

**SPILL PREVENTION, CONTROL
AND
COUNTERMEASURE PLAN
(SPCC)**

Lawrence Berkeley National Laboratory
Berkeley, California

REVISION 4.0
December 2012

SPCC PLAN APPROVAL

REVISION 4.0

AMENDMENT 0

DESCRIPTION OF SPCC PLAN AMENDMENT

This plan has been updated in accordance with the five year update requirement from 40 CFR 112.5(b). It has been updated to reflect changes throughout the facility in the number and location of facilities used for oil storage.

MANAGEMENT APPROVAL OF SPCC PLAN REVISION/AMENDMENT

Joseph Dionne Jan 23, 2013
Joseph Dionne, (Acting) Director, E/H/S/S Date
Lawrence Berkeley National Laboratory

PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I have examined the facility, and my agent, Sharon Squire, has visited the facility, and being familiar with the provisions of 40 CFR 112, attest that this SPCC Plan has been prepared or modified in accordance with good engineering practices, including consideration of applicable industry standards, is adequate for the facility, and that procedures for required inspections and testing have been established.

Peter M. Krasnoff 1/2/13
Signature of Licensed Professional Engineer Date
Peter M. Krasnoff
California Registered Civil Engineer (44031)



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INTRODUCTION

- 1.1 PURPOSE
- 1.2 APPLICABILITY
- 1.3 PLAN MAINTENANCE AND AMENDMENTS
- 1.4 DESIGNATED RESPONSIBLE PERSONS
- 1.5 GENERAL FACILITY INFORMATION

1.1 PURPOSE

The purpose of this Spill Prevention, Control, and Countermeasure (SPCC) Plan is to provide standards for the storage and usage of oil at the Lawrence Berkeley National Laboratory (Berkeley Lab) that will prevent the discharge of oil into or upon the navigable waters of the United States or adjoining shorelines. This SPCC Plan (Plan) has been prepared in accordance with the requirements set forth in Title 40, Part 112 of the Code of Federal Regulations (40 CFR 112); the California Health and Safety Code Chapter 6.67 (H&SC 6.67); and the United States Department of Energy (DOE) Order No. 436.1. In order to prepare this Plan, Berkeley Lab has analyzed the facility's capability to prevent oil discharges and facilitate safety awareness. By accumulating the information necessary for the Plan, Berkeley Lab promotes the use of appropriate design and operational standards that reduce the likelihood of an oil discharge.

This Plan is not intended to address materials classified as hazardous wastes under 40 CFR 265 or Title 22 of the California Code of Regulations (CCR Title 22) stored in the Berkeley Lab's Hazardous Waste Handling Facility. Storage of these materials is addressed in the Resource Conservation and Recovery Act (RCRA) Part B permit for the Berkeley Lab. However, waste oils stored in individual Waste Accumulation Areas (WAAs) located throughout the general facility are not addressed in the RCRA Part B permit application and are therefore addressed in this SPCC Plan.

1.2 APPLICABILITY

Facilities are required to prepare SPCC Plans if they store any form of oil or petroleum product in excess of the minimum quantities defined below, and are located such that the facility could reasonably be expected to discharge harmful quantities of oil into navigable waters. Non-transportation facilities are required to prepare SPCC Plans if they meet the following criteria:

- Have an aggregate aboveground storage capacity of more than 1,320 gallons, or
- A total underground storage capacity of 42,000 gallons; and
- Could reasonably be expected to discharge oil in harmful quantities into navigable waters of the United States.

The Berkeley Lab currently has:

- An aggregate aboveground storage capacity that exceeds 1,320 gallons.
- Total underground oil storage capacity that is less than 42,000 gallons.

Capacities of individual storage tanks are listed in the appendices. Completely buried tanks are exempt pursuant to 112.1(d) if they are regulated under 40 CFR 280. However, the location of all "exempt" underground storage tanks (USTs) are still required to be provided in this the SPCC and marked as "exempt" on the location map.

In addition, storm drains located in outdoor areas throughout the Berkeley Lab eventually discharge into San Francisco Bay, which is a navigable water of the United States. The Berkeley Lab is

therefore subject to the requirement to prepare a SPCC Plan.

For the purposes of this Plan:

- Oil is defined in 40 CFR 112.2(a) as oil (or petroleum products) of any kind or in any form, including but not limited to petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredged spoil.
- Harmful quantities of oil or petroleum products are defined in 40 CFR 110 as those that (a) violate applicable water quality standards, or (b) cause a film or sheen upon or discoloration of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.
- A bulk oil or petroleum storage unit is defined as a storage tank or drum having a capacity of at least 1 barrel, or 42 gallons. Selection of this quantity was based on the minimum quantity that must be reported in the event of a release (H&SC 6.67 §25270.8). This Plan addresses bulk storage of oil or petroleum products only. The storage of oil may be prior to use, while being used, or prior to further distribution in commerce. Oil filled electrical, operating, or manufacturing equipment is regulated under 40 CFR 112. 7 and must have appropriate containment, but is excluded from the bulk storage container requirements in 40 CFR 112.8 since the primary purpose of this equipment is not to store oil in bulk.

This plan conforms to the requirements outline in 40 CFR 112.

1.3 PLAN MAINTENANCE AND AMENDMENTS

The Environmental Services Group (ESG) of the Berkeley Lab is responsible for maintaining and updating this SPCC Plan. A complete copy of this Plan is maintained at all times at the ESG office and also on the World Wide Web (<http://www.lbl.gov/ehs/esg/tableforreports/tableforreports.htm>). This Plan is available to representatives of regulatory agencies for on-site review during normal business hours.

The California State Water Resources Control Board may require amendment to the Plan following spills of harmful quantities of oil to navigable waters. The SPCC Plan will be amended within six months following any change in facility design, construction, operation, or maintenance, which significantly affects the potential for discharges of oil into navigable waters. In addition, the Berkeley Lab will review and evaluate the SPCC Plan every five years. Within six months following completion of the review, the Berkeley Lab if necessary will revise the Plan to include any identified improvements in prevention and control technology. A Professional Engineer licensed in the State of California will certify all technical amendments to the SPCC Plan in accordance with 40 CFR 112.5(c) and 112.3(d). Changes in emergency contact names and telephone numbers will be made as they occur and will not require engineering certification. This exception allows for maintaining an emergency contact list, and does not affect the technical/engineering aspects of this Plan.

1.4 DESIGNATED RESPONSIBLE PERSONS

The following individuals are those designated responsible for oil spill prevention at Berkeley Lab:

Ron Pauer, Group Leader, Environmental Services Group
Joe Dionne, Acting Director, Environment/ Health/Safety/Security Division

1.5 GENERAL FACILITY INFORMATION

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

Type of Facility: Research Laboratory [SIC 8733]

Owner Name and Address: U.S. Department of Energy
Berkeley Site Office
1 Cyclotron Road, MS 90R1023
Berkeley, California 94720

Operator Name and Address: (1) University of California Regents
Lawrence Berkeley National Laboratory
1 Cyclotron Road
Berkeley, California 94720

(2) U.S. Department of Energy
Berkeley Site Office
1 Cyclotron Road, MS 90R1023
Berkeley, California 94720

Facility Location: *Latitude 37 degrees 53 seconds North*
Longitude 122 degrees 51 seconds East

Start-up Date: 1931

Figure 2-1 shows the general site location on a San Francisco Bay Area map. A vicinity map of adjacent land use is shown in Figure 2-2. Figure 2-3 is a facility map indicating site boundaries. Figure 2-4 illustrates site storm and creek(s) drainage. Figure 2-5 shows the topography of the Berkeley Lab site.

ANALYSIS OF SPILL POTENTIAL

- 2.1 SPILL HISTORY
- 2.2 PREDICTION OF POTENTIAL SPILLS
- 2.3 CONTAINMENT
- 2.4 CONTINGENCY PLAN FOR AREAS WITHOUT CONTAINMENT
- 2.5 SPILL RESPONSE PROCEDURES

2.1 SPILL HISTORY

There have been no known oil or petroleum product spills that have resulted in release of harmful quantities of oil to navigable waters at the Berkeley Lab. Over the years, Berkeley Lab staff has implemented numerous facility improvements that have significantly reduced the potential for release of harmful quantities of oil. Control measures include:

- Replacement of older Aboveground Storage Tanks (ASTs) with new, current technology tanks, designed with secondary containment.
- Installing secondary containment, such as sheet metal boxes, concrete berms, and catch basins around ASTs and oil-filled transformers.
- Leak testing existing containment and re-sealing where necessary.
- Spill kits are located strategically throughout the site, and are readily accessible.
- Locating select ASTs in buildings or sheds in addition to secondary containment.
- Removal or upgrade of all Underground Storage Tanks (USTs) as required by December 1998.
- Consolidation of all 55-gallon drums into Drum Storage Areas (DSAs) with secondary containment.
- Implementing an integrity testing program for bulk storage containers.

Spills at tank removal sites are under the jurisdiction of the City of Berkeley, a Certified Unified Program Agency (CUPA). The Regional and State Water Quality Resources Control Boards have regulatory authority if groundwater is contaminated. The Environmental Restoration Program of the Berkeley Lab is carried out within the auspices of the DTSC approved RCRA Corrective Action Program. In addition, the RCRA Facility Assessment and RCRA Facility Investigation Work Plans are in place. These regulatory agencies, including the East Bay Municipal Utility District, provide regulatory oversight for Berkeley Lab's oil pollution prevention activities.

2.2 PREDICTION OF POTENTIAL SPILLS

Aboveground tanks, oil filled electrical equipment and drum storage areas have secondary containment and do not have a reasonable potential to result in a discharge of harmful quantities of oil into navigable waters (i.e., Strawberry Creek). In addition, the Berkeley Lab has implemented numerous control measures, which have significantly reduced the potential for any spills. These control measures include providing spill containment and cleanup kits for those aboveground tanks which cannot reasonably be equipped with secondary containment (i.e. portable emergency generators), and Facilities Division procedures for inspection.

2.3 CONTAINMENT

Appropriate containment and/or diversionary structures or equipment used at Berkeley Lab that prevents discharged oil from reaching a navigable water course include the following:

- Coated concrete berms and sheet metal pans
- Collection pits in storm drains
- Booms
- Curbing, culverts, gutters, and other drainage systems
- Storage sheds with built-in containment
- Containment barrels for drums
- Sorbent materials and spill kits

Secondary containment is based on the typical failure mode and most likely quantity of oil that could be discharged. Containment structures used for specific aboveground storage areas are described in Appendices A (Aboveground Storage Tanks-ASTs), C (Drum Storage Areas) and D (Oil Filled Transformers and Electrical Equipment).

2.4 CONTINGENCY PLAN FOR AREAS WITHOUT CONTAINMENT

All ASTs and drums used for the storage of oil or petroleum products have secondary containment. Spill kits are located strategically throughout the site, and are readily accessible. In addition, Facilities Division operations and training address necessary procedures to be conducted in the event of any leak or spill.

2.5 SPILL RESPONSE PROCEDURES

Berkeley Lab staff is trained in the following **SWIMS** procedures below for responding to spills. These procedures are posted in areas where potential spills may occur.

- S** **STOP and THINK.** Stop working. Stop the spill.
- Assess the situation: How big is the Spill? Has it made contact with your skin or personal clothing?
- W** **Warn Others**
- Call x7911 or 9-911 if there is a medical emergency or danger to life, health or the environment.
 - Alert people in laboratory.
- I** **Isolate the Area**
- Restrict access.
 - Determine the extent of the spill.
 - Keep doors closed.

M Monitor Yourself Carefully and Completely

- Check yourself for any chemical contamination or signs/symptoms of exposure (wet clothing, skin or respiratory irritation).
- For medical emergencies follow directions under the PERSONAL INJURY tab.

S STAY In or Near the Area Until Help Arrives

- Minimize your movements.
- Have person knowledgeable of incident assist Emergency Personnel
- Notify your supervisor.

FACILITY DRAINAGE

- 3.1** SITE DRAINAGE PATTERNS
- 3.2** DRAINAGE FROM CONTAINMENT AREAS
- 3.3** PLANT EFFLUENT DISCHARGES INTO NAVIGABLE WATERS

3.1 SITE DRAINAGE PATTERNS

The topography of the Berkeley Lab site consists of steep hillsides and canyons. The site generally slopes from northeast to southwest with grades as steep as 26 percent. Ground elevations range from 500 ft to 1,050 ft above mean sea level.

The northwest portion of the site is located within the North Fork Strawberry Creek watershed, commonly referred to as Blackberry Creek. The remainder of the site is within the South Strawberry Creek Watershed. A map of the site drainage patterns is shown in Figure 2-4, and a map showing the site creeks and topography is shown in Figure 2-5. Surface runoff within the Blackberry Canyon Watershed discharges either directly or via storm drains into North Fork of Strawberry Creek. Surface runoff within the remainder of the site discharges either directly or via storm drain into tributaries of the South Fork of Strawberry Creek. The South Fork mixes with the Botanical Creek forming a settling pond area before overflowing into underground piping. Both the North Fork and the South Fork flow through separate culverts and re-surface on upper portions of the University of California (UC) Berkeley campus. The two creeks eventually merge at the lower end of the UC campus before passing beneath the City of Berkeley and discharging into the San Francisco Bay. Conditions for the creeks and tributaries range from completely dry in the summer months to heavy flows during winter storms.

3.2 DRAINAGE FROM CONTAINMENT AREAS

When rainfall results in a significant accumulation of water in secondary containment areas, the water is discharged after each storm event. A Facilities Division procedure for rainwater disposal is presented in Appendix E, along with a rainwater disposal log form. The rainwater disposal procedure will be modified periodically to include secondary containment requiring rainwater disposal that is currently being constructed or planned. Modifications to the rainwater disposal procedure will be made as necessary and included in the Plan without formal modification. The general procedure for discharge of accumulated rainwater from containment is as follows:

- Bypass valves are normally sealed closed.
- Bypass valves will be opened and resealed following drainage under responsible supervision.
- Accumulated liquid will be inspected for color, clarity, odor or the presence of a sheen on the water surface. If the results of the inspection are inconclusive, a sample will be collected and analyzed for the presence of petroleum hydrocarbons.
- If the accumulated liquid consists of uncontaminated rainwater only, authorized Facilities Division personnel will discharge the liquid through a manually operated valve. The valve will be closed and locked following completion of the discharge. No flapper-type valves are installed in containment areas. If no discharge valves are available, the water will be pumped from the containment area into a nearby storm drain.

- If the rainwater sample test results indicate the presence of petroleum hydrocarbons, then procedures for contaminated water will be followed for the removal of the rainwater from the containment area.
- A record of storm water inspections and discharges is maintained using the form presented in Appendix E. The Facilities Division will maintain records for no less than three years.

In the event that containment areas are in danger of overflowing and the accumulated rainwater shows evidence of oil contamination, the water will be pumped into temporary storage containers and analyzed to determine the appropriate method of disposal.

3.3 PLANT EFFLUENT DISCHARGES INTO NAVIGABLE WATERS

Plant effluents discharged into navigable waters include storm water and ground water discharges from hydraugers located throughout the Berkeley Lab. The hydraugers are hydraulic conduits used to lower the water tables in potentially unstable hills. Many of the hydraugers discharge into the storm drain system. Some hydraugers, which could contain potentially contaminated effluents, are treated onsite before being discharged to the sanitary sewer. The hydrauger discharges are monitored periodically, as reported in the Site Environmental Report for the Lawrence Berkeley National Laboratory (SER).

Procedures for monitoring storm water discharges are discussed in the Berkeley Lab Storm Water Monitoring Plan, in compliance with the California General Industrial Storm Water Permit. The ESG is responsible for implementing the Storm Water Monitoring Plan. The Plan requires monitoring of two storm events per year with the results reported in the SER and the Storm Water Monitoring Report.

OIL STORAGE

- 4.1 MATERIALS OF CONSTRUCTION
- 4.2 ABOVEGROUND STORAGE TANKS (ASTs)
- 4.3 RESTRAINTS
- 4.4 UNDERGROUND STORAGE TANKS (USTs)
- 4.5 DRUM STORAGE AREAS
- 4.6 PORTABLE STORAGE TANKS
- 4.7 OIL-FILLED ELECTRICAL EQUIPMENT

Oil storage units at the Berkeley Lab consist of ASTs, Underground Storage Tanks (USTs), drum storage areas, portable tanks, and oil-filled electrical equipment. For the purposes of this Plan, an oil or petroleum product storage unit is defined as a tank or drum having a capacity of at least 1 barrel, or 42 gallons.

4.1 MATERIALS OF CONSTRUCTION

All storage units used for oil or petroleum product storage are constructed of materials compatible with such products and in compliance with current construction standards. These materials include carbon-steel, epoxy-coated steel, fiberglass, and plastics that have been certified by the manufacturer to be appropriate for use with petroleum products. All tanks are designed for use under conditions that include atmospheric pressure, the full range of ambient temperatures normally occurring in the San Francisco Bay Area, exposure to rain, and extended periods of sunlight.

4.2 ABOVEGROUND STORAGE TANKS (ASTs)

A current list of ASTs, with a description of the secondary containment for each tank, is provided in Appendix A. All of the ASTs containing 42 gallons or more have secondary containment of sufficient capacity to contain the entire contents of the largest tank within the containment area plus a sufficient allowance for precipitation (25-year, 24-hour storm of 4.78 inches as a best management practice). Locations of ASTs are indicated on Figure A-1 in Appendix A. Berkeley Lab tanks are as follows:

- Double-walled, vault tanks for E85 blend, diesel fuel and transformer oils.
- Double-walled, belly tanks for standby electricity generation.

Several ASTs attached to standby generators (day tanks) are equipped with fiberglass automatic fill lines from USTs. In all cases, these day tanks have now been equipped with relay cutoffs that control solenoid valves, which prevent the uncontrolled pumping of oil in the event of a leak at the day tank.

No ASTs at the Berkeley Lab are heated; therefore regulations pertaining to internal heating coils are omitted from discussion in this Plan.

4.3 RESTRAINTS

Transformers and ASTs at the Berkeley Lab are bolted to concrete pads within containment berms.

4.4 UNDERGROUND STORAGE TANKS (USTs)

A current list of USTs at the Berkeley Lab is presented in Appendix B. The locations of the USTs are shown in Figure B-1 in Appendix B. All UST systems at the Berkeley Lab are double-walled

tanks with corrosion protection and automatic release detection capability. Overfill prevention for USTs consists of:

- Mechanical shutoff valves (flapper valves) for the main fuel USTs at Building 76, and an audible alarm;
- Formal emergency procedures LBNL UST Emergency Response Plan (April 13, 2009) for responding to a potential overfill situation; and
- Emergency signs posted that provide instructions for power shutoff in the event of a potential overfill situation.

4.5 DRUM STORAGE AREAS

A list of drum storage areas at the Berkeley Lab is presented in Appendix C, along with a description of secondary containment or spill control measures at each area. The list includes WAAs that are currently used for storage of waste oil and hazardous waste. The locations of DSAs are indicated in Figure C-1.

The locations of the WAAs are shown in Figure C-2. All WAAs may potentially be used for storage of waste oil, although waste oil that has been recently transferred to the handling facility would not be indicated on the list. Therefore, all WAAs are shown in Figure C-2, including those that do not currently contain waste oils. All WAAs are equipped with secondary containment. Currently, there are five (5) WAAs. Generally, there are only three to four WAAs containing or expected to contain waste oil.

The centralized drum storage area is located at Building 79A. Additionally, several small drum storage sheds were constructed throughout the facility. To the extent practical, all oil containing product drums are stored within the sheds or at the drum storage facility. However, because of changing operations throughout the facility, small numbers of drums may periodically be stored near various buildings. Provisions have been made for the storage of these drums on secondary containment pallets, or within secondary containment drums.

Additionally, if conditions require the use of a drum within a building, plastic containment barrels and/or plastic drainage/containment pallets are used. The plastic containment barrels are generally used for containment of individual drums in areas where only one or two drums are stored. In accordance with 40 CFR 112.7(e)(2)(ii), secondary containment provided for drum storage areas have sufficient volume to contain the entire contents of the largest single drum or tank plus sufficient freeboard to allow for precipitation (25-year, 24-hour storm event of 4.78 inches as a best management practice), and enough space to allow for 20 minutes of fire sprinkler water (UFC, Art.79).

4.6 PORTABLE STORAGE TANKS

Portable storage tanks at the Berkeley Lab are associated with mobile portable standby generators, air compressors, and a small on-site tank truck for delivery of fuel. Most portable tanks are double-walled or have fabricated metal containment. These tanks are included in the summary of ASTs in Appendix A. The following protective measures are in place at the Berkeley Lab for portable storage tanks:

- Three portable generators are normally stored at Building 82 and are moved to other locations, as needed.
- Portable tanks are located and positioned to prevent spilled oil from reaching storm drains or other access points to navigable waters.
- Portable tanks are equipped with spill kits.
- The small on-site tank truck for delivery of fuel to individual standby generators is equipped with a spill kit and is continuously manned while delivery and filling operations are occurring.

4.7 OIL-FILLED ELECTRICAL EQUIPMENT

A current list of oil-filled electrical transformers is presented in Appendix D. This list includes all facility transformers and those connected to the site primary power distribution system. The transformers are mounted on concrete pads.

The Berkeley Lab assumed control of the Grizzly Substation from UC Berkeley during 2006. The Grizzly Substation contains five transformers located near Building 36A. The transformer bank designation, oil capacity, and secondary containment adequacy is listed in Appendix D, Table D-1. UC Berkeley retains ownership and responsibility for operation of the Hill Substation, adjacent to the Grizzly Substation.

Secondary containment is required for oil filled electrical equipment in order to prevent spills from reaching storm drains. An illegal discharge to the storm drain would constitute a violation of the Clean Water Act. Valves on secondary containment are to be kept in a closed position except to perform approved storm water procedures, (Facilities Division OPER-056-C, Revision 4/29/05, Appendix E). Transformers at the Berkeley Lab are equipped with secondary containment to prevent any leaks from reaching waterways.

Containment for transformers is in the form of sheet metal berms, or in the case of some of the larger transformers, containment consists of concrete berms and retention sumps. In some areas, the capacity of the containment area may not be sufficient to contain the entire contents of the largest capacity because of the presence of rocks and gravel in the containment area. The rocks and gravel are an industry standard used to prevent fire and electrical hazards and cannot be removed.

No transformers at the Berkeley Lab are classified by Federal standards (40 CFR 761) as polychlorinated biphenyl (PCB) transformers. Some of the transformers are classified in California as PCB-contaminated (i.e., PCBs are present but concentrations are less than 500 parts per million but greater than 5 parts per million). The concentrations of PCBs in the transformer oils are indicated in Appendix D, Table D-1.

Other electrical equipment at the Berkeley Lab that contains bulk quantities of oil includes the Marx research and development tanks, which are oil-filled high voltage enclosures, and oil filled electrical switching boxes. A current list of Marx tanks and other research and development tanks is presented in Appendix D, Table D-2.

Because of research being conducted at the Berkeley Lab, occasionally there is a temporary need for oil filled electrical equipment as part of experiments being performed by researchers. Currently, there are two temporary storage tanks located in Building 71. These tanks are filled with non-PCB Diala oil and are associated with research being conducted inside the building. One of these tanks is the power supply and has a capacity of 660 gallons; the other tank is part of a Klystron tube and has a capacity of 440 gallons. Both of these tanks are equipped with secondary containment pans to catch any drips or minor spills. Large spills would overflow the pans and would flow to the basement of the building and be retained in a sump.

FACILITY TRANSFER OPERATIONS

- 5.1 UNDERGROUND PIPING
- 5.2 ABOVEGROUND PIPING
- 5.3 OUT-OF-SERVICE PIPING
- 5.4 FACILITY TANK TRUCK LOADING/UNLOADING

5.1 UNDERGROUND PIPING

The Berkeley Lab has upgraded all underground piping associated with USTs prior to December 1998 in accordance with the requirements for underground piping as set forth in the federal UST regulations (40 CFR 280). Underground piping is constructed of fiberglass, a non-corrodible material.

5.2 ABOVEGROUND PIPING

All aboveground piping supports will be designed to minimize corrosion and abrasion and to allow for expansion and contraction. Aboveground piping associated with USTs is monitored, visually inspected and periodically subjected to precision leak testing. All aboveground piping and valves associated with ASTs will be inspected as specified in Section 8.0. Precision leak testing is periodically performed on the Building 76 AST (TK-007-76) supply piping which contains 85% ethanol.”

No aboveground piping is known to be exposed to vehicular traffic. Warning signs and barriers will be posted if future pipeline installations result in exposures of pipelines to traffic.

5.3 OUT-OF-SERVICE PIPING

Underground and aboveground piping that is not in service or is in standby service for an extended time will be capped and blank-flanged when removal is not practical. The Berkeley Lab has adopted Lock Out / Tag Out procedures to increase safety around the facility and reduce the chance of spills. Underground piping that is permanently out-of-service will be removed or abandoned in place in accordance with an approved closure plan.

5.4 FACILITY TANK TRUCK LOADING/UNLOADING

Transportable storage tanks (tank trucks) are exempt from the provisions of the SPCC Plan, but do comply with additional regulatory requirements, which include spill prevention. The commercial tank trucks that deliver diesel and unleaded gasoline to the Berkeley Lab adhere to the requirements and regulations of the Department of Transportation (DOT) during unloading of fuels.

Commercial fuel deliveries are made primarily to the 10,000 gallon USTs at Building 76 and occasionally to the ASTs at Buildings 64 (6,000 gallon) and 74/83 (4,000 gallon). Automatic interlocking systems are installed in the tank trucks to prevent departure of the tank trucks before proper disconnection of the transfer lines. Drains and outlets on the tank trucks are inspected for leaks before departure of the trucks. A bonnet area at the fill pipe of each of the USTs at Building 76 captures small spills of fuel that may occur during loading operations. Administrative controls, including procedures for monitoring and responding situations that could potentially result in a tank

overflow, are used to prevent fuel spills during tank loading and unloading. Additionally, the fuel trucks are equipped with a spill kit to respond to spills.

The Berkeley Lab has its own diesel fuel delivery truck for fueling ASTs and USTs that support engine generators. Generally, the delivery of fuel is small since engine generators are typically only run once a month. The fuel delivery truck has a capacity of 600 gallons. The fueling nozzle delivers fuel at 26 gallons per minute. The truck is equipped with a fuel pump and a meter for gallons delivered. The following protective measures are in place at the Berkeley Lab for the fuel delivery trucks:

- A spill kit and some additional spill absorbent are maintained at the truck
- Two persons monitor the delivery of fuel from this truck to an AST or UST.
- The fuel delivery nozzle is always manned to prevent spills.

INSPECTIONS AND RECORDS

- 6.1 RESPONSIBILITIES
- 6.2 INSPECTIONS
- 6.3 INTEGRITY TESTS AND EVALUATIONS
- 6.4 RECORDS

6.1 RESPONSIBILITIES

Procedures for the inspection and maintenance of tanks and piping systems are developed and implemented at the Berkeley Lab to ensure proper equipment operations.

- The Facilities Division oversees leak tests and monitoring of underground tanks and piping and maintains records of the results. Facilities Division personnel also inspect aboveground tanks and piping.
- The Berkeley Lab Environment/ Health/ Safety/Security (EHSS) Division inspects Drum storage areas and WAAs.

6.2 INSPECTIONS

Monthly inspections are conducted of petroleum drum storage areas (Appendix F). Leak detection/monitoring systems for underground tanks and piping are certified annually by an UST certified technician. Precision leak test methods specified in 40 CFR 280 and in CCR Title 23 are used to assess tank conditions.

The aboveground storage tanks are inspected by Facilities Division personnel on a monthly basis following Tank Scheduled Maintenance and Inspection Operating Procedure (dated 7/2/02) found in Appendix G. This monthly aboveground storage tank inspection procedure will be enhanced to more closely match the monthly aboveground storage tank inspection guidance from the 2011 Steel Tank Institute SP001 Monthly Inspection Checklist. This activity is listed in the SPCC Implementation Schedule found in Appendix H. In addition to the monthly aboveground storage tank inspection, an annual aboveground storage tank inspection procedure will be developed to meet the new guidance from the 2011 Steel Tank Institute SP001 Annual Inspection Checklist. This activity is listed in the SPCC Implementation Schedule found in Appendix H. The development of the monthly and annual aboveground storage tank inspection procedures will take into consideration the types of aboveground storage tank systems in use at the Berkeley Lab. Inspection elements provided as guidance by the 2011 Steel Tank Institute SP001 standard that are not applicable to the types of aboveground storage tank systems at the Berkeley Lab, or are redundant, will not be included in the aboveground storage tank inspection procedures. The Berkeley Lab Environmental Services Group also conducts formal inspections of drum storage areas on a monthly basis as presented in Appendix F. Users of the materials stored in drum storage areas will visually inspect the drums on an informal basis and will report evidence of leaks to the Environmental Services Group. Waste Management Group personnel will inspect waste drum storage areas that are classified as WAAs on a weekly basis. Any visible oil leaks identified, either during an inspection or normal use, which could result in a significant accumulation of oil within the containment area, will be promptly corrected.

6.3 INTEGRITY TESTS AND EVALUATIONS

The Berkeley Lab implements an integrity testing program for bulk storage containers, which include a combination of visual inspection and nondestructive integrity testing. The tank scheduled maintenance and inspection operating procedures for monthly and annual inspections are presented in Appendix G. The program includes formal external inspection by a certified inspector of tanks greater than 5,000 gallons every 20 years. Currently, there are two tanks which are larger than 5,000 gallons located at Building 64 (TK-001-64, 6,000 gallons) and Building 84 (TK-4-84, 6,000 gallons). Formal external inspection by a certified inspector is required for the Building 84 AST, TK-4-84, by October 2016 and is required by the Building 64 AST, TK-001-64, by November 2021. The integrity testing follows the guidelines outlined in the Steel Tank Institute (STI) “Standard for Inspection of In-service Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids” (Standard for Inspection, SPOO1) for in-service shop fabricated tanks.

Double-walled, vault tanks are used for storage of E85 blend, diesel fuel and transformer oils. The vaults have a concrete exterior to protect the tank and containment systems. The concrete exterior precludes nondestructive testing via ultrasonic or radiographic testing.

No field constructed AST’s are used at the Berkeley Lab.

6.4 RECORDS

All records required by this SPCC Plan are maintained on-site for a minimum period of three years. After three years, the records may be retained or archived. Inspection records are maintained by the following organizations:

EHSS Division

- Drum inspections (excluding WAAs)
- WAA inspections
- Spill documentation
- Environmental compliance inspections

Facilities Department

- Tank inspections
- Rainwater discharges
- Integrity tests

SECURITY

- 7.1 BARRIERS TO ENTRY
- 7.2 LOCKS ON VALVES AND PUMPS
- 7.3 FACILITY LIGHTING

7.1 BARRIERS TO ENTRY

Fencing surrounds the Berkeley Lab facility, and gates are locked or guarded. Guard stations at each of the three entry gates control access to the Berkeley Lab. Many of the storage units are located inside buildings which are locked during evening hours. Tanks on the standby generators are generally difficult to access because they are located inside the generators. The WAAs are locked and access is permitted only to authorized personnel. Oil filled electrical equipment are generally located in fenced and locked areas.

7.2 LOCKS ON VALVES

Drainage valves for tanks, transformers, and secondary containment berms are controlled within locked and fenced areas or the valves have directly affixed locks. All valves are maintained in the closed position by authorized Facilities Division personnel. Any new system that requires drainage valves will be secured in fenced and locked areas or will have locks affixed to the drainage valves.

7.3 FACILITY LIGHTING

Facility lighting is commensurate with the type and location of the facility. The following factors were considered in determining appropriate lighting:

- The facility consists of 200 acres with numerous buildings, miscellaneous structures, and wooded undeveloped areas. Lighting of the entire facility is neither practical nor desired.
- The majority of the ASTs are located throughout the facility versus in a central location.
- There are security patrols of the facility 24 hours a day; a guard at the entry gate and Facilities Division personnel are present at all hours.
- The facility is surrounded by a fence, which minimizes the potential for vandals entering the facility.

PERSONNEL TRAINING

- 8.1 TRAINING PROGRAMS
- 8.2 SPILL PREVENTION BRIEFINGS
- 8.3 SPILL NOTIFICATION AND REPORTING

8.1 TRAINING PROGRAMS

Personnel involved with oil equipment and bulk storage containers at the Berkeley Lab receive instructions, on the job training and or formal classes to ensure adequate understanding in the proper operation and maintenance of equipment and spill prevention. Training may include:

- Discussion regarding applicable pollution control laws, rules, and regulations;
- Introduction of new technology or revised procedures; and
- Familiarization with the SPCC Plan, emphasizing the SPCC Plan as a resource for informing current and new employees to enhance response and pollution awareness.

Training associated with the Plan is considered job-related or required training. Whenever such training occurs, the facility manager(s) and/or the directorate's delegated personnel will record attendance of participants.

The Waste Management Group personnel who may assist in responding to spills receive state-certified training in emergency response, control, and containment. This training includes a 24-hour Hazardous Materials First Responder Training course or its equivalent, and an 8-hour Annual Refresher Course Hazardous Waste Operations and Emergency Response Personnel or its equivalent. The 24-hour Hazardous Materials First Responder Training and the 8-hour Annual Refresher Course for Hazardous Waste Operations and Emergency Response Personnel courses comply with Federal OSHA regulation 29 CFR 1910.120.

In the event of a hazardous substance spill, other EHSS personnel are also trained to provide second-responder services in order to help mitigate the effects of the spill on the surrounding population and environment. First response emergency services are provided by the Alameda County Fire Department's on-site fire station.

WAA supervisors are trained in procedures for proper handling and storage of hazardous waste by attending training courses provided by EHSS. WAA supervisors attend EHSS course 610, Waste Accumulation, and EHSS course 604, Hazardous Waste Generators (see *Publication 3092, revision 7.1, October 2011*).

8.2 SPILL PREVENTION BRIEFINGS

The ESG representative will, as found necessary, conduct spill prevention briefings, training sessions, meetings or issue reports/memos to assure adequate understanding of this SPCC Plan. These activities will:

- Highlight and describe known spill events or failures;
- Provide a brief overview of applicable regulations, provide an update on changes or updates to the SPCC Plan or regulations;

- Provide a review of SPCC procedures and recently developed precautionary measures; and
- Provide an opportunity for comments and discussion.

These activities may also be included as part of the personnel training. The target audience will include both EHSS personnel and Facilities Division personnel responsible for implementation of the SPCC Plan or procedures, and other personnel that may be affected by the requirements in this SPCC Plan.

As much as possible, SPCC awareness will be incorporated into other required EHSS training courses. Periodically, the ESG will schedule/conduct refresher/training classes for SPCC awareness. The official SPCC training course is EHSS 680.

8.3 SPILL NOTIFICATION AND REPORTING

Individual agencies have spill notification and reporting requirements that apply if a release of oil occurred at the Berkeley Lab. Federal, state and local agency notification and reporting requirements for unauthorized oil releases are summarized below. Berkeley Lab staff who discovers a spill immediately notifies the Environment/Health/Safety/Security Division (EHSS) by calling 7911. All regulatory notifications are performed by the Environmental Services Group within EHSS.

- a) The National Response Center shall be contacted immediately at 1-800-424-8802 if any of the following conditions are met:
 - i. The oil spill/release will reach the creeks via the storm drain system.
 - ii. Water quality standards could be violated.
 - iii. The spill/release could cause a film or sheen in the creeks.
 - iv. The spill/release could cause a sludge or emulsion.
- b) The California Emergency Management Agency (Cal EMA) shall be contacted immediately at 1-800-852-7550 if any of the following conditions are met:
 - i. The reportable quantity of oil or petroleum products is 42 gallons or more by direct discharge to the receiving waters (creek). [ref. Ca. Water Code 13272(f)]

Note that immediate is defined as, “as soon as the person has knowledge of the discharge, notification is possible, and notification can be provided without substantially impeding cleanup or other emergency measures.” [ref. Ca Water Code 13272(a)]

- c) If a report is made to Cal EMA, then the spill/release shall also be reported to:
 - i. City of Berkeley Toxics Management Division: (510) 981-7461
 - ii. San Francisco Regional Water Quality Control Board, Spill Hotline: (510) 622-2369
 - iii. California Department of Fish & Game: (707) 944-5500
- d) For releases which reach the San Francisco Bay, the US Coast Guard Marine Safety Office shall be contacted at 510-437-3073.
- e) To the extent known, the following information should be provided to the regulatory agencies during the initial telephone notification [ref. 40 CFR 112.7(a)(4)]:
 - i. Your name, location, organization, and telephone number
 - ii. Date and time of the incident
 - iii. Location of the incident
 - iv. Type of petroleum product spilled/released
 - v. Estimates of the total quantity discharged
 - vi. Estimate of the total quantity that has reached the creek
 - vii. Source of discharge
 - viii. A description of all affected media
 - ix. The cause of the discharge
 - x. Any damages or injuries caused by the discharge
 - xi. Actions being taken to stop, remove, and mitigate the effects of the discharge
 - xii. Whether an evacuation may be needed
 - xiii. The names and individuals and/or organizations who have also been contacted
 - xiv. Weather conditions at the incident location (optional)
- f) If the spill/release is greater than 1,000 gallons or this is the second spill/release greater than 42 gallons with twelve (12) months, the Environmental Services Group must prepare a written report of the incident. The written report of the incident must be submitted to US EPA Region IX, 75 Hawthorn Street, San Francisco, CA 94105 with copies to the City of Berkeley Toxics Management Division and the San Francisco Regional Water Quality

Control Board within 60 days [ref. 40 CFR 112.4 (a) & (c)]. The written report of the incident must include the following:

- i. Name of the Facility
 - ii. Your name
 - iii. Location of the Facility
 - iv. Maximum storage or handling capacity of the facility
 - v. Corrective action and countermeasures you have taken, including a description of equipment repairs and replacements
 - vi. An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary
 - vii. The cause of such discharge, including a failure analysis of the system or subsystem in which the failure occurred
 - viii. Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence; and
 - ix. Such other information as US EPA Region IX may reasonably require pertinent to the SPCC plan or discharge.
- g) The following spill cleanup contractors are available for response:
- i. Primary – Veolia (1-800-688-4005) LBNL contract No. 6924168
 - ii. Secondary – PSC (1-877-577-2669) LBNL contract No. 6924170

REFERENCES

- 9.1** DOCUMENTS
- 9.2** LIST OF ACRONYMS
- 9.3** SPCC PLAN COMPLIANCE REFERENCE TABLE

9.1 DOCUMENTS

9.1.1 Emergency Procedures

- Environment, Health & Safety Manual, *Emergency Services, Chapter 9*, Publication 3000, <http://www.lbl.gov/ehs/pub3000/>
- *Master Emergency Plan*, Pub 533, <http://www.lbl.gov/ehs/esg>

9.1.2 Additional Plans and Procedures

- Berkeley Lab *Environmental Monitoring Plan*, <http://www.lbl.gov/ehs/esg/>
- *Chemical Hygiene and Safety Plan*, <http://www.lbl.gov/ehs/chsp/index.shtml>
- *Hazardous Materials Business Plan (HMBP, Inventory)*
<http://www.lbl.gov/ehs/esg/Reports/assets/HMBP%202012%20POTTERST%20FINAL3-1-12.pdf>
- *Stormwater Pollution Prevention Plan*, <http://www.lbl.gov/ehs/esg/>
- Berkeley Lab's Hazardous Waste Handling Facility, *RCRA Part B Permit, Section VIII - Contingency Plan*, July 2001.
- *Underground Storage Tanks: Emergency Response Plan*, April 2009.

9.1.3 Regulatory

- Code of Federal Regulations, Title 40, parts 110 and 112.
- Department of Energy, DOE Order 436.1.
- California Health and Safety Code, Section 25270.
- California Water Code, Section 13272. City of Berkeley Municipal Code, Hazardous Material Disclosure Ordinance, BMC Chapter 11.52.
- City of Oakland Municipal Code, Chapter 20, *Storm Water Management and Discharge Control*, Ordinance No. 11590 C.M.S.

9.1.4 Specialty

- Berkeley Lab *Site Environmental Report*, <http://www.lbl.gov/ehs/esg/>
- Strawberry Creek, A Walking Tour of Campus Natural History, December 1991.

9.2 LIST OF ACRONYMS

AST	Aboveground storage tank
BTEX	Benzene, Toluene, Ethlybenzene, and Xylenes
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CUPA	Certified Unified Program Agency
DCA	Dichloroethane
DCE	Dichloroethene
DOE	Department of Energy
DOT	Department of Transportation
EHSS	Environment, Health, Safety, and Security
EPA	Environmental Protection Agency
ESG	Environmental Services Group
H&SC	Health and Safety Code
HWM	Hazardous Waste Management
IC	Incident Commander
ICS	Incident Command System
LBNL	Lawrence Berkeley National Laboratory
MEK	Methyl ethyl ketone
MW	Monitoring well
MSL	Mean sea level
NDT	Nondestructive testing
PCB	Polychlorinated biphenyl
PCE	Perchloroethylene
PPM	Parts per million
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation Work Plan
RWQCB	Regional Water Quality Control Board
SPCC	Spill Prevention, Control, and Countermeasure
TCA	Trichloroethane
TCE	Trichloroethene
TPH-D	Total Petroleum Hydrocarbons as Diesel
TPH-G	Total Petroleum Hydrocarbons as Gasoline
UST	Underground storage tank
VOC	Volatile organic compound
WAA	Waste Accumulation Area

9.3 SPCC PLAN COMPLIANCE REFERENCE TABLE

Reg. 40 CFR 112 Requirement	SPCC Plan Section
112.3 (d) P.E. certification	After Title Page
112.3 (c) Plan Maintenance	1.3
112.4 (a) Agency review and amendment	1.3
112.5 Amendments by owner/operator	1.3
112.7 Management approval	After title page
112.7 (a)(1) Rule Conformance	1.2
112.7 (a)(3) Facility Diagram	Figures 2-1, 2-2, 2-3, 2-4 and 2-5
112.7 (a)(4) Spill Reporting	8.3
112.7 (a)(5) Spill Response Procedures	2.5
112.7 (b) Prediction of spills	2.2
112.7 (c) Containment and diversionary structures	2.3
112.7 (c)(2) Offshore Facilities	N/A
112.7 (c)(3) Rainwater Drainage	3.2
112.7 (d) Integrity Tests	6.3
112.7 (d)(1) Oil spill contingency plan	2.4
112.7 (e) Inspection and records	6 (all sections)
112.7 (f) Personnel Training	8 (all sections)
112.7 (g) Security	7 (all sections)
112.7 (h) Facility tank car loading/unloading	5.4
112.7 (i) Brittle Fracture Requirement	6.3
112.8 (b) Facility drainage	3 (all sections)
112.8 (c) Bulk storage	4 (all sections)
112.8 (c)(1) Materials of construction	4.1
112.8 (c)(2) Secondary containment on storage unit	4.2, 4.4, 4.5, 4.6
112.8 (c)(3) Rainwater drainage	3.2
112.8 (c)(4) Underground tanks	4.4
112.8 (c)(5) Partially buried tanks	Not applicable
112.8 (c)(6) Tank Inspections Integrity Tests	6.3
112.8 (c)(7) Internal heating coils	Not applicable
112.8 (c)(8) Overfill protection	4.2, 4.4
112.8 (c)(9) Plant effluents	3.3
112.8 (c)(10) Visible oil leaks	6.2
112.8 (c)(11) Portable storage tanks	4.6
112.8 (d) Transfer operations	5 (all sections)
112.8 (d)(1) Underground piping	5.1
112.8 (d)(2) Out-of-service piping	5.3
112.8 (d)(3) Piping supports	5.2
112.8 (d)(4) Piping inspections	6.2
112.7 (d)(5) Traffic warnings	5.2

FIGURES

GENERAL FACILITY INFORMATION

- FIGURE 2-1** SAN FRANCISCO BAY AREA MAP
- FIGURE 2-2** ADJACENT LAND USE MAP
- FIGURE 2-3** LAWRENCE BERKELEY NATIONAL LABORATORY BUILDINGS MAP
- FIGURE 2-4** SITE STORM DRAINAGE
- FIGURE 2-5** SITE CREEKS AND TOPOGRAPHY

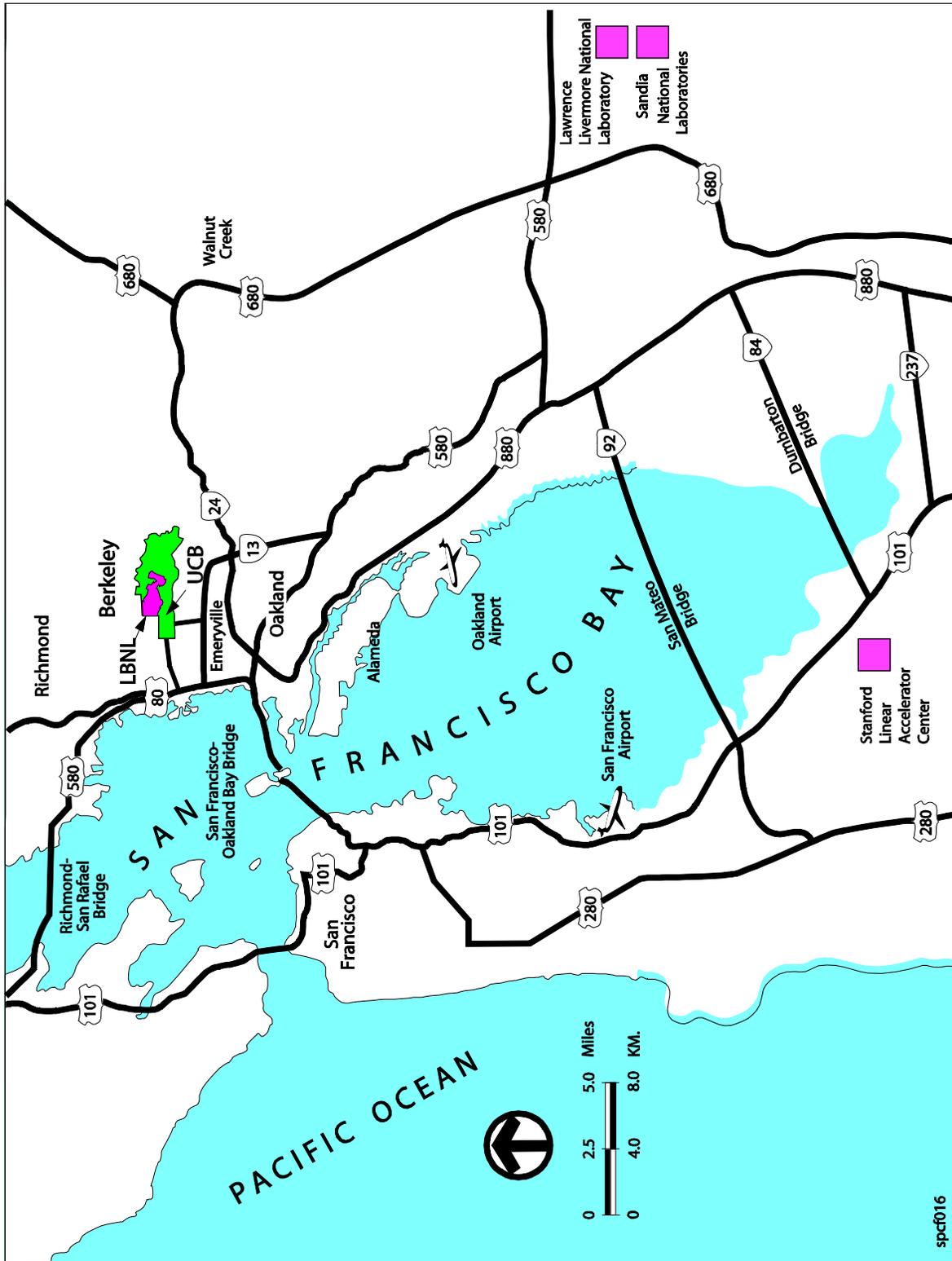


Figure 2-1 San Francisco Bay Area Map

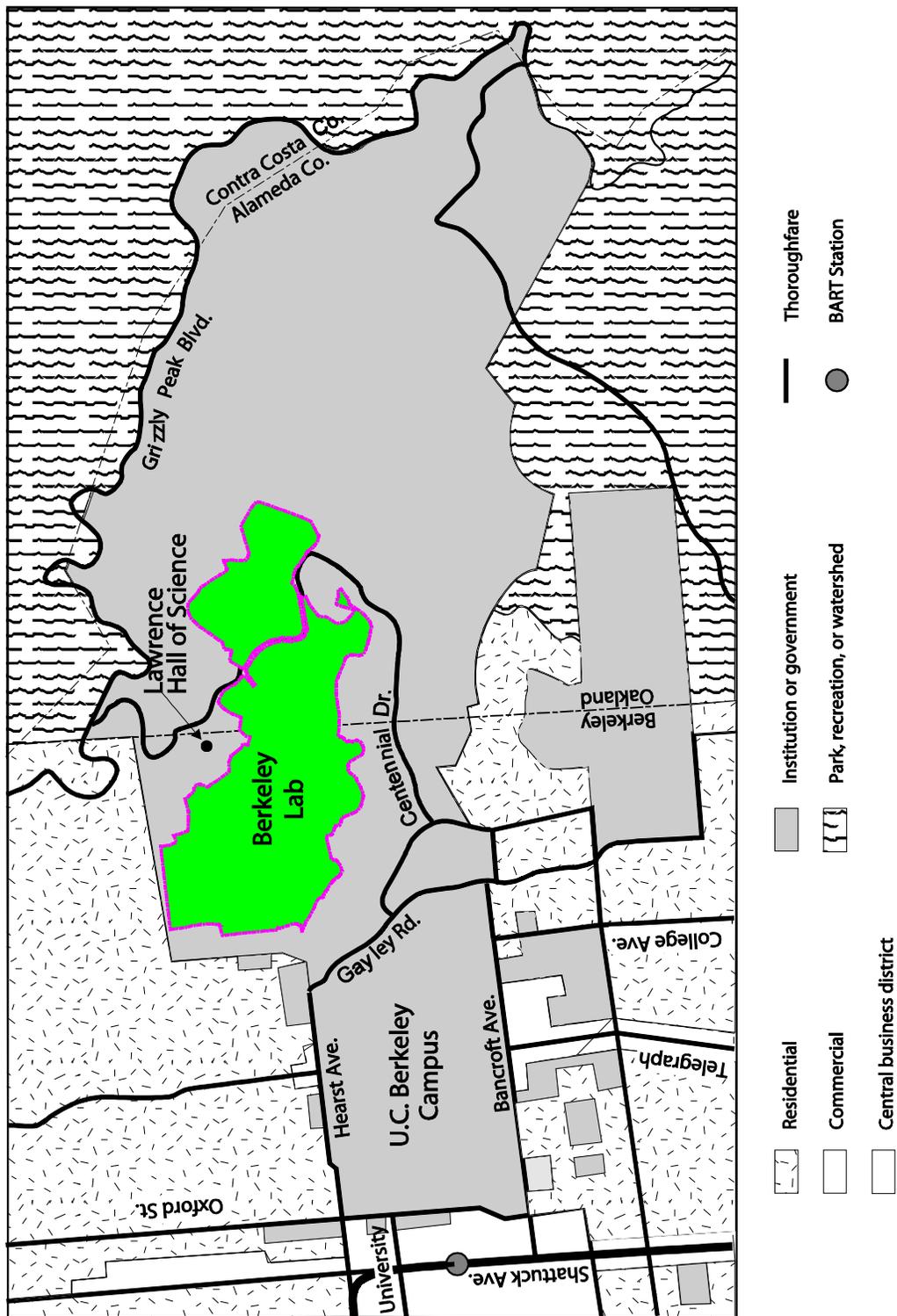
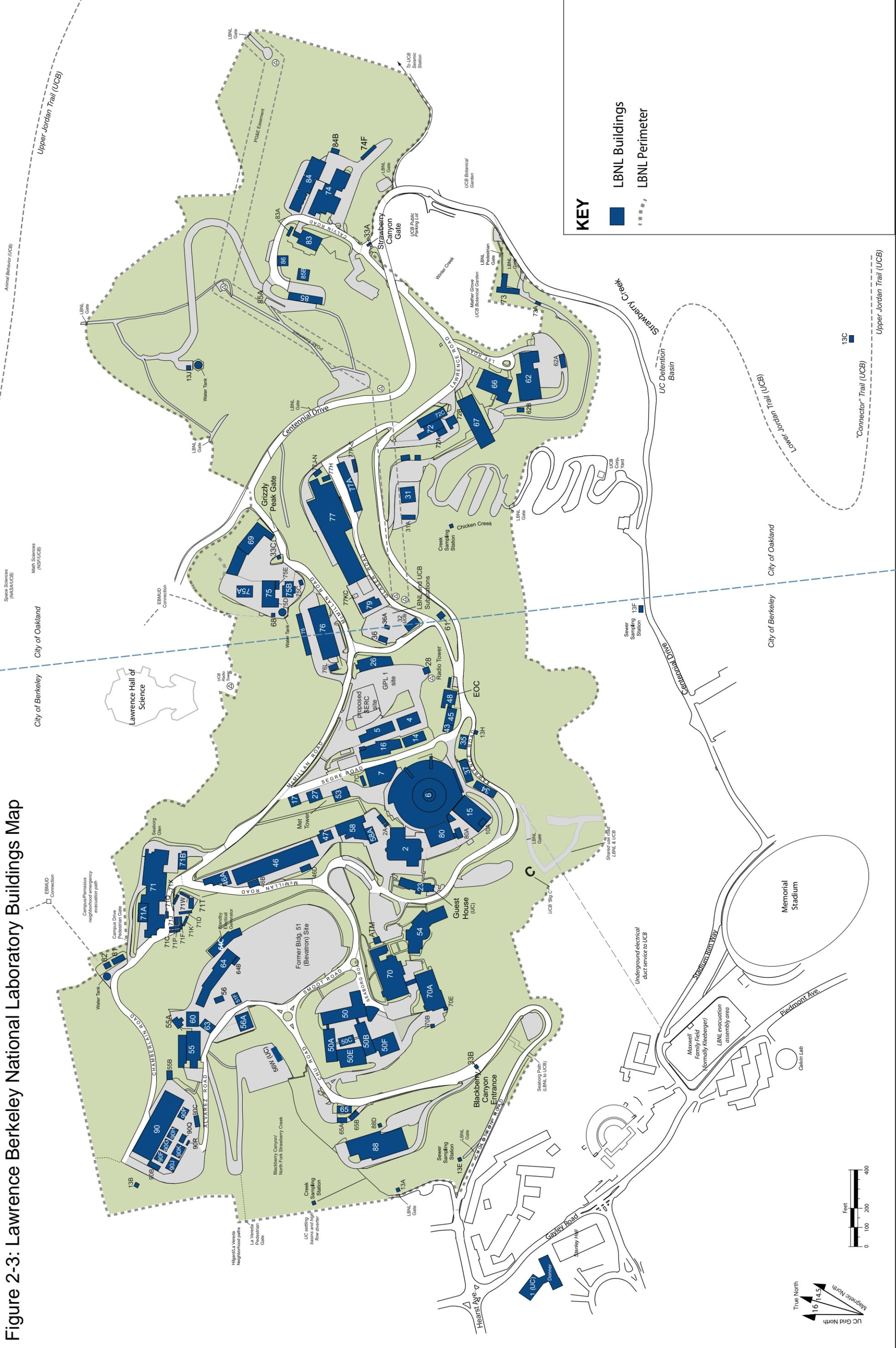


Figure 2-2 Adjacent Land Use Map

Figure 2-3: Lawrence Berkeley National Laboratory Buildings Map



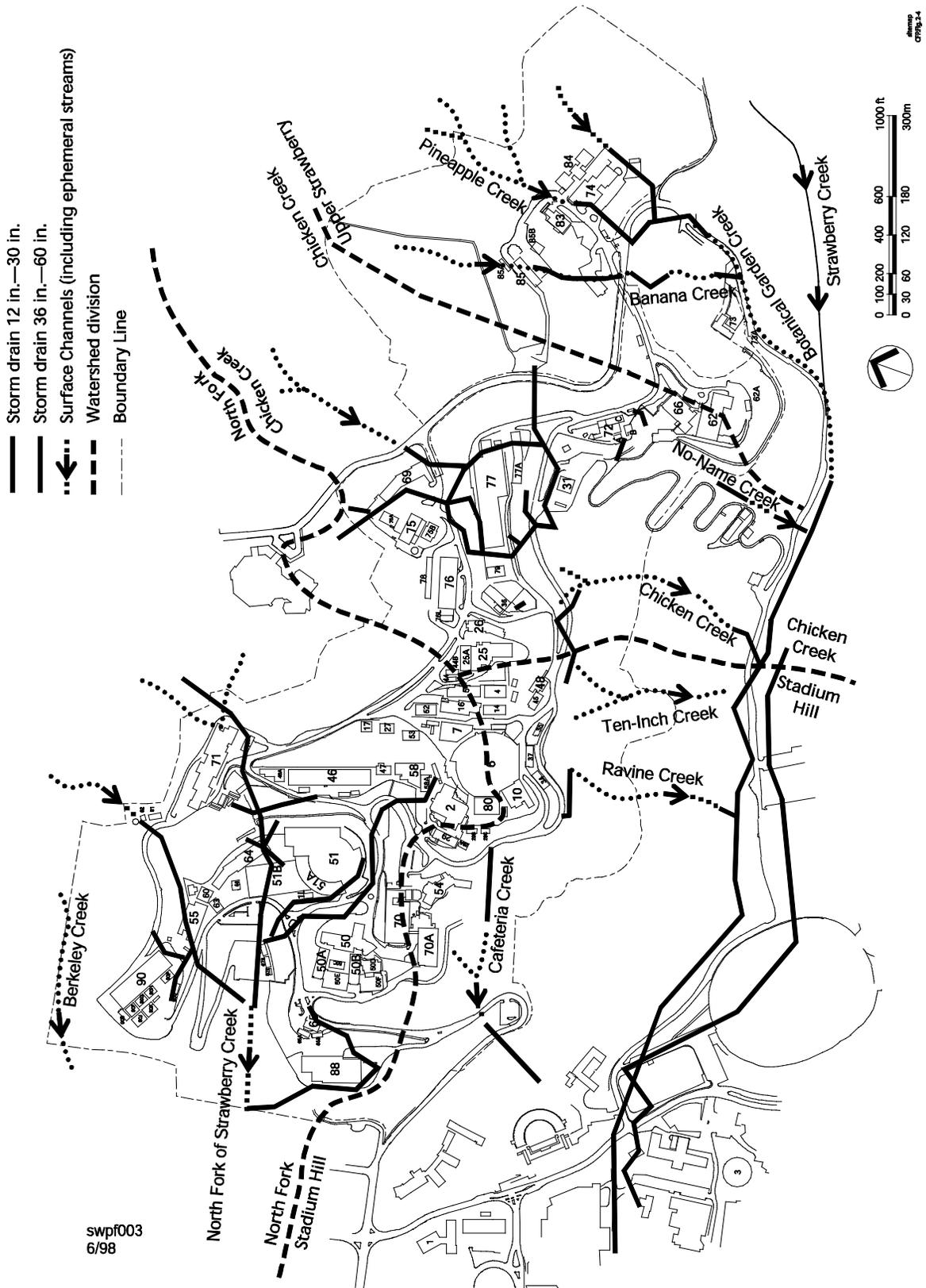


Figure 2-4 Site Storm Drainage

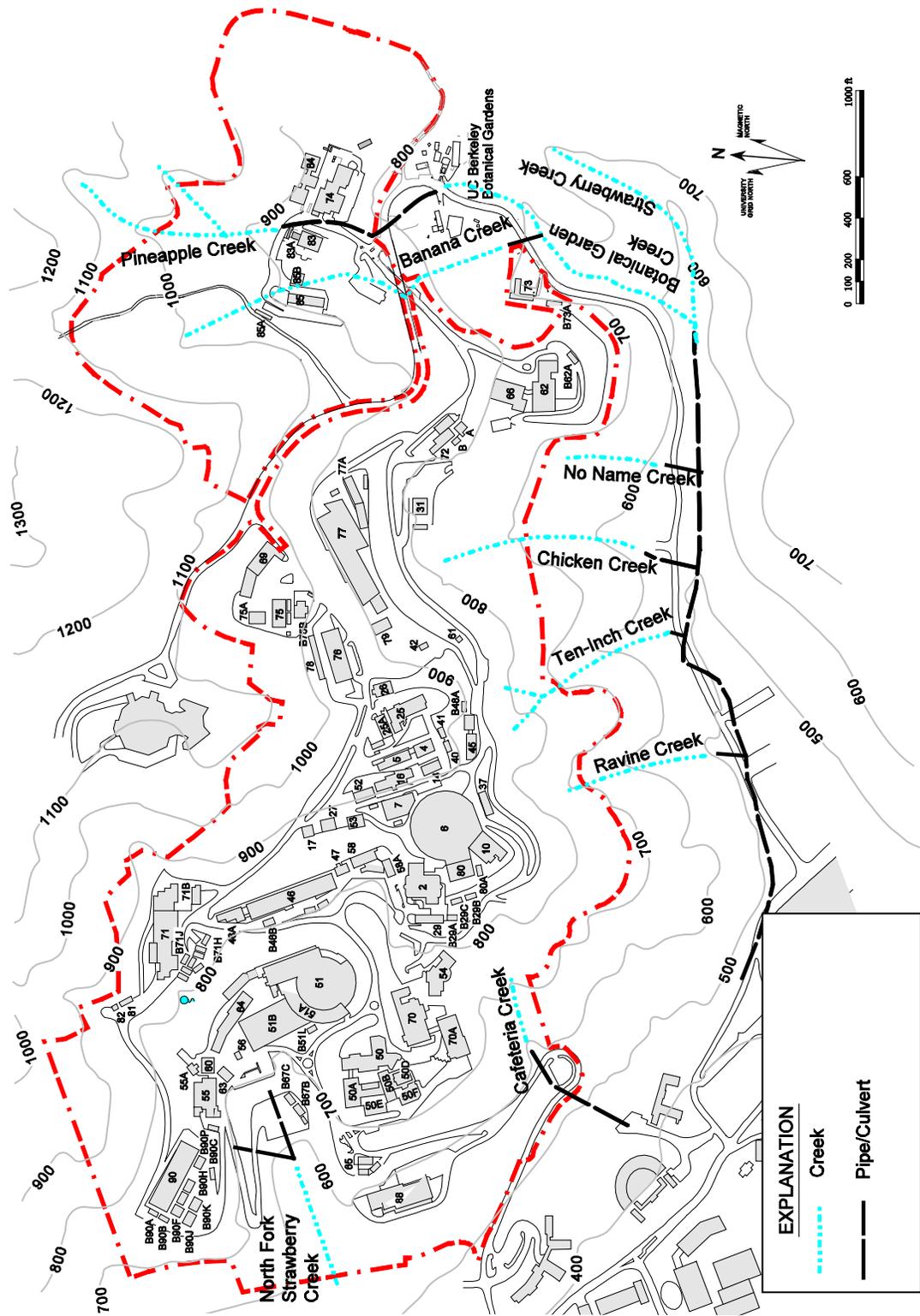


Figure 2-5 Site Creeks and Topography

APPENDIX A

ABOVEGROUND STORAGE TANKS

FIGURE A-1	ABOVEGROUND STORAGE TANK MAP
TABLE A-1	SUMMARY OF ABOVEGROUND STORAGE TANKS

Figure A-1 Aboveground Storage Tank Map

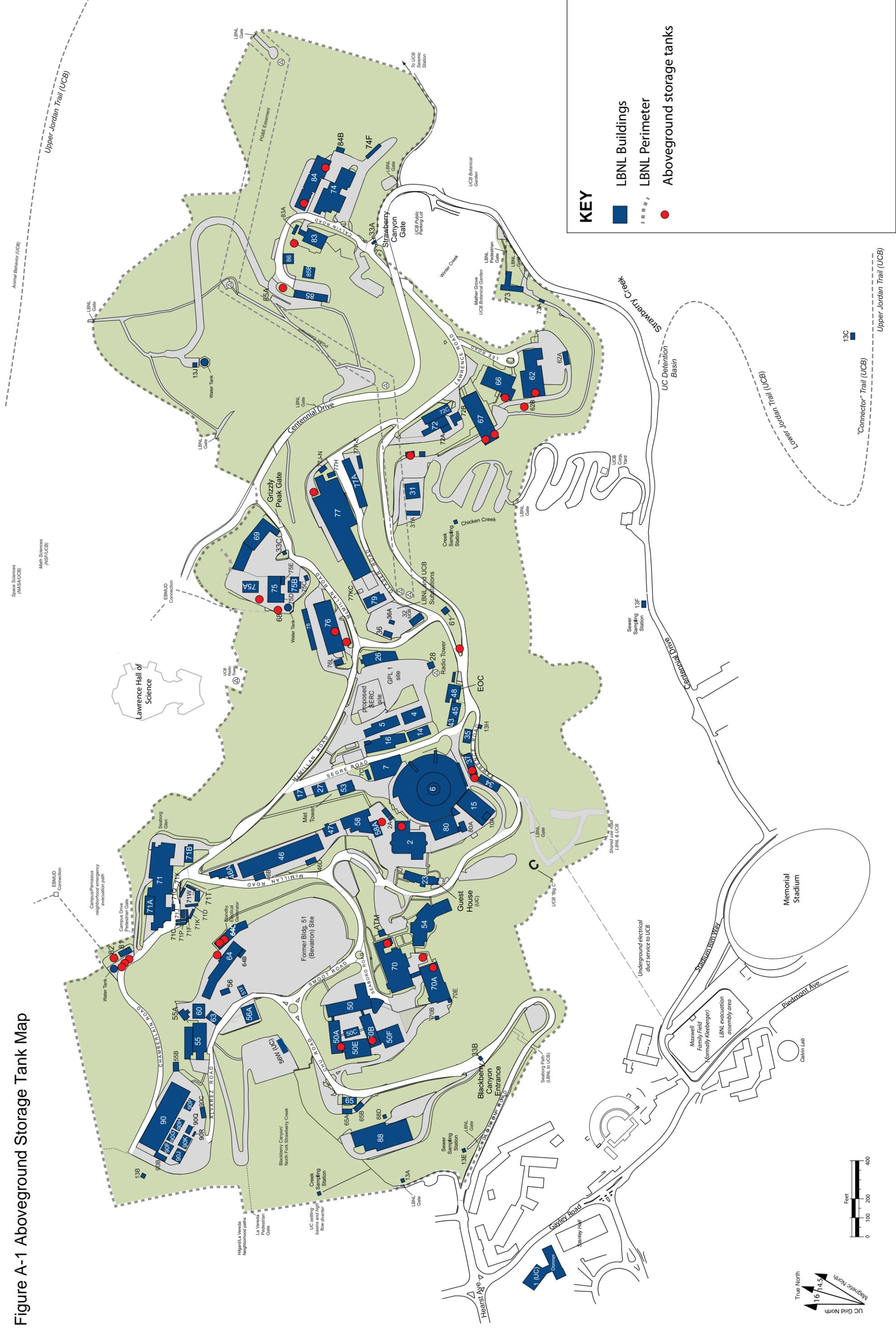


Table A-1: Summary of Aboveground Storage Tanks (ASTs)

Building	Tank No.	Capacity (gallons)	Contents	Use	Containment	Status
2	EG-68-02	50	Diesel	Service to engine generator	Concrete berm with coating	No action required
37	TK-102-37	500	Diesel	Service to EG-73-6	Concrete berm inside building	No action required
37	EG-111-15	378	Diesel	Service to EG which supports Building 15	Double wall tank with leak detection.	No action required
48	EG-100-48	367	Diesel	Service to engine generator	Double wall tank with leak detection.	No action required
50 Complex	EG-101-50A	340	Diesel	Service to engine generator	Double wall tank with leak detection.	No action required
50 Complex	EG-95-50B	275	Diesel	Service to engine generator	Double wall tank with leak detection.	No action required.
58A	TK-02-58A	2,000	Transformer Oil	Service to R&D Marx tanks	Double wall w/ leak detection (buzzer)	No action required
62	EG-102-62	300	Diesel	Service to engine generator	Double wall tank w/leak detection	No action required
62B	EG-81-62B	55	Diesel	Service to engine generator	Double wall tank	No action required
64	EG-79-64	250	Diesel	Service to engine generator	Double wall tank	No action required
64	TK-001-64	6,000	Diesel	Service to 2 MW engine generator	Double wall tank	Formal External Inspection Required by 11/2021
64	TK-002-64	60	Motor oil	Service to 2 MW engine generator	Single wall tank with spill kit	No action required
66	EG-109-66	450	Diesel	Service to engine generator	Double walled tank with leak detection and alarm at EMCS	No action required
67	TK-002-67A	1,500	Diesel	Service to engine generator	Double walled tank with leak detection via Veeder Root Monitor 300	No action required
67	TK-003-67A	100	Diesel	Service to engine generator (day tank)	Double walled tank with leak detection via Simplex control panel	No action required
68	TK-003-68	150	Diesel	Service to fire water pump	Metal containment bin inside building	No action required
70	EG-106-70	430	Diesel	Service to engine generator	Double wall tank	No action required
70A	TK-15-70A	983	Diesel	Service to engine generator	Double wall w/ leak detection	No action required
70A	TK-14-70A	50	Diesel	Daytank filled from TK-15-70A	Inside building, double wall tank w/ leak detection	No action required
72	TK-001-72	1,000	Diesel	Service to EG-098-72	Double wall tank with leak detection.	No action required
75	TK-3-75	275	Diesel	Service to EG-89-75	Metal containment bin with cover	No action required
76	TK-007-76	4,000	85% Ethanol / 15% Gasoline	Fuel dispensing	Double wall tank with leak detection at tank connected to Veeder Root TLS-350	No action required
76	SCT-40-76	175	Motor oil	Storage, motor pool	Double wall containment	No action required
77	TK-94-77	200	Diesel	Service to EG-94-77	Double wall tank	No action required
82	TK-003-82	350	Diesel	Service to fire water pump	Inside building with metal containment unit	No action required

Table A-1: Summary of Aboveground Storage Tanks (ASTs) Continued

Building	Tank No.	Capacity (gallons)	Contents	Use	Containment	Status
82 (P)	EG-75-76	160	Diesel	100 kW generator (portable)	Spill kit provided	No action required
82 (P)	EG-93-76	195	Diesel	150 kW Cummins generator (portable)	Metal berm	No action required
82 (P)	EG-67-76	160	Diesel	Service to Portable Engine Generator	Double walled belly tank	No action required
83	TK-014-74	4,000	Diesel	Service to engine generator EG-61-74	Double wall tank with leak detection.	No action required
84	TK-4-84	6,000	Diesel	Service to engine generator	Double wall w/ leak detection, locked room	Formal External Inspection Required by 10/2016
84	TK-4-84B	100	Diesel	Service to 84-EG-112	Simplex sheet metal berm with leak detection	No action required
85	TK-3-85	56	Diesel	Service to EG-85 (day tank)	Double wall w/ leak detection	No action required

APPENDIX B

UNDERGROUND STORAGE TANKS

FIGURE B-1	UNDERGROUND STORAGE TANK MAP
TABLE B-1	SUMMARY OF UNDERGROUND STORAGE TANKS (USTs)

Figure B-1 Underground Storage Tank Map

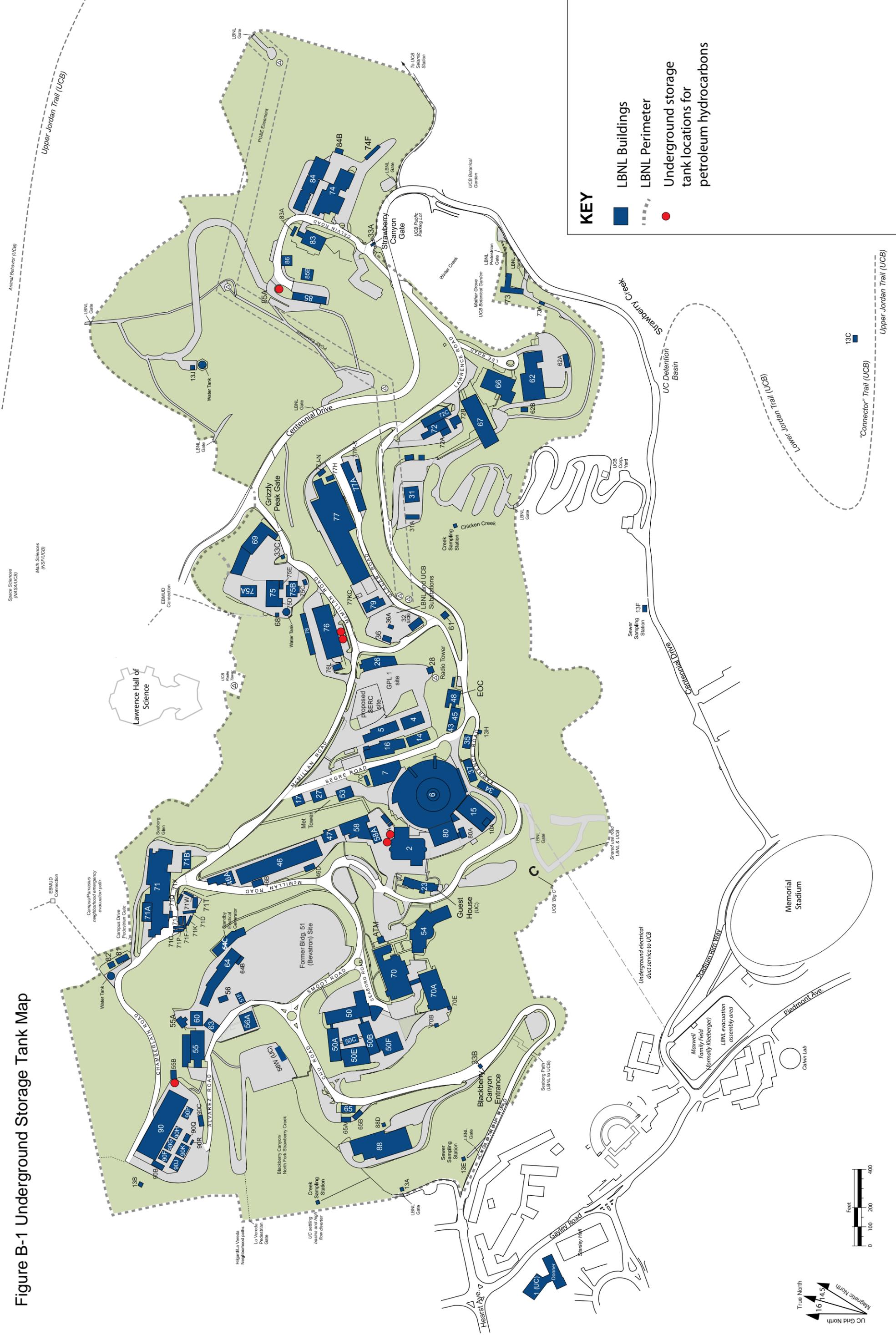


Table B-1: Summary of Underground Storage Tanks (USTs)

Bldg.	Tank No.	City of Berkeley ID#	Generator	Capacity (gallons)	Contents	Construction	Installed	Monitoring
2	TK-3-2	COB 2-1	Boilers BR-1-2, BR-2-2	4,000	Diesel	Double-wall fiberglass	1988	Interstitial monitoring, Veeder Root TLS 300
2	TK-4-2	COB 2-2	EG-68-2	1,000	Diesel	Double-wall fiberglass	1988	Interstitial monitoring, Veeder Root TLS 300
55	TK-1-55	COB 55-1	EG-69-55	1,000	Diesel	Double-wall steel with fiberglass reinforced plastic corrosion protection	1986	Interstitial monitoring, Veeder Root TLS 300
76	TK-05-76	COB 76-1	N/A	10,000	Unleaded Gasoline	Double-wall Galsteel with fiberglass reinforced plastic corrosion protection	1990	Automatic tank gauging and leak detection; Veeder-Root 350, tank level and interstitial monitoring for vapor and secondary containment; mechanical line leak detector (Red Jacket)
76	TK-06-76	COB 76-2	N/A	10,000	Diesel	Double-wall Galsteel with fiberglass reinforced plastic corrosion protection	1990	Automatic tank gauging and leak detection; Veeder-Root 350, tank level and interstitial monitoring for vapor and secondary containment; mechanical line leak detector (Red Jacket)
85	TK-001-85	COB 85-1	EG-85	2,500	Diesel	Double-wall FRP (reinforced fiberglass)	1995	Automatic tank gauging and hydrostatic leak detection (brine filled), Veeder-Root TLS 300

APPENDIX C

DRUM STORAGE AND WASTE ACCUMULATION AREAS

FIGURE C-1	DRUM STORAGE MAP
FIGURE C-2	WASTE ACCUMULATION AREA (WAA) MAP
TABLE C-1	LOCATION OF DRUM STORAGE AREAS
TABLE C-2	LOCATION OF WASTE ACCUMULATION AREAS (WAA)

Figure C-1 Drum Storage Map

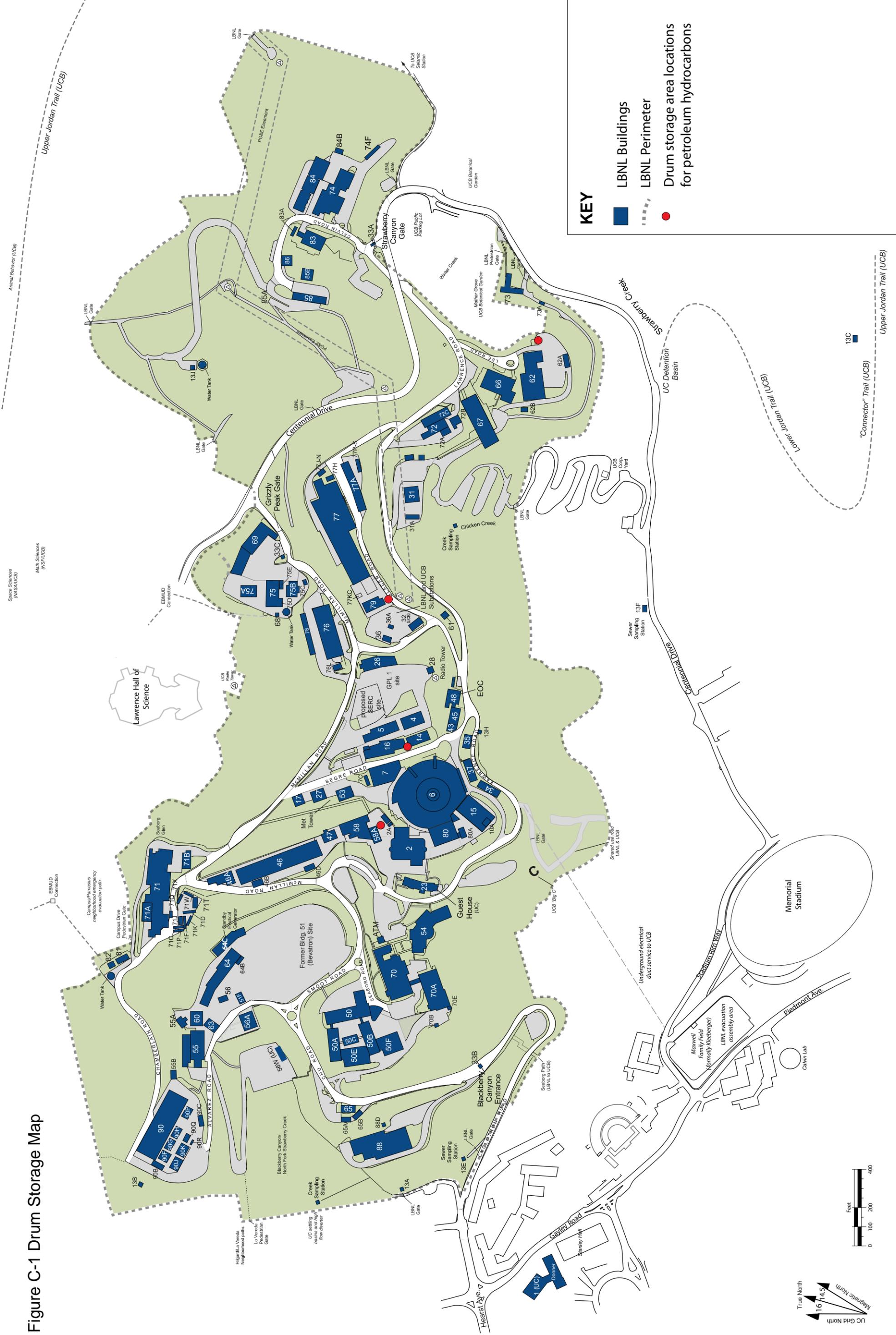


Figure C-2 Waste Accumulation Area (WAA) Map

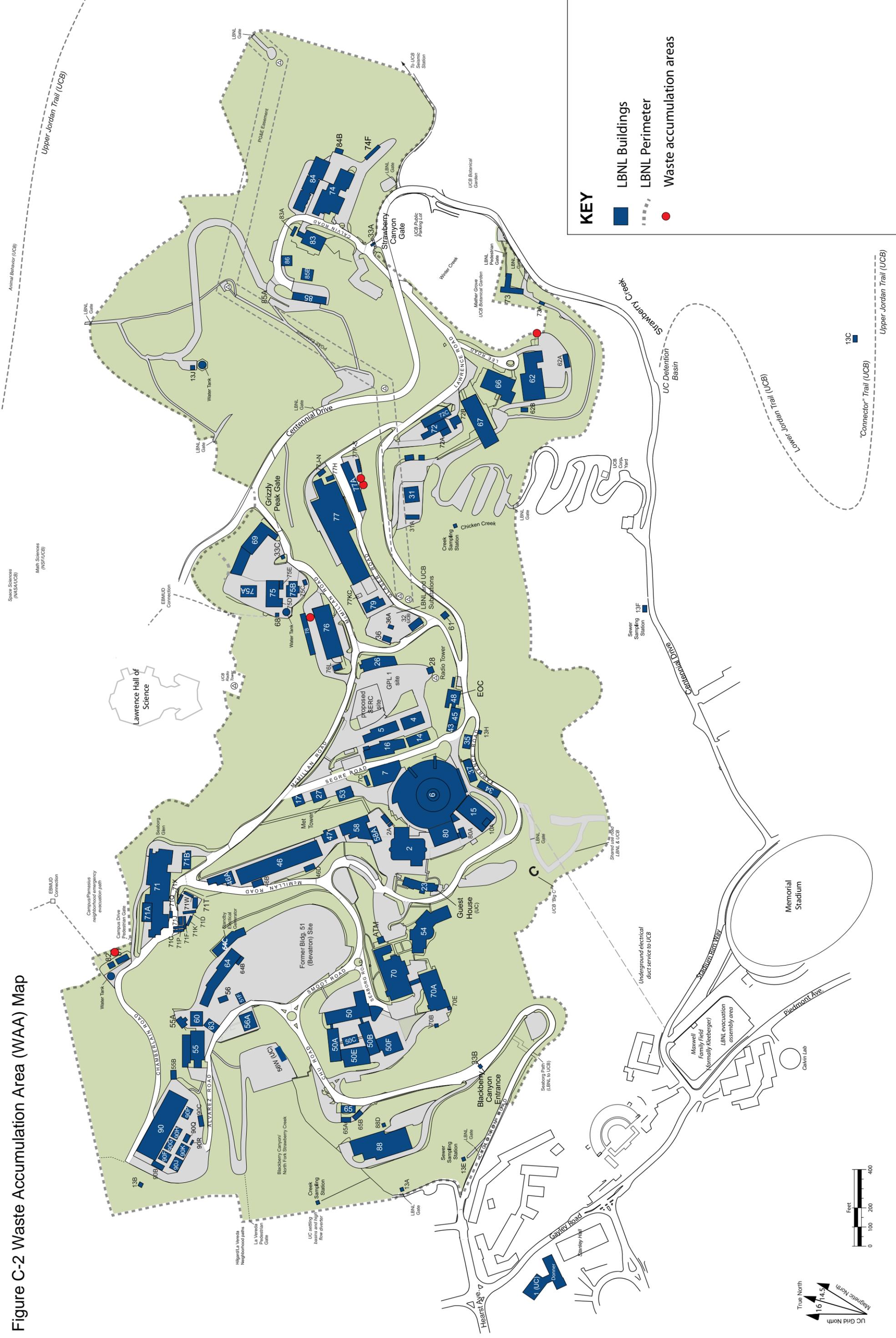


Table C1: Location of Drum Storage Areas (DSAs)

Building	Location	No. of Drums with Oil/Petroleum products	Contents	Containment	Action for SPCC
16	South corner	1 (2 max.)	Vacuum pump oil	Storage shed	No action required
58A	South of building	3	Various oils	Storage shed w/containment	No action required
62	East of building	Varies (4 max.)	--	Drum storage shed	No action required
79A	Entire building	21	Various oils	Central drum storage	No action required

Table C2: Location of Waste Accumulation Areas (WAAs)

Building	Location	Division
62	East side of building	Material Sciences
76	East side of building	Facilities
77A "Q" Plating	South side of building	Engineering
77A "R-S" Paint	West side at Paint Shop	Engineering
81	Northeast of building	EHSS

Note: The new name for the EH&S Division is EHSS.

APPENDIX D

OIL-FILLED TRANSFORMERS AND ELECTRICAL EQUIPMENT

FIGURE D-1

OIL-FILLED TRANSFORMER PAD LOCATIONS

TABLE D-1

OIL FILLED TRANSFORMERS

TABLE D-2

OIL-FILLED R & D ELECTRICAL

Table D-1: Oil-Filled Transformers

Building	Bank	Fluid	Capacity	PCB Concentration	Secondary Containment Provided
			(gallon)	(ppm)	
6	301	Oil	403	ND	Yes
6	302	Oil	404	ND	Yes
6	303	Oil	404	ND	Yes
6	304	Oil	219	ND	Yes
6	305	Oil	167	ND	Yes
6	306	Oil	225	ND	Yes
6	307	Oil	442	ND	Yes
6	upper pad/419	Oil	1113	ND	Yes
6	356 spare	Oil	250	ND	Yes
6	365 spare	Oil	305	ND	Yes
27	CTS-HVPS-1	Oil	150	ND	Yes
36A	1-A	Oil	2700	ND	Yes
36A	1-B	Oil	2700	ND	Yes
36A	1-C	Oil	2700	ND	Yes
36A	1-Spare	Oil	2700	ND	Yes
36A	2	Oil	5865	ND (new 5/10)	Yes
37A	218	Oil	178	ND	Yes
46	49	Silicone oil	161	ND	Yes
50	25	Oil	265	ND	Yes
50A	35	Silicone oil	412	ND	Yes
50B	38	Silicone oil	190	ND	Yes
58C	36	Oil	350	ND (new 1/94)	Yes
58C	158	Oil	680	7	Yes
66	215	Oil	199	ND	Yes
69 SUB	217	Oil	285	ND	Yes
70	30	Oil	129	ND	Yes
70	70	Oil	219	ND	Yes
70A	31	Oil	360	ND	Yes
77	72	Oil	428	ND	Yes
88	80	Oil	1060	13	Yes
88	81	Oil	80	13	Yes
88	81	Oil	98	10	Yes
88	81	Oil	80	17	Yes
88	198	Oil	274	ND	Yes
88	GE 100	Oil	150	3	Yes
88	GE 20	Oil	405	20	Yes
88	GE 60	Oil	550	6	Yes
88	GT 0	Oil	430	13	Yes
88	RV-1-88	Oil	1140	5	Yes
88	RV-1-88	Oil	165	4	Yes
88	RV-1-88	Oil	175	4	Yes
88	SPARE	Oil	430	11	Yes
90	90	Oil	330	ND	Yes

Table D-2: Oil-Filled R & D Electrical

Building	Equipment	Fluid	Capacity
58	Marx Tank	Diala oil	500
58	Marx Tank	Diala oil	300
58	Marx Tank	Diala oil	50
58	Marx Tank	Diala oil	50
71	Power Supply 85 kV	Diala oil	660
71	Klystron Tube	Diala oil	440
58	Pulse Forming Network	Diala oil	300
58	Induction Cells	Diala oil	200
58	NDCX II (40 cells @ 30 gals each)	Diala oil	1200

APPENDIX E

RAINWATER DISCHARGE PROCEDURE AND FORM

RAINWATER DISPOSAL

OPERATING PROCEDURE

APPLICATION

Evaluating and disposing of rainwater collected in secondary containment structures. Following a rain storm, it must be determined whether liquid found in a secondary containment structure open to precipitation can be considered only rainwater and disposed of accordingly. If liquid thought to be rainwater is discovered in a secondary containment structure, a thorough inspection of the system must be performed to determine whether the liquid is rainwater or is the result of a spill from the tank system, containers, or oil-filled equipment.

EH&S will notify the Maintenance Supervisor after 3 in. of rainfall.

SPECIAL INSTRUCTIONS

- **Special skills required:** Up-to-date training in spill prevention control countermeasures (SPCC).
- Personnel scheduled to perform this procedure: Plant Maintenance Technicians are responsible for all secondary containments.

WORK STEPS

1. Possible contaminants for each secondary containment structure are listed in the information table accompanying this procedure. Review before examining secondary containments.
2. Check for any evidence of rainwater contamination (e.g., color, clarity, odor, oil sheen). IF there is no evidence of contamination, go to step 3. IF there is evidence of contamination, go to step 5. Record results in the rainwater disposal log.
3. IF there is no evidence of rainwater contamination or a release from tank system, release rainwater from containment onto ground, or pump or drain it into storm water system. If rainwater is drained through a berm drain, replace the drain cap and shut and lock the drain valve after discharging the rainwater.
4. Record discharge and operator name and signature in the Rainwater Disposal log.
 - Record must include:
 - Time and date of discharge
 - Tank/equipment identification, location, and contents
 - Results of visual inspection of contents
 - Records must be kept for at least three years and be made available for review at request of EH&S or regulatory personnel.
5. IF there is evidence of rainwater contamination, follow steps 6 - 11 below. IF hazardous constituents are present, immediately initiate spill response procedures and notify EH&S (Step 10).
6. Check for visual or audio alarms on equipment.
7. Check leak monitoring equipment, overfill protection devices, and spill prevention devices for signs of system malfunctions.
8. Check tank(s), drum(s), piping, pump(s), valve(s), and joints for signs of leakage (e.g., drips, stains, wet spots, cracks, bulges).
9. Check level in tank(s) or drum(s) for unexplained level changes or exceptionally high level(s).
10. Record inspection results, EH&S notification, and signature in the Rainwater Disposal Log.
11. Notify EH&S (x5251) of rainwater contamination. IF inspection is inconclusive, an EH&S representative must sample and analyze the liquid, which must be disposed of properly based on results.

12. If applicable, an EH&S representative must record the results of chemical analysis and final disposition of contaminated rainwater. The Facilities Maint Supt and an authorized EH&S representative must sign log sheets regarding contaminated rainwater.

INFORMATION TABLE			
Secondary Containment	Possible Contaminants	Release By	Location of Valves or Pump
Bldg 6 Transformer Pad Lower Sump	Transformer oil No PCBs	Portable trash pump to be installed	East end of the Bldg.
Bldg 6 Transformer Pad Upper Sump	Transformer oil No PCBs	1 locked valve	East end of the Bldg
Bldg 16 Transformers, Banks 10 & 16	Diala AX transformer oil Possible PCBs to 3 ppm	1 locked valve	West side of containment Area
Bldg 25, Bank 14	Transformer oil	Locked valve	
Bldg 27, Transformer CTS-HVPS-1, Sump	Transformer oil No PCB	1 valve	Northwest corner of containment pad.
Bldg 37, Bank 218	Transformer oil	Locked valve	Upper pad
Bldg 46 So. End, Bank 49 Sump	Silicone transformer oil No PCBs	Portable trash pump to be installed	
Bldg 50, Bank 25 Pad Sump	Transformer oil No PCBs	Pump	West end of containment pad.
Bldg 58, Bank 36 & 158	Possible PCBs to 7 ppm		Locked valve bottom of containment sump
Bldg 62, Bank 66	Possible PCBs up to 6 ppm	Locked valve	
Bldg 66, Bank 215	Transformer oil	Locked valve	
Bldg 69 Sub	Silicone transformer oil No PCBs.	1 locked valve	East side of containment pad.

INFORMATION TABLE, <i>continued</i>			
Secondary Containment	Possible Contaminants	Release By	Location of Valves or Pump
Bldg 70, Bank 70, OS-1-70, Bank 30	Transformer oil	Locked valve Valve & pump	
Bldg 70A, Bank 31	Diala AX transformer oil No PCBs	2 locked valves	East end of containment pad.
Bldg 77, Bank 72	Diala AX transformer oil No PCBs	1 locked valve	Down pipe for valve handle within sump under transformers (Southwest side of pad)
Bldg 88, Bank 80; Oil Separation Sump	Diala AX transformer oil Possible PCBs, up to 17 ppm		West end of containment pad.
Bldg 90, Bank 90	Diala AX transformer oil No PCBs	1 locked valve	West end of containment pad.

FIGURE 1: Secondary Containment Locations

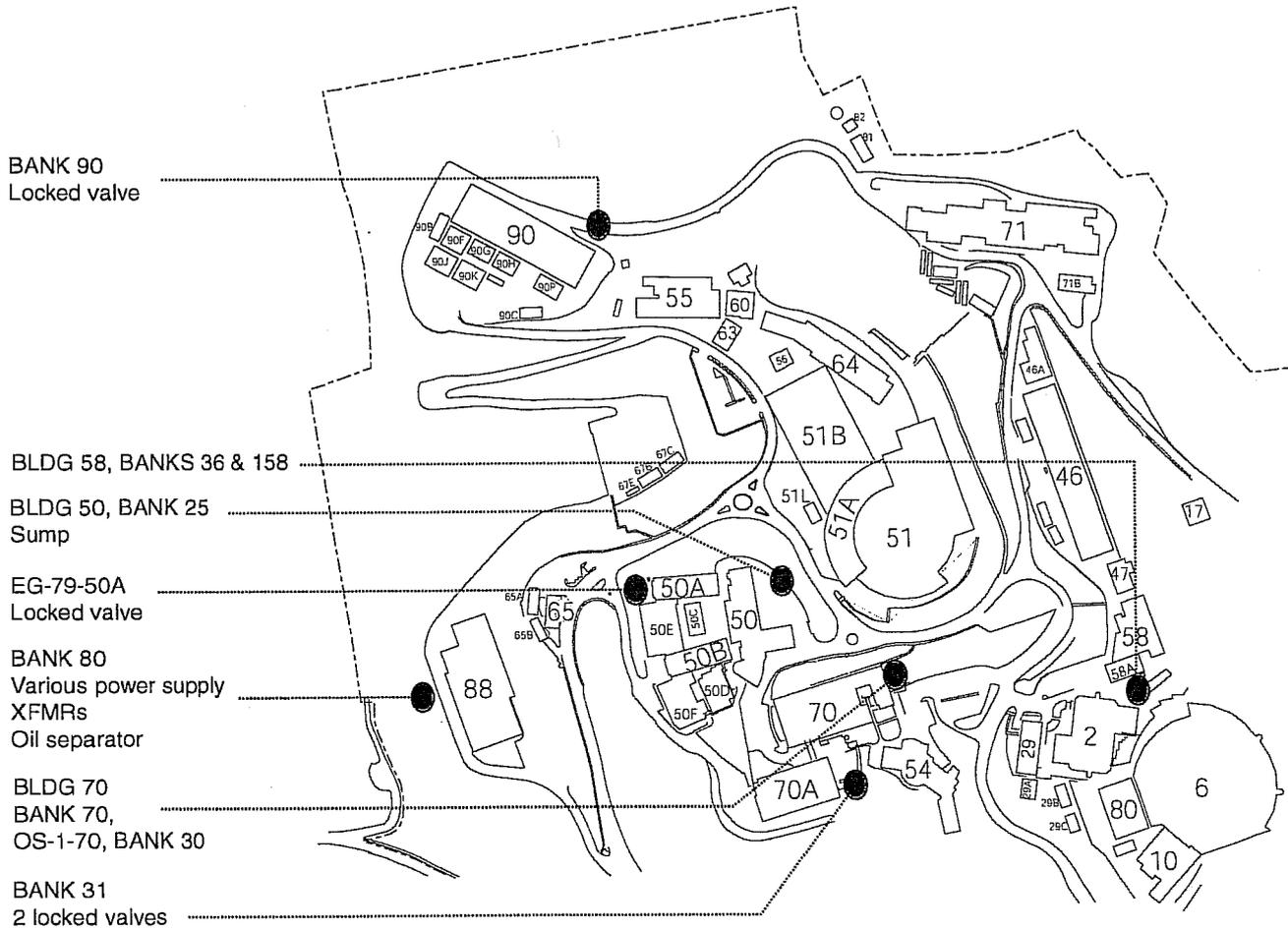
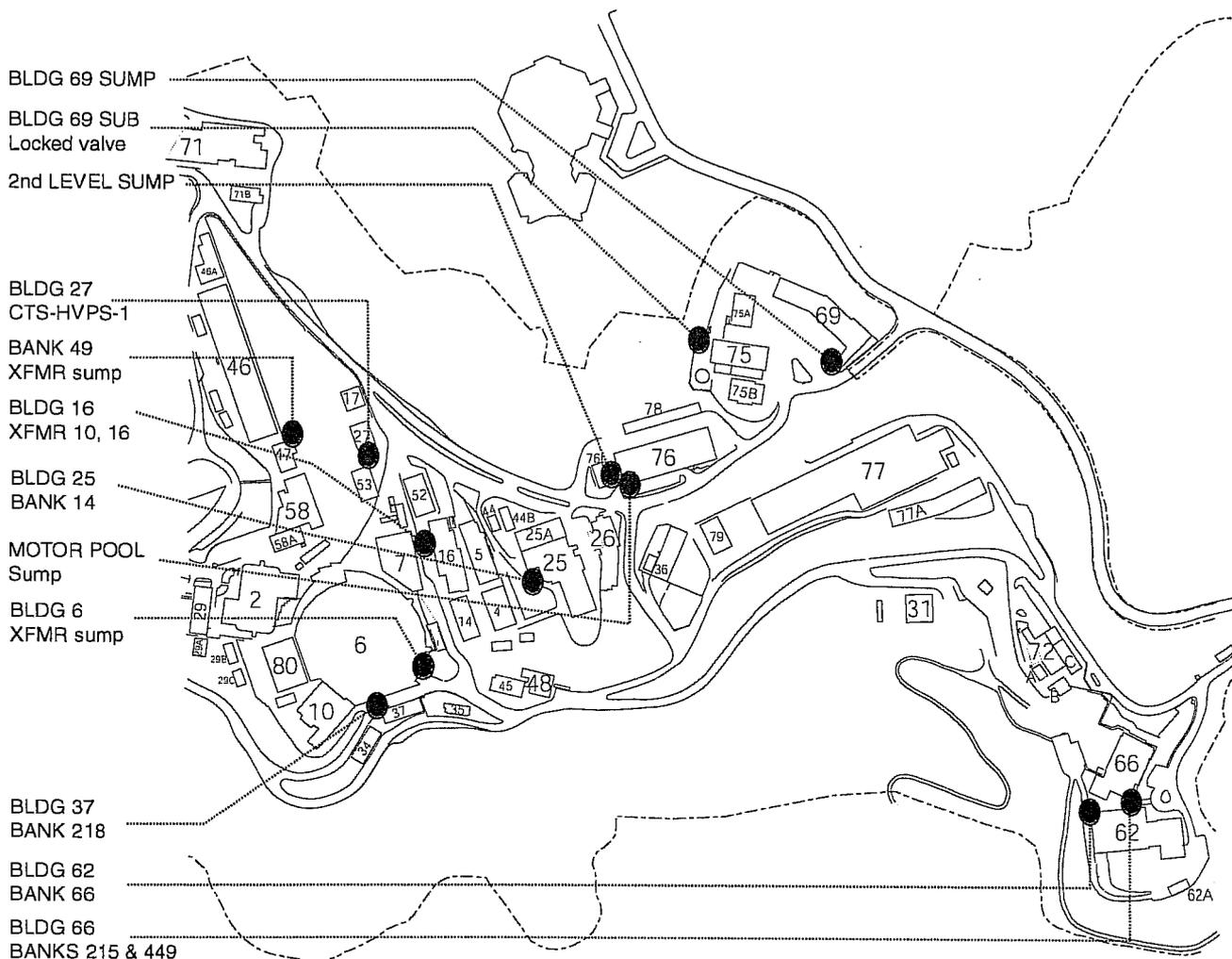


FIGURE 1: Secondary Containment Locations (Continued)



RESPONSIBILITIES AND CONTROLS

REV NO.	SME/Title	APPROVER/Title	DATE	EFFECTIVE DATE
2	John E. Hutchings (Print)	Don Weber/ Mgr. (Print)	4/29/05	4/29/05

ATTACHMENT: Rainwater Disposal Log—Inspection Checklist

Complete log entries in accordance with Facilities Dept procedure OPER-056.

SECONDARY CONTAINMENT UNIT: _____

UNIT LOCATION: _____

POSSIBLE CONTAMINANTS (Refer to table in OPER-056): _____

DATE: _____ **OPERATOR NAME:** _____

1. Is there any evidence of rainwater contamination (e.g., color, clarity, odor, oil sheen?)

If yes, describe: _____

Rainwater Discharge Information (not contaminated)

2. Rainwater discharged (if there is no evidence of contamination):

Time of discharge: _____ am / pm

Operator signature: _____

Contaminated Rainwater Information

3. Describe results of inspection from steps 6-9 of Oper-056 (if there is no evidence of contamination):

Operator signature: _____

4. Results of chemical analysis of rainwater, if any: _____

5. Final disposition of rainwater: _____

Authorization

6. Facilities Maint Supt and authorized EH&S representative must sign here to approve of contaminated rainwater:

Name: _____

Name: _____

Title: _____

Title: _____

Signature: _____

Signature: _____

Date: _____

Date: _____

APPENDIX F

SPCC COMPLIANCE INSPECTION FOR PETROLEUM DRUM STORAGE AREAS: ESG PROCEDURE 210



Lawrence Berkeley
National Laboratory

SPCC Compliance Inspection for Petroleum Drum Storage Areas

EH&S Procedure 210
Revision 0
Effective Date: October 11, 2011

Ernest Orlando Lawrence Berkeley National Laboratory
Environment, Health, and Safety Division
Environmental Services Group

Prepared By:

Robert Fox, Hazardous Materials and
Wastewater Discharges Program Manager

Date:

10/10/11

Reviewed By:

Neel Singh
ESG Program Technician

Date:

10/13/11

Approved By

Ron Pauer, Environmental Services
Group Leader

Date:

10/14/11

Annual Review Signature Sheet

Prepared By:

Date:

Name, Title

Revisions

EH&S Procedure 210

Revision X

Effective Date:

Preparer:

Specific changes:

Prepared By:

Date:

Name, Title

SPCC Compliance Inspection for Petroleum Drum Storage Areas

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1. Overview

1.1 Purpose

The purpose of this Procedure is to establish the responsibilities and describe the process for the inspection of the petroleum drum storage areas at Lawrence Berkeley National Laboratory (Berkeley Lab), which will help ensure compliance with Title 40, Part 112.7(e) of the Code of Federal Regulations and requirements set forth in Berkeley Lab's Spill Prevention, Control and Countermeasure Plan (SPCC) (October 2007). The inspection and maintenance of the petroleum drum storage areas are the responsibility of Berkeley Lab's Environmental Services Group within the Environment, Health, and Safety Division (EH&S). This Procedure was developed using best management practices employed at Berkeley Lab and the Steel Tank Institute (STI) standard (SP001) for inspection of aboveground storage tanks (with special attention given to the STI SP001 Portable Container Monthly Checklist).

1.2 Scope

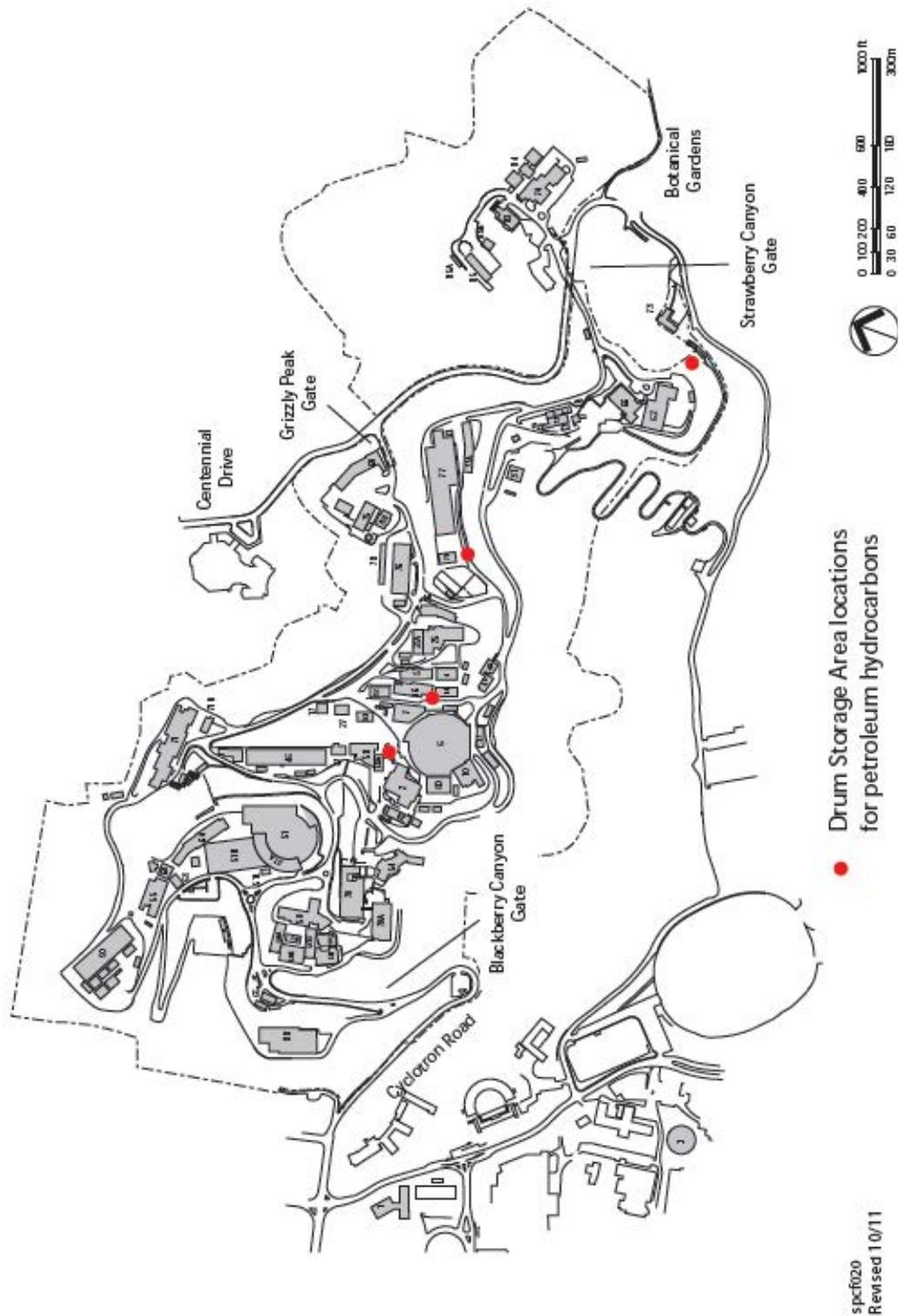
Petroleum oil storage units at Berkeley Lab consist of aboveground storage tanks, underground storage tanks, drum storage areas, and oil-filled electrical equipment. This Procedure is written specifically for the petroleum drum storage areas at Berkeley Lab.

There are four petroleum drum storage areas and currently at the Berkeley Lab (Table 1 and Figure 1 list the locations of the petroleum drum storage areas.)

Table 1. List of Petroleum Drum Storage Areas

Building	Location	Maximum No. of Drums with Oil/Petroleum Products	Containment
16	South corner of building	2	Storage shed with containment
58B	South of Building 58A	2	Storage shed with containment
62D	East of Building 62	5	Storage shed with containment
79A	South of Building 79	25	Central drum storage with containment

Figure 1. Map of Petroleum Drum Storage Areas at Berkeley Lab (from SPCC Plan, 2007)



2. Definitions

For the purposes of this Procedure:

Oil: Oil (or petroleum products) of any kind or in any form, including but not limited to petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredged spoil. [Per 40 CFR 112.2(a)]

Bulk oil or petroleum storage unit: A drum having a capacity of at least 42 gallons. Selection of this quantity was based on the minimum quantity that must be reported in the event of a release (California Health and Safety Code, Chapter 6.67).

Portable container: A closed aboveground storage tank having a liquid capacity equal to or greater than 55 U.S. gallons and not intended for fixed installation.

3. Responsibilities

The Berkeley Lab's Environmental Services Group (ESG) is responsible for overall implementation of this procedure.

3.1 Group Leader

- Reviews safety compliance and authorizes work.
- Establishes ESG-required policies and procedures.
- Obtains necessary funding to support ESG policies and procedures.
- Ensures ESG policies and procedures meet regulatory standards and DOE requirements.

3.2 Program Manager

- Provides training to the Technician/Inspector on performing inspections and completing the Petroleum Drum Storage Area Monthly Inspection Checklist.
- Oversees safety compliance.
- Oversees care, maintenance, and disposition of records.
- Assesses Procedure implementation.

3.3 ESG Program Technician

- Completes Job Hazards Analysis and performs work within required safety controls.
- Conducts drum area inspections and submits inspection checklist forms.
- Informs Program Manager of non-compliance or maintenance issues and coordinate with Program Manager to assign/implement/document corrective actions.

4. Policy

4.1 Basic Health and Safety Policy

ESG personnel must comply with:

- Berkeley Lab implementation of applicable DOE health and safety policies, and other applicable federal, state, and local fire, health, safety, emergency preparedness, pollution prevention, and environmental protection regulations and policies.
- All Berkeley Lab health and safety policies including those described in the Berkeley Lab Health and Safety Manual, PUB-3000; Berkeley Lab and EH&S Division Integrated Safety Management (ISM) Plans; and ERP's Health and Safety Program Plan.

NOTE: Hazards associated with this Procedure's activities have been reviewed, and it is noted that no hands on work is performed during the execution of this procedure.

4.2 Training Requirements

At a minimum, the following Berkeley Lab safety training courses are required for permanent employees and "guest workers" (subcontractors holding a Berkeley Lab badge):

- *Introduction to EH&S at Berkeley Lab (EHS0010)*
- *General Employee Radiation Training (EHS0405)*

On the job training includes:

- Review of the petroleum drum storage area locations at the Berkeley Lab site and reviewing this Procedure.

5. Preoperational Procedures

5.1 Hazard Identification and Safety Controls

LBNL Health and Safety Manual, PUB-3000 provides detailed information on general hazards and safety precautions for work conducted at LBNL. Summaries of those primary hazards applicable to the activities covered by this Procedure and relevant controls are described in sections 5.1.1 through 5.1.9. The Personnel Protective Equipment (PPE) required for activities conducted under this Procedure is listed in Section 5.3.

5.1.1 General Hazards

When working in the field, be aware of the potential for sun exposure and apply sunscreen. Heat stress can occur during prolonged activity in hot weather, when ventilation is poor, or when the work routine does not provide adequate resting periods or adequate replacement of electrolytes. Field personnel should have available an adequate supply of drinking water and take breaks whenever necessary. When working in pairs be observant of heat-associated effects in co-workers and stop work if necessary. Always be aware of your surroundings and try to minimize the amount of time in isolated spaces. Thoroughly wash your hands after returning from field activities.

5.1.2 Trip and Fall Hazards

Trip and fall hazards occur when activities involve ladders, stairs, piping, uneven ground, wet slippery surfaces, or working in brushy areas. Non-slip footwear and clothing appropriate for the weather and site conditions should be worn to minimize the potential

for trips and falls. Assure that good housekeeping procedures are maintained around the work area to prevent tripping hazards.

5.1.3 Chemical Hazards

Chemical hazards include potential exposure to petroleum products. If unusual conditions arise that indicate the potential need for respiratory protection or additional monitoring, contact the Program Leader before proceeding. During the inspection the ESG Technician is not required to touch the drums or drum pumps. A visual observation is all that is required.

5.1.4 Traffic Hazards

Traffic hazards (i.e. being struck by a moving vehicle) are present when walking between petroleum drum storage area locations. Crosswalks must be used where available when crossing streets.

Traffic hazards also include those associated with driving vehicles during the conduct of Procedure activities (i.e. traffic accidents). All personnel driving vehicles at LBNL must adhere to all LBNL traffic safety requirements.

5.1.5 Ergonomic Hazards

The majority of injuries at LBNL are related to ergonomics. These injuries can result from the following causes: improper lifting techniques, repetitive motion, and improper tool use.

No activity-specific ergonomic hazards applicable to this Procedure have been identified beyond general hazards discussed in LBNL Pub 3000, Health and Safety Manual. No hands-on-work is conducted during an inspection.

5.2 Office/Field Preparation

Review this Procedure.

Review facility maps that show locations of petroleum drum storage areas to be inspected.

Obtain Checklist for use and documentation. Print the Petroleum Drum Storage Area Monthly Inspection Checklist in Appendix A of this document.

Bring digital camera to document deficiencies/findings.

5.3 Personal Protective Equipment (PPE)

The following PPE is required for activities conducted under this Procedure.

- Minimum Level D (e.g., safety glasses, closed toed shoes, long pants etc.) that meet the requirements of Berkeley Lab's health and safety protocol.

6. Inspection Procedures

6.1 Inspections

The ESG Program Technician is responsible for gathering appropriate information and data to complete the Petroleum Drum Storage Area Monthly Inspection Checklist.

For each monthly inspection, the ESG Program Technician shall:

Step	Action
-------------	---------------

- | | |
|----|---|
| 1. | Use the Petroleum Drum Storage Area Monthly Inspection Checklist in Appendix A to document all observations and deficiencies. |
| 2. | Check for the integrity of the drums and secondary containment by looking for leaks, cracks and corrosion. |
| 3. | Sign and date the Checklist. |
| 4. | File signed Checklists with the Berkeley Lab Hazardous Materials & Wastewater Discharges Program Manager for a period of three years. |
| 5. | Bring deficiencies to the attention of the ESG for resolution in an appropriate timeframe. |

7. References

LBNL *Spill Prevention, Control and Countermeasure Plan*, revision 3, October 2007.

LBNL/Pub 3000 *Health and Safety Manual*, latest revision

LBNL *Integrated Safety Management Plan*, latest revision

Steel Tank Institute, *Standard SP001- Standard for the Inspection of Aboveground Storage Tanks*, July 2006, 4th Edition

8. Records

8.1 Records Created

The following records will be created by this procedure:

- *Petroleum Drum Storage Area Monthly Inspection Checklist*

8.2 Records Retention

The Hazardous Material and Wastewater Discharges Program Manager retains hardcopies of all the records (monthly checklists) created by this procedure.

These records are retained by the Hazardous Material and Wastewater Discharges Program Manager for a minimum of three years. Three years of records are to be available for inspection by the City of Berkeley.

8.3 Records Care and Maintenance

The Hazardous Material and Wastewater Discharges Program Manager is responsible for the care, maintenance, and disposition of records according to Berkeley Lab's records management policies and procedures, as listed in Section 1.18 of Berkeley Lab Pub-201, Regulations and Procedures Manual.

Records must be maintained in an organized system so that the records are protected and easily accessed when needed.

8.4 When Records are Transferred to Archives for Storage

All records created in this procedure are reviewed after five years for transfer to the Berkeley Lab Archives and Records Office.

Records must be transferred to the Berkeley Lab Archives and Records Office as described in Berkeley Lab Pub 201, Regulations and Procedures Manual.

Appendix A: Petroleum Drum Storage Area Monthly Inspection Checklist

Drum storage area: _____

Inspector: *(print name, & sign)*: _____

Inspection Date: _____ Retain until date *(36 months from inspection date)*: _____

Quantity of drums	Drums containing petroleum oil: _____
Are drums within designated storage area?	Yes: _____ No: _____ (If no, describe deficiency and take photo)
Drum condition is good (i.e. no evidence of corrosion, dents, pitting, cracks, bulging, or other structural compromise)?	Yes _____ No _____ (If no, reference specific drums and nature of condition and if immediate attention is needed. Take photo):
Visible signs of leakage around drums or storage area?	No _____ Yes _____ (If yes, describe nature of spill/leak and if immediate attention is needed. Take photo):
Is water present within secondary containment?	No _____ Yes _____ (If yes, describe entry point or source of water. Take photo):
Secondary containment properly deployed (containment pallet) and in good condition (e.g. no open drain valves, no cracks or settling, good housekeeping)	Yes _____ No _____ (If no, describe deficiency and take photo.)
Are spills, debris or fire hazards present in containment or storage area?	No _____ Yes: _____ (If yes, describe deficiency and take photo.):
Are containment egress pathways clear and gates/doors operable?	Yes _____ No: _____ (If no, describe deficiency and take photo.):
Other Conditions: Are there other conditions that should be addressed for continued safe operation or that may affect the SPCC Plan?	

Appendix A: Petroleum Drum Storage Area Monthly Inspection Checklist (cont.)

Inspector's Additional Comments/Notes :

Attach extra sheets as needed, reference date, area ID and number pages.

APPENDIX G

PROCEDURES FOR TANK INTEGRITY TESTING

- | | |
|-----------------------|---|
| ATTACHMENT G-1 | TANK SCHEDULED MAINTENANCE AND INSPECTION OPERATING PROCEDURE (MONTHLY AST INSPECTION) (UNDER REVISION PER INFORMATION IN APPENDIX H) |
| ATTACHMENT G-2 | ANNUAL AST INSPECTION PROCEDURE (UNDER DEVELOPMENT PER INFORMATION IN APPENDIX H) |
| ATTACHMENT G-3 | CONVAULT MANUFACTURERS RECOMMENDATION |

TANK SCHEDULED MAINTENANCE AND INSPECTION OPERATING PROCEDURE

PURPOSE

Visual inspection to ensure integrity of tanks and associated equipment.

APPLICATION: 26 week tank inspection.

SCOPE: All tanks.

SPECIAL INSTRUCTIONS

1. Make a photocopy of this page that you can write on.

WORK STEPS

1. Check TANK MONITOR / LEAK DETECTOR for proper functioning, where applicable.
2. Initial and date log book and/or printout, where applicable.
3. Check the following.
 - Foundation for corrosion and cracks
 - Structural supports for corrosion and cracks
 - Tank walls and casing for corrosion, cracks, and leaks
 - Pipelines, plumbing, and valves for corrosion, cracks, and leaks
1. Using the photocopy of this procedure, record your name, the tank number, date of inspection, condition code, and description of any defect in the following table:

INSPECTED BY (NAME):	
DATE:	DESCRIPTION OF DEFECT:
TANK No.:	
• 10 – No defects found.	
• 11 – Minor repair required	
• 12 – Major repair required	
• 13 – Replacement required	

1. Submit the commented photocopy of this procedure to your supervisor. The photocopy is the record of this inspection and must be retained for auditing purposes.

RESPONSIBILITIES AND CONTROLS

REV NO.	SME/Title	APPROVER/Title	DATE	EFFECTIVE DATE
0		Don Weber/ Mgr.	7/2/02	7/2/02
	(Print)	(Print)		



4109 Zeering Rd., Denair, CA 95316
<http://www.convault.com>, john@convault.com
800-222-7099, 209-632-7571
FAX 209-632-4711

Date: August 19, 2002

TO WHOM IT MAY CONCERN

Subject: Integrity Testing of Convault Tanks

Convault shop fabricated aboveground storage tanks have 4 to 6 inch high legs, which make them visible from the bottom and all sides. Furthermore, Convault tanks have secondary containment with leak detection capability and are expected to be checked and inspected on regular basis. The probability of any fuel discharge from Convault tank due to primary tank failure is highly minimal as any discharge will be detected in the leak detector tube and the fuel will be contained in the integral secondary containment.

In view of the above, Convault does not recommend an integrity test on its tanks when preparing, updating or revising the SPCC plans. Convault recommends an integrity test on its tank only if there is a substantial reason to carry out such a test. Typical reasons would include the detection of fuel in the secondary containment, the tank surviving a catastrophic event such as a fire or a heavy vehicle impact, or the Authority Having Jurisdiction (such as a fire marshal) specifically requiring an integrity test. If testing is required, please refer to Convault owner manual testing protocol.

Should you have any questions, please contact the undersigned.

Very Truly Yours,

A handwritten signature in black ink, appearing to read "John Ekhtiar".

John Ekhtiar
Vice President, Engineering

APPENDIX H

SPCC IMPLEMENTATION SCHEDULE

SPCC IMPLEMENTATION SCHEDULE

Items on this schedule will be completed within 6 months of the SPCC plan certification date.

1. Revise monthly AST inspection procedure to include, where applicable, new guidance from the 2011 Steel Tank Institute SP001 standard.
2. Develop an annual AST inspection procedure to include, where applicable, new guidance from the 2011 Steel Tank Institute SP001 standard.
3. Repair the secondary containment for the transformer pad at Building 16.
4. Install a drain valve lock for the Building 27 transformer drain valve.
5. Install a drain valve lock for the containment drain valve located at the Building 27 transformer pad.