



CITY OF  
SANTA ROSA

**Fire Department**

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**FIRE DEPARTMENT  
INFORMATION BULLETIN**

**SUBJECT: UNDERGROUND STORAGE TANK (UST) INSTALLATION &  
MAINTENANCE**

<b>Bulletin Number:</b> 010
<b>Date of Issue:</b> June 6, 1994

<b>Code Reference:</b> 1994 Uniform Fire Code (UFC), Articles 79 & 80 Santa Rosa City Code (SRCC), Chapters 18-16 & 18-44 California Code of Regulations, Title 23
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**NOTE:** This bulletin is a summary of Fire Department interpretations of City, State and Federal Codes. Information contained herein applies to typical instances and may not address all circumstances. This bulletin is not intended to address retail storage and/or sales of hazardous materials.

**DEFINITIONS:**

**EXISTING UST**

Any UST installed prior to January 1, 1984.

**NEW UST**

Any UST installed, or to be installed, after January 1, 1984.

**TANK INTEGRITY TEST**

A test method capable of detecting a leak rate of 0.1 gallon per hour, with 95% probability of detection and less than 5% probability of false alarm.

**UNDERGROUND STORAGE TANK (UST)**

An underground storage tank is any tank, vault, clarifier, hoist, etc. including piping connected thereto which is, or has been used for the storage of any hazardous material and which is beneath the surface of the ground.

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

**PERMIT REQUIREMENTS:**

**ANNUAL UST STORAGE PERMIT**

Businesses operating an underground tank shall be required to obtain an annual UST Permit for each tank and provide additional information with their Hazardous Materials Management Plan (HMMP). This information may be provided by submitting the State Underground Storage Tank Permit Application Forms "A" and "B", available from our office. A copy of the UST Permit shall be provided to the property owner, if different from the tank operator, in order to satisfy their permitting requirements, pursuant to Chapter 6.95 of the California Health & Safety Code. In addition, a State UST surcharge shall be billed to the tank owner by the Santa Rosa Fire Department on a 5 year basis.

**INSTALLATION, ALTERATION, REPAIR PERMIT\***

A permit must be obtained to install, alter or repair any underground tank, piping or monitoring system. To obtain a permit, the tank owner, operator or authorized representative of the tank owner must submit the following information:

- 1) A Hazardous Materials Permit Application and fees, including the State UST Surcharge for each tank installation. Additional plans and permits may also be required by the Building Department for grading, electrical installations, pad construction, etc.
- 2) A written proposal and detailed construction plans addressing the requirements specified in Article 79 of the Santa Rosa Fire Code, Chapter 17.09 or the Santa Rosa Municipal Code, and CCR Title 23.
- 3) The maximum groundwater height must be identified along with the depth of the bottom of the tank. Any tank system subject to groundwater contact must be installed with "dead-men" to anchor the tank and must be monitored accordingly.
- 4) An updated HMMP and State UST Permit Forms "A", "B" and "C". The HMMP must include a detailed monitoring, inspection and maintenance plan as outlined below under "Monitoring Requirements."

*Note:* Upon completion of any installation, alteration or repair, an inspection and functional test of the entire system shall be required by the Santa Rosa Fire Department. In addition, a Tank Integrity Test must be performed and the results submitted to the Fire Department for final approval, prior to placing the system into service.

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

**CLOSURE/REMOVAL PERMIT\***

A permit shall be required to close or remove any underground tank or piping system. Additional permits may also be required for backfilling or over excavation due to contamination. Refer to Underground Storage Tank Closure and Removal Guidelines (Bulletin #91-011) for specific closure requirements.

\* *All work performed on any underground tank system must be conducted by a contractor with a current State Contractor's License (A, C-36, C-61/D40) and Hazardous Waste Certification, Workman's Compensation Insurance and a City of Santa Rosa Business License.*

**GENERAL REQUIREMENTS:**

The Santa Rosa Fire Department is responsible for inspecting each facility with underground tanks to review the HMMP and verify that the tank(s) and monitoring systems are operating properly and are being maintained in accordance with an approved monitoring and inspection program. In addition, all plans involving underground tank installations, alterations, repairs or modifications to the monitoring systems must also be reviewed and approved by the Fire Department.

The Fire Department also assumes responsibility for oversight of all clean-up and/or treatment of contaminated soils. For information concerning clean-up responsibilities and requirements for contaminated groundwater, or for information concerning the State UST Cleanup Funds provided by Senate Bill 2004, contact the California Regional Water Quality Control Board - North Coast Region at:

5550 Skylane Blvd., Suite A  
Santa Rosa, CA 95403  
(707) 576-2220

**UPGRADE REQUIREMENTS:**

All UST's and pressurized piping systems containing hazardous substances, other than motor vehicle fuel, shall be retrofitted with secondary containment by December 22, 1998. Tanks and piping systems which do contain motor vehicle fuels shall either be retrofitted with secondary containment, or provided with interior tank lining, cathodic protection, spill and overfill protection.

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

**MONITORING REQUIREMENTS:**

**A permit must be obtained from the Santa Rosa Fire Department prior to altering any existing monitoring method, or for installing any new system or device. The monitoring system must be listed below under "Approved Monitoring Methods", or additional plans and information submitted verifying that the system meets current State requirements. The permit application must also include an updated HMMP and monitoring plan which addresses the following information:**

- 1. Equipment to be used for performing the monitoring, including the manufacturer's specification for servicing and maintenance;**
- 2. The name(s) and title(s) of the person(s) responsible for performing the monitoring and/or maintaining the equipment;**
- 3. The system inspection and testing documentation, and reporting procedures;**
- 4. The preventive maintenance schedule for the monitoring equipment, as indicated by the manufacturer's recommendations, but not less frequent than once per year; and**
- 5. A description of the training needed for the operation of both the tank system and the monitoring equipment.**

**Any changes to the monitoring plan must be submitted to the Fire Department for approval.**

**Activation of the monitoring system alarm or test results indicating a possible unauthorized release shall require that the tank system be immediately placed out-of-service. The tank system must be re-tested within 72 hours to verify the monitoring results or immediately emptied of its contents. In the event a follow-up test is conducted which proves the tank system is tight, a report shall be submitted to the Fire Department within 30 days reporting the monitoring error and corrective action taken. If the test does not prove the tank system is tight, however, the tank system must immediately be emptied. Upon emptying the tank system, a closure permit application must be submitted to the Fire Department within 30 days.**

**Notwithstanding, for vapor monitoring methods, any detected vapor concentrations which exceeds the "Threshold Concentration" (100 ppm for gasoline, 500 ppm for diesel fuel), or any detected vapor concentrations which exceed the upper detection limit of the monitoring device shall immediately be reported to the Fire Department.**

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

**APPROVED MONITORING METHODS:**

This section lists approved monitoring methods for various types of underground tanks and piping systems. Other systems, which are not listed below, may be acceptable, but, they have not been reviewed by the Santa Rosa Fire Department and shall require additional plans and information to verify that they meet the current State requirements. For each monitoring method, the monitoring frequency and the currently approved monitoring system devices are listed. In addition to the approved tank monitoring methods, daily inventory reconciliation shall be performed.

**I. Single-Wall Tanks**

**A. In-Tank Level Monitors**

1. **Frequency: Daily Monitoring plus monthly testing at 1.0 gph with annual tank integrity testing, or monthly testing at 0.2 gph.**
2. **Approved Systems:**
  - a. **Veeder-Root Tank Level Sensors (TLS) - TLS 350, or TLS 250i (eight-tank system only)**
  - b. **Veeder-Root Continuous Automatic Tank Gauging System TLS Series 300/400 with CSLD for monthly monitoring**
  - c. **EASI Level-Tru**
  - d. **Tidel Systems Gas Tank Monitor (GTM) 2000 and 3000**
  - e. **EBW Auto Stik 950**
  - f. **CEI Series 3000**

**Note:** If the water table is capable of rising above the tank bottom at any time during the year, additional monitoring tests may be required as indicated in Attachment 1.

**B. Vapor Well Monitors**

1. **Frequency: Continuous**
2. **Approved Systems:**
  - a. **Leak Alert LA-02,-04,-08,-16 Console with LAVS-1 Probe**
  - b. **US Industrial Products, Models GW-6204 and -6208**
  - c. **Arizona Instrument, Soil Sentry, Twelve-X, Four Port (with Printer)**
  - d. **Pollulert FD 210VRA**

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

**Note:** If the water table is anticipated of rising within 10 feet of the tank bottom, additional monitoring tests may be required as indicated in Attachment 1.

**C. Precision Testing Methods\***

- 1. Frequency: Monthly**
- 2. Approved Systems:**
  - a. Overfilled Tank Test**
    - 1. AES System II**
    - 2. PetroTite 2**
    - 3. Horner EZY Chek Methods 1 and 2**
    - 4. VPLT Computerized Tank Leak Testing**
  - b. Underfilled Tank Test**
    - 1. VacuTect**
    - 2. Horner EZY Chek Method 2**
    - 3. VPLT Computerized Tank Leak Testing**
    - 4. Tracer Tight**

\* *Precision tank testing shall be performed only by, or under the direct supervision of, a tester with a valid tank testing license. The Fire Department must be notified in advance of all precision testing.*

**Note:** Single-Wall Waste Oil Tanks shall only utilize vacuum technology testing.

**II. Single-Wall Pressurized Pipe**

**A. In Line Leak Detectors**

- 1. Frequency: Continuous**
- 2. Approved Systems:**  
**Red Jacket 400-012 Line Pressure Kit with either the PPM 4000 or RLM 9000 Leak Detectors**

**B. Vapor Well\***

- 1. Frequency: Continuous**
- 2. Approved Systems: Refer to Method I-B for approved systems.**

**C. Precision Test\***

- 1. Frequency: Monthly**
- 2. Approved Systems: Refer to Method I-C for approved systems.**

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

- \* *These methods shall also include hourly pipeline monitoring to detect 3 gallons per hour at 10 psi. Pipeline monitoring shall be able to detect a release within one hour of its occurrence, and shall restrict the flow of product through the piping or trigger a visual or audible alarm upon the detection of such a release.*

**III. Single-Wall Suction (Or Other Than Pressurized) Pipe**

**A. Vapor Well**

1. **Frequency: Continuous**
2. **Approved Systems: Refer to Method I-B for approved systems.**

**B. Visual AND Precision Testing\***

1. **Frequency: Daily visual and annual precision test**
2. **Approved Systems:**

The following conditions which indicate the presence of air (or a leak) in the pipeline shall be inspected for on a daily basis :

- a. **Skip or jump in the cost/quantity display wheels on the suction pump meter during operation.**
- b. **No motor vehicle fuel is being pumped during operation of the suction pump.**
- c. **The suction pump seems to over-speed when first turned on and then slows down as it begins to pump liquid.**
- d. **A rattling sounds is present in the suction pump or there is an erratic flow indicating an air and liquid mixture.**
- e. **Signs of leakage at the check valve.**

In addition, annual precision testing must be conducted in accordance with the Method I-C.

- \* *This method may be used if there is only one check valve located immediately below the suction pump.*

**IV. Double-Wall Tanks and Piping**

Annular monitoring systems for pressurized piping shall either shut-off the pump upon leak detection or system failure, or be installed along with a system approved under Method II-A.

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

**A. Annular Liquid**

- 1. Frequency: Continuous**
- 2. Approved Systems:**
  - a. Pollulert FD 103 Control Unit; Models 210RA, 241RA, and 221TRA**
  - b. Ronan TRS X76 with LS-3 or LS-7 Probes**
  - c. Owens Corning**
    - 1. Liquid Head Pressure Monitor with Liquid Probe**
    - 2. RS10**
    - 3. Piping Sump System (PSS)**
  - d. Leak Alert LA-02,-04,-08,-16 Console with LALS-1 Probe**
  - e. Xerxes Liquid Head Pressure Monitor with Liquid Probe**
  - f. Veeder-Root TLS-250i, ILS-250 and 350i Consoles with the Veeder-Root Interstitial Liquid Sensor Probe**
  - g. TraceTek Cable\***
    - 1. 501 for solvents**
    - 2. 502 for gasoline and diesel**
    - 3. 300 for acids, bases, and waste water**
  - h. Petrometer Model 20 Type T Tank Leak Alarm with Model 21 Tank Assembly Unit**

\* *TraceTek systems must be functionally tested with a representative product to be monitored.*

**B. Annular Vapor**

- 1. Frequency: Continuous**
- 2. Approved Systems:**
  - a. Leak Alert LA-02,-04,-08,-16 Console with LAVS-1 Probe**
  - b. US Industrial Products, Model GW-6204 and -6208**
  - c. Arizona Instrument, Soil Sentry**
    - 1. Twelve-X**
    - 2. Four Port (with Printer)**
  - d. Pollulert FD 210VRA**

**INFORMATION BULLETIN  
UNDERGROUND STORAGE TANK (UST)  
INSTALLATION AND MAINTENANCE**

**ATTACHMENT 1**

**Due to insufficient data on the ability of vapor monitoring wells and internal tank level monitors to detect a leak rate of 0.2 gallons per hour when groundwater is present at a level above the bottom of the tank, and the problems the Santa Rosa Fire Department has encountered with such instances, these methods shall only be permitted as follows.**

**The monitoring tests shall be conducted each month when the groundwater is below the bottom of the tank. The depth to groundwater shall be recorded each month along with the tank test results. For months in which the groundwater does not recede below the bottom of the tank, the monitoring tests must be performed in conjunction with one of the following approved methods.**

- I. A separate precision tank test shall be performed which is capable of compensating for the presence of groundwater to detect a leak rate of 0.2 gallons per hour, such as the precision testing methods outlined in Section I-C of the Approved Monitoring Methods Section.**
  
- II. Groundwater monitoring shall be performed, per State UST regulations (Section 2648), with the following restrictions for internal tank systems.**
  - A. The tank must be completely filled to maximize the difference in elevation between the fuel level in the tank and the groundwater level outside the tank, and the difference in elevation between the fuel and groundwater must be sufficient to produce a pressure differential of 1 psi, minimum.**
  
  - B. The internal tank system must be capable of detecting water intrusion into the tank. The water level within the tank must be reported, along with the difference from the level detected during the previous month. In addition, the reason for any changes must be addressed in the tank test results.**
  
- III. Statistical Inventory Reconciliation (SIR), may be used to supplement the results obtained with the vapor monitoring or internal tank methods. When in-tank monitoring is conducted, the test shall be performed subject to the restrictions outlined in Section II.**