Lithium Perchlorate, Magnesium Perchlorate
 - D. Oxides: Manganese Dioxide, Magnesium Dioxide, Chromium Trioxide, Lead Oxide (Brown)
 - E. Oxidizing Acids: Nitric Acid (greater than 40%), Perchloric Acid, Periodic Acid
- IV. Corrosives
 - A. Acids
 - 1. Mineral Acids: Hydrochloric Acid, Sulfuric Acid, Nitric Acid (Less than 40%), Phosphoric Acid
 - 2. Organic Acids: Acetic Acid, Acetic Anhydride, Acetyl Bromide, Formic Acid, Isopentanoic Acid
 - 3. Reactive Corrosives: Phosphorus Trichloride, Phosphorus Pentachloride, Antimony Trichloride, Phosphoric Anhydride
 - B. Bases
 - 1. Inorganics: Sodium hydroxide, Potassium Hydroxide, Ammonium Hydroxide, Sodium Hypochlorite
 - 2. Organics: Amino Propyl Diethanolamine, Amino Ethyl Piperazine, Acetyl Iodide, Benzoyl Chloride, Dimethyl Sulfonyl Chloride
 - 3. Hydrazine Solutions
- V. Poisons
 - A. Organics: Phenol, Acrylamide, Benzoin, Benzidine, Aniline
 - B. Metallics: Arsenic, Lead, Beryllium, Mercury, Selenium
 - C. Inorganic Cyanides: Potassium Cyanide, Sodium Cyanide, Cyanogen Bromide
- VI. Potential Reactives (Explosive)
 - A. Trinitros: Trinitrophenol (Picric Acid), Trinitrobenzene, Trinitrotoluene (TNT), Trinitromethane
 - B. Azides: Hydrogen Azide, Ammonium Azide, Barium Azide, Chlorine Azide, Silver Azide
 - C. Amides: Trinitroaniline (Picramide), Sodamide, Potassium Amide
 - D. Monomeric Isocyanates: Hydrocyanic Acid, Isothiocyanuric Acid
- VII. Other Chemical Waste
 - A. Separate Organics from Inorganics*
 - B. Separate Liquids from Solids
- VIII. Debris
 - A. Separate Organics from Inorganics* and label packaging with all contaminants present.

*Inorganic materials contaminated with organic components should be segregated as organic.

Appendix C: Who to Call for Information on Hazardous Waste

Item	Contact	Extension
Hazardous waste storage, packaging, or labeling requirements	Generator Assistance	4826
SAA requirements	Generator Assistance	4826, 4644
WAA requirements	Generator Assistance	4826, 4843
Waste minimization	Waste Minimization Specialist	6123, 4843
Hazardous waste pickup problems	Hazardous Waste Operations Manager	5877
Training	EH&S Training Unit	6612
Empty containers	Generator Assistance	4826
Hazardous waste regulations	Compliance Specialist	6823
PCBs	PCB Coordinator	7615

Other Important Phone Numbers

Large Spills	Fire Department	7911
Chemical Exposures	Medical Services	6266
Submitting Hazardous Waste Disposal Requisitions	HWHF FAX	4838
Poison Control Hotline for help with chemical exposures	1-800-523-2222	

Appendix D

Forms

[illegible]

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**LAWRENCE BERKELEY LABORATORY
WAA DAILY INSPECTION CHECKLIST**

Inspector: _____

Week of: _____

Building/Location: _____

Through: _____

(If box is not initialed, document the details in the comments section below.)

1. I have received performance based training on inspections of Waste Accumulation Areas (WAAs) that qualifies me to perform this daily inspection and complete this checklist.
2. I have verified that all waste within the WAA is within the LBL allowable accumulation time limit of 60 days.
3. I have verified that the containers holding waste are in good condition (i.e. free from severe rust and apparent structural defects) and are closed unless waste is being added or removed (i.e. lids on, rings in place, caps on funnels, etc.).
4. I have verified that secondary containment is provided for all liquid wastes and that it is compatible with the stored wastes and that the secondary containment basin is free of liquid and debris.
5. I have verified that all information on waste container labels is legible, not faded, and that the labels have been completely filled in (i.e. accumulation start dates, waste type, generator name, etc.)
6. I have verified that the access to the WAA is limited and that the entrance gates or doors are locked.

M	T	W	T	F

Item #	Deficiency Description	Comments Corrective Action	Date Corrected	Corrected By

I, _____ have conducted daily inspections of the Waste Accumulation Area described above. I certify that I have received all required training (unless listed in the deficiency section) that enables me to be competent in my required duties. I will ensure that any corrective actions required will be started within three working days of being discovered.

WAA Inspector: _____

Date: _____

DATE

FILMED

10/11/94

END