UNIVERSITY OF CALIFORNIA, SANTA BARBARA

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCC)

Revised: October 2017

University of California, Santa Barbara
Environmental Health and Safety
Santa Barbara, CA 93106-5132
(805) 893-7534 / Fax: (805) 893-8659

University of California, Santa Barbara

Spill Prevention, Control, and Countermeasure
SPCC

General Information

Facility Description

Operator

Name	University of California, Santa Barbara
Address	UCSB Environmental Health & Safety, Bldg 565 Santa Barbara, CA 93106-5132

Primary Staff Contact

Contact Name	Jodi Switzer
Title	Environmental Compliance Manager
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1.0 ADMINISTRATION

1.1 LICENSED PROFESSIONAL ENGINEER CERTIFICATION

I hereby certify that I have reviewed this Spill Prevention, Control, and Countermeasure (SPCC) Plan, and I attest to the following:

1. I am familiar with the requirements of the SPCC rule per 40 CFR Part 112
2. My agent or I have visited and examined the University of California, Santa Barbara (UCSB) facility
3. This SPCC Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of the SPCC rule per 40 CFR Part 112
4. Procedures for required inspections and testing have been established
5. This SPCC Plan is adequate for the UCSB facility

Jennifer L. Pierce — 10/19/2017

Jennifer Pierce — Date

Registered Professional Engineer

C 62695 — California

Registration Number — State

1.2 APPROVAL OF MANAGEMENT

This Spill Prevention, Control, and Countermeasure Plan, which has been prepared in accordance with Title 40, Code of Federal Regulations, Part 112, *Oil Pollution Prevention,* (40 CFR 112), and the California Health and Safety Code Division 20 Chapter 6.67 Section 25270 *Aboveground Petroleum Storage Act (APSA),* will be implemented as described herein.

The University of California, Santa Barbara hereby commits the necessary personnel, equipment, and materials that may be required to expeditiously control and remove any harmful quantity of oil discharged from UCSB storage vessels and equipment. The necessary personnel, equipment, and materials required to effectively respond to a release of oil on the campus will be provided either directly from UCSB resources or from capable local contractors.

In the event of a release of oil, UCSB will undertake all reasonable efforts to contain and cleanup the spilled material as rapidly and as thoroughly as possible. All cleanup efforts, to include disposal of any resulting hazardous waste, will be accomplished in full compliance with applicable federal and California regulations.

Renée E. Bahl — 20 Oct 2017

Renée Bahl — Date

Associate Vice Chancellor
Design, Facilities & Safety Services
University of California, Santa Barbara

1.3 Certification of Applicability of Substantial Harm Criteria

Facility Name: University of California, Santa Barbara

Facility Address: University of California, Santa Barbara, CA 93106

1. Does the facility transfer oil over water or to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

   ☐ Yes ☒ No

2. Does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground tank plus sufficient freeboard and does the facility have a total oil storage capacity greater than or equal to one million gallons?

   ☐ Yes ☒ No

3. Does the facility have a total oil storage capacity greater than or equal to one million gallons and is the facility located at a distance such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments?

   ☐ Yes ☒ No

4. Is the facility located at a distance such that a discharge from the facility would shut down a public drinking water intake and does the facility have a total oil storage capacity greater than or equal to one million gallons?

   ☐ Yes ☒ No

5. Has the facility experience a reportable oil discharge in an amount greater than or equal to 10,000 gallons within the last five years and does the facility have a total oil storage capacity greater than or equal to one million gallons?

   ☐ Yes ☒ No

I certify under penalty of law that I have personally examined the information submitted in this document and that I believe that the submitted information is true, accurate, and complete.

Signature: J. Switzer Name: Jodi Switzer

Title: Env. Compliance Manager Date: October 27, 2017

1.4 RECORD OF REVIEWS AND AMENDMENTS

The UCSB Environmental Health and Safety (EH&S) Office will maintain the definitive copy of this SPCC Plan and will record all associated reviews and amendments in **Table 1-1**, **Record of Reviews and Amendments**. At a minimum, a review and evaluation of this SPCC Plan will be conducted once every five years. Any SPCC Plan amendments will be implemented as soon as possible, but no later than six months following the amendment.

EH&S will amend this SPCC Plan for the following reasons:

- When required by the Environmental Protection Agency (EPA) or Regional Administrator as stated in 40 CFR 112.4 because of a spill; or
- Whenever there is a change in facility design, construction, operation, or maintenance that materially affects the potential for an oil spill. In particular, this SPCC Plan will be updated in conjunction with any addition to the list of tanks in **Appendix A**, or upon any removal, deactivation, relocation, or significant modification of any storage tank subject to this SPCC Plan.

If the Regional Administrator requires this SPCC Plan to be amended, the amendment will be recorded in **Table 1-1** and implementation will occur no later than six months after the amendment.

Table 1-1
Record of Reviews and Amendments

Review/Amendment	Date
Five year review, revaluation, and update of previous iteration	2017-09

1.5 UNIVERSITY DEPARTMENTS AND COORDINATION

The program will be managed by EH&S; however, implementation of this SPCC must be coordinated among several University departments. Contact information for those directly involved in the implementation and planning is provided in **Appendix B, UCSB Staff Contacts.** Contact information for applicable EH&S employees is listed below.

- Primary Contact:

  Jodi Switzer
  Environmental Compliance Manager
  Phone: (805) 893-7014
  Cell: (805) 450-6548

- Secondary Contacts:

  Ali Aghayan
  Environmental Health Program Manager
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  Environmental Compliance Specialist
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2.0 INTRODUCTION

UCSB has developed this SPCC Plan in accordance with the provisions of 40 CFR 112, and APSA.

As the administering agency, the EPA requires the preparation of an SPCC Plan by any facility that:

- Gathers, stores, processes, transfers, distributes, uses, or consumes oil and oil products, which due to its location, could reasonably be expected to discharge oil in quantities that may be harmful into or upon the navigable waters of the United States or adjoining shorelines.
- Contains any aboveground container, any container in a vault which is considered an aboveground storage container, any operating equipment that have a capacity of greater than 1,320 gallons individually or in the aggregate.

Accordingly, since the aggregation of aboveground oil storage containers on the UCSB campus with a capacity of 55 gallons or greater exceeds the 1,320 gallon threshold and given the University's proximity to navigable waters of the United States, this plan is required by both federal and California regulations.

2.1 PURPOSE

The objectives of this SPCC are to define the spill prevention, control, and countermeasures implemented by the UCSB facility. The SPCC is an integral part in establishing an efficient and effective spill prevention program. The SPCC Plan addresses the following topics:

- Applicability and Plan Administration
- UCSB Facility Overview
- Oil Storage Facilities
- Secondary Containment
- Spill Prevention Procedures
- Requirements for Tank Loading/Unloading
- Inspection Requirements
- Training and Recordkeeping
- Emergency Response

2.2 SPCC PLAN ORGANIZATION

This SPCC Plan contains a description of the oil storage facilities on the UCSB campus and the containment and countermeasure safeguards and procedures that are in effect to prevent an accidental release of oil in harmful quantities, as defined in 40 CFR 110.3 and 112.1(b), into the navigable waters of the United States. Refer to **Appendix C** for a summary table listing the required elements and their location within this Plan.

As stated in 40 CFR 112.7 (a)(2), where this SPCC Plan does not conform to these requirements the reasons for nonconformance will be stated as well as methods for achieving equivalent environmental protection. Where experience indicates a reasonable potential for an equipment failure (such as tank overflow, rupture, or leakage), 40 CFR 112.7(b) requires that the SPCC Plan include a prediction of the direction, rate of flow, and total quantity of oil that could be discharged. Based on a review of past spill events, the potential for equipment failure that would result in a discharge of oil in quantities that are potentially harmful to the public health or welfare *or* to the environment as defined in 40 CFR 110.3 has not been established at the UCSB campus.

Paragraph 40 CFR 112.7 (i) requires that it is necessary to take appropriate action if a field-constructed aboveground container undergoes an alteration that might affect the risk of a discharge due to brittle fracture. There are no field-constructed tanks on the UCSB campus; therefore, the requirement for evaluating the potential for brittle fracture is not applicable.

2.3 REGULATORY BACKGROUND

The Clean Water Act (CWA), also known as the *Oil Pollution Prevention* regulation or 40 CFR 112, requires facilities that have an aboveground oil storage capacity of greater than 1,320 gallons and/or an underground storage capacity of greater than 42,000 gallons to prepare and implement a SPCC Plan. The regulation applies to UCSB due to the existence of oil containing aboveground

storage tanks (ASTs) with a capacity, individually or in the aggregate, of more than 1,320 gallons and the legally expanded definitions that have evolved for the terms "navigable waters" and "discharge of oil in such quantities as may be harmful."

Paragraph 40 CFR 112.7 requires that a written SPCC Plan, in accordance with good engineering practice, be prepared that has the full approval of management at the level of authority to commit the necessary resources to fully implement it. In addition, the SPCC Plan must be kept at the facility, be available to the Regional Administrator, and include a complete discussion regarding conformance with EPA guidelines.

In California, the APSA, which was adopted in 1989, regulates facilities with aboveground storage of crude oil and its fractions and requires the reporting of certain releases of oil into the environment. Specifically, this APSA requires owners/operators of aboveground petroleum storage facilities to (1) file a storage statement; (2) remit a fee every year to the Santa Barbara County Certified Unified Program Agency (CUPA); and (3) prepare and implement an SPCC Plan in accordance with 40 CFR 112.

A discussion of additional plans required by 40 CFR 112 is included below:

Oil Spill Contingency Plan

As detailed by 40 CFR 112.7(a)(5)(b), a supplemental oil spill contingency plan and a written commitment of manpower, equipment, and materials to remove spilled oil are required if a facility demonstrates that containment and/or diversionary structures or equipment are not practicable. UCSB has not prepared such a supplemental oil spill contingency plan because secondary containment is provided for all ASTs that by virtue of their size and/or location otherwise pose a risk of a harmful release of oil into the navigable waters of the United States. An additional assessment is needed to evaluate the spill potential and risk posed by fuel piping and auxiliary tank system. Dependent on the results from this assessment, a supplemental Oil Spill Contingency Plan may be necessary. Current policies and procedures relating to spill prevention and response are contained in the UCSB Emergency Response Plan in Section 6.0.

Facility Response Plan

The requirement for a Facility Response Plan (FRP) per the Oil Pollution Act (OPA) of 1990 and 40 CFR 112.20 does not apply at UCSB. The FRP is required for facilities that (1) transfer oil over water to or from vessels and that have a total oil storage capacity greater than or equal to 42,000 gallons or (2) that have a total oil capacity greater than or equal to one million gallons. The University does not transfer oil over water and the total oil storage capacity on campus does not exceed one million gallons.

3.0 FACILITY INFORMATION

Campus Description

The 1,055-acre (approximately 1.6-square-mile) University is located on the South Coast of Santa Barbara County, California, as shown in **Figure 3-1,** below**.** The campus facilities include, but are not limited to, housing, food services, lecture halls/classrooms, science and research laboratories, aquarium/marine science laboratories, athletic fields, aquatics/swimming pool, facility maintenance, and parking facilities.

The majority of the UCSB campus is heavily developed, and the topography tends to generally slope towards the Pacific Ocean and the Campus Lagoon. Stormwater runoff is managed by a municipally separate storm sewer system (MS4) that discharges into local waterways. The preparation of a comprehensive map of the stormwater conveyance system has been identified as a best management practice (BMP) in the University's Stormwater Management Program Guidance Document.

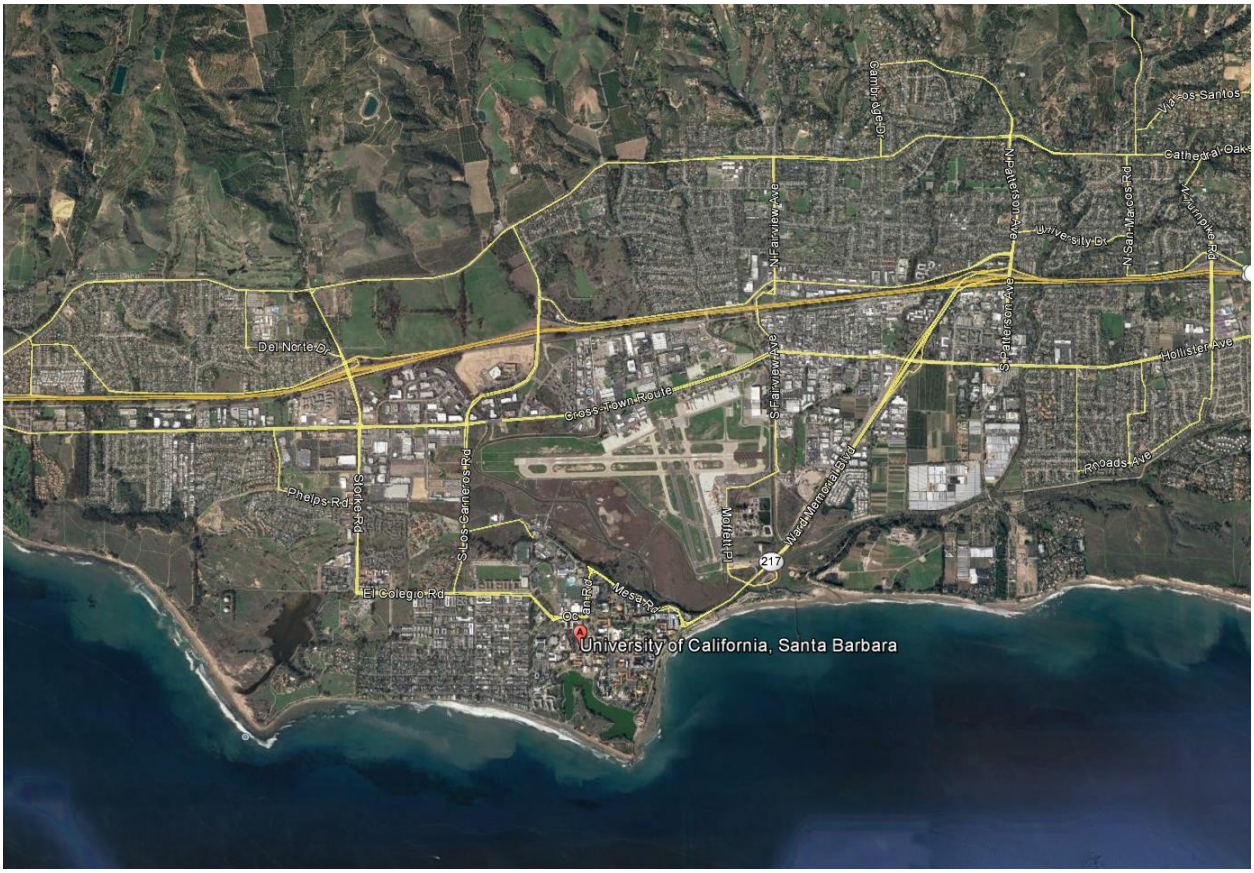


Figure 3-1 Vicinity Map of UCSB

Surface Waters and Hydrology

UC Santa Barbara is situated on a promontory, Goleta Point, and discharges directly to surrounding water bodies. Consistent with applicable regulatory definitions and associated court rulings, navigable waters that could be impacted by an oil spill on the UCSB campus include, but are not limited to, the following:

- **Devereux Slough**

  The Devereux Slough is located on the West Campus and is managed by the University of California's Coal Oil Point Reserve. The 45-acre slough receives discharges primarily from Devereux Creek and its tributaries, which encompass a 2,240-acre watershed. The Slough discharges to the Pacific Ocean via a tidal channel breach (a sand bar temporarily disconnects the slough and the ocean) (UCSB 2008).

- **Storke Wetlands**

  The Storke Wetlands comprise approximately 20 acres along the northern perimeter of the Storke Campus. The Storke Wetlands watershed covers 347 acres and includes the northern portion of Isla Vista, the Storke Campus, and a narrow portion of the City of Goleta adjacent to Tecolotito Creek. The wetlands discharge to Goleta Slough (UCSB 2008).

- **Goleta Slough**

  The 430-acre Goleta Slough comprises freshwater wetlands and tidal marsh. It is located north of and adjacent to the Main Campus. The slough receives discharges from UC Santa Barbara's Storke Campus, north-facing bluffs, and More Mesa, as well as from seven creeks within the 45 square mile watershed. The slough generally discharges to the Pacific Ocean (UCSB 2008).

- **Campus Lagoon**

  The Campus Lagoon is a manmade 31-acre brackish pond located in the southern portion of the Main Campus adjacent to the Pacific Ocean. The water level in the lagoon is maintained between 4 and 7 feet above sea level by an overflow weir at the western end, outfall at the eastern end, and series of berms. The lagoon's watershed comprises approximately half of UCSB's Main Campus, which includes open space and bluffs at the lagoon perimeter. The primary source of water supporting the lagoon is the seawater discharged from the UCSB Marine Science Laboratories. The lagoon also receives stormwater runoff from the University, which contributes substantial amounts of water to the system during rain events (UCSB 2008).

4.0 OIL STORAGE

Oil, which is defined in federal and California regulations to include oil of any kind or in any form, is stored at a number of locations on the UCSB campus in containers having a capacity equal to or greater than 55 gallons. For convenience of reference, oil storage on the campus has been divided into four categories:

1. Bulk Storage Containers
2. Generator Fuel Tanks
3. Portable Storage Containers
4. Oil Filled Equipment

UCSB operates both aboveground bulk storage containers and portable containers. All bulk storage containers are shop fabricated and provide secondary containment in the form of either a double walled tank or secondary containment berm. There are no field-constructed tanks on the UCSB campus.

An inventory summary of UCSB ASTs is provided in **Appendix A,** and is sorted by responsible department. A more detailed description of the bulk storage containers, which–albeit remote–pose the highest potential for a release of oil in quantities that could be harmful to the navigable waters of the United States, is provided in the following section.

4.1 BULK STORAGE CONTAINERS

Engineering Science Building (Building 225)

A 2,000 gallon diesel storage tank is located adjacent to Building 225 that serves the emergency generators at buildings 225 and 503. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 1** and associated photograph as **Figure 2.** The tank is of a ConVault design with a steel primary tank and a concrete outer shell that provides secondary containment. The tank is configured with a fill gauge, overfill protection, and a Veeder Roots TLS-3000 alarm system.

FM Grounds Yard Diesel Dispenser (Building 340)

A 550 gallon fiberglass and steel diesel storage tank, which is primarily used for refueling FM grounds equipment, is located adjacent to Building 340. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a photograph as **Figure 3**. The tank is a single wall tank manufactured by Joor Manufacturing, and is mounted on stilts underneath a sheet metal roof. Secondary Containment is provided by a concrete berm with a manual drain valve, which is maintained in the closed position. Spill kits are located nearby the tank in the vehicle maintenance shed. The tank has a manual gravity feed pump, with a glass bubble fill gauge. A chain-link fence surrounds the compound in which the tank is situated.

Main Lift Station Emergency Generator Stand Alone Tank (Building 529)

A 540 gallon tank that serves the emergency generators in the main lift station is located adjacent to Building 529. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a photograph of this tank as **Figure 4**. The tank is of single wall steel construction. Secondary containment is provided by a 916 gallon concrete pit in which the tank is mounted. The tank is configured with overfill protection. A security fence surrounds the area in which the tank is situated, and the vicinity of the tank is illuminated by means of a spotlight.

Marine Science Lab Diesel Storage Tank (Building 555)

A 500 gallon diesel tank storage that serves the emergency generator, is located adjacent to Building 555. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 1** and associated photograph as **Figure 5.** The tank is of a ConVault design with a steel primary tank and a concrete outer shell that provides secondary containment. The tank sits on an 18 inch raised concrete pad and is configured with a fill gauge and overfill protection. The surrounding area is sloped towards a matrix of stormwater drains. A security fence surrounds the compound in which the tank is situated and overhead lighting illuminates the area.

Marine Science Lab Gasoline Storage Tank (Building 555)

A 500 gallon gasoline storage tank, which is used primarily for refueling motorboats, is located adjacent to Building 555. **Appendix D, Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 1** and associated photograph as **Figure 6**. The tank is of a ConVault design with a steel primary tank and a concrete outer shell that provides secondary containment. A bermed concrete pad affords tertiary containment. The tank is configured with a fill gauge and overfill protection and is connected to a fuel dispenser located in a service yard adjacent to Building 555. A fire extinguisher is located in close proximity to the tank. A wooden security fence surrounds the compound in which the tank is situated and large lights on the adjacent building illuminate the area.

EH&S Household Waste Oil Storage Tank (Building 565)

A 500 gallon waste oil storage tank, which is used in support of the Community Hazardous Waste Program that is operated on behalf of Santa Barbara County, is located in the Environmental Health and Safety compound adjacent to Building 565. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 1** and a photograph as **Figure 6**. The tank is of a ConVault design with a steel primary tank and a concrete outer shell that provides secondary containment. The entire service area in which the tank is located is bermed and sloped toward a stormwater collection sump that is equipped with a manual drain valve; the latter is maintained in the closed position. The tank is configured with a fill gauge and overfill protection. Commodity is transferred into the tank manually using small quantity (typically, less than two gallon) containers. An oil-recycling contractor removes the waste oil from the tank. Operable fire extinguishers and spill cleanup and absorbent materials are available in close proximity to the tank. A security fence surrounds the compound and adjacent lighting illuminates the vicinity.

EH&S Emergency Generator Standalone Tank (Building 565)

A 1,000 gallon diesel storage tank, which is used to fuel the EH&S emergency generator at Building 565, is located adjacent to the building. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 8** and associated photographs as **Figures 7 and 9**. The tank is of an Enviorvault design with a steel primary tank and concrete outershell that provides secondary containment. The tank is located within a bermed concreted pad, which provides tertiary containment. The tank is configured with a fill gauge and overfill protection. Operable fire extinguishers and spill cleanup and absorbent materials are available in close proximity to the tank. A security fence surrounds the compound and adjacent lighting illuminates the vicinity.

Biosciences II Diesel Storage Tank (Building 571)

A 2,000 gallon diesel storage tank, which feeds a generator day tank, is located in the Bio Sciences II compound near Building 571. **Appendix D, Bulk Oil Storage Tank Diagram and Photographs** includes a diagram of this tank as **Figure 1** and associated photograph as **Figure 10**. The tank is of a ConVault design with a steel primary tank and a concrete outer shell that provides secondary containment. The tank is configured with a fill gauge and overfill protection. An 8 foot high concrete wall provides security and a measure of tertiary containment.

Pump House Diesel Storage Tank (Building 585)

A 2,000 gallon diesel storage tank, which is used to fuel an emergency generator, is located adjacent to Building 585. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 1** and associated photograph as **Figure 11**. The tank is of a ConVault design with a steel primary tank and a concrete outer shell that provides secondary containment. The tank is configured with a leak detection tube, a fill gauge, and overfill protection. A concrete block wall provides security and a measure of tertiary containment. There is some illumination of the area from lighting on the adjacent building.

FM Portable Diesel Fuel Tank (Building 594)

A 500 gallon portable diesel tank which is used by Facilities Maintenance to fuel equipment (such as generators) around campus, is primarily stored at the facilities maintenance yard in front of Building 437. **Appendix D, Bulk Oil Storage Tank Diagram and Photographs**, includes a photo of this tank as **Figure 12**. The tank is a double walled, trailer mounted steel tank manufactured by Robert Davis and Sons. The tank is equipped with a 12 volt pump, fill gauge, overfill protection, and a locked fill port. Spill containment materials are kept on the trailer. A chain-link fence surrounds the compound in which the tank is primarily stored and adjacent lighting illuminates the vicinity.

Transportation Services Gasoline Storage Tank (Building 595)

A 6,000 gallon gasoline storage tank, which is used for refueling UCSB vehicles, is located in the Transportation Services Yard near Building 595. **Appendix D, Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 1** and associated photograph as **Figure 13**. The tank is of a ConVault design with a steel primary tank and a concrete outer shell that provides secondary containment. The tank is configured with a fill gauge and overfill protection. Operable fire extinguishers, an emergency eyewash and deluge shower, and spill cleanup and absorbent materials are available in close proximity to the tank. A security fence surrounds the compound, in which the tank is situated, and the vicinity of the tank is illuminated by means of a spotlight; the tank fill access is locked.

Transportation Services Central Garage New Motor Oil Tanks (Building 595)

There are two 120 gallon storage tanks for new motor oil located in the Transportation Services Central Garage (Building 595). **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a photograph of these tanks as **Figure 14**. The tanks are of a LubeCube double-wall design. The tanks are secured in a building that is locked at night. Spill cleanup and absorbent materials are available in close proximity to the tank.

Transportation Services Central Garage Waste Motor Oil Tank (Building 595)

A 240 gallon waste motor oil storage tank located in the Transportation Services Central Garage. **Appendix D, Bulk Oil Storage Tank Diagram and Photographs**, includes a photograph of this tank as **Figure 15**. The tank is of a double walled Superi R design. The tank is configured with overfill protection and a locked fill port. Commodity is transferred into the tank manually using small quantity (typically, less than two gallon) containers. Operable fire extinguishers and spill cleanup and absorbent materials are available in close proximity to the tank. A security fence surrounds the compound and adjacent lighting illuminates the vicinity of the tank.

Transportation Services Central Garage Transmission Fluid Storage Tanks (Building 595)

There are two 120 gallon storage tanks for transmission fluid located in the Transportation Services Central Garage (Building 595). **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a photograph of these tanks as **Figure 14**. The tanks are of a LubeCube double-wall design. The tanks are secured in a building that is locked at night. Spill cleanup and absorbent materials are available in close proximity to the tank.

Physical Sciences Building North (PSBN) Emergency Generator Standalone Tank (Building 675)

A 2,000 gallon tank that serves the emergency generators in the Chemistry (Building 557) and PSBN (Building 657) is located behind the northeast corner of PSBN. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs**, includes a diagram of this tank as **Figure 8** and associated photograph as **Figure 16**. The tank is of an Enviorvault design with a steel primary tank

and concrete outershell that provides secondary containment. The tank is located within a bermed concreted pad, which provides tertiary containment.

Santa Catalina Fire Pump Tank (Building 860)

A 200 gallon tank that serves the emergency fire pump for Santa Catalina is located within a shed adjacent to Building 860. **Appendix D**, **Bulk Oil Storage Tank Diagram and Photographs,** includes a photograph of this tank as **Figure 17**. The tank is of single wall construction and is manufactured by Arrow Steel works. Secondary containment is provided by a 315 gallon steel tray in which the tank is mounted. The tank is configured with a fill gauge and an electric fuel level switch. The tank is located inside of a secure structure.

Due to the presence of active and passive secondary containment, as well as the implantation of best management practices for fuel transfer activities, the potential for a release of oil in harmful quantities into the navigable waters of the United States, as defined by 40 CFR 110.3 and 40 CFR 112.1(b), is considered extremely unlikely for all of the tanks listed in the section above. A map showing the location of each bulk storage container is included as **Figure 4-1 Bulk Storage Container Map** at the end of this section.

4.2 GENERATOR FUEL TANKS

There are many generators located throughout the UCSB campus. These generators are regularly maintained by Facilities Maintenance, Housing and Residential Services, and the UCen. With one exception, all generators on campus are constructed with double-wall steel belly tanks. In addition, spill kits are present during fill operations.

Due to the presence of active and passive secondary containment, as well as the implantation of best management practices for fuel transfer activities, the potential for a release of oil in harmful quantities into the navigable waters of the United States is considered extremely unlikely for all generator belly tanks located on campus. A map showing the location of each generator fuel tank is included as **Figure 4-2 Generator Fuel Tank Map** at the end of this section.

4.3 PORTABLE STORAGE CONTAINERS

Waste cooking oils generated by University Center (UCen) Dining Services and by the Housing and Residential Services (HRS) Dining Commons are stored in 30 gallon drums prior to pick up by a recycling contractor. Due to the small storage capacity sizes of these waste cooking oil containers, these tanks are outside the scope of this plan.

In addition to the oil categories mentioned above, UCSB also stores miscellaneous new and used oils in 55-gallon containers. These 55-gallon ASTs are maintained and stored by the following departments: Transportation Services; Facilities Management; and Ecology, Evolution, and Marine Biology. Given the limited storage quantities and presence of both active and passive secondary containment, the potential for a release of such oil in harmful quantities into the navigable waters of the United States is considered extremely unlikely. A map showing the

approximate location of each portable storage tank is included as **Figure 4-3 Portable Containers Map** at the end of this section.

4.4 OIL FILLED EQUIPMENT

Oil-filled equipment on the UCSB Campus that is subject to the provisions of 40 CFR 112 includes electrical pad-mounted oil-filled transformers and hydraulic elevator systems.

In 2008, UCSB staff overhauled the outdated electrical system that had been installed in 1966 and designed and installed a new high-tech electrical system which included replacing over 100 transformers. The electrical pad-mounted transformers include an oil level gauge and are monitored wirelessly so a leak would be noticed almost immediately. The potential for a release of oil in harmful quantities into the navigable waters of the United States is considered extremely unlikely. An inventory of the UCSB electrical pad-mounted oil-filled transformers is included in **Table 4-2**, **Inventory of Oil-Containing Equipment – Transformers**.

All of the elevators are configured with concrete pits and blind sumps; consequently, the potential for a release of oil in harmful quantities into the navigable waters of the United States is considered extremely unlikely. An inventory of hydraulic elevator systems is included in **Table 4-3**, **Inventory of Oil-Containing Equipment – Hydraulic Elevators**.

4.5 SECONDARY CONTAINMENT

The secondary containment method for each bulk storage container is listed in **Appendix A**. Bulk storage containers at UCSB are either double walled or have secondary containment structures such as berms or spill pallets. In addition, all tanks have spill containment and cleanup kits readily available during product transfer, which is the most likely time for spills to occur.

Secondary Containment Drainage

Responsible departments must ensure that adequate drainage systems are provided as required to prevent contaminated runoff from discharging into navigable waters. Any valves draining the containment area will not be opened except under the supervision of a trained tank operator to prevent the release of any spilled material. These procedures will comply with the UCSB Stormwater Management Program Guidance Documents and the following provisions:

- Prevent the discharge of drainage water from secondary/tertiary containment structures that contain residual petroleum products or hazardous chemicals that may be contained in petroleum products.
- The drainage of accumulated rainwater from secondary/tertiary containment structures must be accomplished in strict conformance with 40 CFR 112.8(b) to prevent the discharge of water that contains residual petroleum products or associated hazardous chemicals. Specifically, the condition of rainwater retained in containment structures must be examined prior to release to surrounding vegetation or to a storm drain to ensure it does not comprise a harmful discharge as defined in 40 CFR 110.3. The responsible operator must ensure that the retained water (1)

is in compliance with applicable federal and California water quality standards, (2) will not produce a film or sheen or discoloration of surface waters, and (3) will not result in the deposition of any sludge or emulsion. Drainage water that is determined to contain petroleum products in harmful quantities must not be discharged to grade or to storm drains.

- Drainage of liquid from diked areas must be controlled by a valve that is closed when not in active use. The valve must be resealed closed after drainage under responsible supervision.

If accumulated water is oil-contaminated, it will be collected by vacuum truck or pump and disposed of in accordance with applicable hazardous waste regulations.

4.6 TOTAL REGULATED OIL STORAGE

The total oil storage capacity for campus is listed in **Table 4-1**, Total Storage Capacity**.**

Table 4-1
Total Storage Capacity

Oil Storage Category	Capacity (Gallons)
Aboveground Storage	
Bulk Storage Containers	18,900
Generator Fuel Tanks	18,081
Portable Storage Containers	1,210
Underground Storage Capacity	0
Total	**38,191**

4.7 NON-REGULATED OIL STORAGE

Non-regulated container of oil and petroleum based products are stored throughout the UCSB campus. These containers may be stored in the following locations:

- Facilities workshops and storage yard
- Facilities grounds workshop
- Transportation Services workshop
- HRS Grounds workshop
- HRS Maintenance Yard
- EEMB Marine Science boatyard
- EH&S Household Waste Storage area
- Laboratories
- Dinning Commons and Restaurant Facilities

4.8 SECURITY

Appropriate security measures will be coordinated and implemented by responsible departments to preclude or deter unauthorized, unknowing, or accidental entry of personnel, animals, or vehicles into oil storage sites subject to this SPCC Plan. Lighting must be commensurate with the need to detect a discharge during the hours of darkness and to deter vandalism. Appropriate security measures include:

- Fencing, perimeter lighting, and/or video monitoring
- Vehicle barriers to prevent accidental impacts to storage tanks
- Secured or locked entrances to sites, where feasible
- Locked, or otherwise secured, drain valves and pumps for oil storage tanks
- Secured oil loading and unloading facilities
- The use of warning signs to prevent unauthorized or unknowing entry

All valves that could permit a release of oil must be locked when not in use. Similarly, starter controls on pumps must be locked in the "off" position when not in use or located in an area accessible only by authorized personnel.

4.9 SPILL HISTORY

As of the date of this plan, there have been no reportable spills per the criteria defined in 40 CFR 110.3 and 112.1(b).

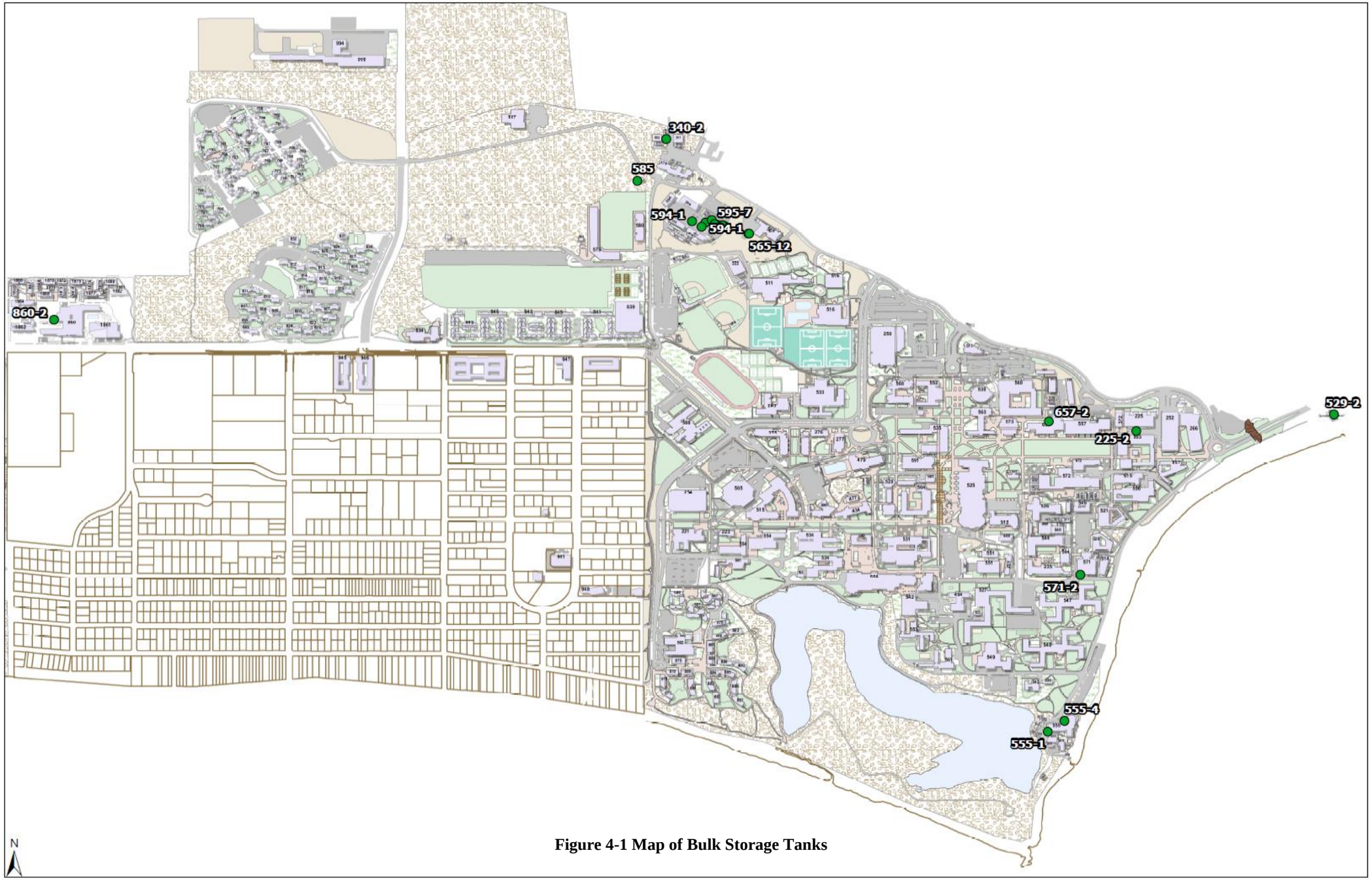


Figure 4-1 Map of Bulk Storage Tanks

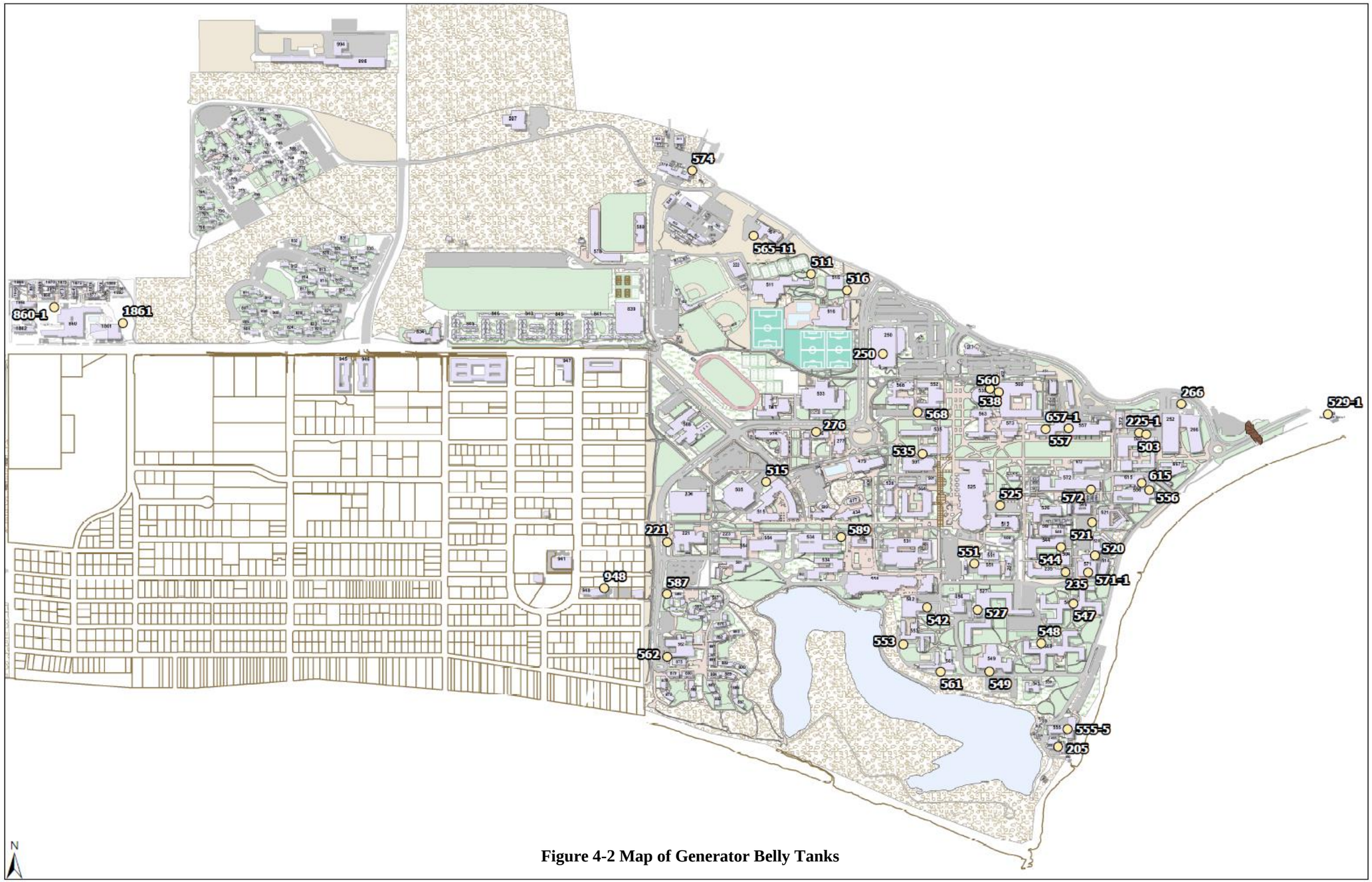


Figure 4-2 Map of Generator Belly Tanks

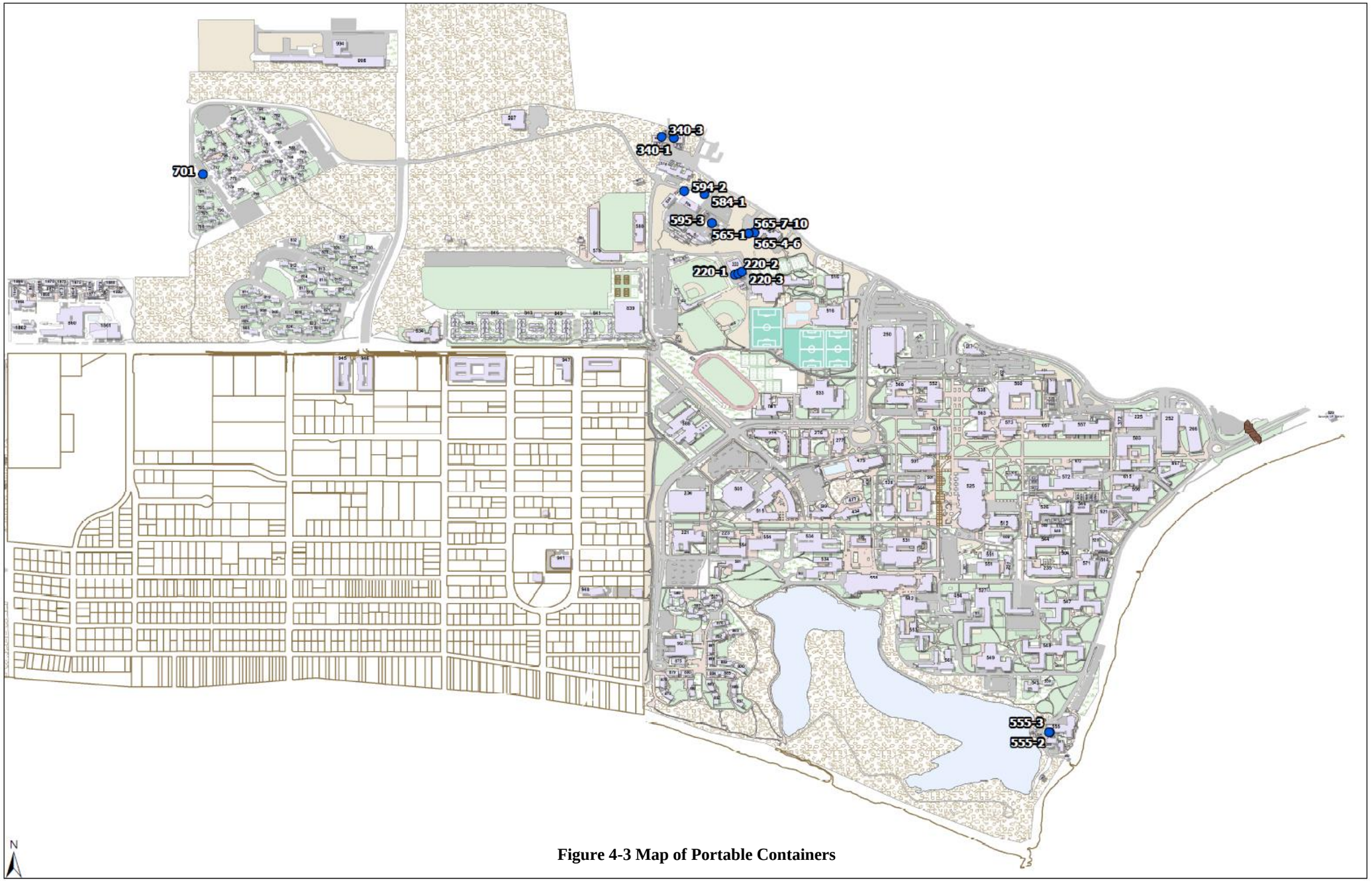


Figure 4-3 Map of Portable Containers

Table 4-2
Inventory of Oil-Containing Equipment – Transformers

Bldg #	Bldg Name	Responsible Department	Capacity (gallons)	Contents
221	Student Resource Bldg	FM	150 - 450	Mineral Oil
225	Engineering Sciences Bldg	FM	150 - 450	Mineral Oil
235	Life Sciences Bldg	FM	150 - 450	Mineral Oil
243	Intercollegiate Athletics Bldg	FM	150 - 450	Mineral Oil
252	Parking 10	FM	150 - 450	Mineral Oil
254	Parking 22	FM	150 - 450	Mineral Oil
266	California Nanosystems Institute	FM	150 - 450	Mineral Oil
275	Gevirtz Graduate School of Education	FM	150 - 450	Mineral Oil
276	Social Sciences and Media Studies	FM	150 - 450	Mineral Oil
408	Ergo Lab	FM	150 - 450	Mineral Oil
437	Facilities Management	FM	150 - 450	Mineral Oil
439	Facilities Management	FM	150 - 450	Mineral Oil
479	Old Gym	FM	150 - 450	Mineral Oil
494	College of Creative Studies	FM	150 - 450	Mineral Oil
503	Engineering II	FM	150 - 450	Mineral Oil
505	Event Center	FM	150 - 450	Mineral Oil
507	Central Stores	FM	150 - 450	Mineral Oil
511	Rec Center II – MAC	FM	150 - 450	Mineral Oil
512	Bio-Engineering	FM	150 - 450	Mineral Oil
515	Humanities and Social Sciences Bldg	FM	150 - 450	Mineral Oil
516	Rec Center	FM	150 - 450	Mineral Oil
517	Alumni House	FM	150 - 450	Mineral Oil
520	Marine Science and Research Bldg	FM	150 - 450	Mineral Oil
521	Bren School	FM	150 - 450	Mineral Oil
525	Davidson Library	FM	150 - 450	Mineral Oil
529	Main Sewage Pump Station	FM	150 - 450	Mineral Oil
535	North Hall	FM	150 - 450	Mineral Oil
535	North Hall	FM	150 - 450	Mineral Oil
535	North Hall Data Center	FM	150 - 450	Mineral Oil
535	North Hall Data Center	FM	150 - 450	Mineral Oil
538	Campbell Hall	FM	150 - 450	Mineral Oil
539	Bio Annex	FM	150 - 450	Mineral Oil
543	University House	FM	150 - 450	Mineral Oil
551	Psychology	FM	150 - 450	Mineral Oil
553	San Miguel Residence Hall	FM	150 - 450	Mineral Oil

Table 4-2 (Cont'd)
Inventory of Oil-Containing Equipment – Transformers

Bldg #	Bldg Name	Responsible Department	Capacity (gallons)	Contents
554	Snidecor Hall	FM	150 - 450	Mineral Oil
555	Marine Biotechnology Lab	FM	150 - 450	Mineral Oil
558	University Center	FM	150 - 450	Mineral Oil
559	Sewer Lift Station	FM	150 - 450	Mineral Oil
560	Phelps Hall	FM	150 - 450	Mineral Oil
561	San Nicolas Residence Hall	FM	150 - 450	Mineral Oil
565	Environmental Health and Safety	FM	150 - 450	Mineral Oil
567	Kohn Hall (ITP)	FM	150 - 450	Mineral Oil
570	Military Science / Interfacial Lab	FM	150 - 450	Mineral Oil
574	Public Safety	FM	150 - 450	Mineral Oil
577	Cesar Uyesaka Stadium	FM	150 - 450	Mineral Oil
580	Harder Stadium North	FM	150 - 450	Mineral Oil
580	Harder Stadium South	FM	150 - 450	Mineral Oil
585	Main Water Pump Station	FM	150 - 450	Mineral Oil
589	Storke Tower	FM	150 - 450	Mineral Oil
591	Kerr Hall	FM	150 - 450	Mineral Oil
595	Automotive Shop	FM	150 - 450	Mineral Oil
599	Student Services	FM	150 - 450	Mineral Oil
615	Materials Research Lab	FM	150 - 450	Mineral Oil
657	Physical Sciences Bldg North	FM	150 - 450	Mineral Oil
672	Physical Sciences Bldg South	FM	150 - 450	Mineral Oil
701	Storke Apartments	FM	150 - 450	Mineral Oil
834	San Clemente	FM	150 - 450	Mineral Oil
836	San Clemente	FM	150 - 450	Mineral Oil
839	San Clemente	FM	150 - 450	Mineral Oil
860	Santa Catalina	FM	150 – 450	Mineral Oil
875	Manzanita	FM	150 - 450	Mineral Oil
875	Manzanita	FM	150 - 450	Mineral Oil
875	Manzanita	FM	150 - 450	Mineral Oil
-	Sierra Madre	FM	150 – 450	Mineral Oil
-	San Joaquin	FM	150 – 450	Mineral Oil
-	San Joaquin	FM	150 – 450	Mineral Oil
-	San Joaquin	FM	150 – 450	Mineral Oil
-	San Joaquin	FM	150 – 450	Mineral Oil

Table 4-3
Inventory of Oil-Containing Equipment – Hydraulic Elevators

Bldg #	Bldg Name	Elevator #	State #	Type	# of Landings
50	Parking Structure 50	1	14752	Hydraulic	3
221	Student Resource Bldg	1	144217	Hydraulic	4
223	Snidecor Addition	2	144249	Hydraulic	2
225	Engineering Science Bldg	1	128486	Hydraulic	4
225	Engineering Science Bldg	2	128487	Hydraulic	4
235	Life Sciences Bldg	1	134887	Hydraulic	6
235	Life Sciences Bldg	2	134891	Hydraulic	6
243	Intercollegiate Athletics	1	134776	Hydraulic	2
250	Mesa Parking	1	110109	Hydraulic	4
250	Mesa Parking	2	110110	Hydraulic	4
251	Psychology Addition	1	144031	Hydraulic	4
252	10 Parking (CPS 2)	1	140752	Hydraulic	4
252	10 Parking (CPS 2)	2	140753	Hydraulic	4
266	Nano Sciences (CNSI)	1	140947	Hydraulic	4
266	Nano Sciences (CNSI)	2	140946	Hydraulic	4
266	Nano Sciences (CNSI)	3	140948	Hydraulic	4
275	ESSB – GGSE	3	155558	Hydraulic	4
276	ESSB – L&S	1	155569	Hydraulic	4
276	ESSB – L&S	2	155570	Hydraulic	4
277	ESSB – F&TV	4	155804	Hydraulic	4
503	Engineering II	1	84469	Hydraulic	4
503	Engineering II	2	84470	Hydraulic	3
504	Biological Sciences III	1	79860	Hydraulic	2
505	Events Center (ECen)	1	65312	Hydraulic	2
505	Events Center (ECen)	2	65313	Hydraulic	2
516	Recreation Center (Rec Cen)	1	100888	Hydraulic	2
517	Alumni Center	1	144476	Hydraulic	2
517	Alumni Center	2	144477	Hydraulic	2
525	Davidson Library	4	29063	Hydraulic	2
526	Webb Hall - Geology	1	29062	Hydraulic	3

Table 4-3 (Cont'd)
Inventory of Oil-Containing Equipment – Hydraulic Elevators

Bldg #	Bldg Name	Elevator #	State #	Type	# of Landings
527	Santa Rosa	1	30060	Hydraulic	2
527	Santa Rosa	2	30061	Hydraulic	2
528	South Hall	1	52414	Hydraulic	6
528	South Hall	2	52413	Hydraulic	6
528	South Hall	3	52704	Hydraulic	6
528	South Hall	4	52411	Hydraulic	6
531	Music	1	81114	Hydraulic	2
531	Music	2	81114	Hydraulic	3
533	Robertson Gym	1	69999	Hydraulic	2
534	Arts	1	33643	Hydraulic	3
535	North Hall	1	84995	Hydraulic	3
544	Noble Hall	1	79875	Hydraulic	3
546	Woodhouse Lab	1	100099	Hydraulic	2
551	Psychology	1	39984	Hydraulic	3
554	Snidecor Hall	1	42525	Hydraulic	2
554	Snidecor Hall	S	N/A	Hydraulic Stage Lift	N/A
555	Marine (Bio.) Science	1	90167	Hydraulic	3
557	Chemistry	1	45086	Hydraulic	4
557	Chemistry	2	45087	Hydraulic	5
558	University Center (UCen)	1	106724	Hydraulic	2
558	University Center (UCen)	2	106723	Hydraulic	2
558	University Center (UCen)	3	65428	Hydraulic	2
558	University Center (UCen)	4	42695	Hydraulic	3
558	University Center (UCen)	5	42696	Hydraulic	3
560	Phelps Hall	1	44199	Hydraulic	6
560	Phelps Hall	2	44200	Hydraulic	6
560	Phelps Hall	3	43598	Hydraulic	3
563	Ellison Hall	1	100916	Hydraulic	6
563	Ellison Hall	2	46998	Hydraulic	6
563	Ellison Hall	3	46999	Hydraulic	3

Table 4-3 (Cont'd)
Inventory of Oil-Containing Equipment – Hydraulic Elevators

Bldg #	Bldg Name	Elevator #	State #	Type	# of Landings
564	Girvetz Hall	1	79823	Hydraulic	2
567	Kohn Hall (ITP)	1	100784	Hydraulic	2
568	Student Affairs (SAASB)	1	107568	Hydraulic	3
568	Student Affairs (SAASB)	1	107563	Hydraulic	5
591	Kerr Hall	1	61117	Hydraulic	2
615	Materials Research Lab	1	106874	Hydraulic	3
615	Material Research Lab (MRL)	1	106874	Hydraulic	3
841	San Clemente – Arrowhead	1	147857	Hydraulic	3
841	San Clemente – Arrowhead	2	147858	Hydraulic	3
842	San Clemente – Bradbury	3	147859	Hydraulic	3
843	San Clemente – Castaic	4	147729	Hydraulic	3
844	San Clemente – Donner	5	147730	Hydraulic	3
845	San Clemente – Encino	6	147856	Hydraulic	3
860	Portola Dining Commons	1	43643	Hydraulic	2
875	Manzanita Village – De Anza	1	127881	Hydraulic	2
878	Manzanita Village – Cinega	2	127886	Hydraulic	4
880	Manzanita Village – Arguello	3	127885	Hydraulic	4
881	Manzanita Village – Miranda	4	127887	Hydraulic	3
883	Manzanita – Condor	5	127890	Hydraulic	3
884	Manzanita – La Cumbre	6	127889	Hydraulic	4
886	Manzanita – Tepusquet	7	127888	Hydraulic	3
889	Manzanita – Camuesa	8	127883	Hydraulic	3
890	Manzanita – Pendola	9	127882	Hydraulic	4
892	Manzanita – Madulce	10	127884	Hydraulic	3
941	Embarcadero Hall	1	127994	Hydraulic	2
943	Hollister Research Center (HRC)	1	87480	Hydraulic	2

5.0 TRANSFER OPERATIONS

5.1 BULK STORAGE CONTAINER FILLING PROCEDURES

The following procedures are followed when filling fuel bulk storage containers

- Facility personal remain present during the entire filling processes
- Prior to filling, the level of the tank is checked to prevent overfilling
- The delivery person continuously monitors the offloading activity
- Fill gauges on the tank are to be checked during filling to prevent overfilling
- During the filling process, spill kits are to be readily available on the delivery truck
- Prior to leaving, the delivery truck is checked for leaks and other potential sources of discharge

5.2 PRODUCT DISPENSING PROCEDURES

Equipment and vehicles are refueled in the following manner:

- At Transportation Services, a chip key card is used to access and operate gasoline dispensers.
- All other dispensers are operated by trained personals
- The fueling is continuously monitored by the person fueling
- The person fueling follows the instructions posted at each dispenser

5.3 LOADING DOCK OPERATIONS

The following procedures are followed when receiving or shipping an oil product:

- Oil products are only accepted or shipped in approved Department of Transportation (DOT containers)
- Oil containers are stored away from the edge of the loading dock
- Where possible, oil containers are kept sheltered from the elements
- Containers are kept securely closed when not in use
- Oil containers are only moved using a secure method of transport such as drum dollies

6.0 INSPECTIONS

Aboveground storage tanks are inspected in accordance with Steel Tank Institute industry standard (STI SP001). Refer to **Appendix E** for a copy of STI SP001. All UCSB tanks are considered Category 1 tanks and will be inspected according to Table 7-1 STI SP001 Inspection Schedule, below. Where inspection frequency is listed as “Periodic”, UCSB will perform inspections at a minimum frequency of once per month.

Table 7-1
STI SP001 Inspection Schedule

AST Type and Size (U.S. gallons)		Category 1: with spill control and CRDM	Category 2: with spill control, without CRDM	Category 3: without spill control, without CRDM
Shop-Fabricated ASTs	0 – 1100 (0-4164 liters)	P	P	P, E&L(10)
	1101 - 5,000 (4168-18,927 liters)	P	P, E&L(10)	[P, E&L(5), I(10)] or [P, L(2), E(5)]
	5,001 - 30,000 (18,931-113,562 liters)	P, E(20)	[P, E(10), I(20)] or [P, E(5), L(10)]	[P, E&L(5), I(10)] or [P, L(1), E(5)]
	30,001 - 50,000 (113,566-189,271 liters)	P, E(20)	P, E&L(5), I(15)	P, E&L(5), I(10)
Field-erected AST		P, E(5), I(10)	P, E&L(5), I(10)	P, E&L(5), I(10)
Portable Containers		P	P	P

- P – Periodic AST inspection (PI)
- E – Formal External Inspection by certified inspector (FEI)
- I – Formal Internal Inspection by certified inspector (FII)
- L – Leak test by owner or owner's designee (LT)
- ( ) indicates maximum inspection interval in years. For example, E (5) indicates formal external inspection every five years.

Sample SPCC inspections checklist are attached for bulk storage containers, generator fuel tanks, and portable storage containers in **Appendix F**. All inspections include:

- Signs of deterioration of secondary containment
- Evidence of leaks or spills from tank and associated piping
- Verify presence of spill kits, if applicable
- Evidence of corrosion on tank or tank supports
- Assessment of the general condition of seams, rivets, nozzle connections, valves, and pipelines directly connected to, or associated with the tank
- Evidence of damage on tank exterior
- Confirmation of closure of containment drain valves, if applicable
- Assessment of electronic and mechanical devices on tank such as overfill protection alarms, if applicable
- Needed corrective actions

For double-walled tanks that are not equipped with functional interstitial sensors that provide an alarm/indication when commodity enters the annular space, the responsible operator will verify monthly that there has been no release from the primary tank into the annular space.

Departments responsible for storage tanks subject to this SPCC Plan will ensure that a review of the compliance status of each such tank is accomplished using the applicable self-inspection checklists included in **Appendix E**.

7.0 TRAINING AND RECORDKEEPING

7.1 PERSONNEL TRAINING

Departments responsible for oil storage tanks subject to this SPCC Plan will provide training to personnel who are responsible for the management of oil in accordance with 40 CFR 112.7(f). In particular, the responsible Department will ensure that incoming personnel are trained in the following areas:

- Oil spill prevention and emergency response procedures
- Proper operation and maintenance of equipment to prevent the discharge of oil

Reviews of existing oil spill prevention, control, and countermeasure requirements will be briefed at a frequency sufficient to ensure that oil-handling personnel have an adequate understanding of applicable regulatory requirements and the content of this SPCC Plan.

EH&S will provide training regarding the substantive elements of this SPCC Plan at least annually to personnel who maintain, operate, replenish, and/or inspect the storage tanks subject to the provisions of 40 CFR 112 and this SPCC Plan. At a minimum, the training will cover the following:

- Applicable federal, California, and local pollution control laws and spill prevention and notification requirements
- Site-specific SPCC Plan requirements
- Known spill events or failures, malfunctioning components, and any recently developed precautionary measures

Accordingly, all training records will be maintained to include the following:

- Job title
- Individual name
- Training required (introductory or continuing)
- Brief description of training topic(s)

7.2 RECORDKEEPING

All records of bulk storage container inspections are kept onsite and maintained by the responsible department. These records must be readily available upon request. Facility diagrams, tank inventories, container information, and SPCC plan updates are maintained in the EH&S office. All records must be maintained for at least three years.

8.0 EMERGENCY RESPONSE

8.1 OBJECTIVES

The overriding objective in the event of a release of oil or hazardous material from containment structures is the protection of affected personnel. In the event of an unauthorized release of oil, every reasonable effort will be made to prevent it from reaching the navigable waters of the United States.

8.2 CONTAINMENT AND CLEANUP PROCEDURES

In the event of a spill, refer to **Table 8-1**, **Cleanup Assistance Contacts** List for a listing of key offices or agencies that may be contacted for assistance.

Policies and procedures relating to oil spill prevention and response are outlined in the UCSB Hazardous Emergency Response Plan (2012), which is incorporated into this SPCC Plan by reference. In the event that a spill escapes onsite containment, the following procedures will be implemented:

1. Immediately call 911 if there is a fire, injury, or potential for injury
2. If possible, stop the source of spilling oil or fuel
3. Contain spilled oil using oil booms, sorbents, and other devices as appropriate to control the spread of oil
4. Divert spilled oil away from surface waters or storm drains using diversions structures, dikes, or earthen berms
5. Estimate the quantity of oil spilled and the destination of the spill
6. Make all required notifications per Section 8.3
7. Use available cleanup equipment to clean up the spill and contain all oil contaminated materials. In the event that the spill cannot be cleaned up using campus resources, contact an outside cleanup vendor
8. Document all spill response and cleanup efforts, including notification calls

Table 8-1
Cleanup Assistance Contact List

Department	Phone Number
Emergency Assistance	
Santa Barbara County Fire Department	911
California Office of Emergency Services (OES)	1-800-852-7550 or 1-916-427-4341
National Response Center (NRC)	1-800-424-8802
On Campus Assistance	
Environmental Health & Safety	
Primary Contact- Bruce Carter	805-893-3293
Jodi Switzer	805-893-7014 805-450-6548
Nicholas Bruce	805-893-8997 805-451-5079
Ali Aghayan	805-893-8533
Front Desk	805-893-3194
After hours	805-448-4089
Campus Dispatch	805-893-8300
Campus Police	805-893-3446
Outside Cleanup Assistance	
Patriot Environmental Services	1-800-624-9136
Clean Harbors	1-800-OILTANK

8.3 SPILL NOTIFICATIONS

If a release of oil is discovered, EH&S should be notified as soon as possible. If available, EH&S will conduct notification and reporting to required agencies. If the appropriate EH&S contact is unable to be reached, spill notification must be conducted by the spill respondent. A flow chart indicating required notifications depending on spill conditions is located at the end of this section on **Figure 8-1**, **Spill Notification Flowchart**.

Persons conducting notification should be prepared to relay the following information:

- General facility information (address, phone number, etc.)
- Type of material spilled
- Quantity of material spilled
- Source of spill
- Date and time of spill
- Destination and containment status of spill
- Cause of spill
- Cleanup and containment actions implemented
- Listing of other parties/agencies who have been notified

As required by 40 CFR Part 112.4, UCSB is required to submit a written report to the EPA and CUPA within 60 days of the occurrence of either of the following conditions:

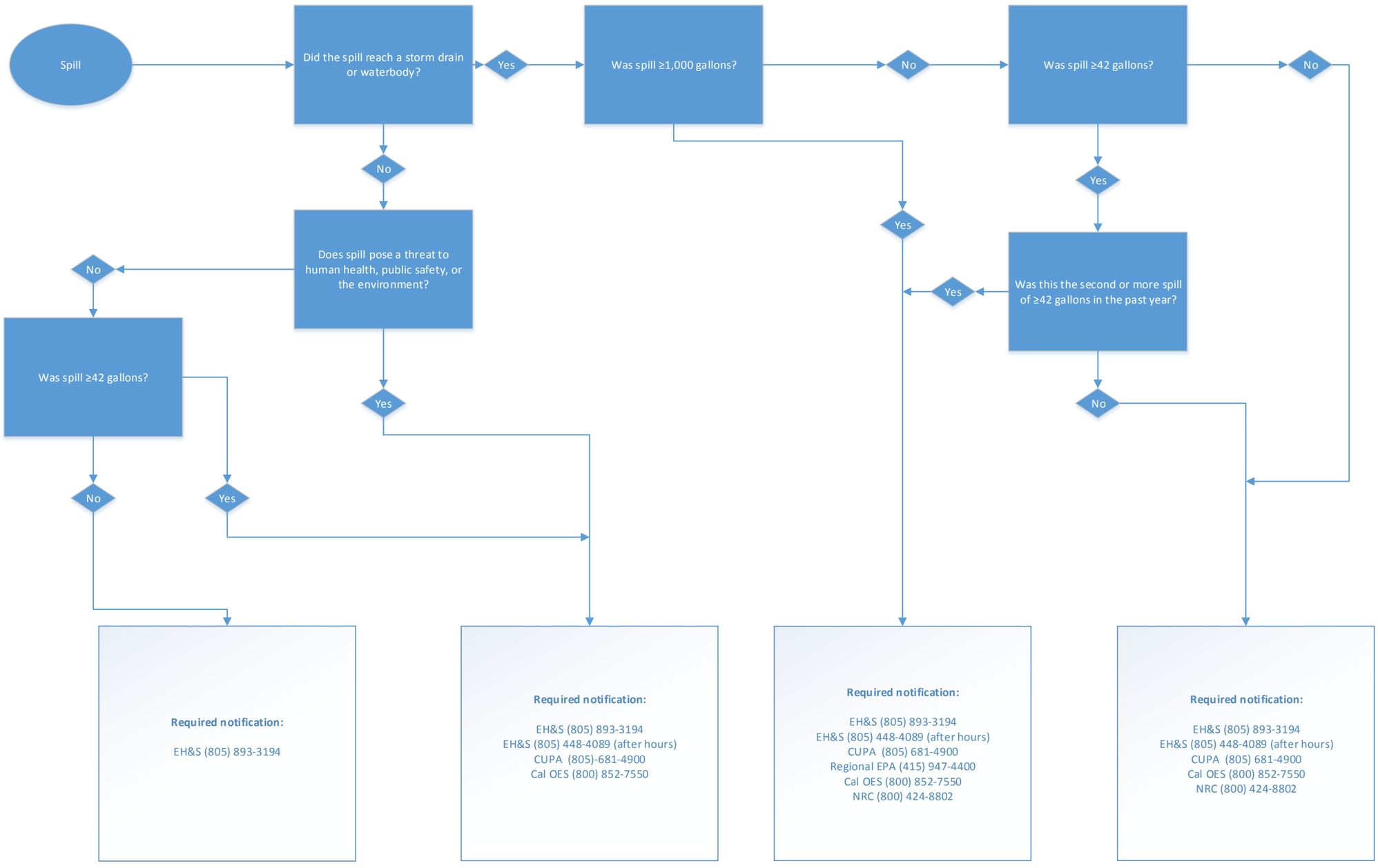
1. More than 1,000 U.S. gallons (approximately 24 barrels) of oil have been discharged into navigable waters in a single spill.
2. More than 42 U.S. gallons of oil have been discharged into navigable waters in each of two reportable spill events within any 12 month period.

This report must contain the following:

- Name of the person submitting the report, their contact information, and the name and location of the facility
- Maximum storage or handling capacity of the facility and normal daily throughput
- Name and location of the facility on UCSB from where the release occurred
- Date and time of the discharge
- Type of material discharged
- Estimate of the total quantity discharged
- Estimate of the total quantity discharged to navigable waters
- Source of discharge
- Description of all affected media
- Description of the cause of such spill, including a failure analysis of the system or subsystem in which the failure occurred
- Any damages or injuries caused by the discharge
- Actions being used to stop, remove, and mitigate the effects of the discharge
- The corrective actions and/or countermeasures taken, including adequate description of equipment repairs and/or replacements
- Additional preventive measures taken or contemplated to minimize the possibility of recurrence

- Whether an evacuation may be needed
- Names of individuals and/or organizations who have also been contacted
- Description of the UCSB campus, including maps, flow diagrams, and topographical maps
- A complete copy of this SPCC Plan with any amendments
- Such other information as CUPA may require

Figure 8-1
Notification Requirements for Release of Oil or Hazardous Substance into Waterways



9.0 PROPOSED CORRECTIVE MEASURES

The following corrective measures have been deemed necessary and will be implemented as soon as possible:

1. Evaluate the spill potential and risk of fuel piping configurations that extend beyond the associated AST's secondary containment. Proposed corrective actions will be based on reasonably anticipated spill risk and engineering constraints and could include structural secondary containment, diversion structures, and/or leak detection/alarms. Campus facilities with fuel piping systems include Buildings 225/503, 555, 557/657, 565, 571, and 585.
2. Provide adequate lighting for all bulk oil storage tanks on the UCSB campus to facilitate the discovery of discharges during the hours of darkness and to deter vandalism. This recommendation applies especially to the bulk oil storage tank at Buildings 585.
3. Provide secondary containment for the Communications Services generator belly tank located at building 574 (Tank ID 574).
4. Provide secondary containment for the Portable Water Pump commonly stored at building 594 (Tank ID 594-2).

10.0 ACRONYMS AND ABBREVIATIONS

APSA	Aboveground Petroleum Storage Act
AST	Aboveground Storage Tank
BMP	Best Management Practice
CFR	Code of Federal Regulations
CUPA	Certified Unified Program Agency
CRDM	Continuous Release Detection Method
CWA	Clean Water Act
DOT	Department of Transportation
EPA	[United States] Environmental Protection Agency
EH&S	Environmental Health and Safety
FRP	Facility Response Plan
MS4	Municipally Separate Storm Sewer System
NRC	National Response Center
OES	[California] Office of Emergency Services
OPA	Oil Pollution Act
PSBN	Physical Sciences Building North
SPCC Plan	Spill Prevention, Control and Countermeasures Plan
UCen	University Center
UCSB	University of California, Santa Barbara

Appendix A

Table 1- Transportation Services

AST-ID	Location	Capacity (gallons)	Content	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
595-1	Vehicle Maintenance Shop	120	New Motor Oil	Bulk Storage Tank	Poly Tote	Double-walled	-	-	Yes	Monthly
595-2	Vehicle Maintenance Shop	120	New Motor Oil	Bulk Storage Tank	Poly Tote	Double-walled	-	-	Yes	Monthly
595-3	Vehicle Maintenance Shop	55	Used Filter Oil	Portable	Metal Drum	Single Drum Containment Unit	65	-	Yes	Monthly
595-4	Fill up station	6,000	Gasoline	Bulk Storage Tank	Convault AST	Double-walled	-	Fill Gauge, Overfill Protection	Yes	Monthly
595-5	Vehicle Maintenance Shop	240	Waste Motor Oil	Bulk Storage Tank	Steel AST	Double-walled	-	-	Yes	Monthly
595-6	Vehicle Maintenance Shop	120	Transmission Fluid	Bulk Storage Tank	Poly Tote	Double-walled	-	-	Yes	Monthly
595-7	Vehicle Maintenance Shop	120	Transmission Fluid	Bulk Storage Tank	Poly Tote	Double-walled	-	-	Yes	Monthly
595-8	Vehicle Maintenance Shop	100	Antifreeze	Bulk Storage Tank	ChemTainer	Double-Walled	-	-	Yes	Monthly

Table 2- Housing and Residential Services

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
527	Santa Rosa Residence Hall	138	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
542	Ortega	190	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
547	Anacapa Residence Hall	90	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
548	Santa Cruz Residence Hall	90	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
549	De La Guerra	800	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled and concrete berm	-	-	Spill Kit During Fill	Monthly
553	San Miguel Residence Hall	305	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
561	San Nicolas Residence Hall	305	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
562	Carrillo Commons	465	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
587	San Rafael Residence Hall	217	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
701	HRS Grounds	55	Waste Motor Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	66	-	Yes	Monthly
860-1	Santa Catalina Residence Hall	850	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled and concrete berm	-	-	Spill Kit During Fill	Monthly
860-2	Santa Catalina (Fire)	175	Diesel No. 2	Bulk Storage Tank	Steel AST	Galvanized Steel Secondary Containment	315	Fill Gauge, Overfill Protection	Spill Kit During Fill	Monthly
1861	Portola	815	Diesel No. 2	Generator Fuel Tank	Generator Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly

Table 3 – Facilities Portable Tanks

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
340-1	FM Grounds Workshop	55	Waste Motor Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	55	-	Yes	Monthly
340-3	FM Grounds Workshop	55	New Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	65	-	Yes	Monthly
584-1	FM Yard	55	Waste Synthetic Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	65	-	Yes	Monthly
584-2	FM Yard	55	New Hydraulic Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	65	-	Yes	Monthly
584-3	FM Yard	55	New Hydraulic Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	65	-	Yes	Monthly
584-4	FM Yard	55	New Hydraulic Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	65	-	Yes	Monthly
584-5	FM Yard	55	Compressor Oil	Portable Storage Tank	Metal Drum	Secondary Containment Structure	65	-	Yes	Monthly

Table 4 – Facilities ASTs

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
225-2	Engineering Science Bldg	2,000	Diesel No. 2	Bulk Storage Tank	Convault Generator Aux Tank	Double-walled	-	Fill gauge+ Veeder Roots Detection System	Spill Kit During Fill	Monthly
340-2	FM Grounds Workshop	550	Diesel No. 2	Bulk Storage Tank	Joor Manf., Fiberglass and Steel AST	Concrete Berm	600	Fill Gauge	Yes	Monthly
529-2	Main Lift Station	500	Diesel No. 2	Bulk Storage Tank	Single Wall Steel Tank	Concrete Berm	700	Fill Gauge	Spill Kit During Fill	Monthly
555-4	Marine Biotech Lab	500	Diesel No. 2	Bulk Storage Tank	Convault Generator Aux Tank	Double-walled	-	Fill gauge+ Overfill Protection	Spill Kit During Fill	Monthly
565-12	EH&S	1,000	Diesel No. 2	Bulk Storage Tank	Enviorvault Generator Aux Tank	Double-walled	-	Fill gauge+ Overfill Protection	Spill Kit During Fill	Monthly
571-2	Biosciences II	2,000	Diesel No. 2	Bulk Storage Tank	Convault Generator Aux Tank	Double-walled	-	Fill gauge+ Overfill Protection	Spill Kit During Fill	Monthly
585	Main Water Pump	2,000	Diesel No. 2	Bulk Storage Tank	Convault Generator Aux Tank	Double-walled	-	Fill gauge, Overfill Protection	Spill Kit During Fill	Monthly
594-1	FM Parking Lot	500	Diesel No. 2	Bulk Storage Tank	Portable Fuel Tank- Double Walled	Absorbents (double-walled portable tank)	-	Fill Gauge, Overfill Protection	Yes	Monthly
657-2	PSB North	2,000	Diesel No. 2	Bulk Storage Tank	Enviorvault Generator Aux Tank	Double-walled with Concrete Berm	200	Fill gauge, Overfill Protection	Spill Kit During Fill	Monthly

Table 5 – Facilities Generator Tanks

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
205	Filter Bldg	750	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
220-1	Electrical Shop	354	Diesel No. 2	Portable Generator Fuel Tank	Generator Belly-Tank (PERP 164329)	Double-walled	-	-	Spill Kit During Fill	Monthly
220-2	Electrical Shop	470	Diesel No. 2	Portable Generator Fuel Tank	Generator Belly-Tank (PERP 130213)	Double-walled	-	-	Spill Kit During Fill	Monthly
220-3	Electrical Shop	306	Diesel No. 2	Portable Generator Fuel Tank	Generator Belly-Tank (PERP 30214)	Double-walled	-	-	Spill Kit During Fill	Monthly
221	Student Resource Bldg	200	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
225-1	Engineering Science Bldg	90	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	-	Monthly
235	Life Sciences Bldg	1,100	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
250	Mesa Parking	150	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
266	CNSI	800	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
276	ESSB	150	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly

Table 5 Cont'd- Facilities Generator Tanks

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
503	Engineering II	750	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	-	Monthly
511	Rec Cen Exp (MAC)	194	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
512	BioEngineering	3964	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	--	-	Spill Kit During Fill	Monthly
515	HSSB	175	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
516	Recreation Center	40	Diesel No.2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	-
520	MSRB	600	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
521	Bren	75	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
525	Davidson Library	333	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
529-1	Main Lift Station	450	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	-	Monthly
535	North Hall Data Center	1,700	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
538	Campbell Hall	45	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	-
544	Noble Hall	500	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
551	Psychology	150	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
555-5	Marine Biotech Lab	50	Diesel No. 2	Generator Fuel Tank	Generator Day Tank	-	-	-	-	-

Table 5 Cont'd- Facilities Generator Tanks

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
556	Engineering I	150	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
557	Chemistry	155	Diesel No. 2	Generator Fuel Tank	Day Tank	Double-walled	-	-	-	Monthly
560	Phelps Hall	50.2	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	-
565-11	EH&S	365	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
568	SAASB (Coral Tree)	125	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
571-1	Biosciences II	200	Diesel No. 2	Generator Fuel Tank	Day Tank	Double-walled	-	-	-	Monthly
572	Broida	500	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
588	Student Health	784	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
589	Storke Tower	50	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	-
594-2	Facilities Management	105	Diesel No. 2	Portable Water Pump Fuel Tank	Portable Engine Belly-Tank	-	-	-	Spill Kit During Fill	Monthly
615	Materials Research Lab	400	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	Double-walled	-	-	Spill Kit During Fill	Monthly
657-1	PSB North	50	Diesel No. 2	Generator Fuel Tank	Day Tank	-	-	-	-	-
948	Isla Vista Theater	40	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	-	-	-	Spill Kit During Fill	-

Table 6- EH&S

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
565-1	Hazardous Waste Collection Center	55	Waste Oil	Portable	Metal Drum	Sump	-	-	Yes	Monthly
565-2	Hazardous Waste Collection Center	55	Waste Oil	Portable	Metal Drum	Sump	-	-	Yes	Monthly
565-3	Hazardous Waste Collection Center	500	Waste Oil	Bulk Storage Tank	Convault AST	Double-walled	-	Fill Gauge+ Overfill Protection	Yes	Monthly
565-4	Hazardous Waste Collection Center	55	Antifreeze	Portable	Metal Drum	Spill Pallet	85	-	Yes	Monthly
565-5	Hazardous Waste Collection Center	55	Antifreeze	Portable	Metal Drum	Spill Pallet	85	-	Yes	Monthly
565-6	Hazardous Waste Collection Center	55	Antifreeze	Portable	Metal Drum	Spill Pallet	85	-	Yes	Monthly
565-7	Hazardous Waste Collection Center	55	Station For Cleaning Oil Bottles	Portable	Metal Drum	Spill Pallet	85	-	Yes	Monthly
565-8	Hazardous Waste Collection Center	55		Portable	Metal Drum	Spill Pallet	85	-	Yes	Monthly
565-9	Hazardous Waste Collection Center	55		Portable	Metal Drum	Spill Pallet	85	-	Yes	Monthly
565-10	Hazardous Waste Collection Center	55		Portable	Metal Drum	Spill Pallet	85	-	Yes	Monthly

Table 7- EEMB

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
555-1	Boatyard	500	Gasoline	Bulk Storage Tank	Enviorvault AST	Spill Berm	-	Fill Gauge, Overfill Protection	Yes	Monthly
555-2	Boatyard	55	Waste 2-stroke oil	Portable Storage Tank	Metal Drum	Spill Pallet	65	-	Yes	Monthly
555-3	Boatyard	55	Waste-4 Stroke oil	Portable Storage Tank	Metal Drum	Spill Pallet	65	-	Yes	Monthly

Table 8- UCen

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
558	UCen	225	Diesel No. 2	Generator Fuel Tank	Belly Tank	Double-walled	-	-	Spill Kit During Fill	Monthly

Table 9- Communication Services

AST-ID	Location	Capacity (gallons)	Contents	Tank Type	Tank Description	Secondary Containment	Containment Volume (gallons)	Spill Prevention Device	Spill Kit?	Inspection Frequency
574	Communications	300	Diesel No. 2	Generator Fuel Tank	Generator Belly-Tank	-	-	-	Spill Kit During Fill	Monthly

Appendix B

UCSB Staff Contacts

Department/Organization	Name	Title	Number (Area code 805)
Administrative Services	Renee Bahl	Associate Vice Chancellor Design, Facilities & Safety Services	893-2770
Environmental Health and Safety	John Sterritt	Director of Environmental Health & Safety, Risk, and Emergency Services	893-2040
	Ali Aghayan	Environmental Health Program Manager	893-8533
	Jodi Switzer*	Environmental Compliance Manager	893-7014 450-6548 (cell)
	Nicholas Bruce	Environmental Compliance Specialist	893-8997
	Bruce Carter	Hazardous Waste Program Manager	893-3293
Design and Construction Services	Jennifer Pierce, P.E.	Project Manager	893-4535
Facilities Management	David McHale	Director, Facilities Management Facilities Management	893-4610
	Jim Morrison	Superintendent, Electrical Services Facilities Management	451-9306
	Maurice Startzman	Compliance Manager Facilities Management	451-4381
Housing & Residential Services	Brian Graham	Director, Residential Operations	893-7265
	Mark Rousseau	Energy & Environmental Manager	893-3092
	Danny Mann	Associate Director, Maintenance	893-4848
Transportation Services	John Behlman	Fleet Manager	893-5416
	Doug Hatt	Garage Supervisor	893-8119
Ecology, Evolution, and Marine Biology	Christoph Pierre	Director, Marine operations	893-2873
	Terry Marchiando	EEMB Shop Superintendent	893-2513
	Michael O'Connell	Mechanician	893-7181
University Center	Gary Lawrence	Director, University Center & Events Center	893-3781
	Hugo Rios	UCEN Building Maintenance Manager	451-4204
	John Lazarus	Assistant Director, UCen Dining Services	893-2465

Note: * Primary point of contact

Appendix C

Required Elements of the SPCC Plan

Section of the Regulation			UCSB SPCC Section
Subpart A – Applicability, Definitions, and General Requirements for All Facilities and All Types of Oils			
112.1	General Applicability		

	(a) – (f)	• To prevent the discharge of oil from non-transportation-related onshore facilities into or upon the navigable waters of the US
		  • Engaged in using or consuming oil and oil products, which due to its location, could reasonably be expected to discharge oil in quantities that may be harmful, into or upon the navigable waters of the US or adjoining shorelines
		• Applies to facilities that has oil in:
		  • Any aboveground container
		  • Any container used for standby storage, for seasonal storage, or for temporary storage, or otherwise not permanently closed
		• As provided in section 313 of the Clean Water Act, departments, agencies, and instrumentalities of the Federal government are subject to the same extent as any person
		• (e) SPCC Plan:
		  • Designed to complement existing laws, regulations, rules, standards, policies, and procedures pertaining to safety standards, fire prevention, and pollution prevention rules
		  • The purpose is to form a comprehensive Federal/State spill prevention program that minimizes the potential for discharges
		  • Must address all relevant spill prevention, control, and countermeasures necessary at the specific facility
			2.0 Introduction
			2.1 Purpose
			2.2 SPCC Plan Organization

112.2	Definitions		
112.3	Requirement to Prepare and Implement a SPCC Plan		
	(d)	• A Licensed Professional Engineer must review and certify the Plan for it to be effective	1.1 Licensed Professional Engineer Certification

	(e)	• If you are the owner or operator of a facility you must:
		  • Maintain a complete copy of the Plan at the facility
		  • Have the Plan available to the Regional Administrator for on-site review
			2.3 Regulatory Background

	(f)	• Qualified Facilities
		  • Tier 1 – has no individual aboveground oil storage container with a capacity greater than 5,000 gallons
		  • Tier 2 – has had no single discharge exceeding 1,000 gallons or no two discharges each exceeding 42 gallons within any twelve month period in the three years prior to the SPCC Plan self-certification date
			UCSB does not qualify as a Tier 1 facility because our inventory includes a 6,000 AST that supports the Transportation gasoline dispensing facility. UCSB currently qualifies as a Tier 2 facility but will continue to have the SPCC Plan certified by a PE.

112.4	Amendment of SPCC Plan by Regional Administrator		
	(a)	• If the UCSB facility discharges 1,000 gallons of oil in a single discharge or discharged more than 42 gallons of oil in each of two discharges occurring within any twelve month period, staff will notify the Regional Administrator within 60 days from the time the facility becomes subject to this section (from the time of the spill)	8.4 Prescribed Notifications

Section of the Regulation			UCSB SPCC Section	
	(b) – (f)	• If notification is made to the Regional Administrator, UCSB staff must comply with (b) – (f)	1.4	Record of Reviews and Amendments
112.5	Amendment of SPCC Plan by Owners or Operators			
	(a)	• When there is a change to the UCSB facility design, construction, operation, or maintenance that materially affects its potential for a discharge, staff will amend the SPCC Plan in accordance with the requirements in 40 CFR 112.7 • An amendment made under this section must be prepared within 6 months, and implemented as soon as possible	1.4	Record of Reviews and Amendments
	(b)	• UCSB staff will complete a review and evaluation of the SPCC Plan at least once every 5 years • As a result of the review, UCSB staff will amend the SPCC Plan within 6 months and implement the changes as soon as possible • Completion of the review will be recorded in the SPCC Plan	1.4	Record of Reviews and Amendments
	(c)	• When necessary, amendments to the SPCC Plan will be certified by a PE	1.4	Record of Reviews and Amendments
112.6	Qualified Facilities Plan Requirements			
	(a)	• Tier I Qualified facilities	UCSB does not qualify as a Tier 1 facility.	
	(b)	• Tier II Qualified facilities	UCSB qualifies as a Tier II facility but, at this time, has chosen to develop the UCSB SPCC Plan and that will be certified by a PE.	
112.7	General Requirements for SPCC Plans			
	(a)(1)	• The SPCC Plan must have full approval of management	1.2	Approval of Management
		• Must prepare the SPCC Plan in writing • If you do not follow the sequence specified in this section, you must prepare an equivalent Plan acceptable to the Regional Administrator that meets all of the applicable requirements listed in this part, and you must supplement it with a section cross-referencing the location of the requirements • Discuss the requirements in this section in separate paragraphs of your SPCC Plan	2.2	SPCC Plan Organization
	(a)(2)	• Comply with this section if the SPCC Plan deviates from other requirements of Section 112.7	2.2	SPCC Plan Organization
	(a)(3)	• Describe the physical layout of the UCSB facility	3.0	UCSB Overview
		• Diagram of the UCSB facility	4.0	Oil Storage Facilities
		• Oil containers (type of oil, capacity, stationary, and portable)	4.0	Oil Storage Facilities
		• Discharge prevention measures including procedures for routine handling of products (loading, unloading, and facility transfers, etc.)	5.0	Transfer Operations
		• Discharge or drainage controls (secondary containment)	4.5	Secondary Containment
			4.0	Oil Storage Facilities
		• Countermeasures for discharge discovery, response, and cleanup	6.0	Emergency Response

Section of the Regulation			UCSB SPCC Section	
		• Methods of disposal	8.2	Containment and Cleanup
		• Contact list and phone numbers	1.5	University Departments and Coordination
			8.3	Spill Notification
	(a)(4)	• Procedure for reporting a discharge	8.0	Emergency Response
	(a)(5)	• Procedures for responding to a discharge	8.0	Emergency Response
	(b)	• Prediction of certain info for containers that you think have a high potential for a discharge	2.3	Regulatory Background
	(c)	• To prevent a discharge, provide appropriate containment and or diversionary structures	4.5	Secondary Containment
			4.0	Oil Storage Facilities
			6.0	Inspection
		• Include an oil contingency plan	8.0	Emergency Response
	(e)	• Inspections, tests, and records (maintain records for 3 years)	6.0	Inspection
	(f)	• Personnel, training, and discharge prevention procedures	7.1	Personnel Training
	(g)	• Security	4.8	Security
	(h)	• Procedures for Tank Truck refilling a storage tank	5.0	Transfer Operations
	(i)	• Field-constructed tanks	2.2	SPCC Plan Organization
	(j)	• Discussion of relevant State and local regulations	2.3	Regulatory Background
	(k)	• Qualified Oil-filled Operational Equipment – alternative secondary containment	4.5	Secondary Containment
Subpart B – Requirements for Petroleum Oils and Non-Petroleum Oils and Non-Petroleum Oils (No Animal or Vegetable Fats or Greases)				
112.8	SPCC Plan Requirements for Onshore Facilities (Excluding Production Facilities)			
	(b)	• Facility drainage	4.0	Oil Storage Facilities
	(c)	• Bulk storage containers	4.1	Bulk Storage Tanks
	(d)	• Facility transfer operations, pumping, and facility process	5.0	Transfer Operations
112.9	SPCC Plan Requirements for Onshore Oil Production Facilities		Does not apply to UCSB	
112.10	SPCC Plan Requirements for Onshore Oil Drilling and Workover Facilities		Does not apply to UCSB	
112.11	SPCC Plan Requirements for Offshore Oil Drilling, Production, or Workover Facilities		Does not apply to UCSB	
Subpart C – Requirements for Animal Fats and Oils and Greases, and Fish and Marine Mammal Oils; and for Vegetable Oils, including Oils from Seeds, Nuts, Fruits, and Kernels				
112.12	SPCC Plan Requirements			
	(b)	• Facility drainage	4.0	Oil Storage Facilities
	(c)	• Bulk storage containers	4.1	Bulk Storage Tanks
	(d)	• Facility transfer operations, pumping, and facility process	5.0	Transfer Operations

Appendix D

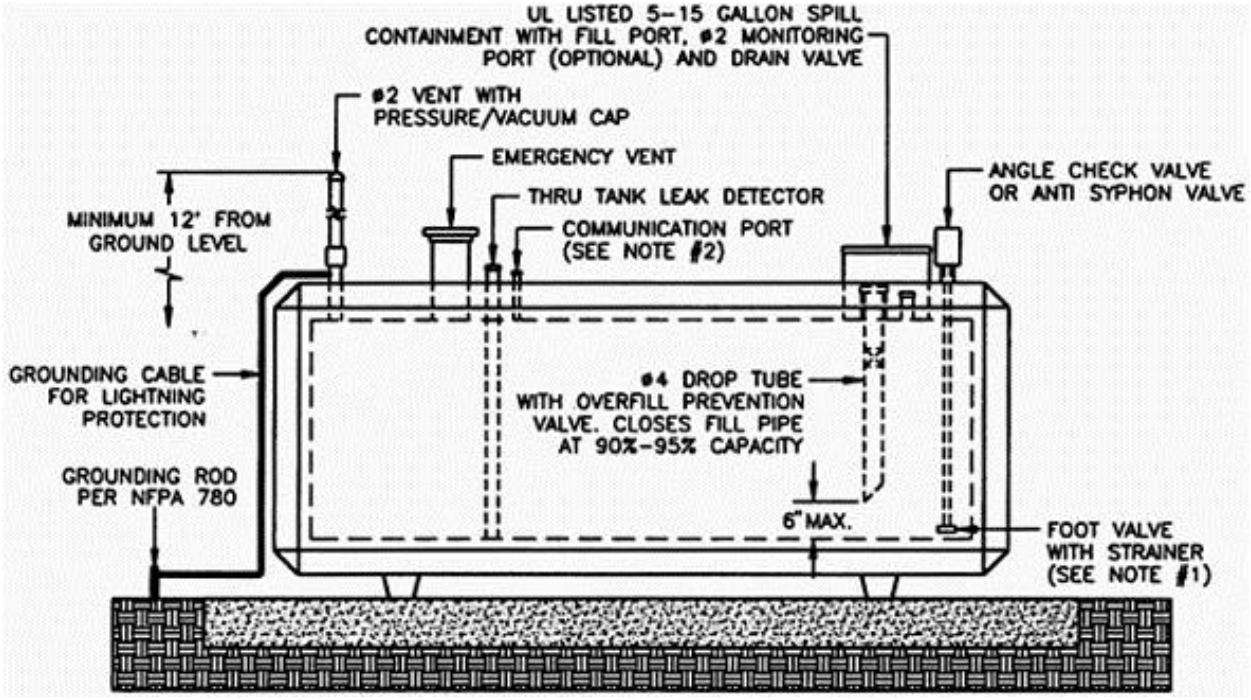


Figure 1- Convault Tank Diagram

Figure 2- ESB Diesel Tank, AST-ID 225-2

Figure 3- FM Grounds Diesel Tank, AST-ID 340-2

Figure 4- Main Lift Station Emergency Generator Stand Alone Tank, AST-ID 529-2

Figure 5- Marine Science Diesel Tank, AST-ID 555-4

Figure 6- Marine Science Lab Gasoline Storage Tank, AST-ID 555-1

Figure 7- EH&S Emergency Generator Tank (background) and Household Waste Oil Storage Tank (foreground), AST-ID 565-3

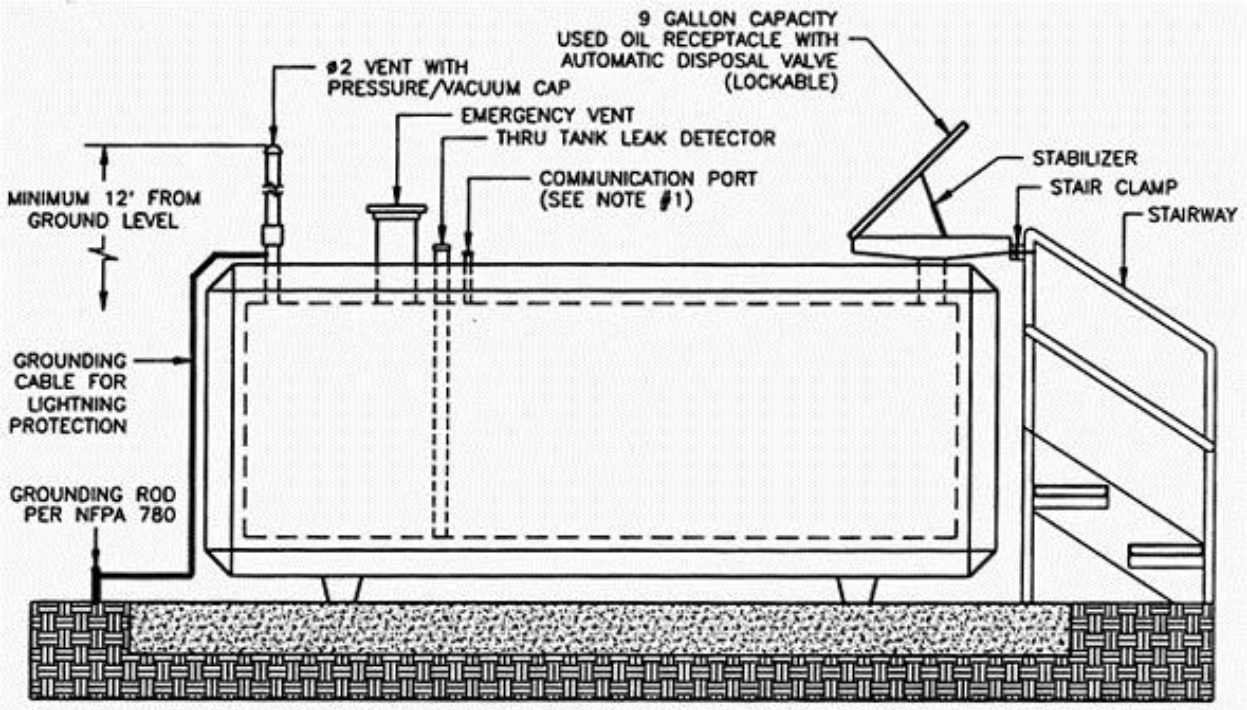


Figure 8- Enviorvault Tank Diagram

Figure 9- EH&S Emergency Generator Tank, AST-ID 565-12

Figure 10- Bio II Diesel Tank, AST-ID 571-2

Figure 11- Pump House Diesel Tank, AST-ID 585

Figure 12- FM Portable Diesel Fuel Tank, AST-ID 594-1

Figure 13- Transportation Services Gasoline Storage Tank, AST-ID 595-4

Figure 14- Transportation Services Motor Oil and Transmission Oil Tanks, AST-IDs 595-1, 595-2, 595-6, 595-7

Figure 15- Transportation Services Used Oil Tank, AST-ID 595-5

Figure 16- PSBN Emergency Generator Standalone Tank, AST-ID 657-2

Figure 17– Santa Catalina Fire Pump Tank, AST-ID 860-2

Appendix E

STANDARD FOR THE INSPECTION OF ABOVEGROUND STORAGE TANKS

SP001
ISSUED SEPTEMBER 2011
5th EDITION

Steel Tank Institute
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TABLE OF CONTENTS

PREFACE

The Steel Tank Institute (STI), formed in 1916, is a not-for-profit organization whose purpose is to secure co-operative action in advancing by all lawful means the common purposes of its members and to promote activities designed to enable the industry to conduct itself with the greatest economy and efficiency. It is further the purpose of STI to cooperate with other industries, organizations and government bodies in the development of reliable standards which advance industry manufacturing techniques to solve market-related problems.

This Standard was developed by the Steel Tank Institute AST Inspection Standards Committee, comprised of the following members and alternates:

Chuck Travelstead, Chair
Brown-Minneapolis Tank
Innovative Tank Solutions
Albuquerque, NM

Bill Herdman, Co-Chair
Kennedy Tank & Manufacturing Co.
Indianapolis, IN

John Albert
Missouri Department of Agriculture
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1.0 GENERAL

1.1 This Standard provides inspection and evaluation criteria required to determine the suitability for continued service of aboveground storage tanks (AST) until the next scheduled inspection. The purpose of conducting inspections is to identify the condition of and changes to the AST.

1.2 This Standard is intended for use by organizations and/or individuals who are knowledgeable and experienced in aboveground tank inspection. Note that the items included in this Standard are minimum requirements; other documents may have requirements that are more stringent. When applicable federal, state and local laws and regulations concerning tank inspection are more stringent than the requirements of this Standard, then these laws and regulations shall apply.

1.3 **OTHER STANDARDS**

1.3.1 Only aboveground tanks included in the scope of this Standard are applicable for inspection per this Standard.

1.3.2 Other standards, recommended practices and other equivalent engineering and best practices exist that provide alternative inspection requirements for tanks defined within the scope of this Standard and for tanks outside the scope of this Standard. For example, see API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*, for additional information pertaining to tanks built to API Standard 650 and API Specification 12C tanks; and API 12R1, *Recommended Practice for Setting, Maintenance, Inspection, Operation, and Repair of Tanks in Production Service*, for tanks employed in production service or other similar service.

1.4 **OWNER'S RESPONSIBILITY**

1.4.1 The owner is responsible for compliance with fire codes, local ordinances, and other applicable rules and regulations. The owner may want to retain assistance from specialists to aid in regulatory compliance, safe operations and installations in accordance with recognized industry standards.

1.4.2 The owner shall verify that persons working on ASTs understand and address the hazards associated with the contents of the ASTs, as well as safe entry and procedures associated with those ASTs.

1.4.3 The owner's inspector is responsible for performing the periodic AST inspections and documenting the results in accordance with this Standard.

1.4.4 The owner has the responsibility to address corrective actions identified in inspection reports.

1.5 **SCOPE**

1.5.1 This Standard applies to the inspection of aboveground storage tanks. These storage tanks include shop-fabricated tanks, field-erected tanks and portable containers as defined in this Standard, as well as their containment systems. The requirements for field-erected tanks are covered separately in Appendix B.

1.5.2 This Standard applies to ASTs storing stable, flammable and combustible liquids at atmospheric pressure with a specific gravity less than approximately 1.0.

1.5.3 This Standard applies to ASTs storing liquids with operating temperatures between ambient temperature and 200 degrees F (93.3°C).

1.6 At a minimum, the following tank components shall be inspected (as applicable):

- Primary tank
- Secondary tank
- Tank supports
- Tank anchors
- Tank foundation and external supports
- Tank gauges and alarms
- Overfill valves and alarms
- Insulation covering
- Tank appurtenances
- Normal vents
- Emergency vents
- Release prevention barriers
- Spill control systems

2.0 DEFINITIONS

ABOVEGROUND STORAGE TANK (AST) – a tank or container designed to operate at pressures ranging from atmospheric pressure through a gauge pressure of one psig measured at the top of the tank. The tank may be sitting on the ground or set on supports, such as saddles, skids or legs, etc., and may be installed in a vault. Included are shop-fabricated tanks, field-erected tanks, and portable containers with a capacity of 55 U.S. gallons (208 liters) or greater.

CONTINUOUS RELEASE DETECTION METHOD (CRDM) – a means of detecting a release of liquid through inherent design. CRDM is passive because it does not require sensors or power to operate. Liquid releases are visually detected by facility operators. The system shall be designed in accordance with good engineering practice. Several acceptable and commonly used CRDM systems are as follows:

- Release prevention barrier (RPB) (described in definition of release prevention barrier).
- Secondary containment AST, including double-wall AST or double-bottom AST.
- Elevated AST, with or without release prevention barrier.

CORROSION RATE – the rate of degradation of materials due to chemical reactions with their environment. The rate of corrosion is established by the Certified Inspector as the maximum shell thickness loss divided by the operational service time.

CERTIFIED INSPECTOR – a tank inspector who meets the certification requirements identified in Section 4.2 of this Standard.

DOUBLE-WALL AST – An AST manufactured as a tank-within-a-tank. An interstitial (annular) space between the two tanks is formed, which allows for testing of both tanks for tightness as well as monitoring for leakage into the space.

ELEVATED AST – an AST which is not in contact with the ground and which is raised above the surface of the ground or bottom of a vault using tanks supports. An elevated AST allows for a visual external inspection of the bottom of the primary tank. Examples of elevated tanks are tanks constructed on grillage or grating, or tanks on supports.

FIELD-ERECTED AST – a welded carbon or stainless steel AST erected onsite where it will be used. For the purpose of this Standard, ASTs meeting either of the following descriptions are to be inspected as field-erected ASTs:

a. An AST where the nameplate (or other identifying means, such as accurate drawings) indicates that it is a field-erected AST. These are limited to a maximum shell height of 50 feet (15.24 meters) and a maximum diameter of 30 feet (9.14 meters).
b. An AST without a nameplate (or other identifying means such as accurate drawings) that is more than 50,000 U.S. gallons (189,271 liters) and a maximum shell height of 50 feet (15.24 meters) and a maximum diameter of 30 feet (9.14 meters).

FORMAL EXTERNAL INSPECTION (FEI) – a documented external inspection conducted by a Certified Inspector to assess the condition of the AST and determine its suitability for continued service without entry into the AST interior.

FORMAL INTERNAL INSPECTION (FII) - a documented internal inspection conducted by a Certified Inspector to assess the internal and external condition of the AST and determine its suitability for continued service. FII includes the inspection requirements of a Formal External Inspection. A Formal Internal Inspection satisfies the requirements of a Formal External Inspection and shall be considered equivalent to or better than a Formal External Inspection for the purposes of scheduling.

INSPECTION PLAN – a written plan developed by the owner or a Professional Engineer that details the inspection requirements for a facility.

INTERSTICE – in a double-wall AST, the space between the primary tank and secondary tank; in a double-bottom AST, the space or void between the two bottoms. This space may be open or closed to the atmosphere and may be monitored or tested by vacuum or leak detection equipment or by visual inspection.

LEAK TESTING METHOD (LTM) – a point-in-time test method to determine if an AST is liquid-tight. Leak testing is not preventative: it provides an indication only if the AST's integrity has already been breached. Therefore, it may only be used as a tank integrity measure or as a supplement to other inspection procedures. LTMs may include the following technologies:

- Gas pressure decay (includes vacuum decay)
- Gas pressure soap bubble testing
- Gas tracers (e.g., helium tracer)
- Soil tracers (chemical marker)
- Mass measurement
- Level measurement
- Hydrostatic test

LOCKOUT/TAGOUT – a procedure for affixing lockout or tagout devices to energy isolating equipment and for otherwise disabling machines or equipment to prevent unexpected energization, startup or release of stored energy. The intent of the procedure is to prevent injury to employees and to comply with the following OSHA (Occupational Safety & Health Administration) regulations or their equivalent:

- 29 CFR part 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*
- 29 CFR part 1910.331 to 1910.333, *Electrical Lockout/Tagout.*

MAGNETIC FLUX LEAKAGE (MFL) – a method used to nondestructively inspect ferromagnetic materials such as a carbon steel floor plate. A magnetic field is applied to steel to near-saturation, so that it cannot hold any additional field. In the presence of a flaw (wall thinning), some of the magnetic flux escapes or "leaks" into the surrounding environment, where magnetic sensors detect it and quantitatively report a flaw signal. Once the flaw is detected and identified, an ultrasonic thickness scan (UTS) is required in the area to quantify the flaw. This method is commonly used on AST floors (MFL floorscan) to determine the underside condition of the tank floor.

MANWAY – an opening designed to allow personnel entry into an AST.

MICROBIAL-INFLUENCED/INDUCED CORROSION (MIC) – corrosion accelerated/caused by certain microbes. Depending on the type of bacteria, the degree of microbial activity, and the thickness and type of AST material, MIC is characterized by a high rate of corrosion. It sometimes penetrates tank walls and bottoms in two years or less. It is typically characterized by a ring-like pattern of cone or crater-shaped penetrations.

NONDESTRUCTIVE EXAMINATION (NDE) – the development and application of technical methods to examine materials and/or components in ways that do not impair future usefulness and serviceability, in order to detect, locate, measure, interpret and evaluate flaws.

OVERFILL PREVENTION - Systems, procedures or devices used to prevent liquid in ASTs from running over or spilling out of the AST during the filling process. A person who is physically present and in control of a shutoff device during the entire tank filling process is an acceptable procedure to achieve overfill protection.

OWNER - the legal entity having control and responsibility for the operation of the existing AST and storage facilities.

OWNER'S INSPECTOR – the owner or owner's designee responsible for conducting owner's periodic AST inspections.

PAINT FAILURE – significant peeling, cracking, spalling, blistering, pitting and chipping, etc. of the paint or coating on an AST, resulting in the exposure of the metal surface and corrosion of the tank shell.

PERIODIC AST INSPECTION - a visual, documented inspection conducted by an owner's inspector, to assess the AST's general condition, without suspending AST operations or removing the AST from service.

PORTABLE CONTAINER - a closed AST having a liquid capacity equal to or greater than 55 U.S. gallons and not intended for fixed installation.

PRIMARY TANK – the tank in direct contact with the liquid stored.

PROFESSIONAL ENGINEER (PE) – a person who has fulfilled specific education and/or experience requirements under state licensure laws and has received a license to practice engineering.

RELEASE PREVENTION BARRIER (RPB) – a liquid containment barrier that is installed under the AST. Its purpose is to divert leaks toward the perimeter of the AST where they can be easily detected, as well as to prevent liquid from contaminating the environment. RPBs are composed of materials compatible with the liquid stored in the AST and meet appropriate engineering standards. Examples are steel (as in steel double-bottom tanks), concrete, elastomeric liners or other suitable materials, provided the above criteria are met.

REMOTE IMPOUNDING - a spill control system that uses a sloped spillway to channel liquid releases away from an AST to a contained collection area that is remote from important facilities, adjoining property or waterways. The containment area is sized for the capacity of the largest AST plus sufficient freeboard to allow for precipitation. For the purposes of this Standard, remote impounding is equivalent to secondary containment. Remote impounding is further defined in NFPA 30.

SECONDARY CONTAINMENT SYSTEM - provides a secondary means of containment for the entire volumetric capacity of the largest single AST within a common dike/berm plus sufficient freeboard to contain precipitation. The secondary containment system is to be designed to contain a spill until it can be discovered and cleaned up. It must be constructed according to accepted good engineering practices. (Note: See NFPA 30 and/or 40 CFR Part 112 and other local requirements for additional definitions.)

SECONDARY CONTAINMENT DIKE/BERM – a spill control system consisting of walls and a floor completely surrounding single/multiple ASTs. It provides a secondary means of containment for the entire capacity of the largest single AST plus sufficient freeboard to contain precipitation and the displacement volume present below the dike wall of other ASTs in the containment area. The secondary containment dike/berm is to be constructed according to accepted good engineering practices.

SECONDARY CONTAINMENT AST – an AST with an integral secondary containment dike. These dikes may be pans, boxes or containers, and are designed to contain the contents of the primary tank if it fails. A secondary containment AST may be open or closed to the atmosphere. If precipitation cannot readily enter the integral secondary containment, then the containment need only be sized for the primary tank volume. If precipitation can enter the secondary containment, then the secondary containment is sized to contain the primary tank volume plus with sufficient freeboard to contain precipitation.

SECONDARY TANK – the outer wall of a double-wall AST.

SHELL – for the purposes of this Standard, the AST shell includes the roof, bottom, head or wall of the AST.

SHOP-FABRICATED – a welded carbon or stainless steel AST fabricated in a manufacturing facility, or an AST not otherwise identified as field-erected with a volume less than or equal to 50,000 U.S. gallons (189,271 liters).

SINGLE-WALL AST – an AST with only one wall or shell.

SPILL CONTROL - a means of preventing a release of liquid to the environment, including adjoining property and waterways. Spill control methods include :

- Remote impounding
- Secondary containment dike/berm
- Secondary containment AST
- Secondary containment system

SUITABILITY FOR CONTINUED SERVICE – the determination that an AST's condition is adequate for continued use based on the criteria presented in this Standard.

TANK IN CONTACT WITH THE GROUND – an AST that does not include a release prevention barrier and has some part of its primary tank shell in direct contact with the ground or soil. Therefore, direct inspection of all exterior surfaces of the AST cannot be conducted from the tank exterior.

TANK SUPPORTS – structures designed to elevate an AST above the ground. These include saddles, skids, beams, legs, and similar structures.

ULTRASONIC TESTING SCAN (UTS) – an ultrasonic scan to evaluate the corrosion on the opposite side of the inspection surface using an ultrasonic flaw detector. This inspection is to be performed by an NDT examiner certified in accordance with ASNT-TC-1A (or equivalent), per paragraph 4.3.2 of this Standard.

ULTRASONIC THICKNESS TESTING (UTT) – a point thickness reading taken by a competent person, per paragraph 4.3.3 of this Standard, utilizing a digital ultrasonic thickness meter.

3.0 SAFETY CONSIDERATIONS

3.1 The hazards associated with cleaning, entry, inspection, testing, maintenance or other aspects of ASTs are significant. Safety considerations and controls should be established prior to undertaking physical activities associated with ASTs.

3.2 This Standard does not address all applicable health and safety risks and precautions with respect to particular materials, conditions or procedures. Information concerning safety and health risks and precautions should be obtained from applicable standards, regulations, and suppliers of materials and material safety data sheets.

3.3 The following activities may be regulated. Consideration to the relevant requirements and best management practices shall be included in an inspection:

- Breaking lines, isolating, and release of equipment
- General work permit
- Hot work
- Lockout/tagout
- Gas testing
- Contractor safety
- Respiratory protection
- Tank cleaning, repair, and dismantling
- Confined space entry

3.4 Plans to enter an AST require development or use of appropriate safety procedures, precautions and requirements. The owner, the contractors and all persons associated with the AST inspection, cleaning or entry, shall review these safety procedures prior to the start of work.

3.4.1 Before the inspection begins, check for the accumulation of harmful vapors around and in the AST. Refer to the following documents for additional information:

- NFPA 326, *Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning or Repair*
- API RP 2015, *Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks*

- API RP 2016, *Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks*

3.4.2 Each AST entry requires an Emergency Action Plan (EAP). The owner and contractor must develop the EAP together. The EAP describes the actions required for personal safety from fire and other emergencies and includes the following requirements, as well as others:

- SCBA (self contained breathing apparatus) and lifelines on site, as well as rescuers trained in their use.
- Establishment and review of emergency escape routes and procedures with authorized entrants.
- Establishment of an assembly area and procedures to account for all authorized entrants after emergency evacuation is complete.
- Establishment of rescue and first-aid duties for those authorized entrants assigned to perform them.

3.4.3 After plans, procedures and administrative controls are in place and before entering the AST, isolate the AST by locking out and tagging all energy sources associated with the AST. Line isolation shall be at the closest practical flange to the equipment or space. Lockout/tagout establishes a procedure for affixing lockout or tagout devices to energy-isolating equipment and for otherwise disabling machines or equipment to prevent unexpected energization, startup or release of stored energy. Its intent is to prevent injury to employees, and to comply with the following OSHA regulations or their equivalent:

- 29 CFR part 1910.147, *The Control of Hazardous Energy (Lockout/Tagout*)
- 29 CFR part 1910.331 to 1910.333, *Electrical Lockout/Tagout*
- 29 CFR part 1910.146, *Permit-required Confined Spaces*

3.4.4 The atmosphere inside the space must be tested and confirmed safe before authorized entrants may enter without wearing supplied-air respiratory protection or SCBA. Continuous atmospheric monitoring is best. At minimum, test the space for the following, and in the following order:

3.4.4.1 Oxygen

3.4.4.2 Flammable vapors

3.4.4.3 Toxics

3.5 Inspect the roof and support structures for soundness. Inspect stairs, ladders and platforms to determine that they can safely support equipment and people before accessing them. Corrosion may first attack the deck plate at the edge of a fixed roof and at the rafters in the center of the roof. Therefore, in addition to entry hazards, there are those associated with the access to AST roofs. For AST roofs where one side is not visible, it may be necessary to check the plate thickness with ultrasonic instrument or hammer test it to verify its adequacy. If there is a doubt, place planks that span structural members on the roof and walk on the planks instead of directly on the roof. These same hazards may also apply to other AST walking surfaces, such as the surfaces of floating roofs. Guidance for this is covered in API RP 2016, *Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks*.

3.6 A safety analysis shall be conducted prior to a leak test. Some leak testing scenarios may be hazardous. For example, the leak test methods referenced in 9.1.1 require that either an inert gas be used or that the tank be thoroughly cleaned and gas free prior to testing and pressurizing an AST. Combining hydrocarbons with air generates a potentially hazardous atmosphere. Each test method may have unique hazards; these shall be considered and addressed in a pre-test safety plan prior to testing activities. A qualified person shall review the safety plan.

4.0 AST INSPECTOR QUALIFICATIONS

4.1 OWNER'S INSPECTOR QUALIFICATIONS

4.1.1 Periodic Inspections are to be performed by an owner's inspector.

4.1.2 The personnel performing these inspections shall be knowledgeable about storage facility operations, the type of AST and its associated components, and characteristics of the liquid stored. Owner's inspectors must also be familiar with pumping, piping and valve operations of the AST system.

4.2 CERTIFIED INSPECTOR QUALIFICATIONS

4.2.1 Formal External (FEI) and Formal Internal Inspections (FII) are to be performed by a Certified Inspector.

4.2.2 A Certified Inspector shall be certified by one or more of the following:

4.2.2.1 American Petroleum Institute (API) Standard 653 *Authorized Inspector Certification with STI SP001 Adjunct Certification*.

4.2.2.2 Steel Tank Institute (STI) *Certified SP001 AST Tank System Inspector*.

4.2.2.3 Additional certifications as may be required by individual states or other governing bodies.

4.3 NDT EXAMINER QUALIFICATIONS

4.3.1 Non-destructive test (NDT) examiner personnel performing non-destructive examinations shall meet the qualifications described below, but need not be certified in accordance with paragraph 4.2. The results of NDE work, however, must be considered in the evaluation of the tank by the Certified Inspector.

4.3.2 NDT personnel referenced within this Standard shall be qualified in accordance with their employer's written practices, which must be in accordance with the American Society for Nondestructive Testing's (ASNT) document SNT-TC-1A, *Personnel Qualification and Certification in Nondestructive Testing*," unless otherwise noted within this Standard.

4.3.2.1 Referenced within this Standard are the following nondestructive techniques. All inspectors performing the following inspection methods shall be certified per 4.3.2.

- MT – Magnetic particle testing
- RT – Radiographic testing
- UT – Ultrasonic testing
- MFL – Magnetic flux leakage
- PT – Penetrant testing

4.3.3 Testing personnel performing ultrasonic thickness (UTT) point readings are required to have the minimum training described in this paragraph to operate a digital ultrasonic thickness meter. A digital ultrasonic thickness meter is an ultrasonic unit which is only used to obtain a point thickness reading displaying the resulting specimen thickness. It does not cover the use of ultrasonic flaw detectors or interpretation of an A, B or C scan unit readout.

4.3.3.1 The operator of the digital ultrasonic thickness unit must be trained for a minimum of one hour by a person competent in the operation, calibration and set-up of the unit. Training is usually performed by the manufacturer or manufacturer's representative upon delivery of the unit. This training shall be documented and specifically state that the trainee has received at least one hour of training in the proper operation, calibration and set up of the unit. The unit manufacturer and model shall be noted on the documentation. The trainer shall sign his name on the documentation to attest that the training has been completed and the trainee is now proficient in the use of that ultrasonic digital meter. At the time of training, the trainee shall have all of the tools and materials needed to carry out the proper function of the meter. These tools and materials are as follows:

- Step wedge of the correct thickness range and material for the desired application.
- Ultrasonic couplant appropriate for the desired application.
- Ultrasonic transducer of the correct type, frequency and diameter for the desired application.

4.3.3.2 Testing personnel shall be aware of the many factors that affect performance and accuracy of a digital thickness meter, such as:

- Equipment calibration
- Surface roughness of test specimen
- Coupling technique
- Couplant
- Curvature of test piece
- Taper or eccentricity of the test specimen
- Acoustic properties of the material to be tested
- Temperature of the test specimen

4.3.3.3 Surface coatings can have a significant effect on the performance and accuracy of the thickness reading. It is recommended that the surface coating be removed in test areas. Alternatively, there are digital thickness meters specifically made for inspection of metal through coatings; these can be used without removal of the coating.

5.0 INSPECTION SCHEDULE

5.1 The owner shall use the AST's type, size and type of installation, corrosion rate and previous inspection history, if any, to develop a schedule of applicable types of inspections for each AST, per Table 5.5. The interval for the initial inspection shall begin from the AST's initial service date, if known. For the purposes of this requirement, the initial service date is the date on which liquid was first placed in the tank. If the initial service date is not known, the owner shall be responsible for establishing and documenting the initial service date.

5.2 Owners who have an inspection plan shall use this Standard to establish inspection criteria for ASTs described in this Standard, using the AST type, size and previous inspection history, type of installation and corrosion rate.

5.3 Certified inspectors using this Standard to conduct inspections shall use the AST type, size, previous inspection history, type of installation, corrosion rate and the schedule determined by the owner,.

5.4 **AST CATEGORIES USED IN TABLE 5.5**

5.4.1 Category 1 - ASTs with spill control, and with CRDM

5.4.2 Category 2 - ASTs with spill control and without CRDM

5.4.3 Category 3 - ASTs without spill control and without CRDM

5.4.4 Table 5.4 shows some typical tank types and their corresponding AST category

TABLE 5.4 EXAMPLE TANK CONFIGURATION AND AST CATEGORY

Tank Configuration	Tank has CRDM?	Tank has Spill Control?	AST Category
Single wall AST in contact with ground	no	no	3
Single wall AST in contact with ground	no	yes	2
Elevated tank	yes	yes	1
AST with RPB	yes	yes	1
AST with double-bottom	yes	yes	1
Double-wall AST with overfill prevention	yes	yes	1
Double-wall AST without overfill prevention	yes	no	3
Vertical tank resting on concrete (conforms with definition of RPB)	yes	yes	1
Vertical tank resting on concrete (conforms with definition of RPB)	yes	no	3

5.4 **IN TABLE 5.5 USE THE FOLLOWING DESIGNATIONS:**

5.5.1 P – Periodic AST inspection
Refer to Section 6

5.5.2 E – Formal External Inspection by Certified Inspector
Refer to Section 7

5.5.3 I – Formal Internal Inspection by Certified Inspector
Refer to Section 8

5.5.4 L – leak test by owner or owner's designee
Refer to Section 9

5.5.5 ( ) indicates maximum inspection interval in years. For example, E (5) indicates Formal External Inspection every 5 years.

TABLE 5.5 TABLE OF INSPECTION SCHEDULES

AST Type and Size (U.S. gallons)		Category 1	Category 2	Category 3
Shop-Fabricated ASTs	0 – 1100 (0-4164 liters)	P	P	P, E&L(10)
	1101 - 5,000 (4168-18,927 liters)	P	P, E&L(10)	[P, E&L(5), I(10)] or [P, L(2), E(5)]
	5,001 - 30,000 (18,931-113,562 liters)	P, E(20)	[P, E(10), I(20)] or [P, E(5), L(10)]	[P, E&L(5), I(10)] or [P, L(1), E(5)]
	30,001 - 50,000 (113,566-189,271 liters)	P, E(20)	P, E&L(5), I(15)	P, E&L(5), I(10)
Portable Containers		P	P	P**

** Owner shall either discontinue use of portable container for storage or have the portable container DOT (Department of Transportation) tested and recertified per the following schedule (refer to Section 9.0):
Plastic portable container - every 7 years
Steel portable container - every 12 years
Stainless Steel portable container - every 17 years

6.0 PERIODIC AST INSPECTIONS

6.1 Periodic AST inspections are to be conducted by owner's inspector. Checklists for periodic AST inspections are found in Appendix C of this Standard. These are to be used as a guide for recording inspection data.

6.2 The owner's inspector must meet the requirements of paragraph 4.1.

6.3 Review prior inspection, repair and alteration data before each inspection. Note special conditions for a particular AST.

6.4 The owner's inspector is to complete the *STI SP001 AST Record* for each AST or tank site as designated in the checklists. Note special conditions and changes or alterations to the tank.

6.5 The owner's inspector is to complete the *STI SP001 Monthly Inspection Checklist* each month. Take note of instructions on the checklist. Note special conditions.

6.6 The owner's inspector is to complete the *STI SP001 Annual Inspection Checklist* each year. Take note of instructions on the checklist. Note special conditions.

6.7 For portable containers, the owner's inspector is to complete only the *STI SP001 Portable Container Monthly Inspection Checklist* each month. Take note of the instructions on the checklist. Note special conditions.

6.7.1 As an alternative, if documentation is kept on-site for each portable container that indicates how long each has been kept at the facility, then the owner's inspector is to complete only the *STI*

SP001 Portable Container Monthly Inspection Checklist each month for containers onsite for 91 days or more. Take note of the instructions on the checklist. Note special conditions.

6.8 Additional requirements for field-erected tanks are included in Appendix B.

6.9 Refer to Section 10.0 for conditions that warrant immediate action.

6.10 By removing water or taking other corrective action on a regular basis, harmful MIC is prevented. Monitor for water accumulation monthly. If corrosion is found due to MIC, treat the AST with a proper biocide or otherwise sterilize the AST. In addition, take necessary steps to repair or remove the AST from service if warranted by the extent of the corrosion, per Section 10.0.

7.0 FORMAL EXTERNAL INSPECTION (FEI) GUIDELINES

7.1 GENERAL

7.1.1 Formal External Inspections are to be performed by Certified Inspectors, per paragraph 4.2.

7.1.2 These Guidelines are minimum inspection requirements. There are numerous AST configurations and components and it is the responsibility of the Certified Inspector to identify and properly inspect them to conform to the owner's requirements and/or industry standards. The inspector or the inspection company shall develop detailed checklists that identify, record and document all aspects of each inspection.

7.1.3 Review prior formal and periodic inspections, repair and alteration data before each inspection.

7.1.4 Record AST nameplate data, if available, and check the information included for accuracy against actual conditions. Record AST data, inspection findings, and problems identified.

7.1.5 Inspect the fabrication of the AST against applicable industry standards.

7.1.6 Inspect the AST foundations for indications of settlement, cracking, exposed rebar or general disrepair. Inspect for areas of wash-out and voids under the AST. Confirm that the ground is sloped away from the AST and that there is no soil resting against the side of the AST, covering parts of the shell or bottom extension. Inspect for standing water against the AST or the indication of drainage problems.

7.1.7 Visually inspect the condition of the AST's supports. Severe cracking or spalling of concrete supports shall be noted and evaluated. If there are pad plates between the supports and the shell, inspect the condition. Inspect the supports to be sure that they are sitting securely on the foundation or grade. If the supports are welded to the shell, inspect the welds for visible signs of stress or deterioration.

7.1.8 Identify and record the type and condition of the secondary containment, spill control and CRDM, if present.

7.1.8.1 Visually inspect the general condition of the containment area to be sure that it is in good condition and that there is not a breach in the containment structure. Note changes from the original design and installation information if available.

7.1.8.2 Inspect for foreign materials in the containment area. Inspect for liquid in the containment system and CRDM. If liquid is present, find the source and report findings. Record other ASTs or containers within the same containment area.

7.1.8.3 Make sure that the drain valves are operable and in good condition. Report penetrations through the secondary containment that may compromise the integrity of the containment area. Report penetrations that are likely to lead to failure of the secondary containment should the liquid level of water or liquid rise to these penetrations.

7.1.9 Inspect and verify the operability of ancillary equipment including the following items:

7.1.9.1 Inspect piping and piping connections for visible signs of stress or leakage, such as severe corrosion, rusted bolted connections or other severe degradation.

7.1.9.2 Inspect normal and emergency vents and pressure/vacuum devices. Verify that the devices are of adequate size and capacity, operable and in good condition. Refer to the device manufacturer's literature, typical industry venting requirements and other appropriate resources. Record the types and locations of these devices.

7.1.9.3 Inspect primary tank level gauge and secondary tank interstitial gauge for free movement and to determine if the floats, guides and attachments are in working order. Check that the liquid level gauge length is sized correctly for the tank diameter. Inspect the alarms connected to the level gauge for operability and for a complete loop and circuit from the primary sensor to the final annunciation or alarm point.

7.1.10 Inspect the bonding and grounding system of the AST, if present. (Refer to NFPA 780 *Standard for the Installation of Lightning Protection Systems.*)

7.1.11 Inspect stairways, handrails and platforms for broken welds, bent members and corrosion.

7.1.12 Inspect the coating on the AST shell, heads and supports for paint failure.

7.2 **DETERMINE THE ORIGINAL SHELL THICKNESS OF THE AST**. Suggested methods are:

7.2.1 Review the original tank documentation, such as drawings and packing lists.

7.2.2 Consult the tank manufacturer.

7.2.3 Examine the tank labels for evidence of a widely accepted tank standard, such as Underwriters Laboratories Standard UL 142, etc. Consult the referenced standard to determine the minimum design shell thickness.

7.2.4 Measure the tank thickness of several areas of the tank that have no visible corrosion or pitting. The average of these measurements will result in a minimum shell thickness measurement.

7.3 **HORIZONTAL AST**- Requirements in addition to the applicable items in 7.1:

7.3.1 Inspect shell plates and welds for indications of exterior corrosion, buckling or distortion, as well as for cracking, pinholes or mechanical damage. Inspect the shell of the AST and the ancillary equipment for signs of distortion and stress.

7.3.1.1 Take and record UTT readings and the location of the reading of each plate or shell course in areas accessible without entering the AST. Readings must be concentrated in areas where corrosion is likely to occur. If significant internal corrosion is detected, further investigation using ultrasonic testing scans (UTS) is required. If applicable, include areas marked from previous readings. Refer to Section 10.0.

7.3.2 Inspect shell attachments for changes made after the AST was fabricated. Refer to previous drawings or make new sketches that show all the appurtenances, attachments and nozzle locations on the AST shell and heads or roof. Record repads (reinforcing plates) and/or insert plates. Inspect attachment welds for signs of stress and corrosion.

7.4 **VERTICAL OR RECTANGULAR AST** - Requirements in addition to the applicable items in 7.1:

7.4.1 Shell surface – Refer to 7.3.1 and 7.3.2

7.4.2 Shell attachments – Refer to 7.3.2

7.4.3 Vertical AST roof - Inspect for low areas on the roof and standing water that may corrode the roof areas. Inspect for paint failure, holes and corrosion. Take UTT readings on the roof and record results. If possible, measure thicknesses in previously measured areas for corrosion rate determination. If significant corrosion is detected, further investigation using ultrasonic testing scans (UTS) is required. Refer to Section 10.0

7.5 **DOUBLE-WALL AND DOUBLE-BOTTOM AST** - Requirements in addition to the applicable items in 7.1:

7.5.1 Verify that the leak detection equipment or method is operating, if the tank is so equipped.

7.5.2 Check for leaks or the presence of liquid in the interstice.

7.5.3 Double-bottom ASTs require UTT readings of areas that are single-wall as described in paragraph 7.3.1.1 above. Double-wall ASTs do not require UTT readings.

7.6 **INSULATED AST** - Requirements in addition to the applicable items in 7.1 to 7.4:

7.6.1 Remove the insulation in areas where mold or moisture is present or points where moisture is likely to accumulate and examine the metal surface for signs of signification corrosion. Consider the wicking effect of water in the insulation, particularly in the lower exterior portion of the tank shell.

7.6.2 If insulation damage is suspected, remove sections of the insulation to check for corrosion. Continue removing the insulation until the extent and nature of the corrosion has been established.

7.6.3 Take UTT readings of the shell and record results including, if applicable, areas marked from previous readings. If significant internal corrosion is detected, further investigation using ultrasonic testing scans (UTS) is required. Refer to Section 10.0

7.7 Additional requirements for field-erected ASTs are included in Appendix B.

7.8 In the final report, include field data, measurements, pictures, drawings, tables and an inspection summary. In the summary, identify unacceptable conditions and recommended corrective actions. Determine the suitability for continued service of the AST per Section 10.0. Include the next scheduled Formal External Inspection (FEI) or Formal Internal Inspection (FII), as applicable. Include the inspector's name and certification number in the report.

8.0 FORMAL INTERNAL INSPECTION GUIDELINES

8.1 **GENERAL**

8.1.1 Formal Internal Inspections (FII) are to be performed by Certified Inspectors per paragraph 4.2.

8.1.2 These Guidelines are minimum inspection requirements. There are numerous AST configurations and components; it is the responsibility of the Certified Inspector to identify and properly inspect them to conform to the owner's requirements and/or industry standards. The inspector or the inspection company shall develop detailed checklists that identify, record and document all aspects of each inspection.

8.1.3 A Formal Internal Inspection includes the requirements of a Formal External Inspection with the addition of the requirements described below. Refer to paragraphs 7.1 to 7.7 for Formal External Inspection requirements.

8.1.4 Double-wall tanks and secondary containment tanks may be inspected by checking the interstice for liquid or by other equivalent methods.

8.1.5 For elevated ASTs where all external surfaces are accessible, the internal inspection requirements may be satisfied with an examination from the exterior by using such methods as UTS. For all other situations, entry into the interior of the AST is necessary to assess the condition of all surfaces.

8.2 **HORIZONTAL AST INTERNAL INSPECTION**

8.2.1 Identify, measure, inspect and record all AST internal appurtenances. Inspect for mechanical damage, corrosion, cracking, etc. Inspect for deteriorating or corroding internal attachments and piping. Take thickness readings of internal structures and record the readings.

8.2.2 Inspect the welds for cracking by visual inspection or, if necessary, by magnetic particle (MT) inspection or equivalent method.

8.2.3 Internal NDT Inspection

8.2.3.1 AST assessment:

8.2.3.1.1 Ultrasonic testing equipment that is capable of scanning the tank (UTS), rather than measuring only individual points (UTT), is the preferred method of testing. Personnel performing UTS are to be qualified per paragraph 4.3.2.

8.2.3.1.2 If ultrasonic testing equipment that is capable of scanning the tank (as described in 8.2.3.1.1) is not practical, use equipment that tests individual points. In this case, take UTT measurements of at least 15 points per each 12 inches x 12 inches (0.3 meters x 0.3 meters) square area of the shell that is in contact with the ground. Any questionable areas are to be assessed by UTS per 8.2.3.1.1.

8.2.3.2 Perform a vacuum box (VB) examination of questionable welds to check for leaks.

8.2.3.3 Refer to Section 10.0 for criteria for suitability for continued service.

8.3 **VERTICAL AND RECTANGULAR AST INTERNAL INSPECTION**

8.3.1 Identify, record, inspect and measure all AST internal surfaces and appurtenances. Inspect AST internals to check for mechanical damage, corrosion, cracking, etc. Check for deteriorating or corroding internal attachments and piping. Take thickness readings of internal structures and record the readings.

8.3.2 Inspect the welds for cracking by visual inspection or, if necessary, by magnetic particle (MT) inspection or equivalent method.

8.3.3 Internal NDT Inspection

8.3.3.1 AST floor thickness assessment is required as follows:

8.3.3.1.1 Complete coverage of the AST floor is recommended, due to random corrosion characteristics of metal in contact with the ground. Inspection of the AST floor is recommended using inspection methods capable of determining the underside floor condition, such as UTS, MFL followed by UTS of questionable areas, or other equivalent methods.

8.3.3.1.2 If ultrasonic testing equipment that is capable of scanning the tank (as described in 8.3.3.1.1) is not practical, use equipment that tests individual points. In this case, take UTT measurements of at least 15 points per each 12 inches x 12 inches (0.3 meters x 0.3 meters) square area of the shell that is in contact with the ground. Any questionable areas are to be assessed by UTS per 8.3.3.1.1.

8.3.3.2 Perform a vacuum box (VB) examination of questionable welds to check for leaks.

8.3.4 Refer to Section 10.0 for criteria for Suitability for Continued Service.

8.4 Additional requirements for field-erected ASTs are included in Appendix B.

8.5 **REPORT** - In the final report, include field data, measurements, pictures, drawings, tables and an inspection summary. Identify in the summary unacceptable conditions and recommended corrective actions. Determine the suitability for continued service of the AST. Include the time until the next scheduled Formal External and/or Formal Internal Inspection, as applicable. Include the inspector's name and certification number in the report.

9.0 LEAK TESTING METHODS (LTM)

9.1 **SHOP-FABRICATED AST LEAK TESTING PROCEDURE**.

9.1.1 Consult the Steel Tank Institute Recommended Practice R912, *Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable, Combustible Liquids.* Air shall not be used for a pressure test and an inert gas shall be used instead. The introduction of a gas containing oxygen (such as air) to a tank that has previously held petroleum liquid can pose an explosion hazard.

9.1.2 Vacuum testing of the interstice of double-wall or double-bottom tanks is an option. Refer to the Steel Tank Institute Recommended Practice R912, *Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable, Combustible Liquids*.

9.2 **PORTABLE CONTAINERS LEAK TESTING PROCEDURE.** Refer to DOT Sections 49 CFR 173.28 (Reuse, reconditioning and remanufacturing of packagings - mainly for drums) and Part 178 - 49 CFR Subpart O - Testing of IBC's (section 178.803 Testing and certification of IBC's) and 49 CFR 180.605, or equivalent, for portable container testing and recertification.

9.2.1 See the definition of Leak Testing Methods for more information.

10.0 SUITABILITY FOR CONTINUED SERVICE

10.1 Evaluation for suitability for continued service is a result of Formal External and/or Internal Inspections performed by a Certified Inspector. This section describes the recommended actions to be taken by the owner as a result of these inspections. These conditions and others found during these inspections may require additional inspections or evaluations.

10.2 **FORMAL EXTERNAL AND INTERNAL INSPECTIONS** (refer to AST categories in Section 5.0)

10.2.1 MIC – For all tanks in Table 5.5, if evidence of MIC is found at any time, then corrections and repairs shall be promptly made to the AST. Refer to Steel Tank Institute SP031 *Standard for Repair of In-Service Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids* for alterations or repairs to an AST. Conduct the next Formal External or Formal Internal Inspection no more than two years after the discovery of MIC.

10.2.1.1 When Table 5.5 allows Formal External Inspections to be performed in lieu of Formal Internal Inspections, then conduct the next Formal External Inspection no more than two years after the discovery of MIC.

10.2.1.2 If the re-inspection confirms that MIC has been mitigated due to measures taken to eliminate it, such as regular and careful water removal and sterilization of the tank and piping systems, then the AST may be inspected according to Table 5.5.

10.2.2 Category 3 ASTs - If the shell thickness has been reduced to less than 75% of the original shell thickness, then the AST shall be taken out of service and repaired or replaced. Refer to Steel Tank Institute SP031 *Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids* for alterations or repairs to an AST. The Certified Inspector shall document in the report that the next Formal External or Formal Internal Inspection shall be within 5 years and each subsequent 5 years thereafter until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested or is in a steady-state condition, then follow the inspection intervals shown in Table 5.5 for subsequent inspections.

10.2.3 Category 2 ASTs – The AST shall be repaired or replaced if more than 3 square inches of any one square foot of the tank shell (i.e. approximately 2%) is found to be less than 75% of the original shell thickness or if the remaining shell thickness of an area is less than 50% of the original shell thickness at any point. Refer to Steel Tank Institute SP031 *Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids* for

alterations or repairs to an AST. The Certified Inspector shall document in the report that the next Formal External or Formal Internal Inspection shall be within 5 years and each subsequent 5 years thereafter until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested or is in a steady-state condition, then follow the inspection intervals shown in Table 5.5 for subsequent inspections.

10.2.4 Category 1 ASTs - The AST shall be repaired or replaced if more than 3 square inches of any one square foot of the tank shell (i.e. approximately 2%) is found to be less than 50% of the original shell thickness or if the remaining shell thickness of an area is less than 25% of the original shell thickness at any point. Refer to Steel Tank Institute SP031 *Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids* for alterations or repairs to an AST. The Certified Inspector shall document in the report that the next Formal External or Formal Internal Inspection shall be within 5 years and each subsequent 5 years thereafter until the condition that caused the tank degradation has been fully corrected. When the tank degradation has been arrested or is in a steady-state condition, then follow the inspection intervals shown in Table 5.5 for subsequent inspections.

10.2.4.1 For Category 1 ASTs, alternatively, if the Certified Inspector establishes and documents a corrosion rate, the inspector may determine the next Formal External Inspection based upon corrosion rates. The calculated time until the next Formal External Inspection may exceed the values listed in Table 5.5 if corrosion rates allow.

10.2.4.2 Refer to API 575, *Inspection of Atmospheric and Low-Pressure Storage Tanks*, for some acceptable methods of determining corrosion rates.

10.2.4.3 Further, if the shell thickness is reduced anywhere to less than 25% of the original shell thickness, the AST shall be repaired or replaced. Refer to Steel Tank Institute SP031 *Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids* for alterations or repairs to an AST.

10.3 **OTHER TANK DAMAGE** – An AST subjected to damage caused by the following conditions requires evaluation by an engineer experienced in AST design or by a tank manufacturer who will jointly with the owner determine if an immediate Formal External or Internal Inspection is required:

- Fire - AST exposed to fire or flame impingement
- Natural disaster - AST exposed to flooding, hurricane force winds, etc. and has been lifted or damaged
- Excessive settlement - AST that has experienced excessive settlement
- Overpressure - AST exposed to excessive internal pressure caused by overfill or failure of venting devices or other reason
- Damage from cracking - AST with evidence of cracking of welds or of an AST surface

10.4 If a leak is discovered at any time by the owner or the inspector, the tank must be repaired, replaced or closed and removed from service, in accordance with accepted good engineering practice.

11.0 RECORDKEEPING

11.1 Retain each AST Record for the life of the AST.
11.2 Retain each Monthly Inspection Checklist for at least 36 months.
11.3 Retain each Annual Inspection Checklist for at least 36 months.
11.4 Retain each Portable Container Monthly Inspection Checklist for at least 36 months.
11.5 Retain all certified inspection reports for the life of the AST.

REFERENCES

American Petroleum Institute:

- API Standard 341, *A Survey of Diked-area Liner Use at Aboveground Storage Tank Facilities*
- API Standard 575, *Inspection of Atmospheric and Low Pressure Storage Tanks*
- API Standard 650, *Welded Steel Tanks for Oil Storage*
- API Recommended Bulletin D16, *Suggested Procedure for Development of a Spill Prevention Control and Countermeasure Plan*
- API 12R1, *Recommended Practice for Setting, Maintenance, Inspection, Operation and Repair of Tanks in Production Service*
- API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*.
- API RP 2015, *Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks*
- API RP 2016, *Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks*

American Society for Nondestructive Testing

- ANSI/ASNT Recommended Practice No. ASNT-TC-1A, *Guideline to Personnel Qualification and Certification in NDT*

National Fire Protection Association:

- NFPA 30, *Flammable and Combustible Liquids*
- NFPA 326, *Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair*
- NFPA 780, *Standard for the Installation of Lightning Protection Systems*

Steel Tank Institute:

- SP031, *Standard for Repair of Shop Fabricated Aboveground Tanks for Storage of Combustible and Flammable Liquids*
- STI-R893, *Recommended Practice For External Corrosion Protection of Shop Fabricated Aboveground Tank Floors*
- STI-R912, *Installation Instructions for Shop Fabricated Stationary Aboveground Storage Tanks for Flammable, Combustible Liquids*

Underwriters Laboratories Inc.

- UL 142, *Steel Aboveground Tanks for Flammable and Combustible Liquids*

United States Environmental Protection Agency:

- EPA 40 CFR part 112, *Oil Pollution Prevention and Response; Non-Transportation-Related Onshore and Offshore Facilities*
- EPA 510-K-95-002, *Musts for USTs.A Summary of Federal Regulations for Underground Storage Tank Systems*

United States Department of Labor, Occupational Safety & Health Administration (OSHA)

- 29 CFR Part 1910.147, *The Control of Hazardous Energy (Lockout/Tagout),*
- 29 CFR Part 1910.331 to 1910.333, *Electrical Lockout/Tagout*

United States Department of Transportation

- DOT Sections 49 CFR 173.28, *Reuse, Reconditioning and Remanufacturing of Packaging,*
- DOT part 178-49 CFR Subpart O, *Testing of IBC's*
- DOT 49 CFR part 178.803, *Testing and certification of IBC's*
- DOT 49 CFR part 180.605, *Portable container Testing and Recertification*

APPENDIX A
SUPPLEMENTAL TECHNICAL INFORMATION

1.0 TYPICAL AST DIAGRAMS

1.1 The diagram below shows terms commonly associated with ASTs. For the purposes of this Standard, all of these surfaces are called the "shell" of the AST to avoid confusion.

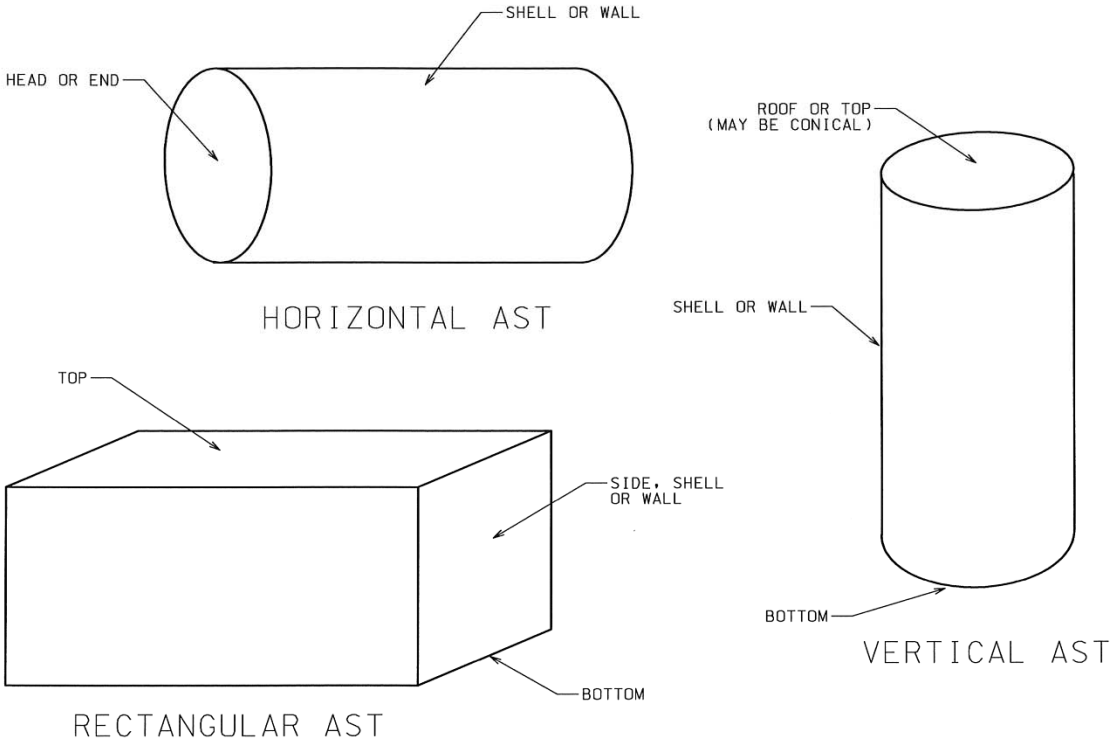

FIGURE A1.1

1.2 The diagram below is included to assist in the identification of the appurtenances of an AST. A specific tank may include some or all of these appurtenances.

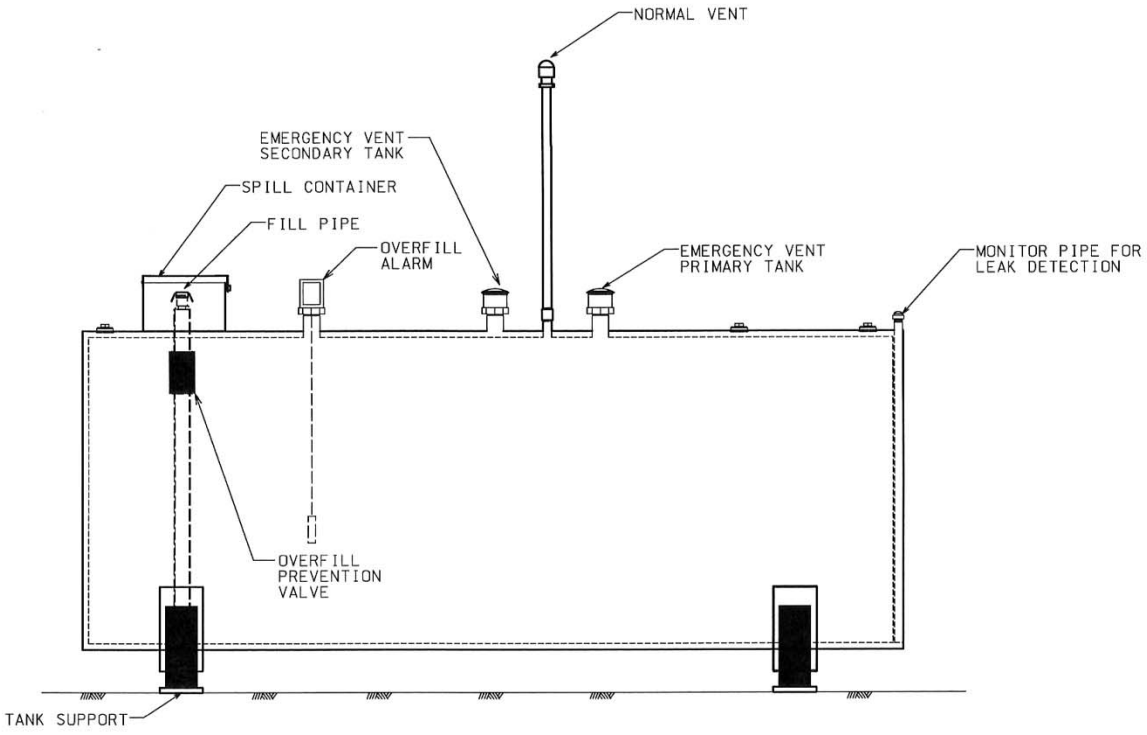

FIGURE A1.2

1.2.1 The purpose of these appurtenances is as follows:

1.2.1.1 Spill container – This tank accessory is designed to catch spills during tank filling operations. It typically has a lockable, hinged lid and allows spilled fluid to drain into the tank.

1.2.1.2 Tank vent – This tank accessory allows air to enter the tank when liquid is being withdrawn and exhausts air when the tank is being filled. This prevents damage to the tank due to too much pressure.

1.2.1.3 Overfill prevention valve – A specially designed device that provides positive shut-off at a predetermined value to prevent overfilling of an AST.

1.2.1.4 Overfill alarm – A device designed to alert personnel who are filling a tank when a predetermined level is reached.

1.2.1.5 Emergency vent (for primary and secondary tank) – These tank accessories prevent damage to the tank by allowing excess pressure to be vented. They are designed to relieve excess pressure in the event of an emergency, such as a fire.

1.2.1.6 Monitor pipe for leak detection –This pipe is installed in the air space (Interstice) between the primary tank and secondary tank of a double-wall tank. It is typically used with leak detection equipment to detect a leak in either the primary or the secondary tank.

1.2.1.7 Tank supports –These structures are used to elevate the tank off the ground.

2.0 WATER INSIDE ASTS

2.1 The functional life of an AST can be significantly extended by regularly checking for water accumulation inside an AST and interstice of a double-wall AST and removing it or taking other corrective action.

2.2 Water affects the quality of some stored liquids; therefore, remove the water or take other corrective action on a regular basis.

2.3 Bacteria may develop in the water and in certain stored liquids, such as petroleum liquids, and initiate microbial activity. Microbial activity can cause the formation of undesirable by-products, such as sludge and slime. Such activity will corrode metals and deteriorate plastics and may affect product quality.

3.0 RELEASE MANAGEMENT SYSTEM (RMS)

3.1 One of the basic purposes of AST inspection Standards is to minimize the likelihood and consequences of leaks. Even small leaks over extended periods may have considerable impact on the environment. The use of industry Standards to prevent leaks is a fundamental principle of pollution prevention. Industry Standards cover the tank life cycle from construction, to ongoing inspection and maintenance, to final closure.

3.2 Applying RMS can reduce the likelihood and consequences of leaks. Typically, RMS is applied to provide additional integrity assurance against leaks.

3.3 In the context of this Standard, RMS specifically refers to two basic methodologies as defined below:

- Leak Testing Methods (LTM)
- Continuous Release Detection Methods (CRDM)

3.4 Experience has shown that long-term, slow leaks may develop and cause environmental damage in an AST that is in direct contact with the ground. These types of ASTs are subjected to the full hydrostatic pressure of the liquid on one side of the AST surface and are in direct contact with the ground on the other side of the AST surface. These ASTs may allow a slow leak over a long time with the full liquid hydrostatic pressure, which may go undetected and cause environmental damage. LTM is a layer of protection beyond conventional AST inspection practices that is most effective when applied to ASTs that are in direct contact with the soil and that do not have CRDMs. An LTM is ordinarily *not* necessary for tanks that have CRDMs (continuous release detection methods) such as elevated tanks, double-wall tanks, or tanks with release prevention barriers.

3.5 Figure A3.5 shows RMS graphically.

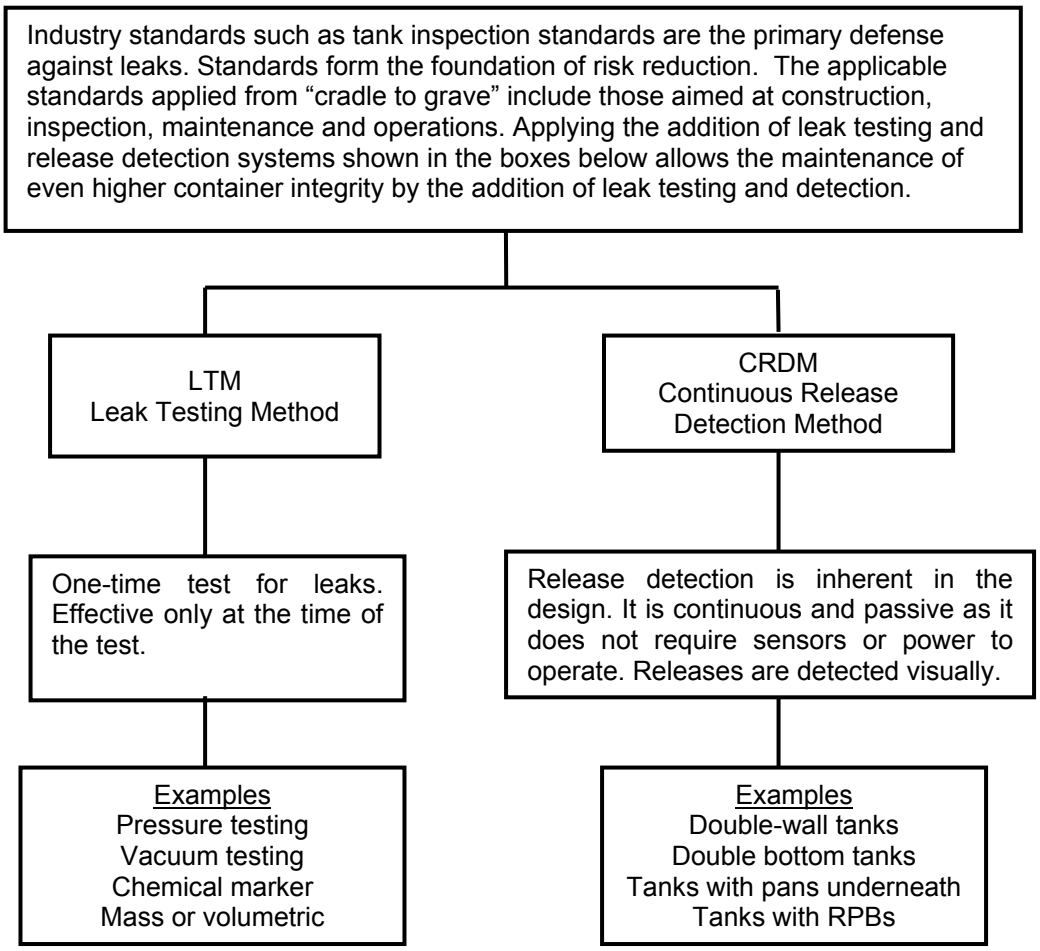

Figure A3.5
Release Detection Systems

4.0 REGULATIONS

4.1 The Federal EPA and some states have enacted regulations regarding the storage and handling of oils, both petroleum and non-petroleum, called the Spill Prevention Control and Countermeasures (SPCC) Rule under the authority of the Clean Water Act (40 CFR part 112). Entities regulated by these sections may use this Standard or others to inspect and determine the fitness of their storage systems. Refer to http://www.epa.gov/oilspill for more information and American Petroleum Institute's (API) Recommended Practice Bulletin D16, *Suggested Procedure for Development of a Spill Prevention Control and Countermeasure Plan.*

APPENDIX B
INSPECTION OF FIELD-ERECTED ASTS

1.0 GENERAL

1.1 Purpose and Applicability – This Appendix addresses additional and special inspection requirements for field-erected tanks. Tanks larger than 30 feet (9.1 meters) in diameter or more than 50 feet (15.2 meters) high should be inspected according to an appropriate field-erected tank inspection standard. This Appendix is applicable only when specifically referenced by written contractual language between the owner and the inspector. Further, it is applicable only when not prohibited by the regulatory authority having jurisdiction. This Appendix specifies only those requirements which modify or exceed the requirements of the main body of the Standard.

1.2 Scope - This Appendix applies to steel ASTs that are as follows:

1.2.1 Welded and flat-bottom, cone-up or cone-down design.

1.2.2 Up to 30 feet (9.1 meters) in diameter and with a height of less than 50 feet (15.2 meters).

1.2.3 Fabricated with full-fusion, butt-welded shells and with lap-welded or butt-welded bottom plates.

1.2.4 Fabricated with a shell thickness of each course less than ½ inch and with original nominal bottom thickness plates equal to ¼ inch or 6 mm.

1.2.5 Built to a nationally recognized standard.

1.3 Brittle Fracture Assessment - Because the tank shells are under ½ inch thick, the risk of brittle fracture is minimal. Brittle fracture assessments and documentation are not required for tanks that fall within the scope of this Standard.

2.0 INSPECTIONS

2.1 Refer to the Table B2.1 below for the inspection timetable. Category 1, 2 and 3 as well as the P, E, I and L designations are described in the main body of the SP001 Standard. Note that the internal inspection intervals shown in this table are guiding values when corrosion rates are not determined, in accordance with recognized and accepted industry principles and practice.

2.1.1 When corrosion rates are established, the corrosion rates may govern the internal inspection interval, which may be shorter or longer than the values shown.

2.1.2 For Category 1 tanks, the maximum internal re-inspection interval is 30 years.

2.1.3 For Category 2 tanks, the maximum internal re-inspection interval is 20 years.

2.1.4 For Category 3 tanks, the maximum internal re-inspection interval may not be longer than shown in Table B2.1.

TABLE B2.1 TABLE OF INSPECTION SCHEDULES

AST Type and Size	Category 1	Category 2	Category 3
Field-erected AST	P, E(5), I(10)	P, E&L(5), I(10)	P, E&L(5), I(10)

2.2 Follow the requirements found in the main body of the SP001 Standard for Periodic Inspections, Formal External Inspections and Formal Internal Inspections and any additional requirements in this Appendix. Also, follow all the requirements of the Safety Section. Leak testing methods for field-erected tanks are currently under research by API and STI, and additional requirements will be added to SP001 in the future.

2.3 Below are additional inspection requirements for field-erected ASTs.

2.3.1 Vertical AST Floating Roof

2.3.1.1 For safety, make sure that the roof pontoons are free of liquid and harmful vapors and that the floating roof is properly stabilized against collapse. (See API 2016, *Guidelines and Procedures for*

Entering and Cleaning Petroleum Storage Tanks.) Inspect the vapor space on top of the floating roof before gaining access.

2.3.1.2 For Formal Internal Inspections, inspect the seal for deterioration, holes, tears and cracks to determine the Suitability for Continued Service.

2.3.1.3 For external floating roofs, assess the condition of the outer roof rim plate by visual or ultrasonic methods. It may be necessary to assess the condition by performing ultrasonic inspection from the inside of the pontoon. Inspect that either the roof drain is open or the drain plug in the roof is open in case of unexpected rain. Inspect the roof legs for their contact with the floor and that the striker plates are present and in position. Inspect the roof legs for corrosion and damage.

2.3.1.4 Inspect for standing water on top of the roof and inspect the roof drainage system operation. Inspect the pontoons for presence of liquid.

2.4 Suitability for Continued Service

2.4.1 As an alternative to the criteria in the main body of SP001, and if the Certified Inspector is API 653 Certified, then the methods included in API 653 maybe used to evaluate the AST.

2.4.2 The minimum allowable remaining thickness is 0.1 inch (2.54 mm). In setting the next inspection interval based upon corrosion rates, neither the bottom nor the shell shall be allowed to corrode less than 0.1 inch.

2.4.2.1 The minimum required thickness of each shell course shall be according to:

$$t_{\min} = \frac{(H-1)DG}{10{,}000}$$

t_{min} = the minimum acceptable average thickness, in inches, for each course as calculated from the above formula. However, t_{min} shall not be less than 0.1 inch (2.54 mm) for any tank course.

D = nominal diameter of tank, feet.

H = height from the bottom of the shell course under consideration to the maximum liquid level when evaluating an entire shell course, feet.

G = largest specific gravity of the contents.

2.4.3 One method of determining the interval between Formal Internal Inspections required by the tank bottom assessment is as follows: (Corrosion rates shall be assumed constant for these calculations.)

$$MFIII = \frac{\min(RT_{bc}, RT_{ip}) - MRT}{(St\,\mathrm{Pr} + U\,\mathrm{Pr})}$$

MRT = minimum allowable remaining tank bottom thickness at the end of inspection interval which is 0.1 inch (2.54 mm).

MFIII = maximum Formal Internal Inspection interval (years to next internal inspection) not to exceed that allowed in paragraph 2.1 of this Appendix.

RT_{bc} = minimum remaining thickness from bottom side corrosion after repairs.

RT_{ip} = minimum remaining thickness from internal corrosion after repairs.

St Pr = maximum rate of corrosion not repaired on the top side. This value is zero for coated areas of the bottom. The expected life of the coating must equal or exceed MFIII to use *St* Pr = 0.

U Pr = maximum rate of corrosion on the bottom side. To calculate the corrosion rate, use the minimum remaining thickness after repairs. For tanks that have proven cathodic protection, the corrosion rate from the underside shall be *U* Pr = 0.002 inches per year (0.05 mm per year).

Note: For areas of a bottom that have been scanned by the magnetic flux leakage (or exclusion) process, and do not have effective cathodic protection, the thickness used for calculating *U* Pr must be the lesser of the MFL threshold or the minimum thickness of corrosion areas that are not repaired. The MFL threshold is defined as the minimum remaining thickness to be detected in the areas inspected. This value should be predetermined by the owner based on the desired inspection interval.

2.4.4 Widely scattered pitting will not appreciably affect the strength of the tank shell and the tank may be allowed to continue operation provided that both of the following conditions are met:

2.4.4.1 Pit depths or thinning (with a diameter or maximum dimension of less than 2 inches (50.8 mm)) does not result in a remaining wall thickness of less than 0.05 inch (1.27 mm).

2.4.4.2 No pit or thinned area results in any area 2 inches (50.8 mm) in diameter or larger with a thickness less than 0.1 inch (2.54 mm).

APPENDIX C
PERIODIC INSPECTION CHECKLISTS

STI SP001 AST Record

OWNER INFORMATION	FACILITY INFORMATION	INSTALLER INFORMATION
Name	Name	Name
Number and Street	Number and Street	Number and Street
City, State, Zip Code	City, State, Zip Code	City, State, Zip Code

.

TANK ID _____

SPECIFICATION:

Design: ☐ UL _____ ☐ SWRI _____ ☐ Horizontal ☐ Vertical ☐ Rectangular

☐ API _____ ☐ Other _____

☐ Unknown

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Service Date:

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____

☐ Coated Steel ☐ Concrete ☐ Plastic/Fiberglass ☐ Other

☐ Double-Bottom ☐ Double-Wall ☐ Lined Date Installed: _____

Containment: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete ☐ Synthetic Liner ☐ Other _____

CRDM: ☐ Date Installed: _____ Type: _____

Release Prevention Barrier: ☐ Date Installed: _____ Type: _____

TANK ID _____

SPECIFICATION:

Design: ☐ UL _____ ☐ SWRI _____ ☐ Horizontal ☐ Vertical ☐ Rectangular

☐ API _____ ☐ Other _____

☐ Unknown

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Service Date:

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____

☐ Coated Steel ☐ Concrete ☐ Plastic/Fiberglass ☐ Other

☐ Double-Bottom ☐ Double-Wall ☐ Lined Date Installed: _____

Containment: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete ☐ Synthetic Liner ☐ Other _____

CRDM: ☐ Date Installed: Type:

Release Prevention Barrier: ☐ Date Installed: _____ Type: _____

TANK ID _____

SPECIFICATION:

Design: ☐ UL _____ ☐ SWRI _____ ☐ Horizontal ☐ Vertical ☐ Rectangular

☐ API _____

☐ Unknown ☐ Other _____

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Service Date:

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____

☐ Coated Steel ☐ Concrete ☐ Plastic/Fiberglass ☐ Other

☐ Double-Bottom ☐ Double-Wall ☐ Lined Date Installed: _____

Containment: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete ☐ Synthetic Liner ☐ Other _____

CRDM: ☐ Date Installed: Type:

Release Prevention Barrier: ☐ Date Installed: _____ Type: _____

TANK ID _____

SPECIFICATION:

Design: ☐ UL _____ ☐ SWRI _____ ☐ Horizontal ☐ Vertical ☐ Rectangular

☐ API _____

☐ Unknown ☐ Other _____

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Service Date:

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____

☐ Coated Steel ☐ Concrete ☐ Plastic/Fiberglass ☐ Other

☐ Double-Bottom ☐ Double-Wall ☐ Lined Date Installed: _____

Containment: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete ☐ Synthetic Liner ☐ Other _____

CRDM: ☐ Date Installed: Type:

Release Prevention Barrier: ☐ Date Installed: _____ Type: _____

TANK ID _____

SPECIFICATION:

Design: ☐ UL _____ ☐ SWRI _____ ☐ Horizontal ☐ Vertical ☐ Rectangular

☐ API _____

☐ Unknown ☐ Other _____

Manufacturer: Contents: Construction Date: Last Repair/Reconstruction Date:

Dimensions: Capacity: Last Change of Service Date:

Construction: ☐ Bare Steel ☐ Cathodically Protected (Check one: A. ☐ Galvanic or B. ☐ Impressed Current) Date Installed: _____

☐ Coated Steel ☐ Concrete ☐ Plastic/Fiberglass ☐ Other

☐ Double-Bottom ☐ Double-Wall ☐ Lined Date Installed: _____

Containment: ☐ Earthen Dike ☐ Steel Dike ☐ Concrete ☐ Synthetic Liner ☐ Other _____

CRDM: ☐ Date Installed: Type:

Release Prevention Barrier: ☐ Date Installed: _____ Type: _____

STI SP001 Monthly Inspection Checklist

General Inspection Information:

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

Prior Inspection Date: _____ Inspector Name: _____

Tanks Inspected (ID #'s): _____

Inspection Guidance:

- 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 who is familiar with the site and can identify changes and developing problems.
- Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and disposed of it properly.
- (*) designates an item in a non-conformance status. This indicates that action is required to address a problem.
- 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 36 months.
- **In the event of severe weather (snow, ice, wind storms) or maintenance (such as painting) 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	Task	Status	Comments
1.0 Tank Containment			
1.1 Containment structure	Check for water, debris, cracks or fire hazard	□Yes* □No □N/A	
1.2 Primary tank	Check for water	□Yes* □No	
1.3 Containment drain valves	Operable and in a closed position	□Yes □No* □N/A	
1.4 Pathways and entry	Clear and gates/doors operable	□Yes □No* □N/A	
2.0 Leak Detection			
2.1 Tank	Visible signs of leakage	□Yes* □No	
2.2 Secondary Containment	Visible signs of leakage from tank into secondary containment	□Yes* □No	
2.3 Surrounding soil	Visible signs of leakage	□Yes* □No □N/A	
2.4 Interstice	Visible signs of leakage	□Yes* □No □N/A	

Item	Task	Status	Comments
3.0 Tank Equipment			
3.1 Valves	a. Check for leaks.	□Yes* □No □N/A	
	b. Tank drain valves must be kept locked.	□Yes* □No □N/A	
3.2 Spill containment boxes on fill pipe	a. Inspect for debris, residue, and water in the box and remove.	□Yes* □No □N/A	
	b. Drain valves must be operable and closed.	□Yes* □No □N/A	
3.3 Liquid level equipment	a. Both visual and mechanical devices must be inspected for physical damage.	□Yes □No* □N/A	
	b. Check that the device is easily readable	□Yes □No* □N/A	
3.4 Overfill equipment	a. If equipped with a "test" button, activate the audible horn or light to confirm operation. This could be battery powered. Replace the battery if needed	□Yes □No* □N/A	
	b. If overfill valve is equipped with a mechanical test mechanism, actuate the mechanism to confirm operation.	□Yes □No* □N/A	
3.5 Piping connections	Check for leaks, corrosion and damage	□Yes* □No	
4.0 Tank Attachments and Appurtenances			
4.1 Ladder and platform structure	Secure with no sign of severe corrosion or damage?	□Yes □No* □N/A	
5.0 Other Conditions			
5.1 Are there other conditions that should be addressed for continued safe operation or that may affect the site spill prevention plan?		□Yes* □No	

Additional Comments:

STI SP001 Annual Inspection Checklist

General Inspection Information:

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

Prior Inspection Date: _____ Inspector Name: _____

Tanks Inspected (ID #'s): _____

Inspection Guidance:

- 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 who is familiar with the site and can identify changes and developing problems.
- Remove promptly upon discovery standing water or liquid 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 disposed of it properly.
- In order to comply with EPA SPCC (Spill Prevention, Control and Countermeasure) rules, a facility must 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.
- 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 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	Task	Status	Comments
1.0 Tank Containment			
1.1 Containment structure	Check for: • Holes or cracks in containment wall or floor • Washout • Liner degradation • Corrosion • Leakage • Paint failure • Tank settling	□Yes* □No □N/A	
2.0 Tank Foundation and Supports			
2.1 Foundation	Settlement or foundation washout?	□Yes* □No	
2.2 Concrete pad or ring wall	Cracking or spalling?	□Yes* □No □N/A	

Item	Task	Status	Comments
2.3 Supports	Check for corrosion, paint failure, etc.	□Yes* □No □N/A	
2.4 Water drainage	Water drains away from tank?	□Yes □No* □N/A	
2.5 Tank grounding	Strap secured and in good condition?	□Yes □No* □N/A	
3.0 Cathodic Protection			
3.1 Gavlvanic cathodic protection system	Confirm system is functional, includes the wire connections for galvanic systems	□Yes □No* □N/A	
3.2 Impressed current system	a. Inspect the operational components (power switch, meters, and alarms).	□Yes □No* □N/A	
	b. Record hour meter, ammeter and voltmeter readings.	□Yes □No* □N/A	
4.0 Tank Shell, Heads, Roof			
4.1 Coating	Check for coating failure	□Yes* □No	
4.2 Steel condition	Check for: • Dents • Buckling • Bulging • Corrosion • Cracking	□Yes* □No	
4.3 Roof slope	Check for low points and standing water	□Yes* □No □N/A	
5.0 Tank Equipment			
5.1 Vents	Verify that components are moving freely and vent passageways are not obstructed for: • Emergency vent covers • Pressure/vacuum vent poppets • Other moving vent components	□Yes* □No	

Item	Task	Status	Comments
5.2 Valves	Check the condition of all valves for leaks, corrosion and damage.	□Yes* □No	
5.2.1 Anti-siphon, check and gate valves	Cycle the valve open and closed and check for proper operation.	□Yes □No* □N/A	
5.2.2 Pressure regulator valve	Check for proper operation. (Note that there may be small, 1/4 inch drain plugs in the bottom of the valve that are not visible by looking from above only)	□Yes □No* □N/A	
5.2.3 Expansion relief valve	Check that the valve is in the proper orientation. (Note that fuel must be discharged back to the tank via a separate pipe or tubing.)	□Yes □No* □N/A	
5.2.4 Solenoid valves	Cycle power to valve to check operation. (Electrical solenoids can be verified by listening to the plunger opening and closing. If no audible confirmation, the valve should be inspected for the presence and operation of the plunger.)	□Yes □No* □N/A	
5.2.5 Fire and shear valves	a. Manually cycle the valve to ensure components are moving freely and that the valve handle or lever has clearance to allow valve to close completely.	□Yes □No* □N/A	
	b. Valves must not be wired in open position.	□Yes □No* □N/A	

Item	Task	Status	Comments
	c. Make sure fusible element is in place and correctly positioned.	□Yes □No* □N/A	
	d. Be sure test ports are sealed with plug after testing is complete and no temporary test fixture or component remains connected to valve.	□Yes □No* □N/A	
5.3 Interstitial leak detection equipment	Check condition of equipment, including: • The window is clean and clear in sight leak gauges. • The wire connections of electronic gauges for tightness and corrosion • Activate the test button, if applicable.	□Yes □No* □N/A	
5.4 Spill containment boxes on fill pipe	a. If corrosion, damage, or wear has compromised the ability of the unit to perform spill containment functions, replace the unit.	□Yes* □No □N/A	
	b. Inspect the connections to the AST for tightness, as well as the bolts, nuts, washers for condition and replace if necessary.	□Yes* □No □N/A	
	c. Drain valves must be operable and closed	□Yes* □No □N/A	
5.5 Strainer	a. Check that the strainer is clean and in good condition.	□Yes □No* □N/A	

Item	Task	Status	Comments
5.5 Strainer	b. Access strainer basket and check cap and gasket seal as well as bolts.	□Yes □No* □N/A	
5.6 Filter	a. Check that the filter is in good condition and is within the manufacturer's expected service life. Replace, if necessary.	□Yes □No* □N/A	
	b. Check for leaks and decreased fuel flow	□Yes □No* □N/A	
5.7 Flame arrestors	Follow manufacturer's instructions. Check for corrosion and blockage of air passages.	□Yes* □ No □N/A	
5.8 Leak detector for submersible pump systems	Test according to manufacturer's instructions and authority having jurisdiction (AHJ). Verify leak detectors are suited and properly installed for aboveground use.	□Yes □No* □N/A	
5.9 Liquid level equipment	a. Has equipment been tested to ensure proper operation?	□Yes □No* □N/A	
	b. Does equipment operate as required?	□Yes □No* □N/A	
	c. Follow manufacturer's instructions	□Yes □No* □N/A	
5.10 Overfill equipment	a. Follow manufacturer's instructions and regulatory requirements for inspection and functionality verification.	□Yes □No* □N/A	
	b. Confirm device is suited for above ground use by the manufacturer	□Yes □No* □N/A	

Item	Task	Status	Comments
6.0 Insulated Tanks			
6.1 Insulation	Check condition of insulation for: • Missing sections • Areas of moisture • Mold • Damage	□Yes* □ No □N/A	
6.2 Insulation cover or jacket	Check for damage that will allow water intrusion	□Yes* No □N/A	
7.0 Miscellaneous			
7.1 Electrical wiring and boxes	Are they in good condition?	□Yes □No* □N/A	
7.2 Labels and tags	Ensure that all labels and tags are intact and readable.	□Yes □No* □N/A	

Additional Comments:

STI SP001 Portable Container Monthly Inspection Checklist

General Inspection Information:

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

Prior Inspection Date: _____ Inspector Name: _____

Containers Inspected (ID #'s): _____

Inspection Guidance:

- 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 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.
- 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 36 months.

Item	Area: _____	Area: _____	Area: _____	Area: _____
1.0 AST Containment/Storage Area				
1.1 ASTs within designated storage area?	□Yes □No*	□Yes □No*	□Yes □No*	□Yes □No*
1.2 Debris, spills, or other fire hazards in containment or storage area?	□Yes* □No	□Yes* □No	□Yes* □No	□Yes* □No
1.3 Water in outdoor secondary containment?	□Yes* □No	□Yes* □No	□Yes* □No	□Yes* □No
1.4 Drain valves operable and in a closed position?	□Yes □No*	□Yes* □No	□Yes* □No	□Yes* □No
1.5 Egress pathways clear and gates/doors operable?	□Yes □No*	□Yes* □No	□Yes* □No	□Yes* □No

Item	Area: _____	Area: _____	Area: _____	Area: _____
2.0 Leak Detection				
2.1 Visible signs of leakage around the container or storage area?	□Yes* □No	□Yes* □No	□Yes* □No	□Yes* □No
3.0 Container				
3.0 Noticeable container distortions, buckling, denting or bulging?	□Yes* □No	□Yes* □No	□Yes* □No	□Yes* □No

Comments:

Appendix F

UCSB AST SPCC SELF-INSPECTION CHECKLIST

Year:

Bulk Storage Containers

Responsible Department: _____ Total tank capacity: _____

Tank Location: _____ Petroleum type and amount: _____

(diesel, gasoline, motor oil, etc.)

Tank ID: _____ Secondary containment type: _____

(berm, double walled, pallet containment, etc.)

PLEASE USE THE KEY PROVIDED: **Y**=YES **N**=NO | **G**=GOOD **F**=FAIR **P**=POOR

Remarks may be written on the reverse page.

AST Inspection Items	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1) Evidence of leakage around tank or piping? (Y*/N)												
2) Evidence of spillage on ground surrounding tank? (Y*/N)												
3) Condition of piping, valve, or hoses? (G/F/P*)												
4) Presence of excessive corrosion of tank or associated piping? (Y*/N)												
5) Presence of excessive corrosion of tank's piping supports? (Y*/N)												
6) Functional warning systems, if applicable? (Y/N*)												
7) Condition of secondary containment (check for liquid in berm area or tank interstitial space) (G/F/P*)												
8) Containment valve in closed position, if applicable? (Y/N*)												
9) Presence of dents or blisters on surface of tank? (Y*/N)												
10) Evidence of tampering? (Y*/N)												
11) Emergency Response Spill Kit located nearby and fully stocked? (Y/N*)												
12) Tank and associated piping protected from vehicle collision? (Y/N*)												
13) Condition of associated fencing/gate/structure? (G/F/P*)												
14) Condition of facility lighting? (G/F/P*)												

* Indicates an item in a non-conformance status. This indicates that action is required to address a problem.

UCSB AST SPCC SELF-INSPECTION CHECKLIST

Month	Remarks
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Under penalty of perjury, I acknowledge that these inspections were completed thoroughly and reported accurately.

Name _____ Signature _____ Date _____

UCSB Generator SPCC SELF-INSPECTION CHECKLIST

Year:

Generator Fuel Tanks

Responsible Department: _____ Total tank capacity: _____

Tank Location: _____ Petroleum type and amount: _____

(diesel, gasoline, motor oil, etc.)

Tank ID: _____ Secondary containment type: _____

(berm, double walled, pallet containment, etc.)

PLEASE USE THE KEY PROVIDED: **Y**=YES **N**=NO | **G**=GOOD **F**=FAIR **P**=POOR

Remarks may be written on the reverse page.

AST Inspection Items	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1) Evidence of leakage around tank or piping? (Y*/N)												
2) Evidence of spillage on ground surrounding tank? (Y*/N)												
3) Condition of piping, valve, or hoses? (G/F/P*)												
4) Presence of excessive corrosion of tank or associated piping? (Y*/N)												
5) Presence of excessive corrosion of tank's piping supports? (Y*/N)												
6) Functional warning systems, if applicable? (Y/N*)												
7) Condition of secondary containment (check for liquid in berm area or tank interstitial space) (G/F/P*)												
8) Presence of dents or blisters on surface of tank? (Y*/N)												
9) Evidence of tampering? (Y*/N)												
10) Condition of associated fencing/gate/structure? (G/F/P*)												

* Indicates an item in a non-conformance status. This indicates that action is required to address a problem.

UCSB Generator SPCC SELF-INSPECTION CHECKLIST

Month	Remarks
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Under penalty of perjury, I acknowledge that these inspections were completed thoroughly and reported accurately.

Name _____ Signature _____ Date _____

UCSB SPCC Portable SELF-INSPECTION CHECKLIST

Year:

Portable Storage Containers

Responsible Department: _____ Total tank capacity: _____

Tank Location: _____ Petroleum type and amount: _____

(diesel, gasoline, motor oil, etc.)

Tank ID: _____ Secondary containment type: _____

(berm, double walled, pallet containment, etc.)

PLEASE USE THE KEY PROVIDED: **Y**=YES **N**=NO | **G**=GOOD **F**=FAIR **P**=POOR

Remarks may be written on the reverse page.

AST Inspection Items	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1) Evidence of leakage around tank? (Y*/N)												
2) Evidence of spillage on ground surrounding tank? (Y*/N)												
3) Presence of excessive corrosion of (Y*/N)												
4) Portable storage containers are within designated storage area? (Y/N*)												
5) Condition of secondary containment (check for liquid in berm area or spill pallet) (G/F/P*)												
6) Containment valve in closed position, if applicable? (Y/N*)												
7) Evidence of tampering? (Y*/N)												
8) Emergency Response Spill Kit located nearby and fully stocked? (Y/N*)												
9) Condition of associated fencing/gate/structure? (G/F/P*)												

* Indicates an item in a non-conformance status. This indicates that action is required to address a problem.

UCSB SPCC Portable SELF-INSPECTION CHECKLIST

Month	Remarks
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

Under penalty of perjury, I acknowledge that these inspections were completed thoroughly and reported accurately.

Name _____ Signature _____ Date _____