



*California Environmental Protection Agency
Department of Toxic Substances Control*

HAZARDOUS WASTE FACILITY PERMIT

Facility Name: Lawrence Berkeley National
Laboratory
1 Cyclotron Road
Berkeley, California 94720

Owner Name: US Department of Energy
Berkeley Site Office
1301 Clay Street
Oakland, California 94612

Operator Name: University of California
Berkeley Site Office
1 Cyclotron Road,
MS 90R1140,
Berkeley, California 94720

Permit Number: 03-BRK-11

Facility EPA ID Number: CA 4890008986

Effective Date: December 22, 2006

Expiration Date: December 21, 2016

Permit Modification History:

Class 1: March 18, 2008

Class 1: August 31, 2009

Pursuant to Section 25270.42 of the California Code of Regulations, the Hazardous Waste Facility Permit issued jointly to the University of California, Ernest Orlando Lawrence Berkeley National Laboratory and the United States Department of Energy on November 17, 2006, effective December 22, 2006 (Permit) is hereby modified to incorporate the changes as listed in Appendix 1. Permit consists of 59 pages, including the cover page.

Waqar Ahmad, Ph.D., P.E.

Hazardous Substances Engineer

Hazardous Waste Permitting

Department of Toxic Substances Control

Date: _____

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Attachment A

Hazardous Waste Facility Permit

Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley, California 94720
US EPA ID No. CA 4890008986

I. DEFINITIONS

All terms used in this Permit shall have the same meaning as those terms have in the California Health and Safety Code, division 20, chapter 6.5 and California Code of Regulations, title 22, division 4.5, unless expressly provided otherwise by this Permit.

1. **“DTSC”** as used in this Permit means the California Department of Toxic Substances Control.
2. **“Permittee”** as used in this Permit means the Owner and the Operator.
3. **“CCR”** used in this Permit means the California Code of Regulations.
4. Unless explicitly stated otherwise, all references to items in this Permit shall refer only to items occurring within the same part.

II. DESCRIPTION OF THE FACILITY

A. FACILITY OWNER:

The facility owner is the United States Department of Energy (DOE) Berkeley Site Office (hereafter "owner").

B. FACILITY OPERATOR:

The facility operator is University of California Berkeley Site Office (hereafter "operator").

C. LOCATION:

The facility is located at 1 Cyclotron Road in the City of Berkeley, California on 130 acres of land (latitude 37 (52' 040", longitude 122 (14' 035"). Most of Lawrence Berkeley National Laboratory (LBNL) is located within the hillside area, east of the main campus of the University of California (Figure 1). The Hazardous Waste Handling Facility (HWHF) is located in Plot O, Book 048H, map 7800. The facility parcel numbers are 039-01, 029-01, 017-01, 002-01, and 004.

D. OPERATIONS:

The HWHF is situated in the eastern portion of LBNL (Figure 2). The HWHF comprises of Building 85 and its associated yard area with prefabricated units, where hazardous and mixed waste treatment and storage take place.

Building 85 was completed on April 17, 1997. The maximum aggregate storage capacity of both hazardous and mixed wastes at the facility is 23,320 gallons. Maximum storage capacity for each unit can be found in Table 2 of this permit (The maximum aggregate treatment capacity of the facility is 1158 gallons per day). Maximum treatment capacities for each unit can be found in Table 3 of this permit.

At LBNL, hazardous and mixed wastes are characterized at the point of generation by the generators. Generators are responsible for properly labeling wastes, segregating incompatible wastes, storing wastes in compatible containers, and placing the containerized wastes in generator satellite accumulation areas or waste accumulation areas. The wastes are then transferred to the HWHF. At the HWHF, the following operations are conducted:

- Storage of hazardous and mixed waste in containers
- Consolidation of compatible wastes into U.S. Department of Transportation (DOT)-approved containers.

- Lab-packing
- Treatment of waste as listed in Table 3

LBNL hazardous and mixed wastes are shipped off-site for treatment, disposal, or recycling.

Processes That Produce Waste:

Laboratory chemicals and reagents used for research experiments represent 50 percent of the total waste generated at LBNL. Most of these wastes are managed by lab-packing. The remaining waste streams are generated at fabrication and maintenance shops and are managed in bulk containers (55-gallon drums, for example) or in lab-packs.

HWHF Waste Handling Operations:

Receipt and Segregation of Waste: Wastes received at the HWHF may be placed in a staging area before transfer to permitted storage units, other storage areas, or to treatment units at the HWHF. Waste containers designated for quality assurance (QA) sampling are sampled in the appropriate fume hoods before the containers are transferred to their designated storage or treatment areas.

Storage: Containerized wastes are stored at the HWHF in permitted storage rooms or outdoor areas until they are transported offsite to an authorized Treatment, Storage, and Disposal (TSD) facility. Wastes are packaged in containers that meet containment and waste compatibility requirements.

Lab-packing: Small waste containers (5 gallons or less, sealed glass containers, or plastic containers) received from satellite accumulation areas (SAAs) are segregated and stored until sufficient quantity is accumulated for lab-packing or treatment. Containers are segregated and stored in hazardous waste storage cabinets or within a storage unit. The containers are lab-packed in polyethylene drums or steel drums. Absorbent material is added to minimize voids between small containers.

Types of Waste Stored: Hazardous and mixed wastes are liquids or solids, characteristic and listed Resource Conservation and Recovery Act (RCRA) hazardous wastes, or California-only hazardous wastes. Examples include corrosive liquids, solvents, oils, coolants, contaminated soil, motor vehicle batteries, metal sludges, polychlorinated biphenyls (PCBs) and PCB-contaminated equipment, mercury wastes, oily rags, latex and oil-based paint materials, and spent activated carbon.

E. FACILITY SIZE AND TYPE FOR FEE PURPOSES:

This is a small treatment facility.

F. PERMITTING HISTORY:

A RCRA Part B application was prepared in 1983 and a permit was issued for such operations at the former HWHF (Building 75). Upon expiration of the permit in 1988, LBNL continued to operate pursuant to Section II-1 of its Permit (and Title 22 California Code of Regulations). In 1991, LBNL submitted a permit renewal application. DTSC issued a permit in May 4, 1993. This permit authorized the construction of a replacement hazardous waste handling facility. In April 1997 the former HWHF ceased operations and was closed in accordance with approved closure plan. Building 85 HWHF began operations in April 1997.

G. MODIFICATIONS HISTORY:

See Appendix 1 for the details of permit modifications.

GENERAL CONDITIONS

A. PERMIT APPLICATION DOCUMENTS:

A.1. The Part "A" Application and the Part "B" Application (Operation Plan), both dated November 2002, are hereby approved and made part of this Permit by reference. The Part "A" Application and the Operation Plan consist of the following documents:

- "Hazardous Waste Treatment and Storage Permit Application for the Lawrence Berkeley National Laboratory Hazardous Waste Handling Facility, Volume 1, Part A, November 2002. (Part "A")"
- "Hazardous Waste Treatment and Storage Permit Application for the Lawrence Berkeley National Laboratory Hazardous Waste Handling Facility, Volume 3A, Part B, Replacement Hazardous Waste Handling Facility (Building 85 and Yard Area), November 2002. (Operation Plan)"
- "Hazardous Waste Treatment and Storage Permit Application for the Lawrence Berkeley National Laboratory Hazardous Waste Handling Facility, Volume 3B, Part B, November 2002. (Operation Plan)"

A.2. The approved Permit Application and this Permit shall be maintained at the facility and place of business at all times until closure is completed.

B. EFFECT OF THE PERMIT:

B.1. The Permittee shall comply with the provisions of the California Health and Safety Code, and division 4.5 of title 22 of the California Code of Regulations. The issuance of this Permit by DTSC does not release the Permittee from any liability or duty imposed by federal or state statutes and regulations or local ordinances, except the obligation to obtain this Permit. The Permittee shall obtain the permits required by other governmental agencies, including but not limited to, those permits required by the applicable land use planning, zoning, hazardous waste, air quality, water quality, and solid waste management laws for the construction and/or operation of the Facility.

B.2. The Permittee is permitted to treat and store hazardous wastes in accordance with the conditions of this Permit. Any treatment or storage of hazardous waste not specifically authorized in this Permit is strictly prohibited.

B.3. Compliance with the terms of this Permit does not constitute a defense to any action brought under any law governing protection of public health or the environment, including but not limited to, one brought for any imminent and substantial endangerment to human health or the environment.

- B.4.** DTSC's issuance of this Permit does not prevent DTSC from adopting or amending regulations that impose additional or more stringent requirements than those in existence at the time this Permit was issued, and does not prevent the enforcement of these requirements against the Permittee.
- B.5.** Failure to comply with any terms or conditions set forth in the Permit in the time or manner specified herein will subject the Permittee to possible enforcement action, including but not limited to penalties pursuant to California Health and Safety Code section 25187.
- B.6.** In addition, failure to submit any information required in connection with the Permit, or falsification and/or misrepresentation of any submitted information, is ground for revocation of this Permit (22 Cal. Code Regs., title, section 66270.43).
- B.7.** In case of conflicts between the Operation Plan and the Permit, the Permit conditions takes precedence.
- B.8.** The Permit includes and incorporates by reference any conditions of waste discharge requirements issued by the State Water Resources Control Board or any of the California Regional Water Quality Control Boards and any other conditions imposed pursuant to section 13227 of the Water Code.

C. COMPLIANCE WITH CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA):

- C.1.** Pursuant to the provisions of CEQA (Public Resources Code, division 13, commencing with section 21000), DTSC is a Responsible Agency for operation of the HWHF. The University of California (University) is the Lead Agency. As the Lead Agency, the University has analyzed the effects of HWHF operations in several environmental documents it prepared and certified pursuant to CEQA. These documents include, but are not limited to, the following:
 - Addendum to the Construction of Replacement of Hazardous Waste Handling Facility Final, Environmental Impact Report – Lawrence Berkeley National Laboratory, University of California, Lawrence Berkeley National Laboratory, March 2003
 - Updated Risk Analysis for Berkeley Laboratory Hazardous Waste Handling Facility, Parsons, October 2002
 - Subsequent Mitigated Negative Declaration, Modification of Permitted Hazardous Waste Handling Operations at the Ernest Orlando Berkeley National Laboratory, University of California, Lawrence Berkeley National Laboratory, May 1997.
 - Final Safety Analysis Document for the Hazardous Waste Handling Operations at the Lawrence Berkeley National Laboratory, M.H. Chew & Associates, Inc., April 1997
 - Final Environmental Impact Report – Construction of Replacement of Hazardous Waste Handling Facility – Lawrence Berkeley Laboratory, EIP Associates, may 1990

- Lawrence Berkeley Laboratory – Site Development Plan – Final Environmental Impact Report, University of California, Lawrence Berkeley National Laboratory, August 1987

C.2. DTSC has considered the above documents and concluded that they adequately assess the potential impacts of continued operation of the HWHF under this Permit. Consequently, additional CEQA documentation is not required for continued operation.

C.3. A Statement of Findings will be prepared and a Notice of Determination will be filed with the Governor's Office of Planning and Research/State Clearinghouse upon DTSC approval of this project.

D. WASTE MINIMIZATION CERTIFICATION:

Pursuant to California Health and Safety Code, section 25202.9, the Permittee shall certify annually, by March 1 for the previous year ending December 31, that:

D.1. The facility has a program in place to reduce the volume and toxicity of all hazardous and mixed wastes listed in Table 1 of this permit to the degree, determined by the Permittee, to be economically practicable.

D.2. The method of storage or treatment is the only practical method or combination of methods currently available to the facility, which minimizes the present and future threat to human health and the environment.

The Permittee shall make this certification, in accordance with 22 CCR 66270.11. The Permittee shall submit three copies of the certification to the Chief, Standardized Permitting and Corrective Action Branch, 700 Heinz Avenue, Berkeley, CA 94710 and shall record and maintain such certification in the facility Operating Record.

E. WASTE MINIMIZATION CONDITIONS:

The Permittee shall comply with the Hazardous Waste Source Reduction and Management Review Act (SB 14) requirements that are specified in the California Health and Safety Code sections 25244.19, 25244.20 and 25244.21, and any subsequent applicable statutes or regulations promulgated there under. This would include submittal of SB 14 documents to DTSC upon request. DTSC may require the facility to submit a more detailed status report explaining any deviation from, or changes to, the approved waste minimization plan.

IV. PERMITTED UNITS AND ACTIVITIES

This permit authorizes operation only of the hazardous and mixed waste storage and treatment units and activities listed in this section. The Permittee shall not treat or store hazardous waste in any units other than those specified in this Section. Any modifications to a unit or activity authorized by this Permit require the written approval of DTSC in accordance with the permit modification procedures set forth in 22 Cal. Code Regs., title 22, section 66270.40-66270.42.

Hazardous or mixed waste storage and/or treatment units are located within Building 85. The first floor contains mixed and radioactive only waste handling and storage units (rooms) including decontamination, staging, and Mixed Waste Storage and/or Treatment Units MW1 through MW7. This permit does not pertain to or authorize radioactive only waste storage or treatment. The U.S. Department of Energy has authority for these wastes. The second floor contains hazardous waste handling and storage units, including Hazardous Waste Storage and/or Treatment Units HW1 through 7. In addition, there is office space. Containment for accidental release of hazardous materials is provided in all handling and storage areas. The building is designed to prevent spilled or leaked liquids from passing through the floors. Floors are constructed of reinforced concrete covered with a chemical-resistant, epoxy resin-based coating, trowel-applied and able to withstand high-impact loads such as forklift traffic. Each storage unit and other areas where hazardous materials are handled have grate-covered trenches (draining to containment sumps) at all door openings and perimeter concrete curbs at the base of all interior and exterior walls. Curbs are coated with the epoxy material described above.

Hazardous Wastes Storage Units HW10, HW11, HW12, and HW13; Hazardous Waste Storage and Treatment Unit HW9; and Mixed Waste Storage Unit MW8: These storage units are located in Building 85 outdoor yard area. These units are commercially available, Factory Mutual System-approved, hazardous material storage units manufactured by Safety Storage, Incorporated. These units are constructed to meet the Zone 4 Earthquake loading criteria. These units contain built-in 7-inch deep secondary containment sumps. The sump walls are 2-hour fire rated. These units are fully enclosed and are not subject to precipitation. These units have a water sprinkler fire protection system.

A. IDENTIFICATION OF PERMITTED WASTE STREAMS:

- A.1.** Table 1 of this permit lists the waste streams generated onsite at LBNL that are allowed to be managed in permitted units. The Permittee shall not receive any offsite waste for treatment, storage, or disposal, unless otherwise approved by DTSC.
- A.2.** The Permittee shall only treat the hazardous wastes listed in Table 1 of this permit.
- A.3.** The Permittee is prohibited from storing any waste that is not identified in Table 1 of this Permit.

B. IDENTIFICATION OF PERMITTED TREATMENT AND STORAGE UNITS:

B.1. HAZARDOUS WASTE UNIT HW1:

This unit is a room located within Building 85 on the second floor.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: The room is used to store wastes having the following classification, as defined in Uniform Fire Code (UFC): corrosive (acids), other health hazards (non-PCBs). "Other health hazards" are materials such as carcinogens, target organ toxins, irritants, and sensitizers as defined by the National Fire Protection Association (NFPA) in the UFC. Highly toxic corrosive acidic wastes are stored in a hazardous materials cabinet within the room. The room is ventilated. These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–12, 14–18, 20–23, 28–31, 34, 37, 43, 44, 54, and 56–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 880 gallons

Available Secondary Containment Capacity: 150 gallons

Dimensions: (L × W × H): 15 ft. × 13 ft. × 8 ft.

B.2. HAZARDOUS WASTE UNIT HW2:

This unit is a room located within Building 85 on the second floor. The room is ventilated.

Activity Type: Storage in containers (Please see Table 5 for details)

Activity Description: The room is used to store wastes having the classification: toxic and highly toxic, other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–12, 14, 15, 18, 20–23, 28–31, 41, 43, 44, 47–50, and 53–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 880 gallons

Available Secondary Containment Capacity: 150 gallons

Dimensions: (L × W × H) 15 ft. × 13 ft. × 8 ft.

B.3. HAZARDOUS WASTE UNIT HW3:

This unit is a room located within Building 85 on the second floor. The room is ventilated. Fire extinguishers (foam) are provided.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: The room is used to store wastes having the following classification: other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–15, 18, 20–23, 28–31, 43, 44, and 53–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 1,320 gallons

Available Secondary Containment Capacity: 150 gallons

Dimensions: (L × W × H): 20 ft. × 13 ft. × 8 ft.

B.4. HAZARDOUS WASTE UNIT HW4:

This unit is a room located within Building 85 on the second floor. A smoke detector is installed in this room as required by the Uniform Fire Code.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: The room is used to store wastes having the following classification: highly toxic Class 1-3 oxidizers, organic peroxides, non-toxic Class 1-3 oxidizers, other health hazards (non-PCBs). Two hazardous materials cabinets are used, one for organic peroxides and one for Class 3 oxidizers. These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–12, 14–16, 18, 20–23, 28–31, 34, 36, 43–46, 52, 54, 56, and 57 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 440 gallons

Available Secondary Containment Capacity: 150 gallons

Dimensions: (L × W × H): 12 ft. × 10 ft. × 8 ft.

B.5. HAZARDOUS WASTE UNIT HW5:

This unit is a room located within Building 85 on the second floor. The room is ventilated.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: The room is used to store wastes having classification: Corrosive (bases), other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–12, 14, 15, 18–23, 28–31, 38, 39, 43, 44, 50, 53, and 55–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 880 gallons

Available Secondary Containment Capacity: 150 gallons

Dimensions: (L × W × H): 12 ft. × 12 ft. × 8 ft.

B.6. HAZARDOUS WASTE UNIT HW6:

This unit is a room located within Building 85 on the second floor. The room is ventilated.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: The room is used to store wastes having classification: pyrophorics, other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–12, 14, 15, 18, 20–23, 28–31, 43, 44, 51, and 53–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 110 gallons

Available Secondary Containment Capacity: 150 gallons

Dimensions: (L × W × H): 15 ft. × 8 ft. × 8 ft.

B.7. HAZARDOUS WASTE UNIT HW7:

This unit is located on the second floor within Building 85. This unit is approximately 1,000 square feet in area. The internal walls are 2-hour fire-rated. The floor is constructed of reinforced concrete covered with an impermeable membrane. The material used for the membrane is a chemical-resistant, epoxy resin-based coated product trowel-applied at a quarter-inch minimum thickness. The room is ventilated and contains three fume hoods.

Activity Type: Storage and Treatment in containers (Please see Table 5 for the details)

Activity Description: The room is used to store wastes having classification: flammable/combustible (ignitable) liquids, flammable solids, organic peroxides, other health hazards (non-PCBs), oxidizers, corrosive (acids), corrosive (bases), and highly toxic. This unit is also used to neutralize, filter, precipitate, separate phases, oxidize by UV/ozone and UV/peroxide, reduce class 1–3 oxidizers, air- or steam-strip VOCs from dilute aqueous solutions, absorb, adsorb, ion-exchange, do metallic replacement, plate metal onto an electrode, evaporate, distill organics from dilute aqueous solutions, rinse empty containers, mix multicomponent resins, desensitize, solidify, and consolidate small quantities of flammable/combustible (ignitable) liquids, flammable solids, organic peroxides, other health hazards (non-PCBs), oxidizers, corrosive acids, corrosive bases, and highly toxic hazardous wastes generated by LBNL before lab-packing. These treated hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 7, 9–12, 14–16, 18, 20–23, 28–50, and 52–58 (See Table 1 for the details).

Permitted Waste Stream Numbers for Treatment: 9, 17, 19, 22, 23, 30, 34–36, 38–40, 42–45, 47–50, and 53–58

Treatment Processes: Process Codes 1 through 20 (See Tables 3 and 4 for the details).

Maximum Permitted Treatment Capacity: 96 gallons per day

Maximum Permitted Storage Capacity: 540 gallons

Available Secondary Containment Capacity: 150 gallons

Dimensions: (L × W × H): 40 ft. × 24.5 ft. × 8 ft.

B.8. HAZARDOUS WASTE UNIT HW9:

This unit is located in the front yard area of Building 85. This unit is approximately 58 square feet in area. The internal walls are 2-hour fire-rated. This is a single-wide sheet steel storage unit that is grounded and bolted to the concrete pad located directly beneath the unit. Floor grating is made of corrosion-resistant fiberglass. A 7 inch-deep secondary containment sump is provided. This unit is equipped with wet sprinklers, forced ventilation, and explosion vent panel. Portable fire extinguisher is located outside unit door. Both security latch and lock are provided.

Activity Type: Storage and treatment in containers (Please see Table 5 for the details)

Activity Description: This unit is used to store wastes having classification: flammable/combustible (ignitable) liquid, flammable solids, other health hazards (non-PCBs). This unit is also used to consolidate flammable/combustible (ignitable) liquid hazardous wastes generated by LBNL. These treated hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–12, 14, 15, 18, 20–23, 28–31, 35, 40, 42–44, and 53–58 (See Table 1 for the details).

Permitted Waste Stream Numbers for Treatment: 34–36, 38–40, 43–45, 47, 48, and 53–58

Treatment Processes: Process Code 16 and 20 (See Tables 3 and 4 for the details).

Maximum Permitted Treatment Capacity: 440 gallons per day

Maximum Permitted Storage Capacity: 660 gallons

Available Secondary Containment Capacity: 250 gallons

Dimensions: (L × W × H): 7.25 ft. × 8 ft. × 7.33 ft.

B.9. HAZARDOUS WASTE UNIT HW10:

This unit is located in the front yard area of Building 85. This is a single-wide sheet steel storage unit that is grounded and bolted to the concrete pad located directly beneath the unit. Floor grating is made of corrosion-resistant fiberglass. A 7 inch-deep secondary containment sump is provided. This unit is equipped with wet sprinklers and forced ventilation. Both security latch and lock are provided.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: Used for the storage of wastes having classification: other health hazards (PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 24–27 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 660 gallons

Available Secondary Containment Capacity: 250 gallons

Dimensions: (L × W × H): 7.25 ft. × 8 ft. × 7.33 ft.

B.10. HAZARDOUS WASTE UNIT HW11:

This unit is located in the front yard area of Building 85. This is a single-wide sheet steel storage unit that is grounded and bolted to the concrete pad located directly beneath the unit. Floor grating is made of corrosion-resistant fiberglass. A 7 inch-deep secondary containment sump is provided. This unit is equipped with wet sprinklers and forced ventilation. Both security latch and lock are provided.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: Used for the storage of wastes having classification: other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–15, 18, 20–23, 28–31, 43, 44, and 53–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 660 gallons

Available Secondary Containment Capacity: 250 gallons

Dimensions: (L × W × H): 7.25 ft. × 8 ft. × 7.33 ft.

B.11. HAZARDOUS WASTE UNIT HW12:

This unit is located in the front yard area of Building 85. This is a single-wide sheet steel storage unit that is grounded and bolted to the concrete pad located directly beneath the unit. Floor grating is made of corrosion-resistant fiberglass. A 7 inch-deep secondary containment sump is provided. This unit is equipped with wet sprinklers and forced ventilation. Both security latch and lock are provided.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: Used for the storage of wastes having classification: other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 5, 7, 10–15, 18, 20–23, 28–31, 43, 44, and 53–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 660 gallons

Available Secondary Containment Capacity: 250 gallons

Dimensions: (L × W × H): 7.25 ft. × 8 ft. × 7.33 ft.

B.12. HAZARDOUS WASTE HW13:

This unit is located in the front yard area of Building 85. This is a single-wide sheet steel storage unit that is grounded and bolted to the concrete pad located directly beneath the unit. Floor grating is made of corrosion-resistant fiberglass. A 7-inch-deep secondary containment sump is provided. This unit is equipped with wet sprinklers and forced ventilation. Both security latch and lock are provided.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: Used for the storage of wastes having classification: highly toxic flammable/combustible (ignitable) liquids, other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1, 3–5, 7, 8, 10–12, 14, 15, 18, 20–23, 28–31, 43, 44, and 53–58 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 660 gallons

Available Secondary Containment Capacity: 250 gallons

Dimensions: (L × W × H) 7.25 ft. × 8 ft. × 7.33 ft.

B.13. HAZARDOUS WASTE UNIT HW14:

This unit is a storage shelter constructed of sheet metal walls and is located outside Building 85. The unit is designed to store hazardous waste in drums. Drums are stored at grade on coated steel floor grating or on coated drum storage racks. The racks are equipped with foam sprinkling system. An 8-inch deep subsurface secondary containment system is located beneath the steel floor grating. Containers are stored in five separate, anchored drum racks made of coated steel.

Activity Type: Storage of hazardous waste in one hundred twenty 55-gallon drums (Please see Table 5 for the details)

Activity Description: This unit is used to store wastes having classification: flammable/combustible (ignitable) liquids (excluding highly toxic flammable/combustible (ignitable) liquids), other health hazards (non-PCBs). These hazardous wastes are shipped offsite to an authorized facility that can treat or dispose of hazardous wastes.

Permitted Waste Stream Numbers for Storage: 1–15, 18, 20–23, 28–33, 35, 40, 41, 43, 44, 47, 49, and 53–58 (See Table 1 for the details).

Maximum Storage Capacity: 6,600 gallons

Available Secondary Containment Capacity: 3194 gallons

Dimensions: (L × W × H): 79 ft. × 7 ft. × 15 ft.

B.14. MIXED WASTE UNIT MW1:

This unit is a room located within Building 85 on the first floor. The room is ventilated.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: This unit is used to store mixed wastes having classification: corrosive (bases) and other health hazards (non-PCBs). These mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Waste Stream Numbers for Storage: 60–63, 66, 69, and 71–73 (See Table 1 for the details)

Maximum Permitted Storage Capacity: 880 gallons

Available Secondary Containment Capacity: 240 gallons

Dimensions: (L × W × H): 15 ft. × 15 ft. × 8 ft.

B.15. MIXED WASTE UNIT MW2:

This unit is a room located within Building 85 on the first floor. The room is ventilated. Fire protection (dry chemical) is provided.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: This unit is used to store mixed wastes having classification: highly toxic, toxic, and other health hazards (non-PCBs). These mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Waste Stream Numbers for Storage: 60–63, and 69–72 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 110 gallons

Available Secondary Containment Capacity: 85 gallons

Dimensions: (L × W × H): 6 ft. × 6 ft. × 8 ft.

B.16. MIXED WASTE UNIT MW3:

This unit is a room located within Building 85 on the first floor. The room is ventilated.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: This unit is used to store mixed wastes having classification: corrosive (acids) and other health hazards (non-PCBs). These mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Waste Stream Numbers for Storage: 60–64, 69, and 71–73 (See Table 1 for the details)

Maximum Permitted Storage Capacity: 1,100 gallons

Available Secondary Containment Capacity: 240 gallons

Dimensions: (L × W × H): 20 ft. × 11 ft. × 8 ft.

B.17. MIXED WASTE UNIT MW4:

This unit is a room located within Building 85 on the first floor. The room is ventilated. Fire protection (foam) is provided.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: This unit is used to store mixed wastes having classification: flammable/combustible (ignitable) liquids and other health hazards (non-PCBs). These mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Waste Stream Numbers for Storage: 59–63, 65, 68, 69, 71, and 72 (See Table 1 for the details)

Maximum Permitted Storage Capacity: 2,200 gallons

Available Secondary Containment Capacity: 240 gallons

Dimensions: (L × W × H): 20 ft. × 11 ft. × 8 ft.

B.18. MIXED WASTE UNIT MW5:

This unit is a room located within Building 85 on the first floor. The room is ventilated.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: This unit is used to store mixed wastes having classification: other health hazards (non-PCBs). These mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Waste Stream Numbers for Storage: 60–63, 69, 71, and 72 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 2,200 gallons

Available Secondary Containment Capacity: 240 gallons

Dimensions: (L × W × H): 20 ft. × 11 ft. × 8 ft.

B.19. MIXED WASTE UNIT MW6:

This unit is located on the first floor within Building 85. This unit is approximately 1,000 square feet in area. The internal walls are 2-hour fire-rated. The floor is constructed of reinforced concrete covered with an impermeable membrane. The material used for the membrane is a chemical-resistant, epoxy resin-based coated product trowel-applied at a quarter-inch minimum thickness. The room is ventilated and contains two fume hoods.

Treatment is performed in two laboratory-style fume hoods or in glove boxes. The room is ventilated. Fire protection (foam) is provided.

Activity Type: Storage in containers (Please see Table 5 for the details) and treatment using neutralization, desensitization, consolidation, solidification and treatment processes 1 through 15.

Activity Description: This unit is used to store mixed wastes having classification: flammable/combustible (ignitable) liquids, flammable solids, highly toxic, corrosive (acids), corrosive (bases), other health hazards (non-PCBs), oxidizers, air-reactive and water-reactive.

This unit is also used to desensitize or consolidate small quantity mixed wastes for lab-packing, filter, solidify, precipitate, separate phases, oxidize by UV/ozone and UV/peroxide, reduce class 1–3 oxidizers, air- or steam-strip VOCs from dilute aqueous solutions, absorb, adsorb, ion-exchange, do metallic replacement, plate metal onto an electrode, evaporate, distill organics from dilute aqueous solutions, rinse empty containers, mix multi-component resins, and to neutralize corrosive acidic and corrosive basic mixed wastes generated by LBNL. These treated mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Mixed Waste Stream Numbers for Storage: 59-74 (See Table 1 for the details).

Permitted Mixed Waste Stream Numbers for Treatment: 59, 62–69, 71–74
Treatment Processes: Process Codes 1 through 20 (See Tables 3 and 4 for details)

Maximum Permitted Treatment Capacity: 72 gallons per day

Maximum Permitted Storage Capacity: 1,100 gallons

Available Secondary Containment Capacity: 240 gallons

Dimensions: (L × W × H): 40 ft. × 25 ft. × 8 ft.

B.20. MIXED WASTE UNIT MW7:

This unit is a room located on the first floor within Building 85. The walls are 1- or 2- hour fire-rated, while external walls are non-bearing and therefore non-rated. The floor is constructed of reinforced concrete with an impermeable membrane. The material used for the membrane is a chemical-resistant, epoxy resin-based coating product, trowel-applied at a quarter-inch minimum thickness. Room is ventilated and contains two drum solidification fume hoods and one slotted drum hood for consolidation.

Treatment is performed in 30 and 55-gallon drums in a specially designed fume hood configuration.

Activity Type: Treatment using consolidation and solidification

Activity Description: This unit is used to solidify/consolidate mixed wastes having classification: corrosive (acids), corrosive (bases), and other health hazards (non-PCBs). These mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Waste Stream Numbers for Treatment: 59, 62-69, 71, and 72 (See Table 1 for the details).

Treatment Processes: Process Codes 16, 19 and 20 (See Tables 3 and 4 for the details).

Maximum Permitted Treatment Capacity: 550 gallons per day

Dimensions: (L × W × H): 10 ft. × 5 ft. × 8 ft.

B.21. MIXED WASTE UNIT MW8:

This unit is located in the back yard area of Building 85. This is a single-wide sheet steel storage unit that is grounded and bolted to the concrete pad located directly beneath the unit. Floor grating is made of corrosion-resistant fiberglass. A 7 inch-deep secondary containment sump is provided. An explosion vent panel is provided with this unit. The unit is equipped with security latch, lock, fire protection (wet sprinkler) and forced ventilation.

Activity Type: Storage in containers (Please see Table 5 for the details)

Activity Description: This unit is used for the storage of mixed wastes having classification: flammable solids and other health hazards (non-PCBs). These mixed wastes are shipped offsite to an authorized facility that can treat or dispose of mixed wastes.

Permitted Waste Stream Numbers for Storage: 60–63, 69, 71, 72, and 74 (See Table 1 for the details).

Maximum Permitted Storage Capacity: 660 gallons

Available Secondary Containment Capacity: 250 gallons

Dimensions: (L × W × H): 7.25 ft. × 8 ft. × 7.33 ft.

C. Air Emission Standards for Process Vents, Equipment Leaks, and Containers.

- C.1** Process Vents: The Permittee is authorized to perform treatment in units HW7, HW9, MW6 and MW7 on one or more waste streams with organic concentrations of at least 10 parts per million by weight using processes identified in California Code of Regulations, title 22, section 66264.1030, subsection (b). Should the Permittee process any such waste streams using any such processes, the applicable requirements of California Code of Regulations, title 22, article 27 (commencing with section 66264.1030) shall apply. For more information, see the approved Operation Plan, Volume 3B, Section XIV.
- C.2** Equipment Leaks: Some equipment in units HW7 and HW9 is used to manage hazardous waste with organic concentrations equal to or greater than 10 percent by weight. Pursuant to California Code of Regulations, title 22, section 66264.1050, subsection (f), this equipment shall be excluded from California Code of Regulations, title 22, sections 66264.1052 through 66264.1060 requirements provided that it contains or contacts such waste less than 30 hours per calendar year and is identified as required by California Code of Regulations, title 22, section 66264.1064, subsection (g)(6). For more information, see the approved Operation Plan, Volume 3B, Section XIV.B.
- C.3** Containers: The majority of containers used to manage hazardous waste at the HWHF are exempt from California Code of Regulations, title 22, article 28.5 (commencing with section 66264.1080) requirements applicable to containers. For more information, see the approved Operation Plan, Volume 3B, Section XIV.C.

V. SPECIAL CONDITIONS

A. STORAGE IN CONTAINERS:

- A.1.** The volume of each type of waste stored in each unit may vary; however, the maximum volume stored in each unit shall not exceed the capacity specified in Table 2 of this permit.
- A.2.** Used storage capacity shall be calculated based on the maximum capacity of each container stored in the unit.
- A.3.** Containers shall not be stacked more than nine (9) feet high.

B. DURATION OF STORAGE:

- B.1** The Permittee may store mixed wastes covered by the Site Treatment Plan (STP) for periods in excess of one calendar year, provided that the STP compliance schedules support the need for such extended storage and the STP reporting requirements are met.

C. LABELLING REQUIREMENTS:

- C.1.** Upon receipt at the hazardous waste handling facility, the Permittee shall mark the date of acceptance on each container and maintain original generator labels on all containers of hazardous and mixed waste until such time as the waste is treated onsite or shipped from LBNL's hazardous waste handling facility to an off-site treatment or disposal facility. Generator labeling shall be maintained in accordance with 22 Cal. Code Regs., title 22, section 66262.34.
- C.2.** The Permittee shall mark each lab-packed container (hereinafter known as "lab-pack") with the earliest date of acceptance of any container to be placed into the lab-pack. This date shall be known as the accumulation date of the lab-pack.
- C.3.** Each lab-pack shall be labeled or marked clearly with the words, "Hazardous Waste." Additionally, each lab-pack shall be labeled with the content, quantities, and physical state of the wastes inside the lab-pack, and a statement or statements which call attention to the particular hazardous properties of the wastes (e.g., flammable, reactive, etc.). If there is insufficient space on the hazardous waste label for a full description of the content, quantities, and physical state of the lab-pack, a reference to these items on a packing slip is acceptable. The packing slip shall be attached to the lab-pack until it is shipped from LBNL's hazardous waste handling facility to an off-site treatment or disposal facility.

D. PROHIBITED WASTES:

- D.1.** The Permittee shall not accept any hazardous or mixed wastes generated outside the boundaries of LBNL (as indicated in Figure 1 of this permit) with the exception of Donner and Melvin Calvin Laboratories which are located on adjacent University of California property and within LBNL's operational control.

VI. CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS (SWMUs)

A. CORRECTIVE ACTION SUMMARY FOR EXISTING SWMUs:

- A.1. RFA Findings/Results:** In November 1991, DTSC completed a RCRA Facility Assessment (RFA) of the LBNL site. In September 1992, LBNL also prepared an independent RFA to supplement the findings of DTSC. A total of 174 units were identified during the RFA and subsequent investigations. Eight of these 174 units were identified as radiological units. The characterization and cleanup of the eight radiological units are being done under the oversight of the Department of Energy, which has the sole jurisdiction over radiological units. The remaining 166 units, which contained or were associated with the release of non-radioactive hazardous constituents, are addressed under the authority of the DTSC. Based upon the findings of the RFA, DTSC concluded that further investigation was necessary to better understand the contamination at the site and required LBNL to conduct a RCRA Facility Investigation (RFI).
- A.2. RCRA Facility Investigation (RFI):** LBNL submitted RFI workplans in three phases during November 1992, October 1994, and October 1995, respectively. Public comments on the RFI final report were accepted between November 15, 2000 and February 2001. DTSC determined that at 121 of the 166 units, there were either no chemical releases or the chemical concentration levels were low enough that further action was not needed. The remaining 45 units were determined to require further action under the Corrective Measures Study (CMS) phase of the RCRA Corrective Action Process.
- A.3. Corrective Measures Study Workplan:** On June 18, 2002 DTSC approved the CMS Workplan. This workplan included the protocols for preparation of human and ecological risk assessments.
- A.4. Human Health Risk Assessment/Findings:** Of the 45 units carried forward from the RFI 29 had soil contamination, 3 had surface water contamination, and 13 areas had groundwater contamination. All of these units were evaluated using the Human Health Risk Assessment procedures.
- A.5. Ecological Risk Assessment/Findings:** The ecological risk assessment was done and concluded that no hazards exist to plants or animals from exposure to chemicals in soil, groundwater, sediment or surface water at LBNL.
- A.6. Corrective Measures Study (CMS):** The information collected during the RFA, RFI, and CMS phases will be used to determine which technologies to use during the Corrective Measures Implementation phase.
- A.7.** On July 19, 2004 LBNL has submitted a CMS Report and it is under DTSC and coordinating agencies review. DTSC has evaluated the corrective measure alternatives presented in the CMS report. Based on the evaluation, DTSC has approved specific remediation measure(s) for implementation at the facility. If and when the Department determines that additional action is required, the Permittee shall be required to prepare a Corrective Measure Implementation Workplan (CMI) and perform corrective measures.

- A.8.** On November 2, 2005 LBNL submitted a Corrective Measures Implementation Workplan that included equipment design details for the approved remediation measures in accordance with time and schedule specified by DTSC. On March 28, 2006 DTSC has approved the Corrective Measures Implementation Plan.
- A.9.** LBNL shall submit an Operation and Maintenance Workplan that includes the long-term monitoring and maintenance procedures for the approved remediation measures in accordance with time and schedule specified by DTSC.
- A.10.** LBNL shall submit a Construction Completion Report which documents the construction and installation of the approved remediation measures in accordance with time and schedule specified by DTSC.

B. NEWLY IDENTIFIED RELEASES:

- B.1.** In the event the Permittee identifies an immediate or potential threat to human health and/or the environment, discovers new releases of hazardous waste and/or hazardous constituents, or discovers new Solid Waste Management Units (SWMUs) not previously identified, the Permittee shall notify DTSC orally within 24 hours of discovery and notify DTSC in writing within 10 days of such discovery summarizing the findings including the immediacy and magnitude of potential threat to human health and/or the environment.
- B.2.** DTSC may require the Permittee to investigate, mitigate and/or take other applicable action to address any immediate or potential threats to human health and/or the environment and newly identified releases of hazardous waste and/or hazardous constituents. For newly identified SWMUs, the Permittee is required to conduct corrective action. Corrective action will be carried out either under a Corrective Action Consent Agreement or a Unilateral Corrective Action Order pursuant to California Health and Safety Code, section 25187.

APPENIDX 1 HISTORY OF MODIFICATIONS

March 18, 2008: Class 1 Modifications – Notification of these modifications was made to DTSC on February 15, 2008. These modifications to the Operation Plan were implemented on March 18, 2008.

1. Updated the list of Emergency Coordinators and emergency contacts in Section VIII of the Operating Plan.
2. Removed reference to the Melvin Calvin Laboratory for which control has been transferred to the Berkeley campus of the University of California.
3. Deleted Appendix III-B, “Guidelines for Generators to Meet HWHF Acceptance Requirements for Hazardous, Radioactive, and Mixed Wastes at Berkeley Lab (LBNL/PUB-3092, Revision 4), and Guidelines for Waste Accumulation Areas (WAAs) at Berkeley Lab”.
4. Renumbered Appendices and references to accommodate the deletion of Appendix III-B as noted above.
5. Updated organizational charts throughout the document.
6. Deleted references to the management of radioactive wastes which are managed under the authority of the Department of Energy.
7. Updated organizational position titles for Waste Management personnel throughout the document.
8. Added position descriptions and training requirements for two positions at the HWHF in Section IV of the Operation Plan.
9. Updated the Corrective Action Section XI of the Operation Plan.
10. Updated the Environmental Control Permits Section XIII of the Operation Plan.
11. Made minor textual corrections through the Operation Plan.

August 31, 2009: Class 1 Modification. Facility notified DTSC of the following modification on May 26, 2009.

1. Updated the list of Emergency Coordinators and emergency contact in Section VIII (Contingency Plan) of the Operation Plan.
2. Updated organizational charts throughout the document to show James T. Krupnick as the Chief Operating Officer for Berkeley.
3. Added several new EPA waste codes to waste streams 40 and 48. Table III-1, Appendix III-F, and Table IV-1 and to tables in the Closure Plan, Section IX were updated to reflect these changes.

Following changes were made to this Permit.

Page 1. Corrected facility name to Lawrence Berkeley National Lab. Included permit modification history in the text box. Provided appropriate reference to the California Code of Regulations for permit modification.

Pages 2-4. Revised Table of Contents to include II.G Permit Modification, Appendix 1, History of Modifications and provided re-paginated numbers.

Page 5. Deleted text “Ernesto Orlando” from the name of the facility.

Page 8. Included section G. Modification History.

Pages 29-30. Added Appendix 1. “History of Modifications”.

Pages 53-54. Revised Table 1 to add several new EPA waste codes to waste streams 40 and 48.

This modification increased page numbers from 58 to 59.

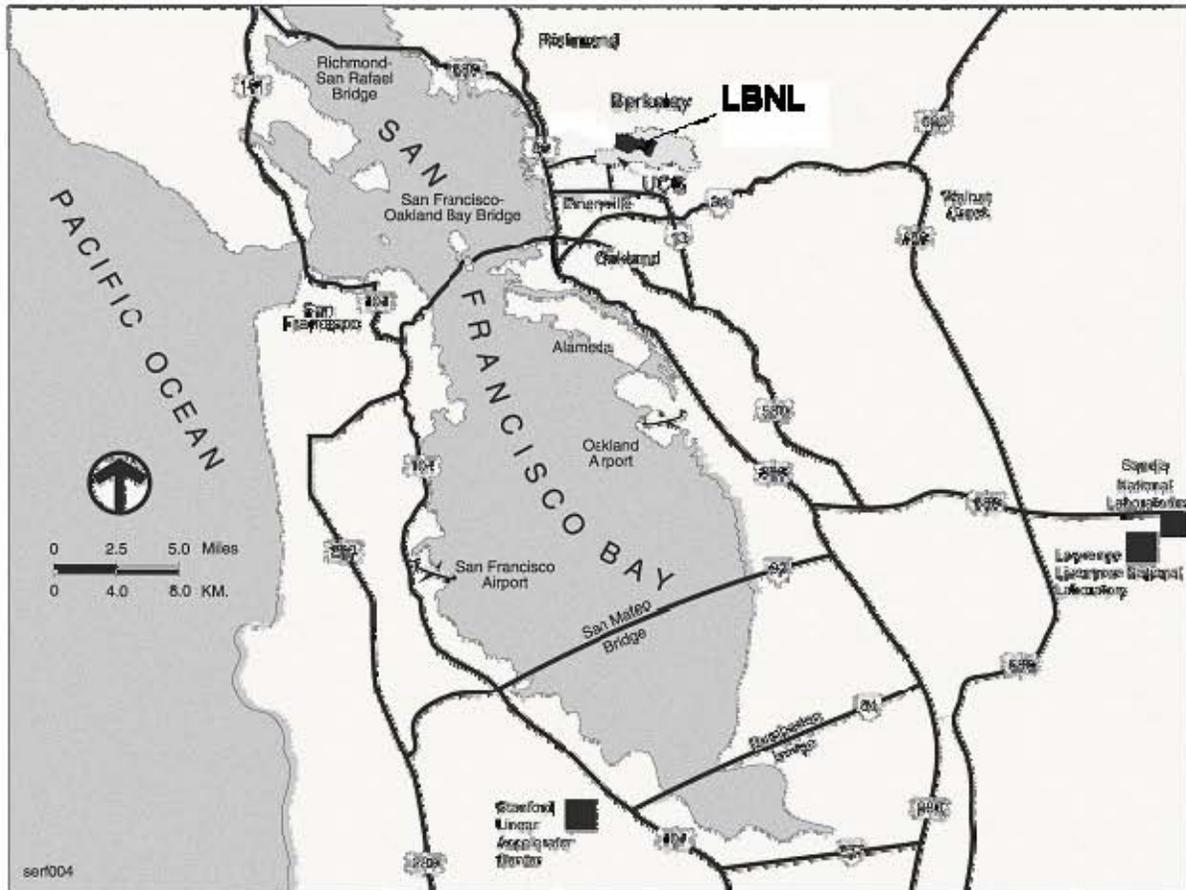


Figure 1. Regional Location Map

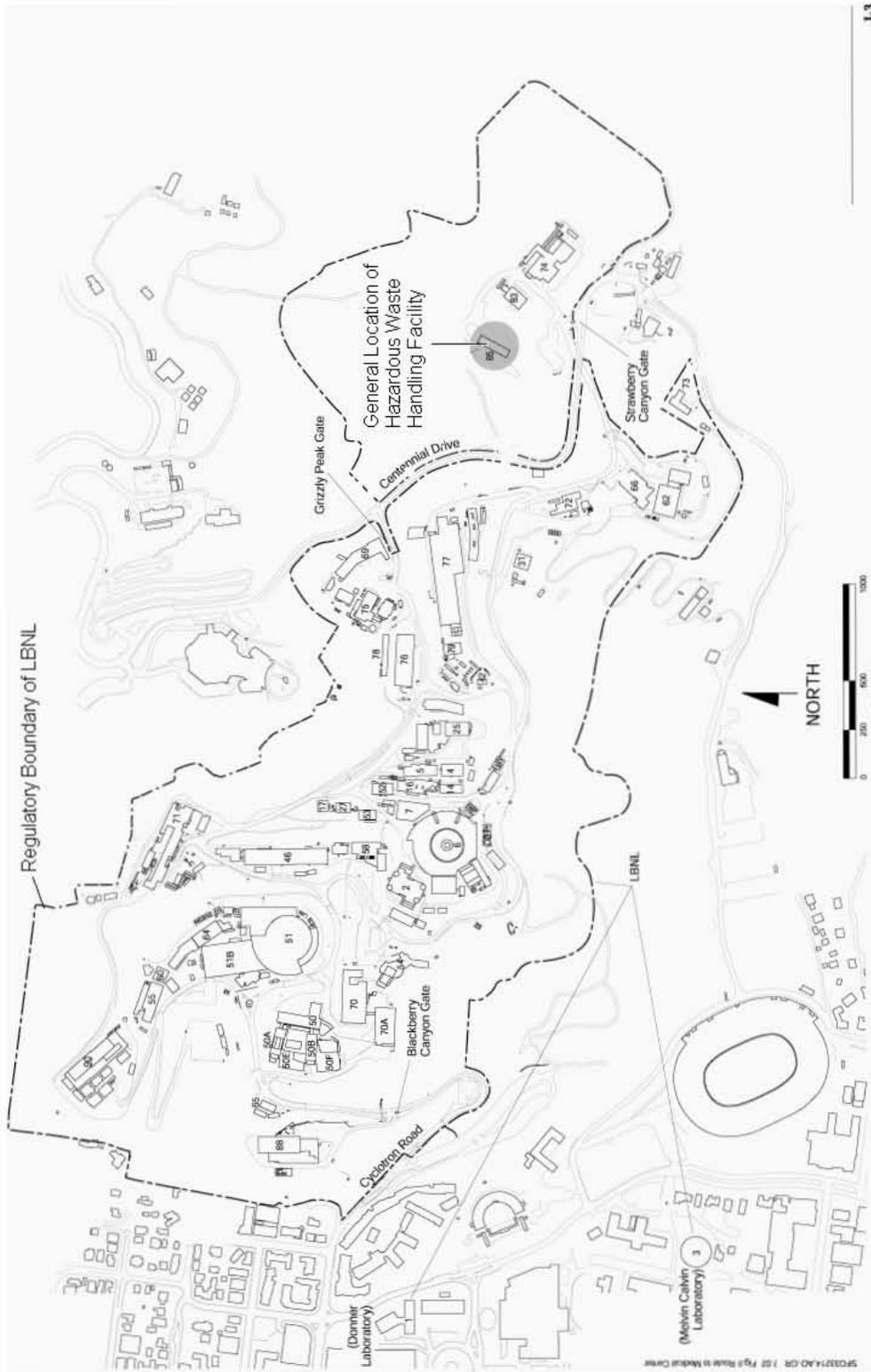


Figure 2. Facility Map

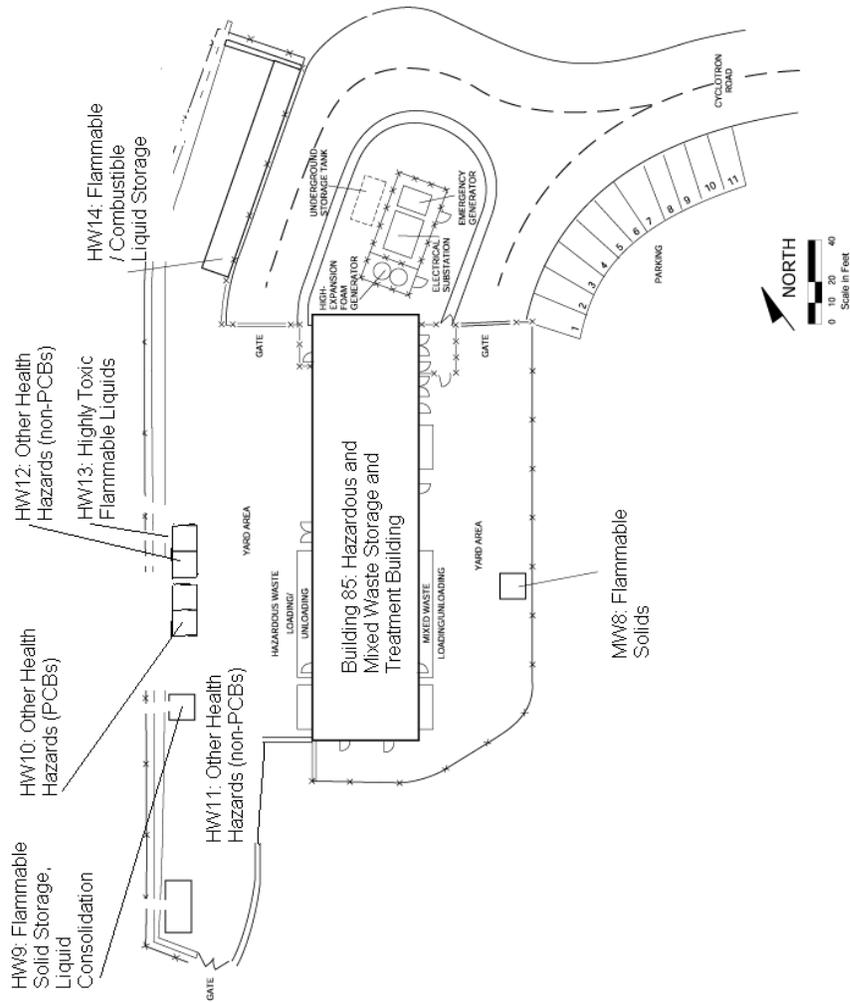


Figure 3. Hazardous Waste Handling Facility Layout

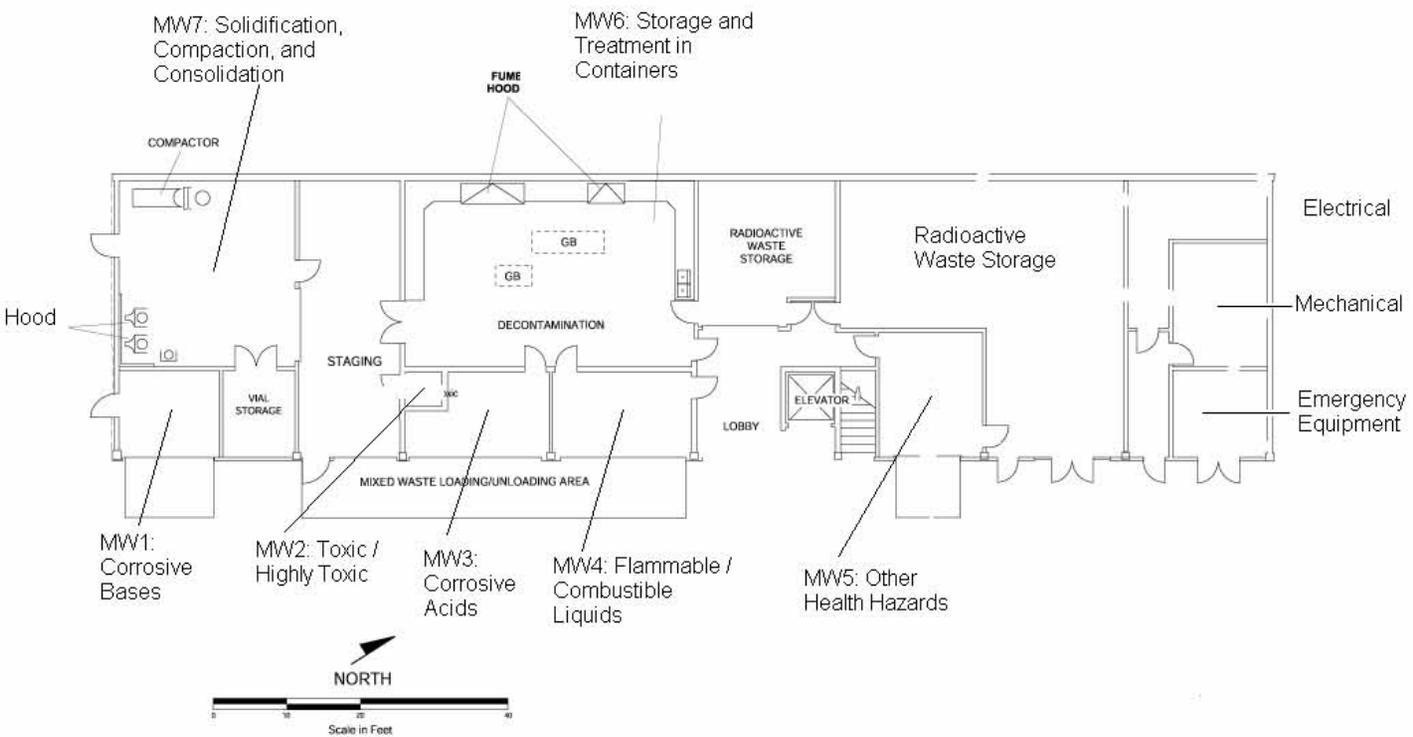


Figure 4. Building 85 First Floor Layout

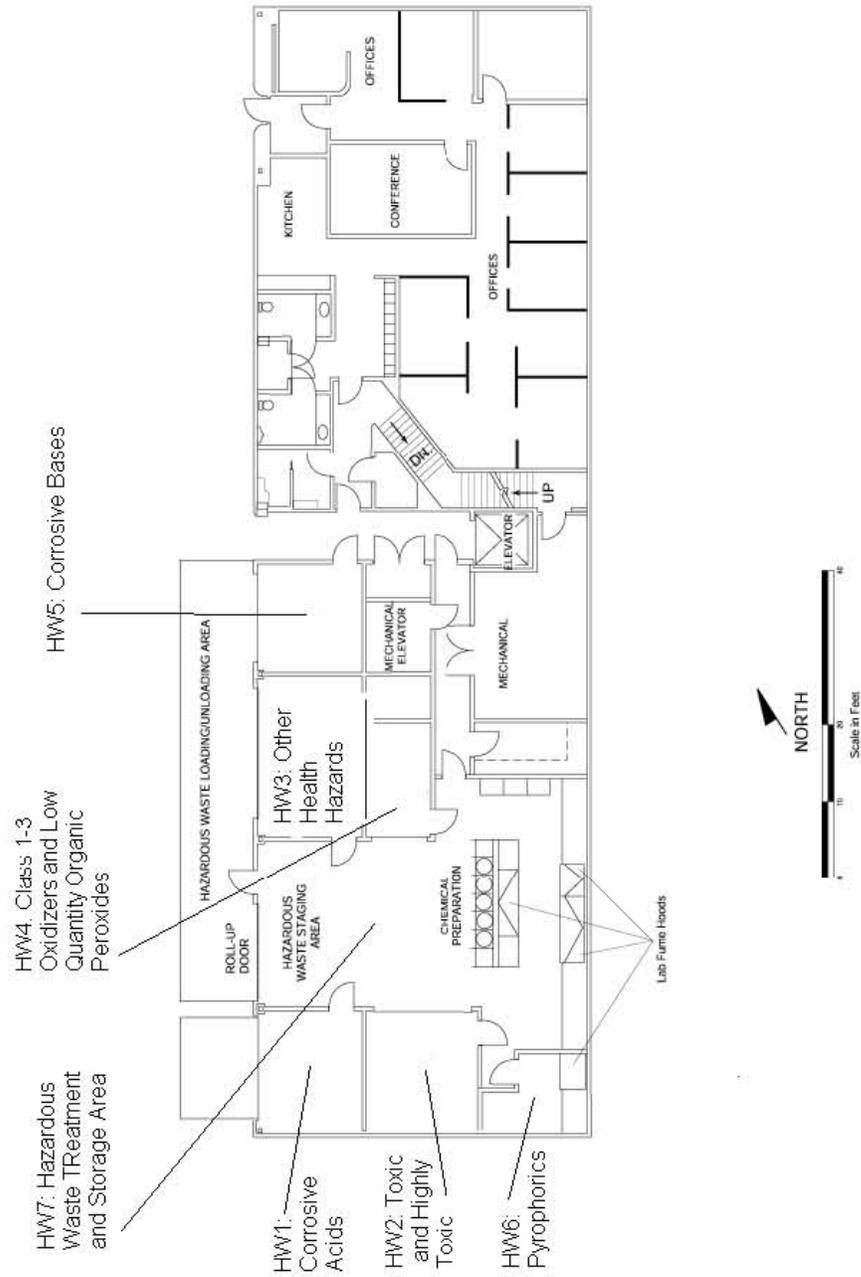


Figure 5. Building 85 Second Floor Layout



Figure 6. Permitted Units 1, 2, 3, and 5: HW 1, 2, 3, 5



Figure 7. Permitted Unit 4: HW 4



Figure 8. Permitted Unit 6: HW 6



Figure 9. Permitted Unit 7: HW 7



Figure 10. Permitted Unit 9: HW 9



Figure 11. Permitted Unit 10: HW 10



Figure 12. Permitted Unit 11: HW 11



Figure 13. Permitted Unit 12: HW 12



Figure 14. Permitted Unit 13: HW 13



Figure 15. Permitted Unit 14: HW 14



Figure 16. Permitted Mixed Waste Units 1, 3, 4, 5: MW 1, 3, 4, 5



Figure 17. Permitted Mixed Waste Unit 2: MW 2



Figure 18. Permitted Mixed Waste Unit 6: MW 6



Figure 19. Permitted Mixed Waste Treatment Unit 7: MW 7



Figure 20. Permitted Mixed Waste Unit 8: MW 8

TABLE 1. DESCRIPTION OF PERMITTED WASTE STREAMS

| Hazardous Waste Stream No. | Waste Name | EPA Waste Code(s) | California Waste Code(s) |
|-----------------------------------|--|---|---------------------------------|
| 1 | Halogenated solvents | D004–D011, D019, D021, D022, D027–D029, D039, D040, F001, F002 | 211, 214, 331, 343, 741 |
| 2 | Nonhalogenated solvents | D001, D004–D011 D018, D023–D026 D035, D036, D038, F003–F005 | 212, 213, 214, 331, 343 |
| 3 | Mixture of halogenated and nonhalogenated solvents | D001, D004–D011, D018, D019, D022–D029, D035, D036, D038–D040, F001–F005 | 214, 331, 741 |
| 4 | Petroleum compounds mixed with light petroleum distillates or solvents | D001, D004–D011, D018, D019, D022–D029, D035, D036, D038–D040, F001–F005 | 213, 223, 331 |
| 5 | Mixture of petroleum compounds | NA | 213, 221–223, 331, 341 |
| 6 | Oil-based paint | D001, D004–D011, D035, D039, D040 | 214, 331, 343, 741 |
| 7 | Latex paint | NA | 291, 331, 343 |
| 8 | Paint and solvent mixtures | D001, D004–D011, D035, D039, D040, F002, F003, F005 | 214, 331, 343, 741 |
| 9 | Waste organic resins | D001 | 271, 272, 343 |
| 10 | Solids contaminated with organics, with or without inorganics | D004–D011, D018, D022, D026, D028, D029, D035, D038–D040, F001–F003, F005 | 181, 223, 351, 352, 611, 751 |
| 11 | Solids contaminated with inorganics | D004–D011 | 181, 611 |
| 12 | Activated carbon contaminated with organics | D018, D019, D022, D028, D029, D038–D040, F002 | 351, 352, 751 |
| 13 | Non-RCRA solids contaminated with organics and/or inorganics | NA | 181, 223, 352, 611 |
| 14 | Photographic developers | NA | 141, 331, 541 |
| 15 | Photographic fixer | D011 | 141, 331, 541 |
| 16 | Lead acid batteries | D002, D008 | 792 |

| Hazardous Waste Stream No. | Waste Name | EPA Waste Code(s) | California Waste Code(s) |
|-----------------------------------|---|---|---------------------------------|
| 17 | Waste acid solution from plating/stripping cleaning /research processes | D002, D004–D011, D018, D019, D022, D028, D029, D035, D038–D040, D043, F001, F002 | 791, 792 |
| 18 | Electroless plating solutions | NA | 132, 726 |
| 19 | Waste alkaline solutions | D002, D004–D011 | 121, 122, 123, 141, 721–728 |
| 20 | Metal hydroxide filter cake | D004–D011, F006 | 171, 491 |
| 21 | Waste containing asbestos | NA | 151 |
| 22 | Empty containers | NA | 512, 513 |
| 23 | Empty containers last containing acutely or extremely hazardous waste | P003, P011, P012, P014, P018, P022, P028–P030, P043, P048, P068, P081, P087, P098, P105, P106, P115, P119, P120 | 513 |
| 24 | CA-regulated-only PCB-contaminated liquids or articles containing liquids | NA | 261 |
| 25 | TSCA-regulated PCB-contaminated liquids or articles containing liquids | NA | 731 |
| 26 | PCB-contaminated solids/articles/equipment, CA-regulated | NA | 261 |
| 27 | PCB-contaminated solids/articles/equipment, TSCA-regulated | NA | 731 |
| 28 | Used oil filters | NA | 223 |
| 29 | Elemental mercury and mercury-containing articles | D009, U151 | 725 |
| 29 | Elemental mercury and mercury-containing articles | D009, U151 | 725 |
| 30 | Aqueous liquids with organics, with or without inorganics | D004–D011, D018, D019, D022, D026–D029, D035, D038–D040, F002, F003, F005 | 132–135, 223, 741 |
| 31 | Waste coolants | NA | 223, 331, 343 |
| 32 | Flammable aerosol cans | D001, D004–D011, D035 | 331, 343, 551, 741 |
| 33 | Nonflammable aerosol cans | D039, D040, U210 U226, U228, U075 | 331, 343, 551, 741 |

| Hazardous Waste Stream No. | Waste Name | EPA Waste Code(s) | California Waste Code(s) |
|-----------------------------------|--------------------------------------|---|--|
| 34 | Corrosive liquid (acidic) | D002, D004–D011, D018, D019, D022, D028, D029, D035, D038–D040, D043, F001–F005, U103, U123, U134 | 141, 721–728, 741, 791, 792, 551 |
| 35 | Corrosive flammable liquids (acidic) | D001, D002, D004–D011, D018, D019, D022–D026, D028, D029, D035, D038–D040, F002–F005, U006, U008, U123 U194, U404 | 331, 551, 721–728, 741, 791, 792 |
| 36 | Corrosive oxidizing liquids (acidic) | D001, D002, D004–D011, D018, D019, D022–D029, D035, D038–D040, F002–F005, U103 | 132, 135, 141, 551, 721–728, 741, 791, 792 |
| 37 | Corrosive reactive liquids (acidic) | D002–D011, D018, D019, D022–D029, D035, D038–D040, F002–F005 | 141, 551, 721–728, 741, 791, 792 |
| 38 | Corrosive liquids (basic) | D002, D004–D011, D018, D019, D022–D029, D035, D038–D040, F002–F005 | 121–123, 141, 551, 721–728, 741 |
| 39 | Corrosive reactive liquids (basic) | D001–D011, D018, D019, D022–D029, D035, D038–D040, F002–F005 | 121–123, 141, 551, 721–728, 741 |
| 40 | Flammable liquids | D001, D004–D036, D038, D040–D042, F001–F003, F005, P003, P005, P014, P022, P068, P095, P102, U001–U003, U008, U019, U025, U031, U037, U043, U045, U046, U056, U057, U077, U079, U098, U108, U112, U117, U122, U124, U133, U140, U154, U156, U159, U161 U162, U191, U194, U196, U213, U220, U239, U359, U404 | 135, 212–214, 331, 341, 343, 551, 721–728, 741 |
| 41 | Flammable reactive liquids | D001, D003–D011, D018, D019, D021–D029, D035, D036, D038, D040, D043, F002, F003, F005, U133 | 212–214, 331, 341, 343, 551, 711, 721–728, 741 |
| 42 | Flammable solids | D001, D003, P030, P048, U163, U165, U189 | 141, 331, 351, 352, 551, 751 |
| 43 | Hazardous waste liquids | D004–D011, D018, D019, D021–D030, D035, D036, D038–D040, F001–F005, U004, U028, U069, U081, U088, U107, U121, U122, U151 | 132–135, 141, 214, 221–223, 322, 331, 341–343, 551, 721–728, 741 |

| Hazardous Waste Stream No. | Waste Name | EPA Waste Code(s) | California Waste Code(s) |
|-----------------------------------|---------------------------------------|--|--|
| 43 | Hazardous waste liquids | D004–D011, D018, D019, D021–D030, D035, D036, D038–D040, F001–F005, U004, U028, U069, U081, U088, U107, U121, U122, U151 | 132–135, 141, 214, 221–223, 322, 331, 341–343, 551, 721–728, 741 |
| 44 | Hazardous waste solid | D004–D011, D018, D019, D021–D029, D035, D036, D038, D040, F001–F005, U018, U089, U094, U109, U147, U190, U202, U236 | 141, 181, 223, 331, 351, 352 |
| 45 | Oxidizing liquids | D001, D004–D011, F003, F005 | 141, 331, 551, 721–728 |
| 46 | Solid oxidizers | D001, D003–D011, U217 | 141, 181, 331, 551 |
| 47 | Toxic liquids | D004–D011, F002, P011, P012, P028, P041, P043, P048, P075, P087, P105, P115, P119, P120, U007, U010, U012, U021, U022, U036, U044, U052, U058, U068, U070, U080, U081, U103, U119, U133, U138, U144, U169, U170, U174, U197, U210, U211, U218, U219, U225–U228, U328 | 132–135, 141, 331, 341–343, 551, 721–728, 741 |
| 48 | Toxic solids | D004–D011, F027, P011, P012, P087, P105, P114, P115, P119, P120, P205, U007, U010, U015, U021, U022, U058, U063, U081, U082, U129, U136, U144, U147, U157, U170, U188, U197, U201, U204, U205, U214, U215, U216, U217, U219 | 141, 181, 331, 351, 352, 551, 751 |
| 49 | Reactive liquids | D003–D011, P029, P030, P098, P104, P106, P121 | 131, 141, 331, 341–343, 551, 711, 721–728 |
| 50 | Reactive solids | D003–D011, P029, P030, P098, P104, P106, P121, U170, U246 | 141, 181, 331, 352, 551 |
| 51 | Pyrophoric liquids | D001, D003, D004–D011 | 141, 331, 341–343, 551, 721–728, 741 |
| 52 | Organic peroxide liquids | D001, D003, U096 | 331, 551 |
| 53 | Non-RCRA liquid (DOT corrosive basic) | NA | 123, 141, 331, 343, 551 |
| 54 | Non-RCRA corrosive solid (acidic) | NA | 141, 181, 331, 352, 551 |
| 55 | Non-RCRA corrosive solid (basic) | NA | 141, 181, 331, 352, 551 |

| Hazardous Waste Stream No. | Waste Name | EPA Waste Code(s) | California Waste Code(s) |
|-----------------------------------|--|--|--|
| 56 | Non-RCRA liquid (toxic) | NA | 132–135, 141, 214, 221, 223, 272, 281, 331, 341–343, 551 726, 728, 741 |
| 57 | Non-RCRA solid (toxic) | NA | 141, 181, 223, 331, 351, 352, 513, 521, 551, 611, 751 |
| 58 | Non-RCRA liquids (combustible) | NA | 214, 221, 223, 331, 341–343, 551, 741 |
| Mixed Waste | | | |
| 59 | Scintillation fluids with radionuclides | D001, D018, D022, D028 | 342, 343, 551, 741 |
| 60 | Mercury and mercury-containing articles with radionuclides | D009 | 725 |
| 61 | Lead contaminated with radionuclides | D008 | 181 |
| 62 | Pump oil contaminated with radionuclides | D018, D019, D022, D025–D029, D035, D038–D040 | 221, 223, 741 |
| 63 | Contaminated solids with radionuclides | D004–D011, D018, D019, D021–D029, D035, D038–D040, F001–F005 | 181, 223, 351, 352, 751 |
| 64 | Corrosive liquids (acidic) with radionuclides | D001–D011 D018, D019, D022, D028, D029, D035, D038–D040, D043, F001–F005, U123 | 141, 331, 343, 551, 721–728, 741, 791, 792 |
| 65 | Corrosive flammable liquids (acidic) with radionuclides | D001, D002, D004–D011, D018, D019, D022, D028, D029, D035, D038–D040, D043, F001–F005 | 141, 331, 551, 721–728, 741, 791, 792 |
| 66 | Corrosive liquids (basic) with radionuclides | D002, D004–D011, D018, D019, D022, D028, D029, D035, D038–D040, D043, F001–F005 | 121–123, 141, 331, 551, 721–728, 741 |
| 67 | Corrosive flammable liquids (basic) with radionuclides | D001, D002, D004–D011, D018, D019, D022, D028, D029, D035, D038–D040, D043, F001–F005 | 121–123, 141, 331, 551, 721–728, 741 |
| 68 | Flammable liquids with radionuclides | D001, D004–D011, D018, D019, D022, D028, D029, D035, D038–D040, F002, F003, F005, P022, U002, U003, U019, U056, U077, U112, U117, U154, U196, U213, U220, U239, U404 | 135, 212–214, 331, 341, 551, 741 |

| Hazardous Waste Stream No. | Waste Name | EPA Waste Code(s) | California Waste Code(s) |
|-----------------------------------|--|---|--|
| 69 | Lab-packed chemicals with radionuclides | D001, D002, D004–D011, D018, D019, D021–D030, D032–D036, D038–D040, D043, F002–F005, P022, P030, P106, U002, U003, U007, U012, U018, U022, U044, U080, U112, U117, U138, U147, U190, U211, U213, U220 | 133–135, 141, 172, 181, 212–214, 331, 343, 352, 551, 721–728, 741, 751 |
| 70 | Reactive chemical solutions with radionuclides | D001–D011, D018, D019, D021, D036, D038–D040, D043, F002, F003, F005, P030 | 122, 123, 131, 141, 711, 721–726, 741 |
| 71 | Toxic liquids with radionuclides | D004–D011, D018, D019, D022, D026, D028, D035, D038–D040, F001–F005, U007, U044, U080, U167, U169, U170, U225, U012, U211 | 132–135, 141, 214, 223, 331, 341–343, 551, 721–728, 741 |
| 72 | Toxic solids with radionuclides | D004–D011, D018, D019, D022, D028, D035, D038–D040, F001–F005, U170 | 141, 181, 223, 331, 351, 352, 551, 611, 751 |
| 73 | Oxidizers with radionuclides | D001, D002, D004–D011 | 131, 141, 331, 551, 791, 792 |
| 74 | Water-reactive and air-reactive chemicals with radionuclides | D001, D003 | 141, 331, 551 |

TABLE 2: MAXIMUM STORAGE CAPACITY FOR PERMITTED UNITS

| Unit Name | Maximum Permitted Storage Capacity | Allowable Waste Streams |
|------------------|---|--|
| HW1 | 880 gallons | 1, 5, 7, 10-12, 14-18, 20-23, 28-31, 34, 37, 43, 44, 54, and 56-58 |
| HW2 | 880 gallons | 1, 5, 7, 10-12, 14, 15, 18, 20-23, 28-31, 41, 43, 44, 47-50, and 53-58 |
| HW3 | 1,320 gallons | 1, 5, 7, 10-15, 18, 20-23, 28-31, 43, 44, and 53-58 |
| HW4 | 440 gallons | 1, 5, 7, 10-12, 14-16, 18, 20-23, 28-31, 34, 36, 43-46, 52, 54, 56, and 57 |
| HW5 | 880 gallons | 1, 5, 7, 10-12, 14, 15, 18-23, 28-31, 38, 39, 43, 44, 50, 53, 55, and 56-58 |
| HW6 | 110 gallons | 1, 5, 7, 10-12, 14, 15, 18, 20-23, 28-31, 43, 44, 51, and 53-58 |
| HW7 | 540 gallons | 1, 7, 9-12, 14-23, 28-50, and 52-58 |
| HW9 | 660 gallons | 1, 5, 7, 10-12, 14, 15, 18, 20-23, 28-31, 34-36, 38-40, 42-45, 47, 48, and 53-58 |
| HW10 | 660 gallons | 24-27 |
| HW11 | 660 gallons | 1, 5, 7, 10-15, 18, 20-23, 28-31, 43, 44, and 53-58 |
| HW12 | 660 gallons | 1, 5, 7, 10-15, 18, 20-23, 28-31, 43, 44, and 53-58 |
| HW13 | 660 gallons | 1, 3-5, 7, 8, 10-12, 14, 15, 18, 20-23, 28-31, 43, 44, and 53-58 |
| HW14 | 6,600 gallons | 1-15, 18, 20-23, 28-33, 35, 40, 41, 43, 44, 47, 49, and 53-58 |
| MW1 | 880 gallons | 60-63, 66, 69, and 71-73 |
| MW2 | 110 gallons | 60-63, and 69-72 |
| MW3 | 1,100 gallons | 60-64, 69, and 71-73 |
| MW4 | 2,200 gallons | 59-63, 65, 68, 69,71, and 72 |
| MW5 | 2,200 gallons | 60-63, 69, 71, and 72 |
| MW6 | 1,100 gallons | 59-74 |
| MW8 | 660 gallons | 60-63, 69, 71, 72, and 74 |

TABLE 3: TREATMENT PROCESSES AND PERMITTED WASTE STREAMS

| Unit | Processes Code ¹ | Waste Streams | Treatment Capacity |
|------|-----------------------------|---|--|
| HW7 | 1 | 34-36, 38, 40, 43, 45, and 47 | 96 gallons per day (gpd) using any combination of process codes 1 through 19 |
| | 2 | 34, 36, 38, 43, 56 | |
| | 3 | 30, 34-36, 38, 40, 43, 47, 53, and 56, 58 | |
| | 4 | 30, 43, 47 | |
| | 5 | 36, 45 | |
| | 6 | 30, 34, 38, 43, 56 | |
| | 7 | 30, 34, 43, and 47 | |
| | 8 | 30, 34, 43, and 47 | |
| | 9 | 30, 34, 43, and 47 | |
| | 10 | 34, 38, 43, 47 | |
| | 11 | 34, 38, 43, 47 | |
| | 12 | 30, 43, 47 | |
| | 13 | 30, 43, 47 | |
| | 14 | 22, 23, 40, 42, 47-50 | |
| | 15 | 9, 56, and 57 | |
| | 16 | 34-36, 38-40, 43-45, 47-48, and 53-58 | |
| | 17 | 17, 19, 34, 36, and 38 | |
| | 18 | 42, 45, 49, and 50 | |
| | 19 | 34, 38, 43, 47, 56 | |
| HW9 | 20 | 34-36, 38-40, 43-45, 47, 48, and 53-58 | 440 gpd |
| MW6 | 1 | 62, 64, 66, 68, 69, and 71 | 72 gpd using any combination of process codes 1 through 19 |
| | 2 | 64, 66, 69, and 71 | |
| | 3 | 68, 62, 64-69, and 71 | |
| | 4 | 64, 66, 69, and 71 | |
| | 5 | 64, 65, and 73 | |
| | 6 | 64, 66, 69, and 71 | |
| | 7 | 64, 66, 69, and 71 | |
| | 8 | 64, 66, 69, and 71 | |
| | 9 | 64, 66, 69, and 71 | |
| | 10 | 64, 66, 69, and 71 | |
| | 11 | 64, 66, 69, and 71 | |
| | 12 | 65, 67-69, and 71 | |
| | 13 | 65, 67-69, and 71 | |
| | 14 | 69, 71, and 72 | |
| | 15 | 69 | |
| | 16 | 59, 62-69, 71, and 72 | |
| | 17 | 64, 66, and 69 | |
| | 18 | 73, and 74 | |
| | 19 | 64, 66, 69, and 71 | |
| MW7 | 16 | 59, 62-69, 71, and 72 | 550 gpd using any combination of process codes 16 and 19 |
| | 19 | 64, 66, 69, and 71 | |

1. See Table 4 for description of process codes.

TABLE 4. DESCRIPTION OF PROCESS CODES USED IN TABLE 3.

| Process Code | Description |
|---------------------|---|
| 1 | Filtration |
| 2 | Precipitation |
| 3 | Phase Separation |
| 4 | UV Ozone/Peroxide Oxidation |
| 5 | Reduction of Oxidizers |
| 6 | Air or Steam Stripping of Volatile Organics from Dilute Aqueous Solutions |
| 7 | Absorption |
| 8 | Adsorption |
| 9 | Ion Exchange |
| 10 | Metallic Replacement |
| 11 | Plating Metals onto Cathode |
| 12 | Evaporation of Organics from Dilute Aqueous Solution |
| 13 | Distillation of Organics from Dilute Aqueous Solution |
| 14 | Rinsing of Containers |
| 15 | Mixing of Multi-component Resins |
| 16 | Consolidation in small and 55-gallon containers |
| 17 | Neutralization |
| 18 | Desensitization |
| 19 | Solidification |
| 20 | Consolidation of lab pack chemicals |

TABLE 5. EXAMPLES OF WASTE AND CONTAINERS USED IN HWHF^a

| Hazardous or Mixed Waste Type | Container Volume(s) | Container Type and Composition^{b,c} |
|--|------------------------------|---|
| Asbestos | Between 1-7 cubic feet | Disposable PE double bags stored in cardboard containers/steel drums |
| Contaminated Debris | 5-, 30-, and 55-gallon | Open-top steel or PE drums |
| Contaminated Soils | 55-gallon drums or trucks | Open-top steel drums with PE liners (15- or 40-mil) or open-top trucks or containers with liners |
| Corrosive Liquids | 5-, 20-, 30-, and 55-gallon | Polyethylene (PE) bung-type drums/carboys/glass bottles |
| Lab Packs | 5-, 12.2-, and 30-gallon | Open-top PE drums |
| Lab Packs | 5-, 30-, and 55-gallon | Open-top steel drum |
| Lab Packs | 55-gallon | Fiberboard drums |
| Mercury | 5- to 55-gallon | Open-top plastic-lined fiberboard, steel or PE drums with PE liners (15- or 40-mil), wooden boxes |
| Metal Sludges | 5-, 20-, 30-, and 55-gallon | Open-top steel drums with PE liners (15- or 40-mil) |
| Motor Vehicle Batteries | 5- to 55-gallon | Plastic-lined fiberboard drums or polyethylene drums |
| Paint Materials Latex-Based | 1-, 5-, 30-, and 55-gallon | Steel drums/cans |
| Paint Materials Oil-Based | 1-, 5-, 30-, and 55-gallon | Steel drums/cans |
| PCBs and PCB-contaminated Equipment | 5-, 20-, 30-, and 55-gallon | Open-top steel drums with PE liners (15- or 40-mil) |
| Spent Activated Carbon | 30-, and 55-gallon | Steel or PE drums |
| Waste Coolants | 5-, 20-, 30-, and 55-gallons | Steel drums, bung-type/PE carboys/glass bottles |
| Waste Empty Containers | 5- to 85- gallon | Steel, PE, glass, fiberboard |
| Waste Oils | 5-, 20-, 30-, and 55-gallon | Steel drums, bung-type/PE carboys/glass bottles |
| Waste solvents | 5-, 20-, 30-, and 55-gallon | Steel drums, bung-type/PE carboys/glass bottles |
| a The disposal company may supply the shipping containers | | |
| b Wastes to be lab-packed or treated may be stored in compatible sealed glass, plastic, fiberboard, or metal containers until packed or treated. | | |
| c Selection of containers for offsite shipment will conform to packaging requirements of 49 CFR 173 and 178 | | |