

## APPENDIX I

### TANK MANAGEMENT PLAN GUIDANCE

The Navy's Environmental and Natural Resources Program Manual, OPNAVINST 5090.1B, requires all Naval activities with storage tanks to have a Storage Tank Management Plan. According to OPNAVINST 5090.1B, Storage Tank Management Plans are to contain a listing of all storage tanks at the activity, a discussion of the regulatory requirements for each tank, and a plan of action for achieving and maintaining compliance with the applicable regulations. OPNAVINST 5090.1B defines Tank Management Plans as activity-level documents that stress both aboveground and underground storage tank spill prevention planning, regulatory compliance, and record keeping. In using this guidance the template at the end of this section meets OPNAVINST 5090.1B.

#### 1.1 TANK MANAGEMENT PLAN GUIDANCE SUMMARY

1. List all petroleum and hazardous substance storage tanks along with the regulatory requirements for each tank (See regulatory requirement section below). Whenever possible, the Tank Management Plan shall include aboveground storage tanks and all underground storage tanks including those that are exempt from the underground storage tank regulations.
2. Prepare a plan of action for achieving and maintaining compliance with all applicable regulatory requirements.
3. Prepare a detailed description of each storage tank including a discussion of features such as secondary containment, overfill prevention devices, and leak detection devices that have been installed to prevent and detect potential leaks and spills.
4. Prepare a listing and description of underground storage tanks that have been closed.
5. Prepare Standard Operating Procedures for tank maintenance and fuel deliveries.

#### 1.2 REGULATORY REQUIREMENTS\*

##### 1.2.1 Exemptions in the Federal Underground Storage Tank Regulations

- Hazardous waste tanks (however hazardous waste tanks are regulated under RCRA Subtitle C, See 40 CFR 262.34(a)(1)(ii))
- In-ground hydraulic lift tanks
- Tanks less than 110 gallons

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\* Summary of underground tank requirements only.

- Wastewater treatment tanks (however, often regulated as part of an NPDES or pre-treatment wastewater permit)
- Oil/Water Separators (however, often regulated as part of a stormwater, NPDES, or pre-treatment wastewater permit)
- Wastewater holding tanks prior to discharge to municipal sewage treatment system (however, often regulated as part of a pre-treatment wastewater permit)
- Heating oil tanks on site use
- Used oil tanks prior to burning in an on-site space heater, furnace or boiler
- Tanks set upon or above floor of basements (these tanks may be considered as “aboveground tanks” for purposes of SPCC planning)

### 1.2.2 State Variations

Many state and local regulators have different and /or more stringent rules in some of the following areas:

- Secondary containment
- Compliance schedules
- Reporting requirements
- Clean up methods and criteria
- Reimbursement programs
- Regulation of heating oil and other federally exempt tanks

Check state and local rules for the latest requirements if any.

### 1.2.3 New USTs

When installing a new UST after December 22, 1988, the following actions must be taken:

- Certify that the tank and piping are installed properly according to industry codes using a state-certified installer.
- Equip the UST with spill and overfill devices and follow correct tank-filling procedures.
- Protect the tank and piping from corrosion.

### 1.2.4 Existing USTs

For USTs in existence on and before December 22, 1988, the following upgrade actions must be accomplished by no later than December 22, 1998 unless the tank is replaced or closed:

- Upgrade existing steel tanks by adding corrosion protection and/or an internal lining. Also, upgrade existing steel piping by adding corrosion protection.

- Install devices which prevent spills and overfills.

### **1.2.5 Heating Oil USTs**

Even though, in most states, heating oil tanks are exempt from UST rules, known leaks usually must be reported and cleaned up and represent an added liability. Investigate unusual signs of leaks including a level or volume drop during long periods of nonuse such as during the summer.

### **1.2.6 Vehicle Lifts**

Vehicle lifts with underground hydraulic oil storage are not covered by UST rules except in a few locations. Vehicle lift tanks are often neglected, resulting in subsurface contamination.

- Follow manufacturer's requirements for safe operation, maintenance and leak detection methods.
- Investigate unusually high oil consumption.
- Drain out-of-service equipment and properly dispose; oil could contain PCB chemicals.
- Consider use of biodegradable oil.

### **1.2.7 Leak Detection**

EPA requires a method of leak detection be used for underground tanks and pipes. For tanks, these methods include:

- automatic tank gauging combined with inventory control;
- or vapor, groundwater or interstitial monitoring;
- or monthly inventory control together with tank tightness testing.

For underground tanks, inventory control combined with tank tightness testing can be used until 10 years after a tank is installed, upgraded, or replaced. After that a "monthly monitoring" leak detection method (such as automatic tank gauging or vapor, groundwater, and interstitial monitoring) must be used.

Pressurized underground piping must be equipped with an automatic line leak detector and must also be tightness tested annually or have a monthly monitoring leak detection method. Suction piping systems must be tightness tested every three years unless the piping system meets fail-safe design standards.

There are detailed requirements for installation, operation and maintenance of any leak detection method chosen.

### **1.2.8 Used Oil and Other Small USTs**

Two special rules pertain to small underground tanks. USTs having a capacity of 550 gallons or less may use a manual tank gauging method as the sole method of leak detection. If allowed by state regulations, a modified manual tank gauging procedure

can be used as the sole method of leak detection for tanks up to 1000 gallons. For tanks with a capacity of 551 to 2,000 gallons, a manual gauging method may be used in place of an inventory-control method. The gauging method must meet the following requirements:

- Liquid level readings are taken before and after a 36-hour period where no liquid is added or removed from the tank.
- Readings are taken twice and averaged both at the beginning and end of the 36-hour period.
- The method used is capable of measuring the entire depth of the tank and can measure the level to the nearest 1/ 8 of an inch.

Using this method, a leak is suspected where the variation between the beginning and ending measurements exceeds the weekly (one test) or monthly (average of four tests) standards as follows:

**Table 1-1  
Suspected Leak Variations**

<b>Capacity (gallons)</b>	<b>Weekly test (one test)</b>	<b>Monthly average (average of four tests)</b>
550 or less	10 gallons	5 gallons
551 to 1,000	13 gallons	7 gallons
1,001 to 2,000	26 gallons	13 gallons

Another special rule pertains to tanks which are filled by transfers of no more than 25 gallons at any one time; spill and overfill protection are not required to be installed on these tanks. These special rules pertain to petroleum and hazardous substance USTs, including used oil tanks, which meet the above criteria.

### **1.2.9 Release Reporting and Investigation**

Reporting of all releases from UST systems is required, with few exceptions. The exceptions are:

- Spills and overfills of less than 25 gallons are not reportable, only if clean-up (including impacted soils) is completed within 24 hours. However, a release of any quantity of petroleum which causes a sheen upon surface waters must be reported to the National Response Center at 800-424-8802.
- Suspected releases which are investigated within 24 hours and found to be an unconfirmed release. However, if the suspected release was indicated from product inventory methods over a 30-day period, then a second month of data can be reviewed before reporting is required.

Some states do not allow these exceptions. Significant variation exists from state to state on reportable quantities and reporting times.

- An indication of a potential tank leak includes:
- Unusual operating conditions at the dispensers
- Pipe leak detector trips
- Leak detection system indication
- Measured volumetric gain due to water infiltration
- Product loss indication from inventory-control methods
- Observed loss of product due to a spill or leak

#### **1.2.10 Confirmed Releases**

If a leak is confirmed, follow these requirements:

- Take immediate action to stop and contain the leak or spill. For example
  1. Shut down the system
  2. Pump down the tank
  3. Absorb free product on the surface.
  4. Set out absorbent booms to prevent product from entering a storm sewer or surface water.
  5. If fuel has reached surface water, the proper person must report this to a spill response team and to all appropriate government authorities immediately.
- The confirmed release must be reported to the state UST agency within 24 hours or other required reporting time.

#### **1.2.11 Initial Site Characterization**

Where a release has been confirmed, detailed information must be assembled about the nature of the release and the location. Within a reasonable time period, generally specified as 45 days, the above information must be submitted in a written report to the UST agency.

#### **1.2.12 Soil and Groundwater Investigations and Corrective Action**

Upon confirmation of a release, it is required to conduct a soil and/or groundwater investigation (subsurface assessment) to determine the full impact of the release on the surrounding soils and groundwater. In some cases, these investigations may span several months and consist of more than one or two phases of investigation. Soil and groundwater investigations should be conducted only by qualified geologists or hydrogeologists with specific experience in environmental assessments around USTs. If contaminated soils and groundwater exceed the state action levels, soil and groundwater cleanup will be required.

### **1.2.13 Temporary and Permanent Closure**

EPA rules allow the temporary closure of a UST system, which has not been upgraded, for up to 12 months before requiring a permanent closure. Upgraded USTs may be temporarily closed for an indefinite period of time. In many states and local areas, either the UST agency or the fire department will require permanent closure in as few as 90 to 180 days.

Where a permanent closure of a UST system is planned, the following is required:

- Notify the UST agency 30 days prior to permanent closure.
- Determine if past releases have impacted soils and groundwater. If there is contamination above the state action level, corrective action may be necessary.
- If a decision is made to close a UST in place, and it is allowable by the state and local jurisdictions, a site assessment must first be conducted. If contamination warrants corrective action, tank removal may be necessary and most cost effective.

### **1.2.14 Tank Removal**

Removal of UST systems should follow American Petroleum Institute (API) 1604 or other recommended practices. Tank removal contractors may be required to have licenses or certification from the state. Most states have written closure requirements. The contract with the tank removal company should require it to follow state rules. A closure analysis must be conducted by taking soil and water samples from pipe runs and tank excavation pits and having the samples analyzed. Dispose of the tank, and dispose or treat contaminated soils and wastes in accordance with the state requirements.

### **1.2.15 Record Keeping**

It is impossible to demonstrate compliance with the UST regulations unless the appropriate records are kept. Under the UST regulations, the following records must be maintained:

- Documentation of the operation of cathodic protection equipment
- Records on all UST repairs
- Recent compliance with leak detection requirements including monthly inventory reconciliations, monitoring well data, tightness test results and printouts from automatic leak detection systems
- Performance claims and maintenance and calibration of leak detection systems
- Results of site investigation at permanent closure
- Proof of financial responsibility
- Spill reports

Record retention requirements vary up to 5 years. However, it is recommended most records be maintained indefinitely.

## MINIMUM REQUIREMENTS

**Table 1-2  
Leak Detection**

<b>LEAK DETECTION</b>	
<b>NEW TANKS</b> <i>2 Choices</i>	<ul style="list-style-type: none"> <li>• Monthly monitoring*</li> <li>• Monthly Inventory Control and Tank Tightness Testing Every 5 Years</li> </ul> <p><i>(You can only use this choice for 10 years after installation.)</i></p>
<b>EXISTING TANKS</b> <i>3 Choices</i>	<ul style="list-style-type: none"> <li>• Monthly monitoring*</li> <li>• Monthly Inventory Control and Annual Tank Tightness Testing</li> </ul> <p><i>(This choice can only be used until December 1998.)</i></p> <ul style="list-style-type: none"> <li>• Monthly Inventory Control and Tank Tightness Testing Every 5 Years</li> </ul> <p><i>(This choice can only be used for 10 years after adding corrosion protection and spill/overflow prevention or until December 1998, whichever date is later.)</i></p>
<b>NEW &amp; EXISTING PRESSURIZED PIPING</b> <i>Choice of one from each set</i>	<ul style="list-style-type: none"> <li>• Automatic Flow Restrictor</li> <li>• Automatic Shutoff Device</li> <li>• Continuous Alarm System and</li> <li>• Annual Line Testing</li> <li>• Monthly Monitoring*</li> </ul>
<b>NEW &amp; EXISTING SUCTION PIPING</b> <i>3 Choices</i>	<ul style="list-style-type: none"> <li>• Monthly Monitoring* (except for automatic tank gauging)</li> <li>• Line Testing Every 3 Years</li> <li>• No Requirements</li> </ul> <p><i>(If the system has the characteristics of-</i></p> <ol style="list-style-type: none"> <li>1. Suction piping sloped back to tank</li> <li>2. Only one check valve directly below suction pump)</li> </ol>

\*Monthly Monitoring Includes:

- Automatic Tank Gauging
- Vapor Monitoring
- Interstitial Monitoring
- Ground Water Monitoring
- Other Approved Methods.

**Table 1-3  
Corrosion Protection**

<b>CORROSION PROTECTION</b>	
<b>NEW TANKS</b> <i>3 Choices</i>	<ul style="list-style-type: none"> <li>• Coated and Cathodically Protected Steel</li> <li>• Fiberglass</li> <li>• Steel Tank Clad with Fiberglass</li> </ul>
<b>EXISTING TANKS</b> <i>4 Choices</i>	<ul style="list-style-type: none"> <li>• Same Options as for New Tanks</li> <li>• Add Cathodic Protection System</li> </ul>

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	<ul style="list-style-type: none"> <li>• Interior Lining</li> <li>• Interior Lining and Cathodic Protection</li> </ul>
NEW PIPING <i>2 Choices</i>	<ul style="list-style-type: none"> <li>• Coated and Cathodically Protected Steel</li> <li>• Fiberglass</li> </ul>
EXISTING PIPING <i>2 Choices</i>	<ul style="list-style-type: none"> <li>• Same Options as for New Piping</li> <li>• Cathodically Protected Steel</li> </ul>

**Table 1-4  
Spill/Overfill Prevention**

SPILL/OVERFILL PREVENTION		
ALL TANKS	<ul style="list-style-type: none"> <li>• Catchment Basins and</li> </ul>	<ul style="list-style-type: none"> <li>• Automatic Shutoff Devices</li> <li>or</li> <li>• Overfill Alarms</li> <li>or</li> <li>• Ball Float Valves</li> </ul>

## COMPLIANCE SCHEDULE

**Table 1-5  
Schedule for Compliance**

TYPE OF TANK & PIPING	LEAK DETECTION	CORROSION PROTECTION	SPILL/OVERFILL PREVENTION
New Tanks and Piping*	At installation	At installation	At installation
Existing Tanks** 25+ or unknown age 20 - 24 years 15 -19 years 10 - 14 years Under 10 years	December 1989 December 1990 December 1991 December 1992 December 1993	December 1998	December 1998
Existing Piping** Pressurized Suction	December 1990 Same as existing tanks	December 1998 December 1998	Does not apply

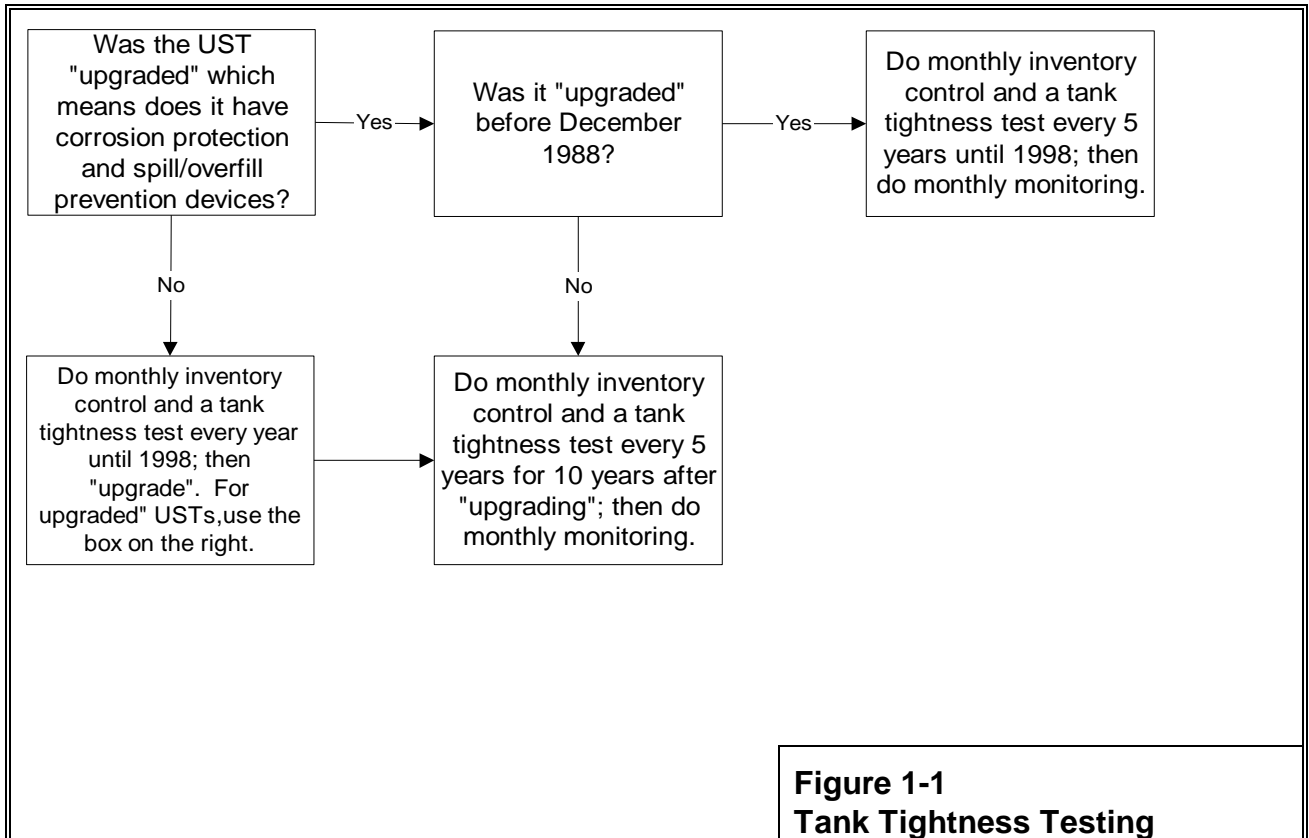
\*New tanks and piping are those installed after December 1988.

\*\*Existing tanks and piping are those installed before December 1988.



**IF YOU CHOOSE TANK TIGHTNESS TESTING AT EXISTING USTs**

If you don't use monthly monitoring at existing USTs, you must use a combination of periodic tank tightness tests and monthly inventory control. This combined method can only be used for a few years, as the chart below displays.



**SAMPLE TANK SUMMARY TEMPLATE**

The following template shows how the template can be used to summarize the listing of tanks.

**Table 1-6  
TANK SUMMARY: Activity Name**

<b>FACILITY</b>	<b>USE</b>	<b>TANK ID#</b>	<b>NOMINAL CAPACITY (gal)</b>	<b>TYPE TANK AST or UST</b>	<b>APPLICABLE REGULATIONS</b>
NEX Gas Station	Unleaded Gasoline Storage	NEX-1	25,000 gal	UST	UST SPCC
NEX Gas Station	Premium Unleaded Gasoline Storage	NEX-2	25,000 gal	UST	UST SPCC
Admin Building	Heating Oil Storage	Adm- 1	5000 gal	UST	None
TELCOM Building	Diesel Storage for Emergency Generator	TELCOM -1	5000 gal	UST	UST
Boat Pier	Diesel Fuel Storage for Fueling Tugboats	Pier-1	8000 gal	AST	SPCC
Boat Pier	Diesel Fuel Storage for Fueling Tugboats	Pier-2	8000 gal	AST	SPCC
Auto Hobby Shop	Oil/Water Separator	O/W-1	650 gal	O/W Sep	Stormwater Permit

**SAMPLE TANK INFORMATION TEMPLATE**

This template summarizes tank information and plan of action to achieve compliance.

**Table 1-7  
Building # - Building Name**

TOPIC		INFORMATION
TANK INFORMATION	NUMBER OF TANKS	
	TANK REGISTRATION NUMBER(S)	
	NOMINAL CAPACITY (gal)	
	CONTENTS	
	INSTALLATION INFORMATION	
	CURRENT USE	
	DESCRIPTION OF TANK	(Note - Include the following information: AST or UST, Material of Construction, Double or Single Walled, Manufacturer, etc.)
	CORROSION PROTECTION &/OR TANK LINING	
SPILL/OVERFILL PREVENTION	LEAK DETECTION &/OR TANK GAUGING SYSTEMS	
	OVERFILL PREVENTION DEVICES	
PIPING	SPILL CATCHMENT BASIN	
	DESCRIPTION/DIMENSIONS	(Note - Include whether aboveground or underground, material of construction, and whether double or single walled.)
	TYPE OF PUMPING SYSTEM	
OPERATION (Note - Describe any required on-going actions and identify who will conduct each action.._)	LEAK DETECTION	
	TANK FILLING	
	INVENTORY CONTROL AND LEAK DETECTION	
	EQUIPMENT CALIBRATION AND MAINTENANCE	
	TANK AND/OR LINE TESTING	
	CATHODIC PROTECTION SYSTEM TESTING	
	REPORTING OF SPILLS AND LEAKS	
	RECORDKEEPING	
FUTURE PROJECTS OR REQUIREMENTS	NOTIFICATION AND PERMIT REQUIREMENTS	
	UPCOMING REPAIR, UPGRADE, AND REPLACEMENT PROJECTS	
	CLOSURE	

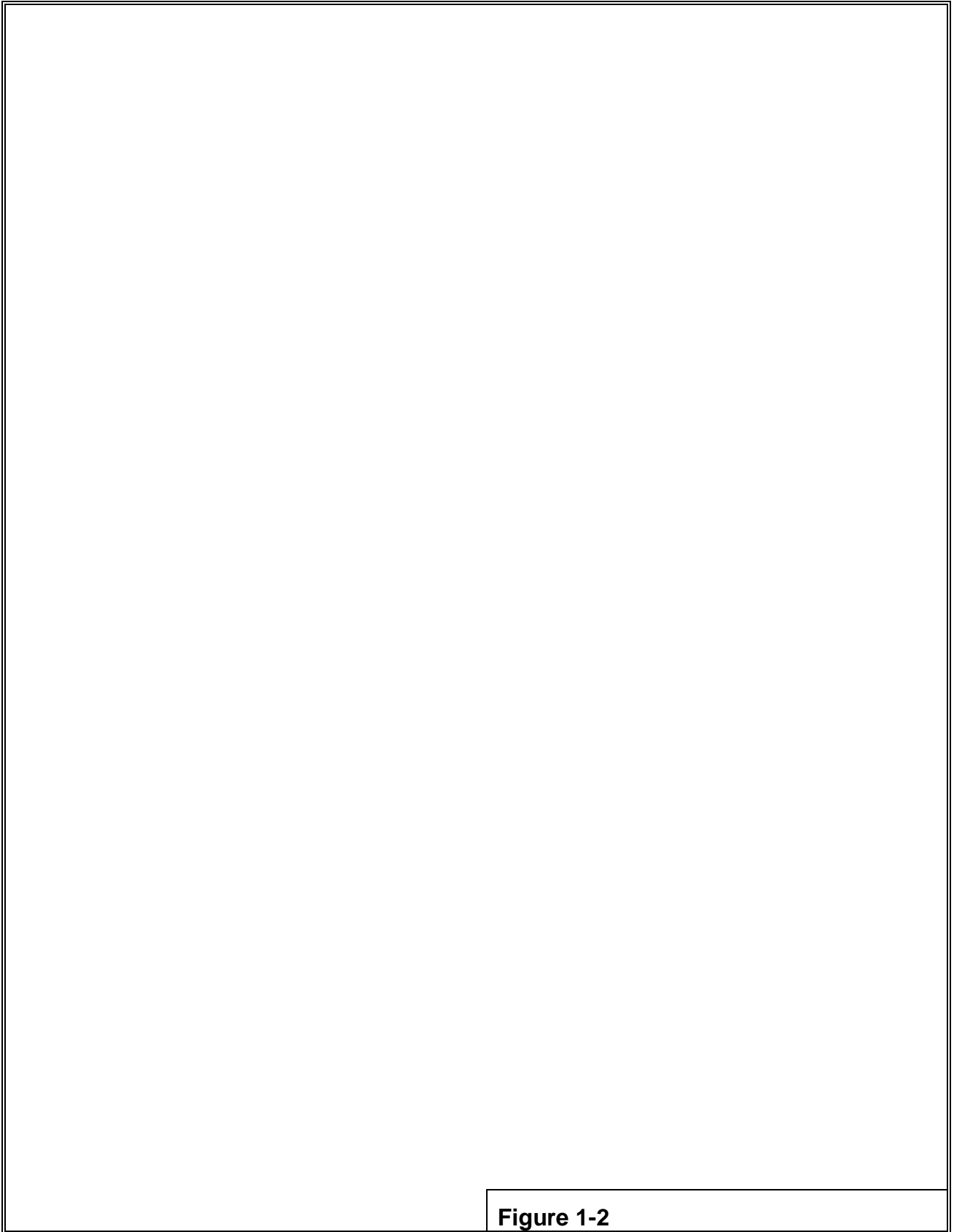
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	REQUIREMENTS	
	SITE CHARACTERIZATION AND CLEANUP PROJECTS	
SITE HISTORY	LOCATION OF PERMANENT RECORDS AND REFERENCED REPORTS	
	HISTORY OF PAST TESTS (tank and piping test, cathodic protection tests)	
	HISTORY OF TANK OPERATIONS (repair, replacements, use changes, etc.)	
	PAST LEAKS/SPILLS (description and actions taken)	

This is a blank template for tank summary.

**Table 1-8**  
**TANK SUMMARY: Activity Name**

<b>FACILITY</b>	<b>USE</b>	<b>TANK ID#</b>	<b>NOMINAL CAPACITY (gal)</b>	<b>TYPE TANK AST or UST</b>	<b>APPLICABLE REGULATIONS</b>



**Figure 1-2**

	<b>Figure X.X: Building X - Building Name</b>
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