



**BERKELEY LAB**

# **Spill Prevention, Control, and Countermeasure (SPCC) Plan**

Revision 7.0, Amendment 6

Amended June 2026

Lawrence Berkeley National Laboratory  
Berkeley, California

# Review and Approval

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## SPCC Plan

REVISION 7.0 AMENDMENT 6

### DESCRIPTION OF SPCC 5-YEAR PLAN REVIEW AND AMENDMENT

Berkeley Lab completed its review and evaluation of the SPCC Plan on July 6, 2023, in accordance with the five-year update requirement from 40 CFR §112.5(b). The latest 5-year update did not identify more effective prevention and control technologies to be implemented that would significantly reduce the likelihood of a discharge. However, in September 2023, the SPCC Plan was updated to reflect changes throughout the facility in the number and location of facilities used for oil storage.

The June 2026 amendment incorporates administrative updates to the SPCC 5-Year Plan Review wording and replaces Maria Nappi, former Director of the Environment, Health, and Safety Division, with Paul Blodgett, Interim Director of the Environment, Health, and Safety Division.

### MANAGEMENT APPROVAL OF SPCC PLAN REVISION/AMENDMENT



Date: 06 / 15 / 2026

**Paul Blodgett**

Interim Director  
Environment, Health, and Safety Division  
Lawrence Berkeley National Laboratory



Date: 06 / 08 / 2026

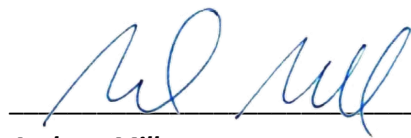
**Brent Henderson**

Director  
Facilities Division  
Lawrence Berkeley National Laboratory

# Professional Engineer Certification

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



**Andrew Miller**

California Registered Civil Engineer No. C83561



Date: 12/19/2025

# Certification of the Applicability of the Substantial Harm Criteria

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**FACILITY NAME:** Lawrence Berkeley National Laboratory

**FACILITY ADDRESS:** 1 Cyclotron Road, Berkeley, California 94720

***U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) CRITERIA:***

1. Does the facility have a maximum oil storage capacity greater than or equal to 42,000 gallons and do the operations include over-water transfers of oil to or from vessels?  
YES  NO
  
2. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons and is the facility without secondary containment for each aboveground storage area sufficiently large to contain the capacity of the largest aboveground storage tank within the storage area?  
YES  NO
  
3. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III of the 40 CFR §112.20 Appendix A, or an alternative formula considered acceptable by the USEPA RA), such that a discharge from the facility could cause injury to an environmentally sensitive area as defined in Attachment D of 40 CFR §112.20 Appendix A?  
YES  NO
  
4. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III of 40 CFR §112.20 Appendix A, or an alternative formula considered acceptable by the USEPA RA), such that a discharge from the facility would shut down a public drinking water intake?  
YES  NO

5. Does the facility have a maximum oil storage capacity greater than or equal to one million (1,000,000) gallons, and within the past five years, has the facility experienced a reportable spill in an amount greater than or equal to 10,000 gallons?

YES

NO

**US COAST GUARD (USCG) CRITERION:**

1. Does the facility transfer oil to marine vessels with a capacity greater than 250 barrels (10,500 gallons)?

YES

NO

If the answer to each of the above questions is "NO," then this facility is not required to prepare and submit a Facility Response Plan to the USEPA RA.

**CERTIFICATION**

I certify, under penalty of law, that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Signature: Paul Blodgett Date: 06 / 15 / 2026  
Name: Paul Blodgett Title: Interim Director  
Environment, Health, and Safety Division

Signature: Brent Henderson Date: 06 / 08 / 2026  
Name: Brent Henderson Title: Director  
Facilities Division

# SPCC Plan Review Log

Review Date	Reviewer's Signature	Amendment Is Necessary? (Yes/No)	Technical Amendment? (Yes/No/NA)
January 18, 2018	<i>[Signature]</i>	Yes	Yes
March 21, 2018	<i>[Signature]</i>	Yes	Yes
May 4, 2018	<i>[Signature]</i>	Yes	Yes
September 28, 2018	<i>[Signature]</i>	Yes	Yes
July 24, 2019	<i>[Signature]</i>	Yes	Yes
February 11, 2020	<i>[Signature]</i>	Yes	Yes
August 13, 2020	<i>[Signature]</i>	Yes	Yes
June 21, 2023	Maria G. Nappi	Yes	No
	<i>[Signature]</i>		
September 22, 2023	<i>[Signature]</i>	Yes	Yes
May 3, 2024	Maria G. Nappi	Yes	Yes
	<i>[Signature]</i>		
July 19, 2024	<i>[Signature]</i>	Yes	Yes
January 29, 2025	<i>[Signature]</i>	Yes	Yes
June 29, 2025	<i>[Signature]</i>	Yes	Yes
December 19, 2025	<i>[Signature]</i>	Yes	Yes
June 15, 2026	Paul Blodgett	Yes	No
	<i>[Signature]</i>		

**Note:**

Administrative changes not requiring certification by a Professional Engineer must be logged here and marked with “no” in the Technical Amendment field. Such amendments may be appended to the SPCC Plan.

## SPCC Plan Amendment Log

Revision Made	Page/Section Number	Date	Name	PE Certification Necessary? (Yes/No)
AST inspection program revised to meet STI/SPFA SP001 guidance.	Section 6.2, Appendix H	January 26, 2018	Andrew Miller, PE	Yes
Describe secondary containment systems for fuel trucks and EG-75-76.	Sections 4.8 and 5.4, and Appendices A and H	March 29, 2018	Andrew Miller, PE	Yes
Replacement of tanks TK-102-37 and 82-TK-004.	Appendix A	May 31, 2018	Andrew Miller, PE	Yes
Removal of TK-01-64C and TK-02-64. Piping inspections and integrity testing. Add oil-filled equipment in Building 77.	Sections 4.7, 5.1, 6.3, Appendices A and Appendix D	September 28, 2018	Andrew Miller, PE	Yes
Addition of the new AST at Building 91 (IGB), 91-TK-001.	Appendix A	August 16, 2019	Andrew Miller, PE	Yes
Correct number of portable generators. Expand description of fuel trucks in Sections 4.6, 4.8, and 5.4.2. Addition of ASTs at Buildings 2 (02-TK-009) and 31 (31-TK-001) and mobile fuel trucks to Appendix A. Update tank numbers in Appendix A and plan text references.	Sections 4.6, 4.8, and 5.4.2, and Appendix A	March 13, 2020	Andrew Miller, PE	Yes
Addition of three new portable engine generators with on-board fuel tanks, 76-TK-16, 76-EG-17, 76-EG-18. Discussion of temporary portable generators.	Sections 1.3 and 4.6, Appendix A	September 25, 2020	Andrew Miller, PE	Yes

Revision Made	Page/Section Number	Date	Name	PE Certification Necessary? (Yes/No)
Update of Designated Responsible Official; Update links; Update Cal EMA to Cal OES; Update Procedure 210 (Administrative changes in recordkeeping); Resolve minor formatting issues throughout the plan.	Section 1.3, Section 1.4, Appendix F	June 29, 2023	Maria Nappi Brent Henderson	No
Addition of 17 hydraulic systems (Appendix D), new oil-filled transformer (Appendix D), and drum/waste storage areas (Appendix C). Removal of three engine generator tanks (76-EG-067, 76-EG-075, and 76-EG-093) (Appendix A). Updated figures for asset locations. Updated rainwater discharge procedures (Appendix E).	Section 4.7, Appendices A, C, D, E, and H	September 15, 2023	Andrew Miller, PE	Yes
Removed the following three aboveground storage tanks from Table A-1: 76 TK 008, 76 TK 009, and 76 TK 010. Removed 76 TK 008 and 79 TK 009 from Figure A-1.	Appendix A	May 3, 2024	Maria Nappi Brent Henderson	No
Addition of new drum storage area (Appendix C) and oil-filled research equipment (LINAC modulators) (Appendix D). Updated figures for asset locations. Added section for portable container transfer operations. Incorporated updated checklists from the new edition of STI/SPFA Standard for the Inspection of Aboveground Storage Tanks (STI SP001).	Section 5.6, Section 9.1, Appendices C and D	July 19, 2024	Andrew Miller, PE	Yes
Addition of new: generator tank (92 TK 051), oil-filled transformers at Building 70A and 92, and oil-filled research equipment in Building 77.	Appendices A and D	January 29, 2025	Andrew Miller, PE	Yes

Revision Made	Page/Section Number	Date	Name	PE Certification Necessary? (Yes/No)
Discussion of oil-filled operational equipment and shipping and receiving area (Building 69). Addition of Building 50B temporary portable generator, Building 69A generator tank (69-TK-011), Building 70A generator tank (70A-TK-018), mobile fuel truck (76-TK-019), evaporator at Building 77, oil-filled equipment at Building 59 (59-EG-115), and Building 92 generator (92-EG-125). Removal of generator tank (50B-TK-001) at Building 50B, Building 58A and 58B drum storage areas, and Building 62D drum storage area. Consolidated Table C-1 and C-2 to Table C-1. Updated associated maps.	Sections 4.7.4, 4.8, and 5.4.2, Appendices A, C, and D	June 29, 2025	Andrew Miller, PE	Yes
Removal of temporary generator Multi-Quip (DCA300SSJU4F3) and addition of new generator tank (50B-TK-004) at Building 50B. Updated location of evaporator at Building 77.	Appendix A and Figure A-1 and Figure D-1	December 19, 2025	Andrew Miller, PE	Yes
Updated 5-Year Amendment description to include details regarding prevention and control technology review.  Replaced Maria Nappi with Paul Blodgett as the Responsible Person representing Lawrence Berkeley National Laboratory's Environment, Health, and Safety Division.	Review and Approval  "Certification of the Applicability of the Substantial Harm Criteria" section and Section 1.4	June 15, 2026	Paul Blodgett Brent Henderson	No

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Appendix C: Drum Storage Areas and Waste Accumulation Areas

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Appendix F: SPCC Compliance Inspection for Oil Storage Areas (ESG Procedure 210)

Appendix G: Procedures for Tank Integrity Testing

Appendix H: SPCC Implementation Schedule

# Abbreviations and Acronyms

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AST	Aboveground storage tank
Cal OES	California Governor's Office of Emergency Services
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CUPA	Certified Unified Program Agency
DOE	Department of Energy
DOT	Department of Transportation
DSA	Drum storage area
DTSC	Department of Toxic Substances Control
E85	85% ethanol, 15% gasoline blend
EHS	Environment, Health, and Safety (the division)
EPA	Environmental Protection Agency
ESG	Environmental Services Group
gpm	Gallons per minute
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
PE	Professional Engineer
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
SPCC	Spill Prevention, Control, and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TIUGA	Tank in an underground area
UC	University of California
UST	Underground storage tank
WAA	Waste accumulation area

# 1 Introduction

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## 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 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 (hereafter “Plan”) has been prepared in accordance with the requirements set forth in the Code of Federal Regulations, Title 40, Part 112 (40 CFR §112); the California Health and Safety Code, Chapter 6.67; and the U.S. Department of Energy (DOE) Order No. 436.1. To prepare this Plan, Berkeley Lab has analyzed the facility’s capability to prevent oil discharges and facilitate safety awareness. By gathering 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.

## 1.2 Applicability

Facilities are required to prepare SPCC Plans if they store any form of oil or petroleum product in more than the minimum quantities defined below and if, based on their location, they have the potential 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.
- Have the potential to discharge oil in harmful quantities into navigable waters of the United States.

Berkeley Lab is subject to the requirement to prepare an SPCC Plan because it currently meets the following criteria:

- It has an aggregate aboveground storage capacity that exceeds 1,320 gallons.
- Storm drains located in outdoor areas throughout the site eventually discharge into San Francisco Bay, which is a navigable water of the United States.

Capacities of individual storage tanks at Berkeley Lab are listed in the appendices. Completely buried tanks are exempt pursuant to 40 CFR §112.1(d)(4) if they are regulated under 40 CFR 280. However, the locations of all “exempt” underground storage tanks (USTs) are still required to be

provided in this Plan and to be marked as “exempt” on the location map (see Figure B-1 in Appendix B).

Specific terms used in this Plan are defined as follows:

- *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* is defined in 40 CFR 110 as those quantities 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 in 40 CFR §112.1(d)(5) as a storage tank or drum having a capacity of at least 55 gallons. This Plan addresses bulk storage of oil or petroleum products only. Oil may be stored before or during use, or before further distribution in commerce. Oil-filled electrical, operating, or manufacturing equipment is regulated under 40 CFR §112.7 and must have appropriate containment. However, this equipment is excluded from the bulk storage container requirements in 40 CFR §112.8 because the oil is present solely to support the function of the apparatus or the device.

This Plan conforms to the requirements outlined in 40 CFR §112. A compliance reference table is provided in Section 9.2 of this Plan.

### 1.3 Plan Maintenance and Amendments

The Environmental Services Group (ESG) of Berkeley Lab is responsible for maintaining and updating this SPCC Plan. A hard copy of this Plan is maintained at all times in ESG’s office and an electronic copy is available on the software platform PowerDMS. The hard copy of the Plan is available to representatives of regulatory agencies for on-site review during normal business hours.

The California State Water Resources Control Board (State Water Board) may require an 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 that significantly affects the potential for discharges of oil into navigable waters. Short-term, temporary changes lasting less than six months (e.g., temporary power generators) may not require an SPCC Plan amendment but will be managed following the requirements of this SPCC Plan. In addition, Berkeley Lab will review and evaluate the SPCC Plan

every five years. Within six months after completion of the review, Berkeley Lab will revise the Plan to include any identified improvements in prevention and control technology if necessary. 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 (i.e., no requirement for engineering certification) applies only to administrative changes, such as maintaining an emergency contact list, and not changes affecting the technical/engineering aspects of this Plan.

Plan reviews and amendments are tracked in the SPCC Plan Review Log and SPCC Plan Amendment Log sections, respectively, at the beginning of this document.

## 1.4 Designated Responsible Persons

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

Jim Buehler, Group Leader, Environmental Services Group  
 Paul Blodgett, Interim Director, Environment, Health, and Safety (EHS) Division  
 Brent Henderson, Director, Facilities Division

## 1.5 General Facility Information

<b>Facility Name and Address:</b>	Lawrence Berkeley National Laboratory 1 Cyclotron Road Berkeley, California 94720
<b>Type of Facility:</b>	Research Laboratory [SIC 8733]
<b>Owner Name and Address:</b>	U.S. Department of Energy Berkeley Site Office 1 Cyclotron Road, MS 90R1023 Berkeley, California 94720
<b>Operator Name and Address:</b>	(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
<b>Facility Location:</b>	Latitude: 37 degrees, 52 minutes, and 33 seconds North Longitude: 122 degrees, 15 minutes, and 0 seconds West
<b>Start-up Date:</b>	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 on 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.

## 2 Analysis of Spill Potential

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### 2.1 Spill History

There have been no known oil or petroleum product spills that have resulted in release of harmful quantities of oil from Berkeley Lab to navigable waters. Over the years, Berkeley Lab staff have implemented numerous facility improvements that have significantly reduced the potential for release of harmful quantities of oil. Control measures include, but are not limited to:

- Replacing 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 equipment.
- Leak testing existing containment and resealing where necessary.
- Deploying spill kits at strategic and accessible locations throughout the site.
- Selecting locations for ASTs in buildings or sheds and installing secondary containment around the ASTs.
- Removing or upgrading USTs as required.
- Consolidating 55-gallon drums into drum storage areas (DSAs) with secondary containment.
- Implementing an integrity testing program for bulk storage containers.

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

## 2.2 Prediction of Potential Spills

ASTs, oil-filled equipment, DSAs, and WAAs have secondary containment. In addition, Berkeley Lab has implemented numerous control measures that have significantly reduced the potential for spills. Examples of these control measures are as follows:

- Spill containment and cleanup kits for those ASTs that cannot reasonably be equipped with secondary containment (e.g., portable emergency generators).
- Procedures for inspection of ASTs and DSAs.

Potential spill scenarios are presented in Sections 4 and 5, and flow pathways are shown on the figures in Appendices A through D.

## 2.3 Containment

Berkeley Lab uses containment and/or diversionary structures or equipment such as the following to prevent discharged oil from reaching a navigable water course:

- Double-walled tanks
- Coated concrete berms and sheet metal pans
- Bedframe fluid containment basins
- Containment pallets
- 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 the most likely quantity of oil that could be discharged. Containment structures used for specific aboveground storage areas are described in Appendices A (ASTs), C (DSAs), and D (Oil-Filled Equipment).

## 2.4 Contingency Plan for Areas Without Containment

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 a leak or spill.

## 2.5 Spill Response Procedures

Berkeley Lab staff are trained in the following “SWIMS” procedures 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.

- In an imminent emergency event (i.e., medical emergency or danger to life, health, or the environment), call 911.
- In a non-imminent emergency event, utilize the following contacts:
  - Lab Phone: x6999
  - Cell Phone: (510) 486-6999
- Alert people in the area

**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 (e.g., wet clothing, skin or respiratory irritation)
- For medical emergencies, follow directions in the [Berkeley Lab Emergency Guide](#)

**S:** Stay in or near the area until help arrives.

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

# 3 Facility Drainage

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## 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 on Figure 2-4, and a map showing the site creeks and topography is shown on Figure 2-5. Surface runoff within Blackberry Canyon discharges either directly or via storm drains into the 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.

Both the north and south forks of Strawberry Creek flow through separate culverts and resurface on upper portions of the University of California (UC) Berkeley campus. The two creeks eventually merge at the lower end of the UC Berkeley campus before passing beneath the City of Berkeley and discharging into 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 discharge is presented in Appendix E, along with a rainwater discharge log form. The rainwater discharge procedure will be modified to include a description of secondary containment with a rainwater discharge component, a project that is currently being constructed or planned. Modifications to the rainwater discharge procedure will be made as necessary and included in this Plan without formal modification. The general procedure for discharge of accumulated rainwater from containment is as follows:

- Bypass valves, which are normally sealed and closed, 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 inspection or 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 stormwater inspections and discharges is maintained using the form presented in Appendix E. The Facilities Division maintains records for no less than three years.

If 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 Site Effluent Discharges Into Navigable Waters

Site effluents discharged into navigable waters include stormwater and groundwater discharges from hydraugers located throughout the Berkeley Lab site. 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 on site before being discharged to the sanitary sewer. The hydrauger discharges are monitored periodically, as reported in the annual Site Environmental Report for Lawrence Berkeley National Laboratory.

Procedures for monitoring stormwater discharges are discussed in the Berkeley Lab Stormwater Pollution Prevention Plan (SWPPP), in compliance with the California General Industrial Stormwater Permit. ESG is responsible for implementing the SWPPP, which requires monitoring of four storm events per year. The monitoring results are reported in the Site Environmental Report and submitted to the State Water Board's online database, Stormwater Multiple Application and Report Tracking System (SMARTS).

# 4 Oil Storage

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Oil storage units at Berkeley Lab consist of ASTs, tanks in an underground area (TIUGAs), USTs, DSAs, portable tanks, and oil-filled equipment. As stated in Section 1.2, an oil or petroleum product storage unit is defined as a tank or container with a capacity of at least 55 gallons.

## 4.1 Materials of Construction

All storage units used to store oil or petroleum products are constructed of materials that are compatible with such products and that are 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

A current list of ASTs at Berkeley Lab is provided in Table A-1 in Appendix A, along with a description of the secondary containment for each tank. All of the ASTs containing 55 gallons or more have secondary containment of sufficient capacity for 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 has the following types of tanks:

- Double-walled vault tanks for E85 blend (85% ethanol with 15% gasoline), diesel fuel, and transformer oils
- Double-walled belly tanks for standby electricity generation
- Single-walled belly tanks with secondary containment basins
- Single-walled, inside secondary containment, day tanks for standby electricity generation

The types of overfill protection devices used for Berkeley Lab's ASTs include high-liquid-level alarms, direct vision gauges, and digital level outputs. Several ASTs attached to standby generators (day tanks) are equipped with fiberglass automatic fill lines from USTs. In all cases, these day tanks are equipped with relay cutoffs that control solenoid valves, which prevent the uncontrolled pumping of oil if the day tank leaks.

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

Spills or leaks from ASTs are most likely to occur from piping, valves, or other connection points and to be less than the total capacity of the storage tank. Failure of a primary tank would be contained within the secondary containment.

All ASTs are protected from vehicle traffic by bollards, elevated tank pads, building walls, or other structures.

### 4.3 Restraints

Oil-filled equipment and ASTs at Berkeley Lab are bolted to concrete pads within containment berms.

### 4.4 Underground Storage Tanks

The USTs at Berkeley Lab are exempt pursuant to 40 CFR §112.1(d)(4), as they are regulated under 40 CFR 280. However, the locations of all exempt USTs are required to be provided in this SPCC Plan and to be marked as exempt on the location map. A current list of USTs at Berkeley Lab is presented in Table B-1 in Appendix B, and the locations of the USTs are shown on Figure B-1 in Appendix B. All UST systems at Berkeley Lab are double-walled tanks with corrosion protection and automatic release detection capability. Overfill of USTs is prevented through use of the following devices:

- Mechanical shutoff valves (flapper valves) for the main fuel USTs at Building 76 and an audible alarm
- Formal emergency procedures, which are presented in the UST Response Plan, for responding to a potential overfill situation
- Posted emergency signs that provide instructions for power shutoff if an overfill situation occurs

### 4.5 Drum Storage Areas

A list of DSAs and WAAs at Berkeley Lab is presented in Table C-1 in Appendix C, along with a description of secondary containment or spill control measures at each area. The locations of DSAs and WAAs are indicated on Figure C-1 in Appendix C.

All WAAs and DSAs are equipped with secondary containment. To the extent practical, all drums containing oil products are stored within sheds or buildings. However, because of changing operations throughout the facility, small numbers of drums may periodically be stored at the point of use. 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 §112.8(c)(2), secondary containments provided for DSAs 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 of 4.78 inches event as a best management practice).

Spills or leaks from drums are most likely to occur from hoses, pumps, or other transfer equipment and to be less than the total capacity of the drum. Failure of a drum would be contained within the secondary containment.

## 4.6 Portable Storage Tanks

Portable storage tanks at Berkeley Lab are associated with portable standby generators, air compressors, a small on-site tank truck, and a pickup truck with an auxiliary tank for delivery of fuel. Portable generators are normally stored at Building 82 and are moved to other locations, as needed. Most portable tanks are double-walled or have fabricated metal containment. Single-walled portable tanks are stored inside of secondary containment (e.g., portable dike or berm system). These tanks are included in the summary of ASTs in Appendix A (Table A-1). The following protective measures are in place at Berkeley Lab for portable storage tanks:

- Single-walled with leak containment basin and sensor
- Double-walled or fabricated metal secondary containment
- Portable secondary containment systems (e.g., dike or berm) for single-walled tanks
- Located and positioned to prevent spilled oil from reaching storm drains or other access points to navigable waters
- Equipped with spill kits

The portable storage tanks at Berkeley Lab are equipped with high-liquid-level alarms or direct vision gauges to prevent overfills.

Berkeley Lab may require temporary portable generators to provide additional power at the facility. Temporary generators are provided by outside contractors or vendors and remain on-site for short durations (i.e., less than six months). Berkeley Lab implements applicable environmental requirements and plans (e.g., SPCC and SWPPP) when temporary generators are used, including the protective measures described above. Personnel involved in the transportation and operation of temporary generators are trained in spill prevention and response.

Spills or leaks from portable tanks are most likely to occur from hoses or pumps during fueling and are to be less than the total capacity of the tank. Failure of a portable tank would be contained within the secondary containment.

## 4.7 Oil-Filled Equipment

Oil-filled equipment at Berkeley Lab consists of electrical transformers, research equipment, hydraulic elevators, and operational equipment lubricating systems (e.g., crankcases). Berkeley Lab also operates electrically powered elevators and air-cooled transformers. These elevator systems and transformers are not included in the SPCC Plan as they are not subject to the requirements of 40 CFR §112.

### 4.7.1 Oil-Filled Transformers

A current list of oil-filled electrical transformers is presented in Table D-1 and shown on Figure D-1 in Appendix D. This list includes facility transformers and those connected to the site primary power distribution system. The transformers are mounted on concrete pads.

Berkeley Lab assumed control of the Grizzly Substation from UC Berkeley in 2006. The Grizzly Substation contains five transformers located near Building 36A. The transformer bank designation, oil capacity, and secondary containment adequacy are included in 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 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 stormwater procedures [Facilities Division MA.MG.PRC.056 (formerly OPER-056-C) Appendix E]. Transformers at 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; however, for 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 transformer 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. As oil-filled equipment, the transformers are not required to have sized secondary containment, but they must comply with the general containment requirements of 40 CFR §112.7(c). If a transformer fails, active containment measures (e.g., dikes, booms, dry sorbent materials) may be used in addition to the permanent berm system.

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

#### *4.7.2 Oil-Filled Research Equipment*

Certain research and experiments performed at Berkeley Lab may require use of oil-filled electrical and operational equipment. A current list of research and development tanks and equipment is presented in Table D-2 and shown on Figure D-1 in Appendix D.

Spills or leaks from oil-filled equipment are most likely to occur from piping, hoses, valves, or other connection points during filling and to be less than the total capacity of the equipment. Failure of an equipment storage tank would be contained within the secondary containment.

#### *4.7.3 Hydraulic Elevators*

A current list of hydraulic elevators is presented in Table D-3 in Appendix D. The hydraulic elevators are located in several buildings around Berkeley Lab. The hydraulic reservoirs for the elevator systems are located in dedicated mechanical equipment rooms that are only accessible by authorized maintenance personnel.

The hydraulic oil reservoirs are generally single-walled. Containment for the elevator hydraulic systems is provided by sheet metal berms and the buildings in which the hydraulic reservoirs, equipment (e.g., pumps), and piping are installed. Spill kits are stored in the mechanical rooms to contain spills from this equipment. The elevator hydraulic systems are routinely monitored by a third-party elevator contractor. Oil is transferred to or from the reservoirs as needed and the oil level is monitored by direct visual observation during transfer activities to prevent overfills.

#### *4.7.4 Oil-filled Operational Equipment*

Oil-filled operational equipment at Berkeley Lab consists of lubricating systems for generator equipment. Large generator systems have oil capacities of at least 55 gallons for lubricating

systems (e.g., crankcases or other reservoirs) that are used to support the operation of the generator equipment. A current list of oil-filled operational equipment is presented in Table D-4 in Appendix D and their locations are shown on Figure D-1.

Spills or leaks from oil-filled operational equipment are most likely to occur from piping, hoses, valves, or other connection points during filling and to be less than the total capacity of the equipment. Oil spilled as a result of a failure of the equipment would be contained within the equipment housing and addressed with spill response measures. Oil levels in the equipment are monitored in accordance with the manufacturer's service recommendations and through direct vision gauges and alarms on the generator control panel. Overfill is prevented by monitoring oil levels during oil changes or other service.

## 4.8 Mobile Refuelers

Berkeley Lab has three diesel fuel delivery trucks for on-site fueling operations.

A 600-gallon fuel delivery truck is used for fueling ASTs and USTs that support engine generators. The fuel delivery truck has a single-walled tank and is equipped with a filling nozzle and pump system capable of delivering fuel at 15 gallons per minute (gpm). As a mobile refueler, the truck is subject only to the general containment requirements of 40 CFR §112.7. The fuel truck is equipped with a spill kit and is located and positioned to prevent spilled fuel from reaching storm drains or other access points to navigable waters. The fuel truck is parked inside a portable secondary containment berm system when not in use.

The remaining fuel trucks are used for fueling equipment and engine generator fuel tanks throughout the facility. The 100-gallon fuel trucks consist of a bed-mounted fuel tank on a Berkeley Lab pickup truck. The fuel tanks are equipped with a filling nozzle and pump system capable of delivering fuel at 15 gpm. The fuel trucks are equipped with a spill kit and, when in use, are located and positioned to prevent spilled fuel from reaching storm drains or other access points to navigable waters. The fuel trucks are parked inside the Berkeley Lab Facilities Division truck bay located at Building 76 when not in use. The Building 76 truck bay is equipped with a catchment system to prevent a discharge due to a spill or leak.

Spills or leaks from Berkeley Lab's fuel trucks are most likely to occur from hoses or pumps during fueling and to be less than the total capacity of the tank. Spills or leaks resulting from failure of the tank would be contained using the respective secondary containment systems and active response measures.

# 5 Facility Transfer Operations

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## 5.1 Underground Piping

Berkeley Lab upgraded all underground piping associated with USTs prior to December 1998, in accordance with the requirements for underground piping specified in the federal UST regulations (40 CFR 280). Underground piping is constructed of fiberglass, a non-corrodible material. The location of underground piping is not shown on Figure B-1 in Appendix B. Piping as-built drawings are maintained by the Facilities Division Chief Engineer and are kept in Building 76 or Berkeley Lab archives.

A portion of the gravity flow fill pipe associated with engine generator 70 EG 106 is buried under soil cover. The piping is painted and wrapped to protect against corrosion as required by 40 CFR §112.8(d)(1). Inspection and integrity testing of buried piping associated with ASTs is addressed in Section 6.

## 5.2 Aboveground Piping

All aboveground piping supports are 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 are inspected as specified in Section 6. Precision leak testing is periodically performed on the Building 76 AST (76 TK 007) supply piping, which contains E85 blend. The location of aboveground piping is not shown on Figure A-1 in Appendix A. Piping as-built drawings are maintained by the Facilities Division Chief Engineer and are kept in Building 76 or Berkeley Lab archives.

No aboveground piping is known to be exposed to vehicular traffic. Warning signs and barriers will be posted if future pipeline installations are prone to damage by traffic.

Spills or leaks from aboveground piping will be contained by secondary containment structures, buildings, or active containment measures (e.g., spill kits).

## 5.3 Out-of-Service Piping

Underground and aboveground piping that is not in service or is in standby service for an extended time is capped and blank-flanged when removal is not practical. Underground piping that is

permanently out of service is removed or abandoned in place in accordance with an approved closure plan.

## 5.4 Facility Tank Truck Loading/Unloading

The following subsections describe the fuel loading and unloading operations completed by commercial vendors and by personnel using the Berkeley Lab fuel trucks.

### 5.4.1 Commercial Loading/Unloading

Transportable storage tanks (i.e., 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 Berkeley Lab adhere to the requirements and regulations of the U.S. Department of Transportation (DOT) during unloading of fuels. Operating procedures from commercial fuel vendors are provided to Berkeley Lab and maintained by the Facilities Division.

Commercial fuel deliveries are made primarily to the 10,000-gallon USTs at Building 76 and occasionally to the ASTs at Buildings 74 and 83 (4,000-gallon capacity). Automatic interlocking systems are installed in the tank trucks to prevent the trucks from departing before the transfer lines are properly disconnected. Drains and outlets on the tank trucks are inspected for leaks before the trucks depart. 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 to situations that could potentially result in a tank overfill, 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.

Vendors performing commercial fuel deliveries must adhere to spill response plans and procedures and have trained delivery personnel.

The following protective measures are in place at Berkeley Lab for commercial deliveries:

- Outside vendors must check in with Berkeley Lab staff before filling.
- Operators check the receiving tank level before and during filling.
- A spill kit and additional spill absorbent are maintained at the truck and/or receiving tank.
- The fuel delivery nozzle is always manned to prevent spills.

#### 5.4.2 Berkeley Lab Mobile Refueler Loading/Unloading

Berkeley Lab's three diesel fuel delivery trucks (600-, 100-, and 100-gallon capacities) are used for fueling ASTs and USTs that support engine generators. Generally, the delivery of fuel is small, as engine generators are typically run once a month. The fueling nozzles deliver fuel at flow rates up to 15 gpm. The 600-gallon truck is equipped with a fuel pump and a meter for measuring the number of gallons delivered. When not being used, the 600-gallon fuel truck is stored on a portable secondary containment system that is located at the southeast side of parking Lot Z near Berkeley Lab's Guest House Building 23. Berkeley Lab's remaining fuel trucks are pickup trucks with a 100-gallon auxiliary diesel tank used for refueling small engines. The 100-gallon fuel trucks have a hand-pump fuel delivery system used to refill small engines and a system to deliver fuel. When not in use, the 100-gallon fuel trucks are parked at the Building 76 high bay, which is protected by an oil-water separator system.

The following protective measures are in place at Berkeley Lab for the fuel delivery trucks:

- Operators check the receiving tank level before and during filling.
- A spill kit and some additional spill absorbent are maintained on the trucks.
- Two persons monitor the delivery of fuel from the trucks to an AST or UST.
- The fuel delivery nozzle is always manned to prevent spills.

### 5.5 Fueling Station

Vehicle fueling takes place at Building 76 using the dispensing nozzles for diesel, gasoline, and E85 blend. The diesel and gasoline are supplied by the Building 76 USTs, and the E85 is supplied from the adjacent AST. The maximum flow rate from the fuel dispensers is approximately 22 gpm. Fuel transfers are continuously manned, and the filling nozzles are equipped with automatic shutoffs. In addition, spill response materials are available next to the dispensing equipment, and the fueling area drains to an oil-water separator.

Spills or leaks of diesel, gasoline, or E85 blend are likely to be minimal and would be controlled with active containment measures.

### 5.6 Drum Transfers

Some stationary equipment at Berkeley Lab (e.g., oil-filled research equipment) requires oil changes. These as-needed oil transfers are conducted using portable containers (e.g., drums) at the equipment site. The drums are transported using trucks and then moved to the equipment

using drum dollies. Transfers are continuously manned and monitored. In addition, spill response materials are available next to the equipment.

Spills or leaks of oil during transfers to oil-filled equipment are likely to be minimal and would be controlled with active containment measures.

# 6 Inspections and Records

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## 6.1 Responsibilities

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

- 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 EHS Division inspects DSAs and WAAs.
- Research divisions inspect their own oil-filled equipment in cooperation with the EHS Division.

Inspections, integrity testing, and evaluations are performed by personnel familiar with the storage containers, containment methods, and oils being stored. Personnel use and sign the applicable forms and checklists.

## 6.2 Inspections

The AST systems are inspected by Facilities Division personnel on a monthly basis utilizing the inspection procedures found in Appendix G. AST systems consist of the tank, secondary containment, and appurtenances and ancillary equipment (e.g., fill boxes, piping, pipe connections, valves, and instrumentation). The monthly AST inspection procedure follows the guidance from the current version of the STI/SPFA standard, *Standard for the Inspection of Aboveground Storage Tanks* (SP001), referred to herein as STI SP001. In addition to the monthly AST inspection procedure, Facilities Division personnel complete an annual AST inspection in accordance with the STI SP001 guidance.

The monthly and annual AST inspection procedures take into consideration the types of AST systems in use at Berkeley Lab. Inspection elements provided as guidance by STI SP001 that are not applicable to the types of AST systems at Berkeley Lab, or that are redundant, are not included in the AST inspection procedures.

ESG conducts monthly formal inspections of DSAs, as described in ESG Procedure 210, provided as Appendix F of this Plan. Users of the materials stored in DSAs will report evidence of leaks to ESG. Waste Management Group personnel inspect WAAs weekly in accordance with the inspection

procedure provided in Appendix F. Oil leaks that are identified that could result in a significant accumulation of oil within the containment area will be promptly corrected.

If all, or a portion, of buried piping associated with an AST is exposed for any reason, it is inspected for corrosion and deterioration.

Oil-filled equipment (e.g., transformers and hydraulic elevator tanks) is inspected on a semi-annual basis. Equipment inspections are performed in accordance with the inspection contractor checklists or in-house checklists in order to identify potential leaks, spills, corrosion, or deformations.

### 6.3 Integrity Tests and Evaluations

Berkeley Lab implements an integrity testing program for bulk storage containers, which includes a combination of visual inspection and nondestructive integrity testing. The scheduled monthly and annual tank maintenance and inspection procedures are presented in Appendix G. The program includes formal external inspection by a certified inspector of the exteriors of tanks greater than 5,000 gallons, every 20 years or as required by the inspector. Currently, Berkeley Lab has no ASTs larger than 5,000 gallons in service.

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 testing via ultrasonic or radiographic testing.

All oil storage containers are inspected for signs of deterioration, discharges, or accumulation of oil inside secondary containment areas.

The interstitial space of double-walled ASTs is monitored as part of the routine inspection and integrity testing program. Methods for inspecting the interstitial space vary based on the tank configuration and include leak detection sensors, drain plugs, dipsticks, and cameras, or other equivalent means. Leak detection sensors are tested annually.

Any tank that has undergone a repair, alteration, or reconstruction must be evaluated before it is returned to service.

No field-constructed ASTs are used at Berkeley Lab.

Integrity and leak testing for buried piping associated with ASTs is performed at the time of installation, modification, construction, relocation, or replacement.

## 6.4 Records

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

EHS Division	Facilities Division
● Drum inspections	● Tank inspections
● WAA inspections	● Rainwater discharges
● Spill documentation	● Integrity tests
● Training records	● As-built drawings
	● Inspection and testing records

# 7 Security

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## 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 site. Many of the storage units are located inside buildings, which are locked during evening hours. Standby generator tanks are generally difficult to access because they are located inside the generator housings, which are normally locked. The WAAs are locked, and access is permitted only to authorized personnel. Oil-filled equipment is 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, and not in a central location.
- There are security patrols of the facility 24 hours a day; entry-gate guards and Facilities Division personnel are present at all hours.
- The facility is surrounded by a fence, which minimizes the potential for vandals to enter the facility.

# 8 Personnel Training

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## 8.1 Training Programs

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

- Discussion of applicable pollution control laws, rules, and regulations
- Introduction of new technology or revised procedures
- Discussion of the SPCC Plan to help current and new employees familiarize themselves with this resource and enhance response and pollution awareness

Training associated with this SPCC 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 the attendance of participants.

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 for 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 comply with Occupational Safety and Health Administration (OSHA) regulation 29 CFR §1910.120.

If a hazardous substance spill occurs, other EHS 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, including waste oils, by attending training courses provided by EHS (e.g., EHS 0604, Hazardous Waste Generator Training; EHS 0610, WAA Supervisor).

## 8.2 Spill Prevention Briefings

The ESG representative will conduct annual spill prevention briefings for personnel who handle oil (EHS 0680, Spill Prevention, Control, and Countermeasures). The ESG representative may conduct additional training sessions or meetings, or issue reports/memoranda to ensure adequate understanding of this SPCC Plan. These activities consist of the following features:

- Discussion of recent known spill events or failures
- Brief overview of applicable regulations, updates on regulation changes, and updates to this SPCC Plan
- Review of SPCC procedures and recently developed precautionary measures

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

## 8.3 Spill Notification and Reporting

Individual agencies have spill notification and reporting requirements that apply if a release of oil occurs at Berkeley Lab. Federal, state, and local agency notification and reporting requirements for unauthorized oil releases are summarized below. Berkeley Lab staff who discover a spill should immediately call 911. All regulatory notifications are performed by EHS, as follows:

- The National Response Center shall be contacted immediately at 1-800-424-8802 if any of the following conditions are met:
  - The oil spill/release will reach the creeks via the storm drain system.
  - Water quality standards could be violated.
  - The spill/release could cause a film or sheen in the creeks.
  - The spill/release could cause a sludge or emulsion.
- The California Governor's Office of Emergency Services (Cal OES) shall be contacted immediately at 1-800-852-7550 if any of the following conditions are met:
  - 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:** *Immediate* in this context is defined as follows: “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)].

- If a spill/release is reported to Cal OES, then the following organizations shall also be notified:
  - City of Berkeley Toxics Management Division: (510) 981-7460
  - San Francisco Regional Water Quality Control Board, Spill Hotline: (510) 622-2369
  - California Department of Fish and Wildlife: 1-800-852-7550
- For releases that reach San Francisco Bay, the U.S. Coast Guard Marine Safety Office shall be contacted at 1-800-424-8802.
- 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)]:
  - Name of the person calling, exact address or location at the facility, organization, and telephone number
  - Date and time of the incident
  - Location of the incident
  - Type of petroleum product spilled/released
  - Estimates of the total quantity discharged
  - Estimate of the total quantity that has reached the creek
  - Source of discharge
  - Description of all affected media
  - Cause of the discharge
  - Any damages or injuries caused by the discharge
  - Actions being taken to stop, remove, and mitigate the effects of the discharge
  - Whether an evacuation may be needed
  - Names and individuals and/or organizations who have also been contacted
  - Weather conditions at the incident location (optional)
- If the spill/release is greater than 1,000 gallons or this is the second spill/release greater than 42 gallons within 12 months, ESG must prepare a written report of the incident. The written report of the incident must be submitted within 60 days to U.S. Environmental Protection Agency (EPA) Region IX, 75 Hawthorne Street, San Francisco, CA 94105, with copies to the

City of Berkeley Toxics Management Division and the San Francisco Regional Water Quality Control Board [ref. 40 CFR §§112.4 (a) and (c)]. The written report of the incident must include the following information:

- Name of the facility
- Your name
- Location of the facility
- Maximum storage or handling capacity of the facility
- Corrective action and countermeasures taken, including a description of equipment repairs and replacements
- An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary
- The cause of such discharge, including a failure analysis of the system or subsystem in which the failure occurred
- Additional preventive measures taken or contemplated to minimize the possibility of recurrence
- Other information pertinent to the SPCC Plan or discharge that the U.S. EPA may reasonably require
- The following spill cleanup contractors are available for response:
  - Primary – Clean Harbors Emergency (1-800-645-8265)
  - Secondary – Clean Earth Systems Emergency (1-877-577-2669)

Used spill control materials and oil recovered from spills should be stored according to Berkeley Lab waste handling and storage procedures until they can be sent off-site for disposal in accordance with appropriate waste disposal requirements.

# 9 References

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## 9.1 Documents

### *Emergency Procedures*

- *Comprehensive Emergency Management Plan*, EM-PLAN-001
- *Environment, Safety & Health Manual*, Chapter 9, Emergency Services, PUB-3000, <https://ehs.lbl.gov/resource/esh-manual-pub-3000/>

### *Additional Plans and Procedures*

- *Hazardous Materials Business Plan*, submitted via <https://cersbusiness3.calepa.ca.gov/>
- *SPCC Compliance Inspection for Oil Drum Storage Areas*, ESG Procedure 210
- *Stormwater Pollution Prevention Plan*, <https://ehs.lbl.gov/service/environmental-services/>
- *Underground Storage Tanks Response Plan*, <https://sites.google.com/lbl.gov/esg-internal/esg-internal>

### *Regulatory*

- 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.
- Code of Federal Regulations, Title 40, Parts 110 and 112
- DOE Order 436.1

### *Specialty*

- *Berkeley Lab Site Environmental Report*, <https://ehs.lbl.gov/resource/documents/environmental-services/site-environmental-reports/>

### *Guidance*

- STI/SPFA, 2024. Standard for the Inspection of Aboveground Storage Tanks, SP001, 7th Edition, February.

- U.S. Environmental Protection Agency, 2013. *SPCC Guidance for Regional Inspections*, December 16.

## 9.2 SPCC Plan Compliance Reference Table

40 CFR §112 Requirement	SPCC Plan Section
112.3(d) PE 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	After title page and 1.3
112.7 Management approval	After title page
112.7(a)(1) Rule Conformance	1.2 and 9.3
112.7(a)(3) Facility Diagram	Figures 2-1, 2-2, 2-3, 2-4, and 2-5, and Appendices A–D
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, 4, and 5
112.7(c) Containment and diversionary structures	2.3
112.7(c)(3) Rainwater Drainage	3.2
112.7(d) Inspections and Integrity Tests	6.2, 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(i) Brittle Fracture Requirement	6.3
112.7(j) Conformance with State and Local requirements	1.1, 1.3, and 2.1
112.8(b) Facility drainage	3 (all sections) and Appendices A–D
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)(6) Tank Inspections Integrity Tests	6.3
112.8(c)(8) Overfill protection	4.2, 4.4, 4.6
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)

40 CFR §112 Requirement	SPCC Plan Section
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

The following sections of 40 CFR 112 do not apply to this facility: 112.7(h) – Facility tank car and tank truck loading/unloading racks; 112.7(i) – Field-constructed containers; 112.8(c)(5) – Partially buried tanks; 112.8(c)(7) – Internal heating coils; 112.9 – Onshore production facilities; 112.10 – Onshore drilling/workover facilities; 112.11 – Offshore facilities; 112.12 – Animal, fish, and vegetable oils; and 112.20 – Facility Response Plans.

# 10 Figures: General Facility Information

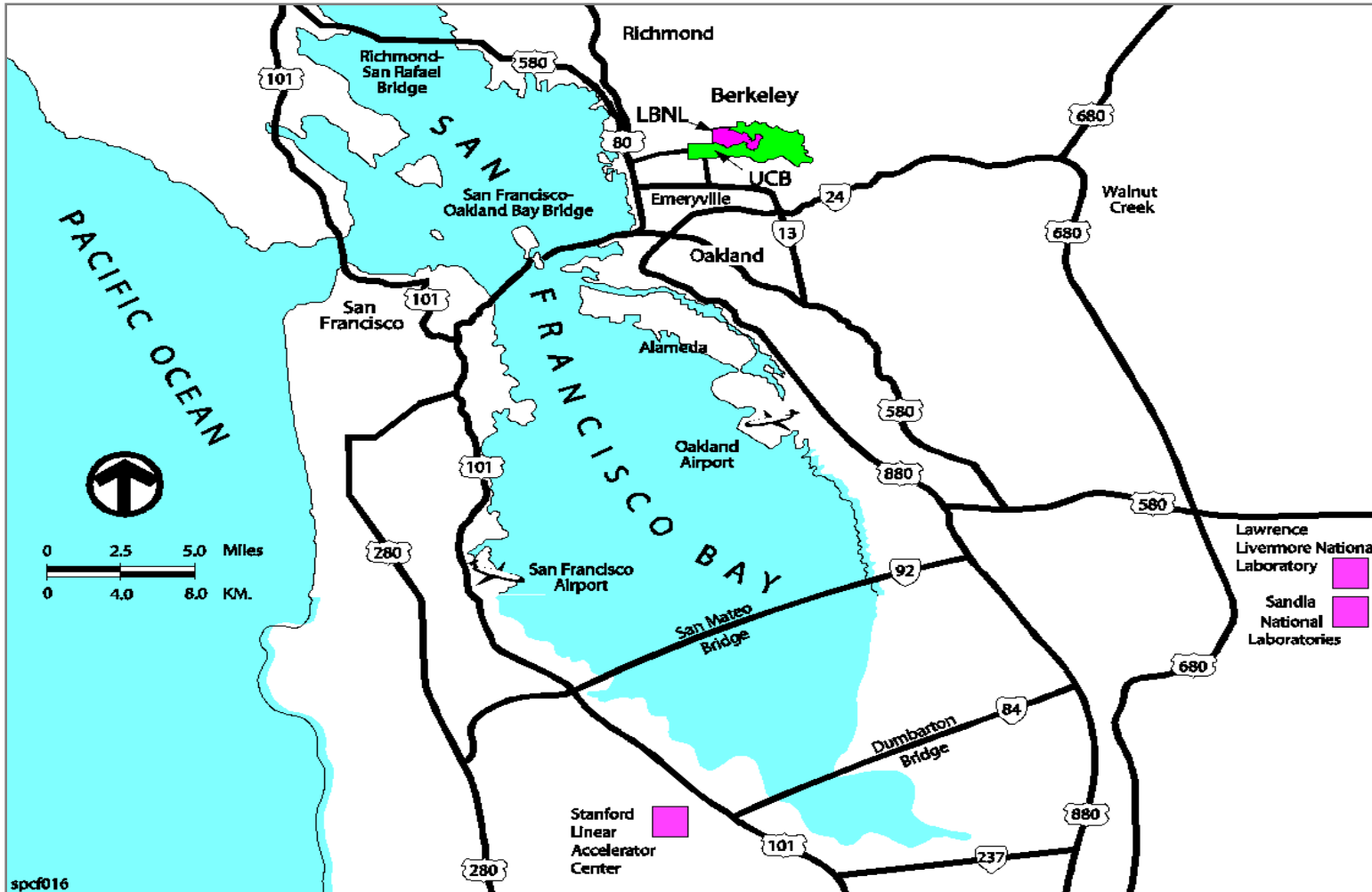


Figure 2-1 San Francisco Bay Area Map

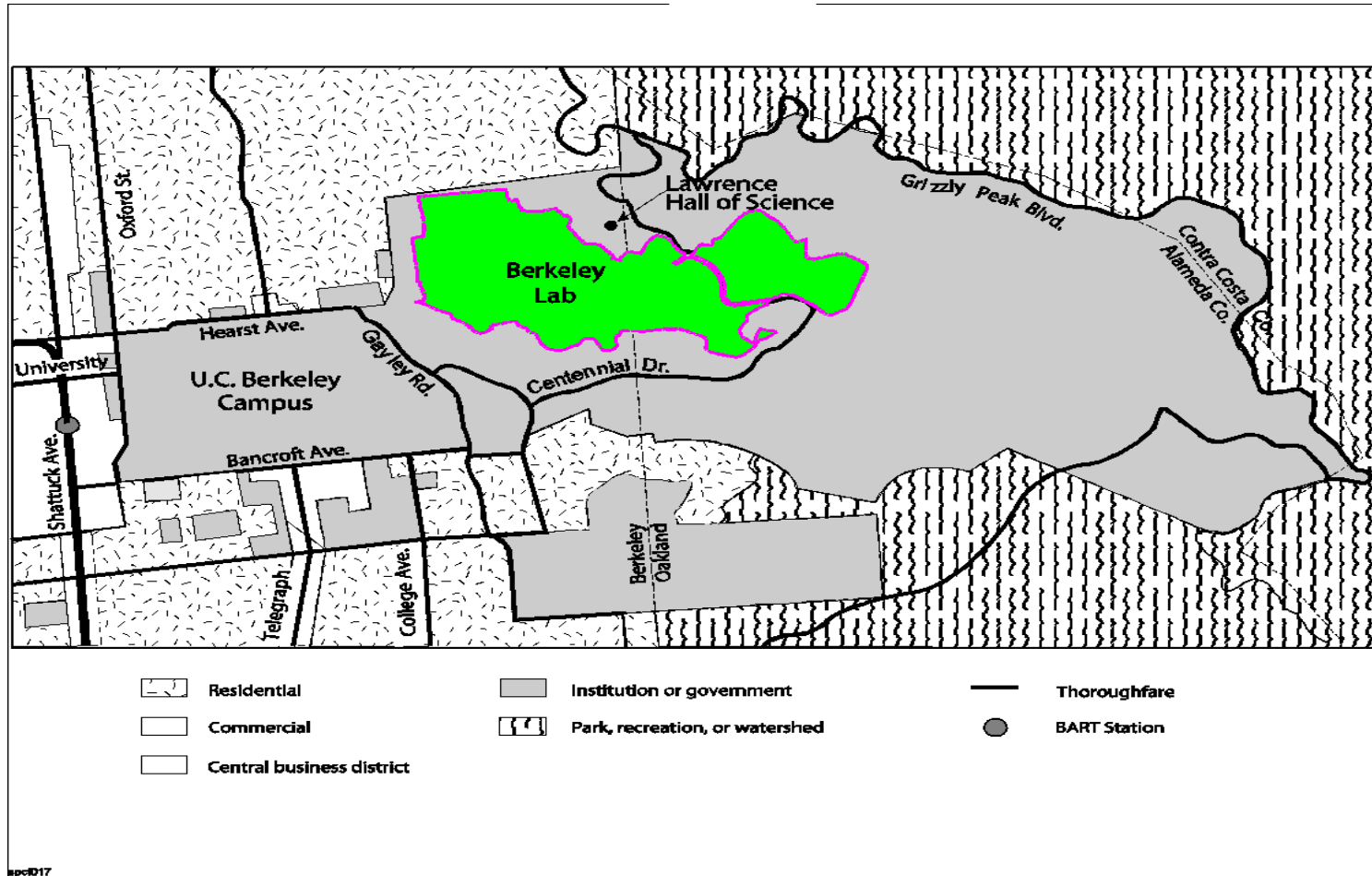


Figure 2-2 Adjacent Land Use Map

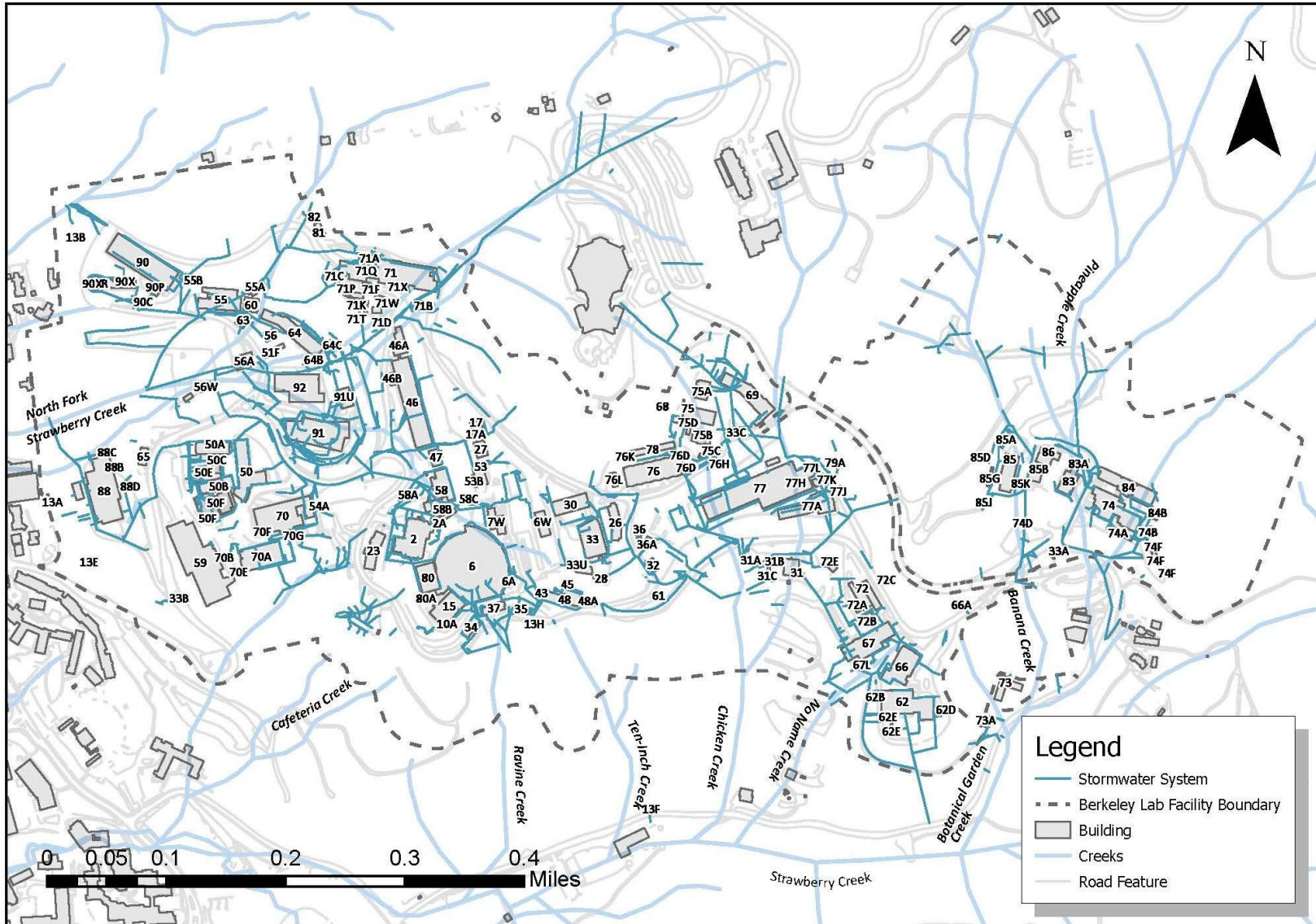


Figure 2-3 Lawrence Berkeley National Laboratory Buildings Map (Insert)



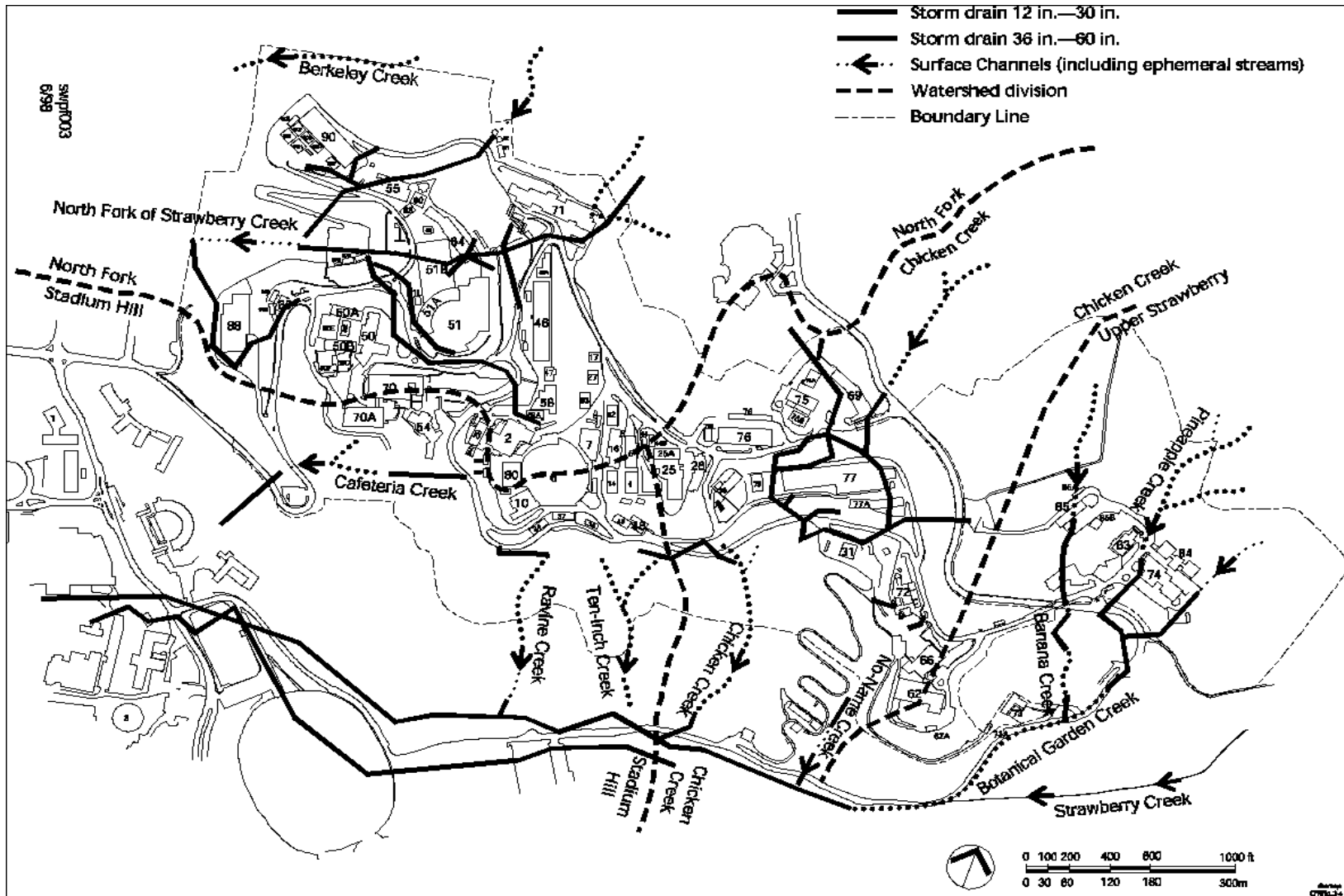


Figure 2-5 Site Creeks and Topography

# Appendix A: Aboveground Storage Tanks

**Table A-1: Summary of Aboveground Storage Tanks and Tanks in Underground Areas**

Building	Tank No. (Maximo ID)	Capacity (gallons)	Contents	Use	Containment
2	02 TK 009	56	Diesel	Service to engine generator (day tank)	Double-walled tank with leak detection sensor
30	30 TK 003 (U)	640	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
31	31 TK 001	104	Diesel	Service to engine generator	Double-walled with drain plug inspection port
33	33U TK 001	660	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
37	37 TK 104	550	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
37	37 TK 105	378	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
48	48 TK 001	367	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
50 Complex	50ATK 002	340	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
50 Complex	50BTK 004	472	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
59	59 TK 003	2,300	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
62	62 TK 002	300	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
62B	62B TK 081	55	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
64	64 TK 001	250	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
66	66 TK 008	450	Diesel	Service to engine generator	Double-walled tank with leak detection and alarm at EMCS
67	67ATK 002	1,500	Diesel	Service to engine generator	Double-walled tank with leak detection via Veeder-Root Monitor 300
67	67ATK 003	100	Diesel	Service to engine generator (day tank)	Double-walled tank with leak detection via Simplex control panel

Building	Tank No. (Maximo ID)	Capacity (gallons)	Contents	Use	Containment
68	68 TK 004	300	Diesel	Service to fire water pump	Double-walled tank with leak detection sensor
69	69 TK 011	87	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
70	70 TK 016	430	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
70A	70A TK 018	1039	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
72	72 TK 001	1,000	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
75	75 TK 003	275	Diesel	Service to engine generator	Metal containment bin with cover
76	76 TK 007	4,000	E85	Fuel dispensing	Double-walled tank with leak detection at tank connected to Veeder-Root TLS-350
76	76 TK 014	100	Diesel	Pickup truck with auxiliary diesel tank	Single-walled tank with secondary containment berm
76	76 TK 019	100	Diesel	Pickup truck with auxiliary diesel tank	Single-walled tank with secondary containment berm
77	77 TK 005	200	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
82	82 TK 004	359	Diesel	Service to fire water pump	Double-walled tank with leak detection sensor
82 (P)	76 TK 011	272	Diesel	Service to portable engine generator	Double-walled belly tank with leak detection sensor
82 (P)	76 TK 012	272	Diesel	Service to portable engine generator	Double-walled belly tank with leak detection sensor
82 (P)	76 TK 016	370	Diesel	Service to portable engine generator	Single-walled tank with containment basin and leak detection sensor
82 (P)	76 TK 017	370	Diesel	Service to portable engine generator	Single-walled tank with containment basin and leak detection sensor
82 (P)	76 TK 018	370	Diesel	Service to portable engine generator	Single-walled tank with containment basin and leak detection sensor
83	74 TK 014	4,000	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
84	84 TK 004	4,000	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
84	84BTK 003	100	Diesel	Service to engine generator	Simplex sheet metal berm with leak detection sensor

Building	Tank No. (Maximo ID)	Capacity (gallons)	Contents	Use	Containment
85	85 TK 003	56	Diesel	Service to engine generator (day tank)	Single-walled tank with steel containment and leak detection sensor
91	91U TK 001	1,036	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
92	92 TK 051	7,650	Diesel	Service to engine generator	Double-walled tank with leak detection sensor
Parking Lot Z	76 TK 013	600	Diesel	Mobile diesel tanker truck	Single-walled tank with secondary containment berm

(P) = Portable; (U) = tank in an underground area

Note: As described in Section 4.6, Berkeley Lab may require temporary vendor-provided portable generators for additional power needs at the facility. These generators remain on site for short durations. Berkeley Lab implements applicable SPCC requirements when temporary generators are used.

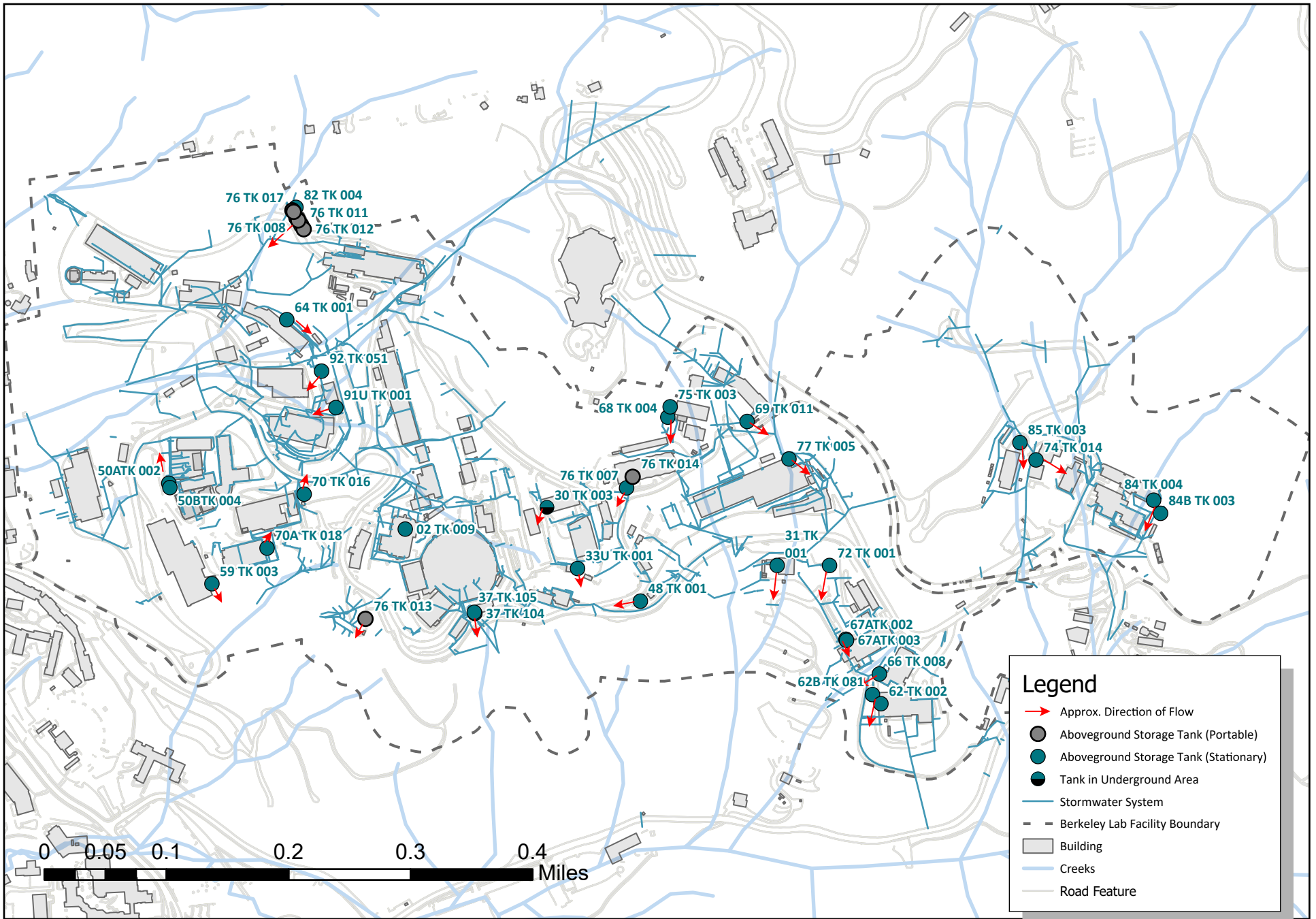


Figure A-1. Aboveground Storage Tanks

## Appendix B: Underground Storage Tanks

**Table B-1: Summary of Underground Storage Tanks**

Building	Tank No.	City of Berkeley ID	Generator	Capacity (gallons)	Contents	Construction	Installed	Monitoring
2	TK-3-2	COB 2-1		4,000	Diesel	Double-walled fiberglass	1988	Interstitial monitoring, Veeder-Root TLS 300
2	TK-4-2	COB 2-2	EG-68-2	1,000	Diesel	Double-walled fiberglass	1988	Interstitial monitoring, Veeder-Root TLS 300
55	TK-1-55	COB 55-1	EG-69-55	1,000	Diesel	Double-walled 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-walled Glasteel 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-walled Glasteel 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-walled reinforced fiberglass	1995	Automatic tank gauging and hydrostatic leak detection (brine filled); Veeder-Root TLS 300

Note: USTs are exempt according to 40 CFR §112.1(d)(4); they are regulated under 40 CFR 280.



# Appendix C: Drum Storage Areas and Waste Accumulation Areas

**Table C-1: Location of Drum Storage Areas and Waste Accumulation Areas**

Building	Location	Maximum Number of Oil/Petroleum 55-Gallon Drums	Contents	Containment	Division
62	East of building	4 drums (220 gallons)	Various oils	Storage shed with containment basin	Material Sciences
76	East of building	8 drums (440 gallons)	Various oils	Storage shed with containment basin	Facilities
81	Northeast of building	8 drums (440 gallons)	Various oils	Containment pallets	Facilities/PIMD
Temporary site-wide, as needed	Temporary WAA, as needed	Varies	Various oils	Containment pallets and/or appropriate containment basin	Varies
77	Outdoor storage area near center of the building	275-gallon tote	Oil-based Coolant	Containment pallets	Engineering
77J	East of Building 77	4 drums (220 gallons)	Various oils	Storage shed with containment basin	Engineering
77K	East of Building 77	4 drums (220 gallons)	Various oils	Storage shed with containment basin	Engineering
85G	Entire building	4 drums (220 gallons)	PCB oil	Storage shed with containment basin	EHS
85A	Entire building	8 drums (440 gallons)	Various oils	Storage rack with containment sump	EHS
79A	Entire building	25 drums (1,375 gallons)	Various oils	Storage shed with containment basin	Engineering

Note: The 67L and 67 Cages do not contain bulk storage containers or oil and therefore are exempted from the SPCC Plan. Drums stored at Buildings 17 and 77 are 205 liters (54.2 gallons) and therefore are not subject to the requirements of 40 CFR 112. Although these drums are exempt, Berkeley Lab has opted to store these drums inside of secondary containment and performs occasional visual inspections of the drums as a best management practice. Drums may be delivered to, and temporarily staged at, Shipping and Receiving at Building 69, and are staged on secondary containment pallets large enough to contain the full volume of the largest container prior to being delivered to their intended destination.

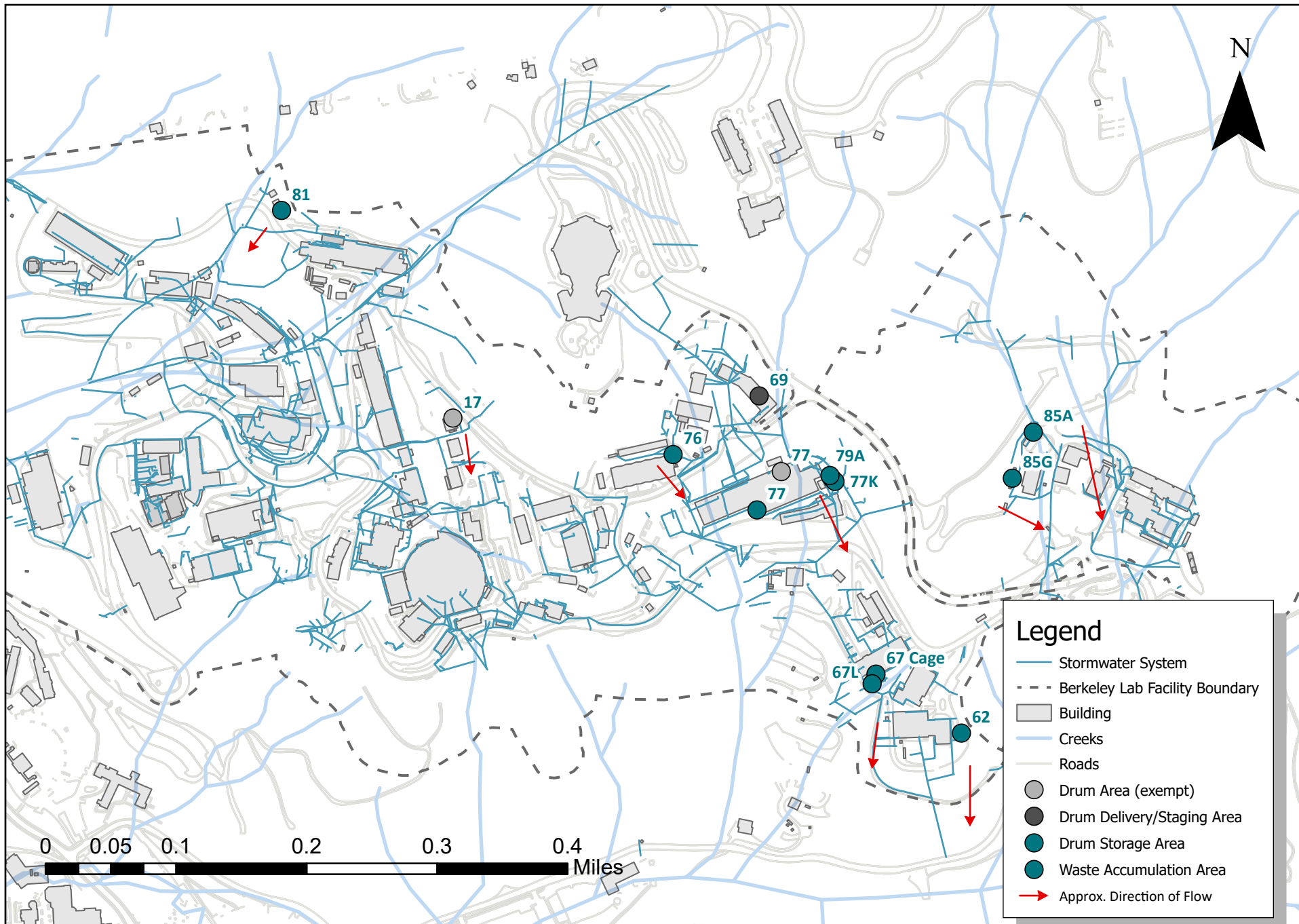


Figure C-1. Drum Storage Areas and Waste Accumulation Area Map

## Appendix D: Oil-Filled Equipment

**Table D-1: Oil-Filled Equipment (Transformers)**

Building	Bank	Fluid	Capacity (gallons)	PCB Concentration (ppm)	Secondary Containment Provided
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	1,113	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	2,700	ND	Yes
36A	1-B	Oil	2,700	ND	Yes
36A	1-C	Oil	2,700	ND	Yes
36A	1-Spare	Oil	2,700	ND	Yes
36A	2	Oil	5,865	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
64C	772	Soybean oil	580	N/A	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
70A	754	Oil	475	ND	Yes
77	72	Oil	428	ND	Yes
88	80	Oil	1,060	13	Yes
88	81	Oil	80	13	Yes
88	81	Oil	98	10	Yes

Building	Bank	Fluid	Capacity (gallons)	PCB Concentration (ppm)	Secondary Containment Provided
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	1,140	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
92	700	Oil	534	ND	Yes

**Table D-2: Oil-Filled Equipment (Research)**

Building	Equipment	Fluid	Capacity	Secondary Containment Provided
6	ScandiNova LINAC	Electric insulating oil	159	Yes
6	ScandiNova LINAC	Electric insulating oil	159	Yes
58	NDCX II (40 cells at 30 gallons each)	Diala oil	1,200	Yes
77	Thompson Horizontal Grinder	Hydraulic Oil	110	Yes
		Oil-based Coolant	110	Yes
77	Coolant Mixing System	Oil-based Coolant (new)	450	Yes
		Oil-based Coolant (used)	250	Yes
77	Evaporator	Oil-based Coolant	175	Yes
88	Hydraulic System	Hydraulic Oil	158	Yes

**Table D-3: Oil-Filled Equipment (Hydraulic Elevators)**

#	Equipment ID (Maximo Asset ID)	Building	Room Number	Capacity* (gallons)
1	06 EL 001	6	1093	176
2	15 EL 001	15	0104	194
3	50 EL 001	50	7101	190
4	55 EL 001	55	0211	56
5	62 EL 001	62	0161	176
6	64 EL 001	64	0149	183
7	70 EL 001	70	0148	196
8	70 EL 002	70	0141A	66
9	72 EL 001	72C	0153	58
10	74 EL 001	74	011B	128

#	Equipment ID (Maximo Asset ID)	Building	Room Number	Capacity* (gallons)
11	74 EL 003	74	0118B	183
12	80 EL 001	80	0011C	228
13	84 EL 001	84	0081	159
14	84 EL 002	84	0081	159
15	85 EL 001	84	0214	133
16	90 EL 001	90	0027D	249

\* Capacity was estimated by measuring the tank dimensions.

**Table D-4: Oil-Filled Operational Equipment**

Building	Equipment	Fluid	Capacity	Secondary Containment Provided
59	Generator lubrication system (59 EG 115)	Engine/motor oil	69	Yes
92	Generator lubrication system (92 EG 125)	Engine/motor oil	88	Yes

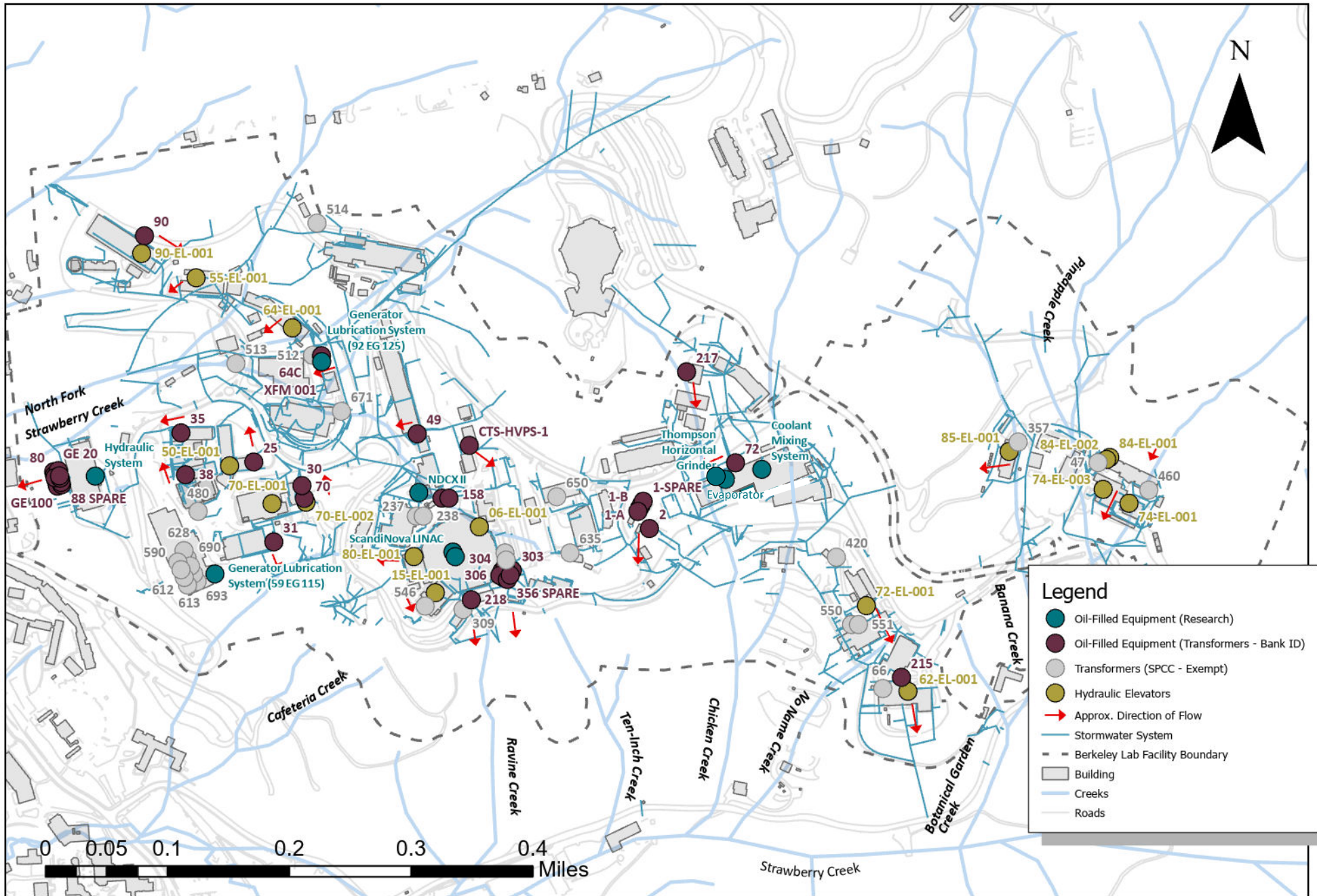


Figure D-1. Oil-Filled equipment

# Appendix E: Rainwater Discharge Procedure and Form

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## FA PROCEDURE: Rainwater Disposal

Effective Date: 10-1-17  
Document Number: MA.MG.PRC.056 (was OPER 056)  
Revision Number: 5  
Next Review Date: 9-13-2026

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### 1. PROCEDURE PURPOSE

This document describes the process for determining if liquid found in a secondary containment or holding structure is rainwater or a result of a spill from an outdoor oil-filled transformer and the method for disposal.

### 2. APPLICABILITY

Following a rain storm, it must be determined whether liquid found in a secondary containment structure open to precipitation or a holding tank that stores accumulated rainwater can be considered only rainwater and disposed of accordingly. If liquid thought to be rainwater is discovered in a secondary containment or holding tank 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 an outdoor oil-filled transformer.

Environmental Service Group (ESG) will notify the Facility Division Plant Maintenance Technicians (PMTs) Supervisor, Mechanical Technical Manager after either an individual or consecutive rain events that produce 3" or more of total rainfall.

### 3. PROCESS

#### 3.1 Special Instructions

##### 3.1.1 Special Skills Required

Up-to-date training in spill prevention, control, and countermeasures (SPCC).

##### 3.1.2 Personnel Scheduled to Perform this Procedure

Plant Maintenance Technicians are responsible for all secondary containments.

#### 3.2 Work Steps

##### 3.2.1 Review Contaminant List

Possible contaminants for each secondary containment structure are listed in **Appendix A** accompanying this procedure. Review before examining secondary containments.

##### 3.2.2 Check for Evidence of Contamination

Check for any evidence of rainwater contamination (e.g., color, clarity, odor, oil sheen). If there is no evidence of contamination, go to the next step (3.2.3). If there is evidence of contamination, go to step 3.2.5. Record results in the rainwater disposal log.

### **3.2.3 If No Evidence of Contamination**

If there is no evidence of rainwater contamination or a release from the tank system, release rainwater from containment onto ground, or pump or drain it into the stormwater system. If rainwater is drained through a berm drain, replace the drain cap and shut and lock the drain valve after discharging the rainwater.

At the Bank 80 power supply pad located on the west side of Building 88, purge accumulated rainwater from the holding tank by inserting a submersible pump into the tank and discharging the water onto the vegetated slope adjacent to the tank. Disperse the water over a large area of vegetation so as not to create rill erosion<sup>1</sup>.

<sup>1</sup> Rill erosion occurs when runoff water forms small channels as it concentrates down a slope.

### **3.2.4 Record Discharge Results**

Record discharge and operator name and signature in the Rainwater Disposal log. Record must include:

- Time and date of discharge
- Tank/equipment identification and location
- Results of visual inspection of contents

Records must be kept for at least three years and be made available for review at request of EHS or regulatory personnel, such as the City of Berkeley.

### **3.2.5 If Evidence of Contamination**

If there is evidence of rainwater contamination (color, odor, oil sheen), follow the next steps below. If hazardous constituents are present, immediately initiate spill response procedures and notify EHS (Step 3.2.8). Containerize, label, store in a Waste Accumulation Area and manage as hazardous waste any contaminated rainwater. Submit hazardous waste requisitions to the WMG. Alternatively, a qualified external contractor may collect the hazardous waste instead of internally managing the waste.

### **3.2.6 Check for Signs of Leakage**

Check transformers or electrical switches for signs of leakage (e.g., drips, stains, wet spots, cracks, bulges).

### **3.2.7 Record Results**

Record inspection results, EHS notification, and signature in the Rainwater Disposal Log.



### 3.2.8 Notify EHS

Notify EHS Program SME - ESG Stormwater Monitoring ([ehs.lbl.gov/contact/](https://ehs.lbl.gov/contact/)) of rainwater contamination. If inspection is inconclusive, the ESG Stormwater SME must sample and analyze the liquid, which must be disposed of properly based on results.

### 3.2.9 Record Final Results

If applicable, the ESG Stormwater Discharges SME will provide the results of chemical analysis to the Facilities Maintenance Supervisor. These analytical results will be maintained with the applicable Rainwater Disposal Log. The final disposition of the rainwater (released or disposed of as hazardous waste) is recorded in the Rainwater Disposal Log, section 3. The Facilities Maintenance Supervisor and an authorized ESG Stormwater SME must sign log sheets regarding contaminated rainwater in section 6 of the Rainwater Disposal Log.

## 4. ROLES AND RESPONSIBILITIES

The list below emphasizes the roles and responsibilities pertinent to only this procedure.

### 4.1 Facilities Division

- Maintain accurate inventory of secondary containment locations.
- Upon notification from EHS, perform secondary containment inspections and rainwater release.
- Notify ESG Stormwater SME if hazardous constituents are detected during inspections.
- Containerize, label, store in a Waste Accumulation Area and manage as hazardous waste any contaminated rainwater. Submit hazardous waste requisition to the WMG.
- Take the lead for a spill from Facilities equipment and notify EHS.
- Maintain records on FA equipment and completed Rainwater Disposal logs and any analytical reports documenting contaminated rainwater for at least 3 years; records to be completed for regulatory agencies or City of Berkeley inspections.
- Discharge any non-contaminated rainwater.
- Maintain corresponding FA procedures.

### 4.2 Environment, Health & Safety

- Provide awareness level training to Facilities personnel on secondary containment inspection procedures in SPCC briefings.
- Notify PMT Day Shift Supervisor after an individual or consecutive rain events produce 3" or more of total rainfall. Provide the notification via email and copy the following personnel:
  - Facilities Technical Compliance Specialist(s)
  - ESG Environmental Specialist
- ESG will provide spill response support in the event hazardous constituents are detected. If the spill is released to the environment, ESG will notify the appropriate regulatory agencies.
- The ESG Stormwater SME will support sample collection and analysis of suspected contaminated water.
- ESG will provide results of chemical analyses to the Facilities PMT Day Shift Supervisor.
- The WMG will pick-up requisitioned contaminated rainwater and dispose of it properly.

**5. DEFINITIONS**

<b>TERM</b>	<b>DEFINITION</b>
ESG	EH&S, Environmental Services Group
FA	Facilities
SME	Subject Matter Expert
SWPPP	Stormwater Pollution Prevention Plan
WMG	EH&S, Waste Management Group

**6. REFERENCES**

**6.1 Source Requirements Documents**

<b>Requirement</b>	<b>Title</b>
40 CFR 112	Oil Pollution Prevention

**6.2 Released Implementing Documents**

<b>Document</b>	<b>Section</b>
LBNL's Industrial SWPPP	Section 4 Best Management Practices, 4.2 Advanced BMPs, 4.21 Secondary Containment Structures

**7. PROCESS MAP**

N/A

**8. METRICS**

N/A

**9. CONTACT**

**Questions on this procedure should be directed to:**

Facilities, Department Head, Utilities & Maintenance  
 Facilities, PMT Supervisor  
 Facilities, Technical Compliance Specialists  
 EHS Environmental Services Group (environment@lbl.gov)

**10. REVISION HISTORY LOG**

REVISION NUMBER	REVISION DATE	BRIEF DESCRIPTION OF CHANGES MADE	NAME OF PERSON MAKING CHANGE
1	N/A	N/A	N/A
2	N/A	N/A	N/A
3	N/A	N/A	N/A
4	10-6-17	Existing FA procedure OPER-056 was reproduced in new procedure template	Laura Chen
5	06-14-23	Updated procedure to include new transformer location, updated maps and administrative changes, Added Bank 80 purge method. Provided rainfall accumulation criteria for ESG to notify the PMTs.	Bernadette Santos, Mike Botello, Brendan Mulholland, Yvonne Chavez, Erik Zalkin, Steve Alford

**11. DOCUMENT INFORMATION**

Title: Rainwater Disposal

Document Number: MA.MG.PRC.056 (was OPER-056)

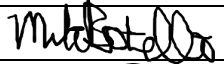

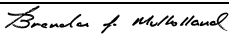

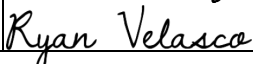
Effective date: 10-1-17

Revision number: 5

Next review date: 9-13-2026

**12. PROCEDURE APPROVALS**

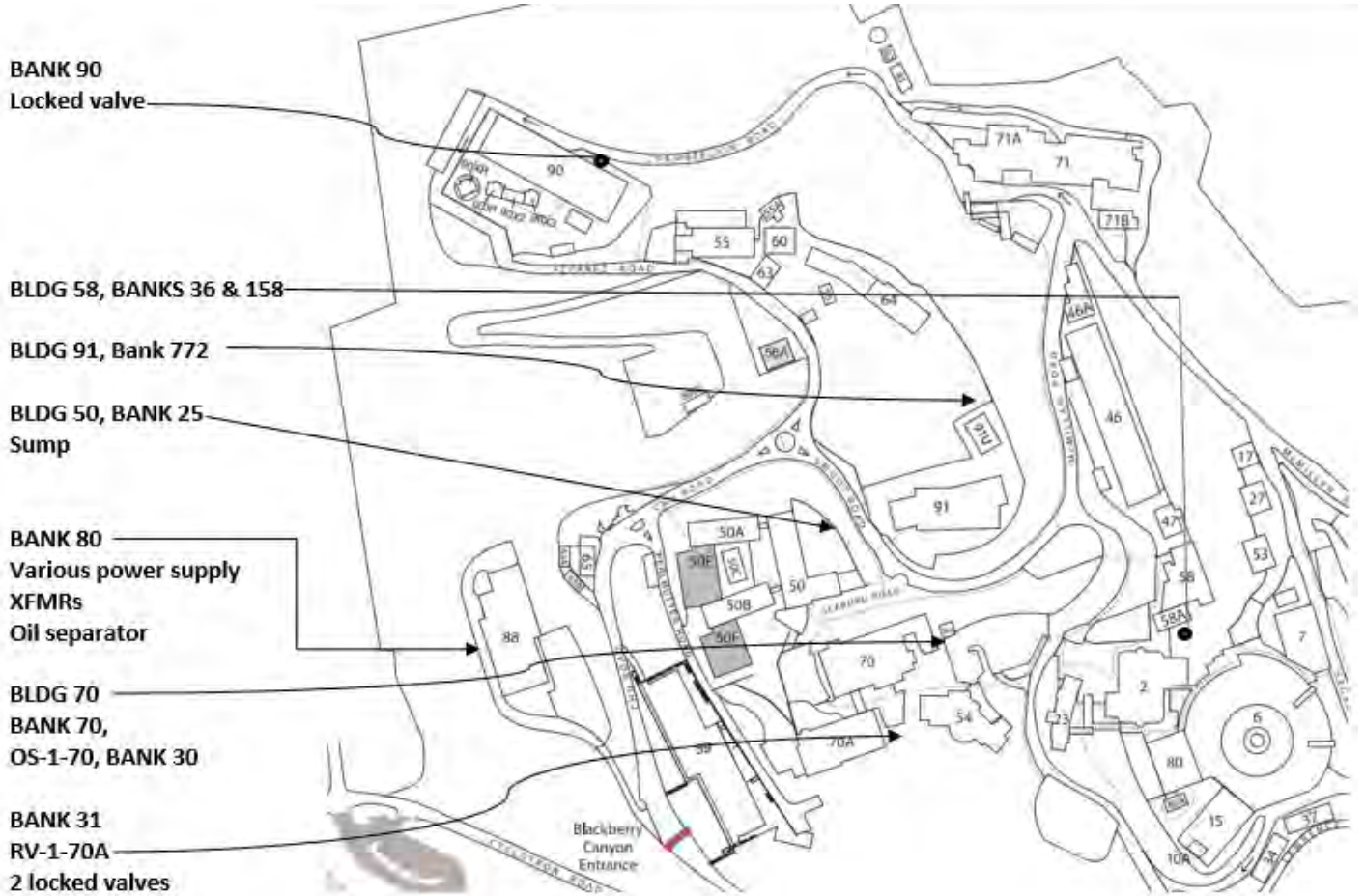
The signatures below document the approval of this procedure.

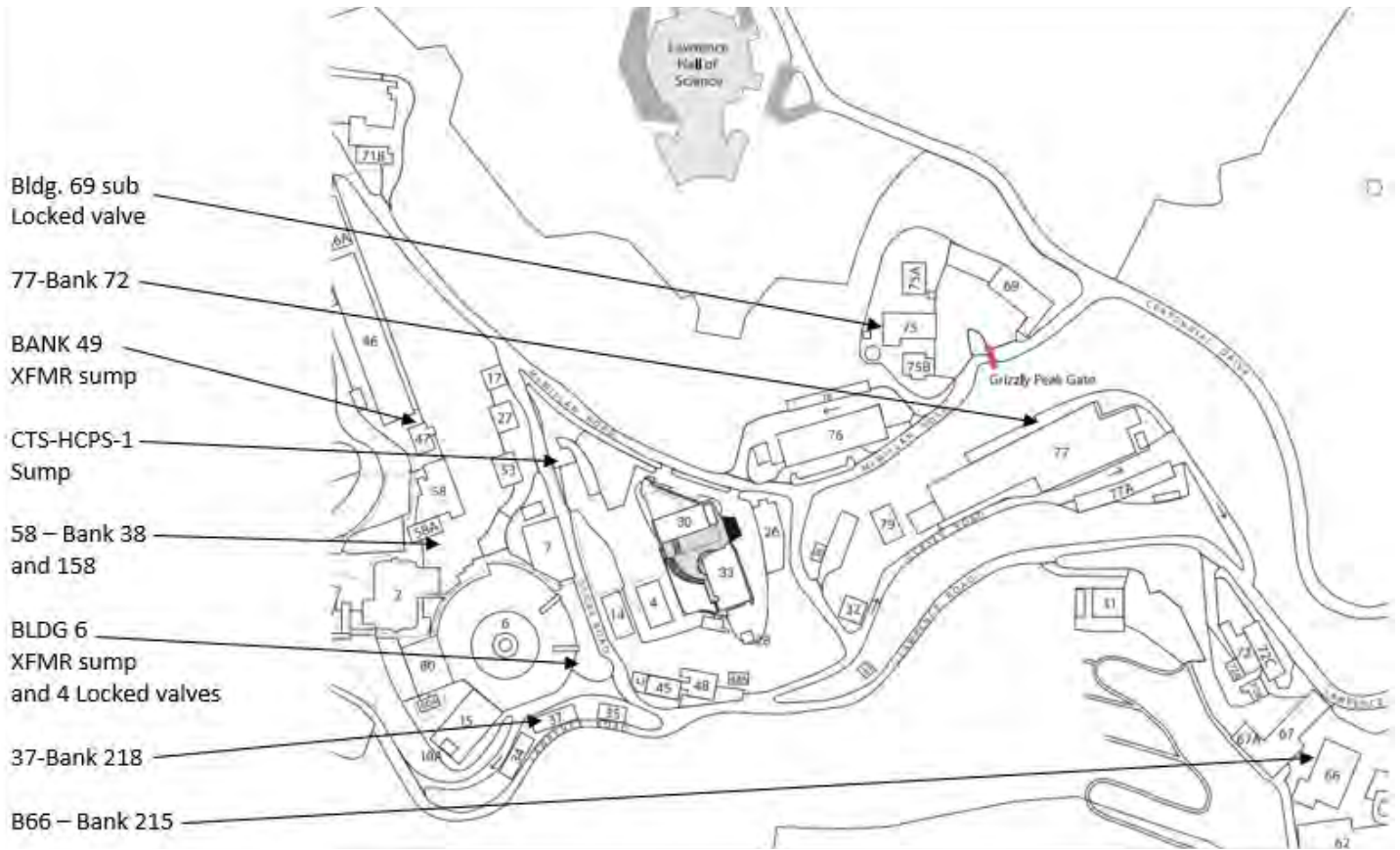
REVIEWER APPROVER AUTHOR	TITLE	NAME	SIGNATURE	DATE
Author	(Existing Procedure)	Facilities Division		
Reviewer	Facilities Compliance Specialist	Mike Botello		09 / 14 / 2023
Reviewer	ESG Environmental Protection Team Manager	Jim Buehler		09 / 14 / 2023
Reviewer	ESG Stormwater SME	Brendan Mulholland		09 / 13 / 2023
Reviewer	ESG SPCC SME	Bernadette Santos		09 / 14 / 2023
Approver	FA Dept. Head, Utilities & Maintenance	Ryan Velasco		09 / 18 / 2023

**Appendix A:**  
**List of Possible Contaminants in Secondary Containment Structures**

<b>Secondary Containment</b>	<b>Possible Contaminants</b>	<b>Release By</b>	<b>Location of Valves or Pump</b>
Bldg 6 Transformer Pad Lower Sump, outside	Transformer oil No PCBs	Portable trash pump to be installed	East end of the Bldg.
Bldg 6 Transformer Pad in Upper Pad, 2 in Lower Pad	Transformer oil No PCBs	4 locked valves	East end of the Bldg.
Bldg 27, Transformer CTS-HVPS-1, Sump	Transformer oil	1 valve; locked	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	Between 46 & 47
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	1 valve, locked	Locked valve bottom of containment sump
Bldg 66, Bank 215	Transformer oil	Locked valve	Between 62 & 66, 1st floor-on wall
Bldg 69 Sub	Silicone transformer oil No PCBs.	1 locked valve	East side of containment pad
Bldg 70, Bank 70, OS-1-70, Bank 30	Transformer oil	Locked valve	In transformer pad
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	SW side of pad
Building 88, Bank 80	Transformer oil	Submersible pump	Pump tank opening on top of tank
Bldg 90, Bank 90	Diala AX transformer oil No PCBs	1 locked valve	West end of containment pad
Bldg 91, Bank 772	Transformer oil, No PCBs	1 locked valve	West end of containment pad
Portable Containment Berms (e.g. fueling truck)	Diesel	Varies	N/A

**Appendix B:  
Secondary Containment Locations**







# Rainwater Disposal Log - Inspection Checklist (Appendix C of FA: Rainwater Disposal)

Complete log entries in accordance with Facilities Dept procedure - Rainwater Disposal.

**SECONDARY CONTAINMENT UNIT** \_\_\_\_\_

**UNIT LOCATION** \_\_\_\_\_

**POSSIBLE CONTAMINANTS (Refer to Appendix A within FA: Rainwater Procedure):**

PCB       Transformer Oil       Other (describe): \_\_\_\_\_

**DATE** \_\_\_\_\_ **OPERATOR NAME** \_\_\_\_\_

1. Is there any evidence of rainwater contamination (e.g., color, clarity, odor, oil sheet?)  YES  NO

If yes, describe: \_\_\_\_\_

### Rainwater Discharge Information (not contaminated)

2. Time of Discharge: \_\_\_\_\_ : \_\_\_\_\_ am / pm

Operator Signature: \_\_\_\_\_

### Contaminated Rainwater Information, if applicable

3. Results of chemical analysis of rainwater, if any (attach extra pages to form, if necessary)

\_\_\_\_\_

4. Final disposition of rainwater:  Released  Disposed of hazardous waste  
 Other (please specify): \_\_\_\_\_

### Authorization

5. Authorized Facilities representative and authorized EHS representative must sign below to approve of contaminated rainwater:

\_\_\_\_\_  
NAME

\_\_\_\_\_  
NAME

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
TITLE

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
DATE

\_\_\_\_\_  
DATE

# Appendix F: SPCC Compliance Inspection for Oil Storage Areas (ESG Procedure 210)

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**BERKELEY LAB**


Environment, Health and Safety


ENVIRONMENTAL SERVICES

## Environmental Services Group (ESG) **SPCC Compliance Inspection for Oil Drum Storage Areas**

ESG Procedure 210  
Revision 03 (June 23, 2025)

**Signature Sheet for Procedure 210**  
**SPCC Compliance Inspection for Oil Drum Storage Areas**

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Reviewed By:  Date: 06 / 20 / 2025  
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Approved By:  Date: 06 / 24 / 2025  
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## SPCC Compliance Inspection for Oil Drum Storage Areas

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### Record of Revisions

Revision	Date	Description
01	10/01/2017	Removed B16 storage area. Changed definition of a Bulk Storage Container to a drum of at least 55 gallons from a drum of at least 42-gallons. Updated figure (map).
02	11/10/2022	Updated signatures and page Replaced Figure 1-1 to show new location of B79A Revised Inspector Responsibilities Updated “Petroleum” to “Oil” to stay consistent with SPCC regulations Updated Appendix A and corresponding hard copy inspection checklist with ArcGIS Survey123 electronic recordkeeping
03	06/23/2025	Replaced inventory references in this document with references to the inventory provided in the <i>Spill Prevention, Control, and Countermeasure Plan</i> . Updated listings in Section 7 to reference the latest/most recent versions.

*Note: The controlled version of this document is located on the Environment, Health and Safety Division’s PowerDMS webpage. Printed or electronically transmitted copies are not official. Users are responsible for working with the latest approved revision.*

## 1 Overview

### 1.1 Purpose

The purpose of this procedure is to describe the process and establish the responsibilities of personnel performing the inspection of the oil drum storage areas at Lawrence Berkeley National Laboratory (Berkeley Lab, LBNL), which will help ensure compliance with Code of Federal Regulations, Title 40, Part 112.7(e), and requirements set forth in Berkeley Lab's *Spill Prevention, Control, and Countermeasure (SPCC) Plan*. The inspection and maintenance of the oil drum storage areas are the responsibility of Berkeley Lab's Environmental Services Group (ESG) within the Environment, Health and Safety Division (EHS). This procedure was developed using LBNL best management practices and the STI/SPFA standard, *Standard for the Inspection of Aboveground Storage Tanks*, known as STI SP001 (with special attention given to the STI SP001 Portable Container Monthly Inspection Checklist).

### 1.2 Scope

Oil storage units at Berkeley Lab consist of aboveground storage tanks, underground storage tanks, drum storage areas, and oil-filled electrical equipment. This procedure applies specifically to the oil drum storage areas at Berkeley Lab.

The locations of the oil drum storage areas are provided in the most recent version of Berkeley Lab's SPCC Plan.

## 2 Definitions

**Bulk storage container:** Any container used to store oil. These containers are used for purposes such as storage of oil before or during use, or before further distribution in commerce. Oil-filled electrical, operating, or manufacturing equipment is not a bulk storage container.

**Drum:** A portable bulk storage container having a capacity equal to or greater than 55 U.S. gallons.

**Oil:** Oil of any kind or in any form, including fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and other oils and greases, including petroleum, fuel oil, sludge, synthetic oils, mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil (40 CFR §112.2).

## 3 Responsibilities

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 U.S. Department of Energy (DOE) requirements

### 3.2 Program Manager

- Provides training to SPCC Inspector(s) on performing inspections and completing the Oil Drum Storage Area Monthly Inspection Checklist (Appendix A)
- Oversees safety compliance
- Oversees care, maintenance, and disposition of records
- Assesses procedure implementation
- Performs the duties of the SPCC Inspector, if needed

### 3.3 SPCC Inspector

- Completes Work Planning and Control (WPC) training and performs work within required safety controls
- Conducts drum area inspections and submits inspection checklist forms
- Informs Program Manager of noncompliance or maintenance issues and coordinates with Program Manager to assign, implement, and/or document corrective actions

## 4 Policy

### 4.1 Basic Health and Safety Policy

ESG personnel must comply with the following policies:

- LBNL 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 LBNL *Environment, Safety & Health Manual* (PUB-3000); Berkeley Lab's and the EHS Division's Integrated Safety Management Plans; and the *Environmental Restoration Program Health and Safety Program Plan*.

NOTE: Hazards associated with this procedure's activities have been reviewed, and 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):

- Overview of the Integrated Safety Management (ISM) (LBL 0010)
- General Employee Radiation Training (EHS 0470)

Personnel performing inspection activities must complete the following safety courses:

- Chemical Hygiene and Safety (EHS 0348)
- Personal Protective Equipment (PPE) Training (EHS 0161)
- Spill Prevention, Countermeasure, and Control (EHS 0680)

On-the-job training includes review of the following information:

- All oil drum storage area locations at the LBNL site
- This procedure

## 5 Pre-operational Procedures

### 5.1 Hazard Identification and Safety Controls

The LBNL *Environment, Safety & Health Manual* (PUB-3000) provides detailed information on general hazards and safety precautions for work conducted at Berkeley Lab. Summaries of those primary hazards applicable to the activities covered by this procedure and relevant controls are described in Sections 5.1.1 through 5.1.6.

#### 5.1.1 General Hazards

When working in the field, personnel should 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, personnel should be observant of heat-associated effects in coworkers and stop work if necessary. Field personnel should always be aware of their surroundings and try to minimize the amount of time in isolated spaces. They should thoroughly wash their 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 work performed in brushy areas. Nonslip footwear and clothing appropriate for the weather and site conditions should be worn to minimize the potential for trips and falls. Good housekeeping procedures should be maintained around the work area to prevent tripping hazards.

#### 5.1.3 Chemical Hazards

Chemical hazards include potential exposure to oil products. If unusual conditions arise that indicate the potential need for respiratory protection or additional monitoring, the Program Leader should be contacted before proceeding. During the inspection, the ESG SPCC Inspector is not required to touch the drums or drum pumps. Only a visual observation is required.

#### 5.1.4 Traffic Hazards

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

Traffic hazards also include those associated with driving vehicles while the procedure activities are being conducted (e.g., traffic accidents). All personnel driving vehicles at Berkeley Lab must adhere to LBNL traffic safety requirements.

#### 5.1.5 Ergonomic Hazards

The majority of injuries at Berkeley Lab 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 the general hazards discussed in the LBNL *Environment, Safety & Health Manual* (PUB-3000). No hands-on work is conducted during an inspection.

### 5.1.6 *Personal Protective Equipment*

The following PPE is required for activities conducted under this procedure:

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

### 5.2 Office/Field Preparation

The following preparation is required before performing the activities described in this document:

- Review this procedure
- Review facility maps that show locations of oil drum storage areas to be inspected
- Obtain access to ArcGIS Survey123, the electronic record-keeping inspection tool, which will be used to document the inspection and record all deficiencies/findings

## 6 Inspection Procedures

The SPCC Inspector is responsible for gathering appropriate information and data to complete the Oil Drum Storage Area Monthly Inspection Checklist (Appendix A).

The SPCC Inspector shall perform each monthly inspection, as follows:

### **Step Action**

---

- 1 Use the Oil Drum Storage Area Monthly Inspection Checklist (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 the checklist (signed checklists will be retained by the Program Manager for a period of three years).
- 4 Bring deficiencies to the attention of the Program Manager, who will then determine appropriate corrective measures.
- 5 Notify the Building Manager via e-mail (cc the Program Manager) regarding any drum storage area corrective measures that require resolution.

**7 References**

LBNL *Spill Prevention, Control, and Countermeasure Plan* (latest revision).

LBNL/PUB-3000 *Environment, Safety & Health Manual* (latest revision).

LBNL *Integrated Safety Management Plan* (latest revision).

LBNL *Requirements and Policies Manual*, PUB-201 (current version).

STI/SPFA, Standard SP001, *Standard for the Inspection of Aboveground Storage Tanks* (current version).

## 8 Records

### 8.1 Records Created

The following records will be created by this procedure:

- Oil Drum Storage Area Monthly Inspection Checklist

### 8.2 Records Retention

The Program Manager retains electronic copies of all the records (monthly checklists) created by this procedure.

These records are retained by the 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 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 the *LBNL Requirements and Policies Manual (PUB-201)*.

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

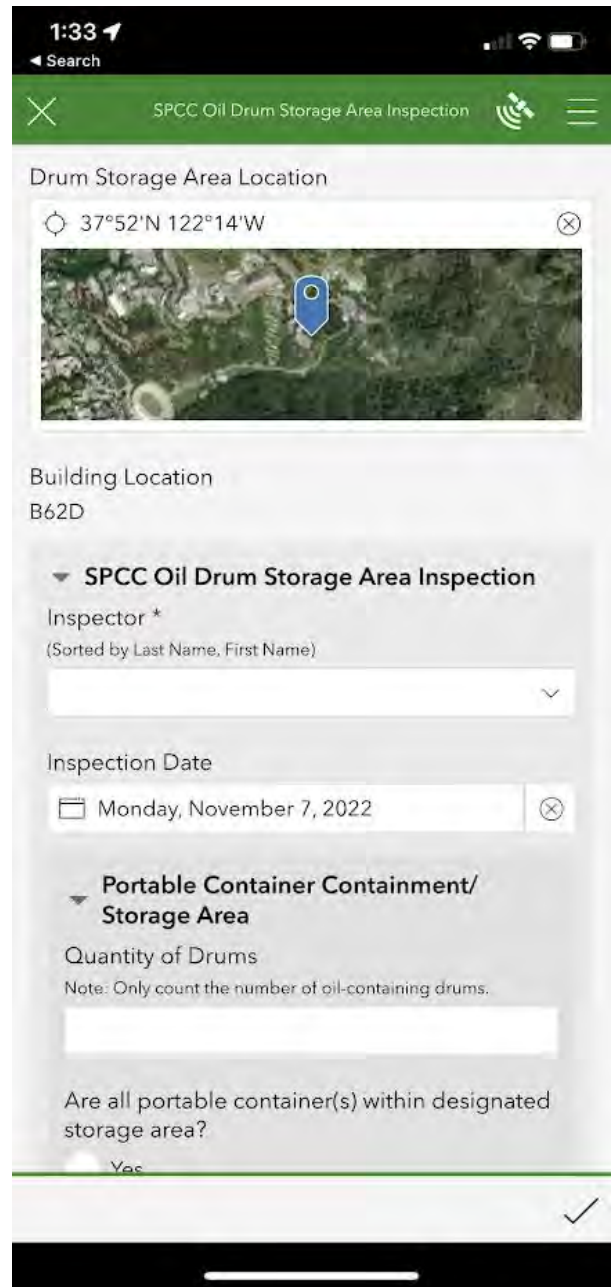
All records created by this procedure are reviewed after three years for transfer to the LBNL Archives and Records Office.

Records must be transferred to the LBNL Archives and Records Office as described in the *LBNL Requirements and Policies Manual (PUB-201)*.

### Appendix A

#### ArcGIS Survey123: SPCC – Oil Drum Storage Area Monthly Inspection Checklist

ArcGIS Survey123 will be utilized for electronic inspection record keeping. The inspection form can be found on Berkeley Lab’s ArcGIS Portal. A direct link to the ArcGIS Survey123 can be found on the Environmental Services Group Google Drive in the SPCC Program folder. Screenshots of the inspection form are located below:



1:33

Search

SPCC Oil Drum Storage Area Inspection

Quantity of Drums

Note: Only count the number of oil-containing drums.

Are all portable container(s) within designated storage area?

Yes

No\*

N/A - No portable containers present during inspection.

Is the containment and storage area free of excess liquid, debris, cracks or fire hazards?

Yes  No\*

Are containment egress pathways clear and any gates/doors operable?

Yes  No\*  N/A

Additional Comments/Concerns

Inspector's Signature

✓

# Appendix G: Procedures for Tank Integrity Testing

**Attachment G-1**      Tank Scheduled Maintenance and Inspection Operating Procedure  
(Monthly AST Inspection)

**Attachment G-2**      Annual AST Inspection Procedure

**Attachment G-3**      Convault Manufacturers Recommendation

## STI SP001 Monthly Inspection Checklist

### General Inspection Information:

Inspection Date: _____	Prior Inspection Date: _____	Retain until date: _____
Inspector Name (print): _____	Title: _____	
Inspector's Signature _____		
Tank(s) inspected ID _____		
Regulatory facility name and ID number (if applicable) _____		

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are equivalent and meet all applicable inspection checklist items. Inspections of multiple tanks may be captured on one form as long as the tanks are substantially the same.
- For equipment not included in this Standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Inspect the liquid for regulated products or other contaminants and dispose of properly.
- \* designates an item in a non-conformance status. This indicates that action is required to address a problem. Note that some non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- If the inspection finds the integrity of the spill control system and/or the CRDM, such as items 13 and 14, is compromised the tank category and inspection time table should be re-evaluated by someone knowledgeable about the SP001 standard.
- Retain the completed checklists for at least 36 months.
- **After severe weather (snow, ice, wind storms) or maintenance (such as coating) that could affect the operation of critical components (normal and emergency vents, valves), an inspection of these components is required as soon as the equipment is safely accessible after the event.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
<b>Tank and Piping</b>			
<b>1</b>	Is tank exterior (roof, shell, heads, bottom, connections, fittings, valves, etc.) free of visible leaks? <i>Note: If "No", identify tank and describe leak and actions taken.</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
<b>2</b>	Is the tank liquid level gauge legible and in good working condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>3</b>	Is the area around the tank (concrete surfaces, ground, containment, etc.) free of visible signs of leakage?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	

4	Is tank shell or supports free of soil, vegetation, water, or foreign material collected or covering the grade line (tank chime or bottom projection)?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
5	Is the primary tank free of water or has another preventative measure been taken? NOTE: Refer to paragraphs 6.10 and 6.11 of the standard for alternatives for Category 1 tanks. N/A is only appropriate for these alternatives.	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
6	For double-wall or double bottom tanks or CE-ASTs, is interstitial monitoring equipment (where applicable) in good working condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
7	For double-wall tanks or double bottom tanks or CE-ASTs, is interstice free of liquid? Remove the liquid if it is found. If tank product is found, investigate possible leak.	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Equipment on tank</b>			
8	If overfill equipment has a "test" button, does it activate the audible horn or light to confirm operation? If battery operated, replace battery if needed.	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
9	Is overfill prevention equipment in good working condition? If it is equipped with a mechanical test mechanism, actuate the mechanism to confirm operation.	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
10	Is the spill container (spill bucket) empty, free of visible leaks and in good working condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
11	Are piping connections to the tank (valves, fittings, pumps, etc.) free of visible leaks? <b>Note: If "No", identify location and describe leak.</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
12	Do the ladders/platforms/walkways appear to be secure with no sign of severe corrosion or damage?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Containment (Diking/Impounding)</b>			
13	Is the containment free of excess liquid, debris, cracks, corrosion, erosion, fire hazards and other integrity issues?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
14	Are dike drain valves closed and in good working condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
15	Are containment egress pathways clear and any gates/doors operable?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Concrete Exterior AST (CE-AST)</b>			
16	Inspect all sides for cracks in concrete. Are there any cracks in the concrete exterior larger than 1/16"?	<input type="checkbox"/> Yes* <input type="checkbox"/> No <input type="checkbox"/> N/A	
17	Inspect concrete exterior body of the tank for cleanliness, need of coating, or rusting where applicable. Tank exterior in acceptable condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
18	Visual inspect all tank top openings including nipples, manways, tank top spill containers, and leak detection tubes. Is the sealant between all tank top openings and concrete intact and in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Other Conditions</b>			
19	Is the system free of any other conditions that need to be addressed for continued safe operation?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	



## STI SP001 Annual Inspection Checklist

### General Inspection Information:

Inspection Date: _____	Prior Inspection Date: _____	Retain until date: _____
Inspector Name (print): _____		Title: _____
Inspector's Signature: _____		
Tank(s) inspected ID _____		
Regulatory facility name and ID number (if applicable) _____		

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are substantially equivalent and meet all applicable inspection checklist items.
- For equipment not included in this Standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Promptly remove standing water or liquid discovered in the primary tank, secondary containment area, interstice, or spill container. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and dispose of it properly.
- In order to comply with EPA SPCC (Spill Prevention, Control and Countermeasure) rules, a facility should regularly test liquid level sensing devices to ensure proper operation (40 CFR 112.8(c)(8)(v)).
- \* designates an item in a non-conformance status. This indicates that action is required to address a problem. Note that non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 36 months.
- Complete this checklist on an annual basis, supplemental to the owner monthly-performed inspection checklists.
- **Note: If a change has occurred to the tank system or containment that may affect the SPCC plan, the condition should be evaluated against the current plan requirement by a Professional Engineer knowledgeable in SPCC development and implementation.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
<b>Tank Foundation/Supports</b>			
1	Free of tank settlement or foundation washout?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
2	Concrete pad or ring wall free of cracking and spalling?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	

3	Tank supports in satisfactory condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
4	Is water able to drain away from tank if tank is resting on a foundation or on the ground?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
5	Is the grounding strap between the tank and foundation/supports in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Tank Shell, Heads and Roof</b>			
6	Free of visible signs of coating failure?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
7	Free of noticeable distortions, buckling, denting, or bulging?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
8	Free of standing water on roof?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
9	Are all labels and tags intact and legible?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
<b>Tank Manways and Piping</b>			
10	Are piping system joints, manway covers, gaskets, and attachment bolts tight and in good condition with no sign of wear, damage, leaks or corrosion?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
11	Are piping supports in good condition and free of corrosion and damage?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
12	Is leak or release detection on underground piping being performed and documented if required?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Tank Equipment</b>			
13	Normal and emergency vents free of obstructions?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	
14	Have the level sensing devices (e.g, level gauges, alarms) been checked for operability, where possible, as per manufacturer's instructions or good engineering practice?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
15	Have flame arrestors been maintained per manufacturer's recommendations?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
16	Is the emergency vent in good working condition and functional, as required by manufacturer? Consult manufacturer's requirements. Verify that components are moving freely (including long-bolt manways).	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	

17	Is interstitial leak detection equipment in good condition? Are windows on sight gauges clear? Are wire connections intact? If equipment has a test function, does it activate to confirm operation?"	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
18	Are all valves free of leaks, corrosion, and other damage? Follow manufacturers' instructions for regular maintenance of these items. Check the following and verify (as applicable):  <input type="checkbox"/> Anti-siphon valve <input type="checkbox"/> Check valve <input type="checkbox"/> Gate, ball, or isolation valve <input type="checkbox"/> Pressure regulator valve <input type="checkbox"/> Expansion relief valve <input type="checkbox"/> Solenoid valve <input type="checkbox"/> Fire valve <input type="checkbox"/> Shear valve	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A <input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
19	Are strainers and filters clean and in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Insulated Tanks</b>			
20	Free of missing insulation? Insulation free of visible signs of damage? Insulation adequately protected from water intrusion?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
21	Insulation free of noticeable areas of moisture?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
22	Insulation free of mold?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
23	Free of visible signs of coating failure?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
<b>Other Equipment</b>			
24	Are electrical wiring and boxes in good condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	
25	Has the cathodic protection system on the tank been tested as required by the designing engineer?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	



# STI SP001 Portable Container Monthly Inspection Checklist

**General Inspection Information:**

Inspection Date: _____	Prior Inspection Date: _____	Retain until date: _____
Inspector Name (print): _____		Title: _____
Inspector's Signature ( ): _____		
Container(s) inspected ID _____		
Regulatory facility name and ID number (if applicable) _____		

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are equivalent and meet all applicable inspection checklist items.
- This periodic Inspection is intended for monitoring the external condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector who is familiar with the site and can identify changes and developing problems.
- \* designates an item in a non-conformance status. This indicates that action is required to address a problem. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 36 months.

	Item	Area:	Area:	Area:	Area:
<b>Portable Container Containment/Storage Area</b>					
1	Are all portable container(s) within designated storage area?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
2	Is the containment and storage area free of excess liquid, debris, cracks or fire hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
3	Are drain valves closed and in good working condition?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A
4	Are containment egress pathways clear and any gates/doors operable?	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No* <input type="checkbox"/> N/A
<b>Container</b>					
5	Is the container free of leaks? <i>Note: If "No", discontinue use of container</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*
6	Is the container free of distortions, buckling, denting or bulging? <i>Note: If "No", discontinue use of container</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*	<input type="checkbox"/> Yes <input type="checkbox"/> No*



# Appendix H: SPCC Implementation Schedule

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Next five-year Plan review due by September 2028.