



**A California Tank Owner's Guide
for Upgrading Underground
Storage Tanks**

***DON'T WAIT
UNTIL IT'S
TOO LATE!***

March 1997

**California
State Water Resources Control Board
Division of Clean Water Programs
P.O. Box 944212
Sacramento, CA 94244-2120
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DON'T WAIT UNTIL IT'S TOO LATE!

Upgrading USTs for 1998

Here's Why You Should Read This Booklet

If your underground storage tank (UST) doesn't meet the regulatory requirements that go into effect on December 22, 1998, you need information to **take action now!**



Federal and State laws give you until **December 22, 1998** to do **one** of these things:

- Upgrade or
 - Replace or
 - Close
- } your existing UST system.

There are many reasons why you shouldn't put off dealing with your existing UST system. This booklet has the information you need to make sure you'll be in compliance by the deadline. It focuses on **how to upgrade** your UST.

***Start
planning
NOW to
upgrade,
replace,
or close
your tank***

If you have decided to **close** your tank instead - go to page 21 for more information.

If you have decided to **replace** your tank with a new one, you should read Article 3 of the California Code of Regulations. This article gives the requirements for new tanks.

To order a copy of the regulations, see Appendix A under "UST Regulations."

These Are The Types of Tanks and Piping That Must Be Upgraded or Replaced

- Single-walled steel tanks
- All tanks that don't have spill and overflow protection and striker plates
- All single-walled waste oil tanks
- Any tank not in compliance with California's regulations
- Any piping that does not have corrosion protection
- Single-walled tanks and piping that hold hazardous substances other than motor vehicle fuel. This includes chemical tanks, new motor oil tanks, and used oil tanks. These tanks must have secondary containment by December 22, 1998.

Check With Your Local Agency First

Your local agency is the government agency that implements and oversees the UST program in your area. In some jurisdictions it is the County Department of Health. In other areas, the local agency may be the City Fire Department. All local agencies implementing the UST program are listed in Appendix D.

When you've finished reading this booklet and have made the decision about upgrading, replacing, or closing your tank, be sure to check with your local agency for any additional requirements. In fact, if you talk to your local agency before making your decision, you may get some information that will help you decide what's best for you.



Is It Too Early to Worry About Upgrading?

No. Here's why - -



Upgrading now means that your tank may not have a chance to leak before you take precautions. The older the tank, the more likely it is to leak. A leaking tank means your business suffers - you face costly cleanup, possible civil litigation or criminal charges, and serious down time before you get back to the business of running your business.



As December 22, 1998 gets closer, more tank owners will be upgrading, replacing, or closing their tanks. Contractors may begin to charge more for their services as they work overtime to try to meet the demand. You may have trouble even finding an available contractor and the work can't be done without one. Also, supplies and equipment may get scarce.



If your tank isn't ready by the deadline, your insurance carrier may cancel or void your coverage. Check to see if your carrier offers financial incentives such as lower deductibles or lower premiums for upgrading early.



If you have contamination on your property (from a leaking tank or spills or overfills) and you haven't met the deadline, you would be out of compliance and ineligible to receive money from the State's Cleanup Fund.

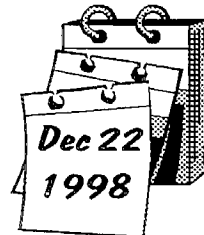


Low interest loans may not be available if you wait too long. The California Trade and Commerce Agency, Office of Small Business, has low interest loans available for small businesses with USTs. For more on this, call them at (916) 323-9879 and ask for information about the "Repair/Replace Underground Storage Tanks" (RUST) Program.



It can take several months to upgrade, close, or replace your system. Bad weather or contractor delays may occur. Before you can begin work, you must have a construction permit and a permit from your local agency. The sooner you get started, the better your chances will be to meet or beat the 1998 deadline.

***The
deadline
will not be
extended.***



DON'T WAIT UNTIL IT'S TOO LATE!

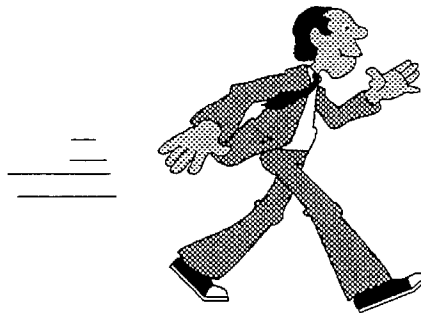
Does the Type of Product In My UST Affect My Upgrade Options?

Yes.

If you own a motor vehicle fuel tank, you may upgrade it.

If you own a tank that holds another hazardous substance, you may not upgrade it - you must replace or close it.

**GO TO
PAGE 19
FOR MORE
INFORMATION
ABOUT OTHER
HAZARDOUS
SUBSTANCE
TANKS**



MOTOR VEHICLE FUEL TANKS

What Is a Motor Vehicle Fuel Tank?

The regulations define a motor vehicle fuel tank as, "... an underground storage tank that contains a petroleum product which is intended to be used primarily to fuel motor vehicle or engines." A petroleum product is "... liquid at standard conditions of temperature and pressure, which means at 60 degrees Fahrenheit and 14.7 pounds per square inch absolute."

Some examples of motor vehicle fuels include leaded and unleaded gasolines, diesel*, kerosene, jet fuels, fuel-oils, and certain ethanol and gasohol products. Although methanol is used to fuel vehicles, it is not regulated as a motor vehicle fuel - it is considered another hazardous substance. For more information, see Appendix C, "Classification of Underground Storage Tanks (USTs) Storing Oxygenated Motor Vehicle Fuels and Gasohol."

What Are the Minimum Upgrade Requirements If My Tank Stores Motor Vehicle Fuel?

All motor vehicle fuel tanks must have the following by the December 22, 1998 deadline:

- ✓ Interior lining (see page 16)
- ✓ Corrosion protection (see page 6)
- ✓ Striker plates or drop tube-mounted bottom protectors
- ✓ Spill containers (see page 10)
- ✓ Overfill prevention equipment (see page 13)
- ✓ Automatic line leak detector to shut off the pump

CORROSION PROTECTION

What is Corrosion ?

Corrosion results when bare metal, soil, and moisture combine to produce an underground electric current that destroys hard metal and causes rust. Over time, corrosion creates holes - in an UST, this means leaks.

What is Corrosion Protection?

Corrosion protection is a method of keeping metal from rusting or corroding.

One example of corrosion protection is where the outer surface of a new tank is sprayed with fiberglass-reinforced plastic. This prevents soil from coming in contact with bare metal.

Another example of corrosion protection is "cathodic protection." There are two types of cathodic protection: sacrificial anode systems and impressed current systems. These are discussed on page 8.

A tank that is protected against corrosion is constructed of - or has been clad with - fiberglass or other noncorrosive materials.

What are the Requirements for Corrosion Protection?

You already meet the requirements for corrosion protection if you have one of these types of UST systems:

- **The tank and piping are made entirely of noncorrodible material such as fiberglass.** The tank and piping are also protected if they are completely isolated from contact with the surrounding soil. This would happen if they were enclosed (sometimes called, "jacketed") in noncorrodible material or if they sit in a vault.
- **The tank and piping are made of steel and have a corrosion-resistant coating AND cathodic protection.** A corrosion-resistant coating electrically isolates the metal from the surrounding environment. *Asphaltic coating does not qualify as a corrosion-resistant coating.*
- **The tank and piping are made of steel and are clad with a thick layer of noncorrodible material.** (Most existing piping systems were not clad when they were manufactured.)

It's not practical to add coatings or to clad steel USTs that don't already have corrosion protection. Instead, you must either:

- ◆ Add cathodic protection to steel tanks and steel piping and line the interior of the tanks, or
- ◆ Add cathodic protection to steel tanks and steel piping, line the interior of the tanks, and install a bladder system.

Galvanized steel does not satisfy the corrosion protection requirement.

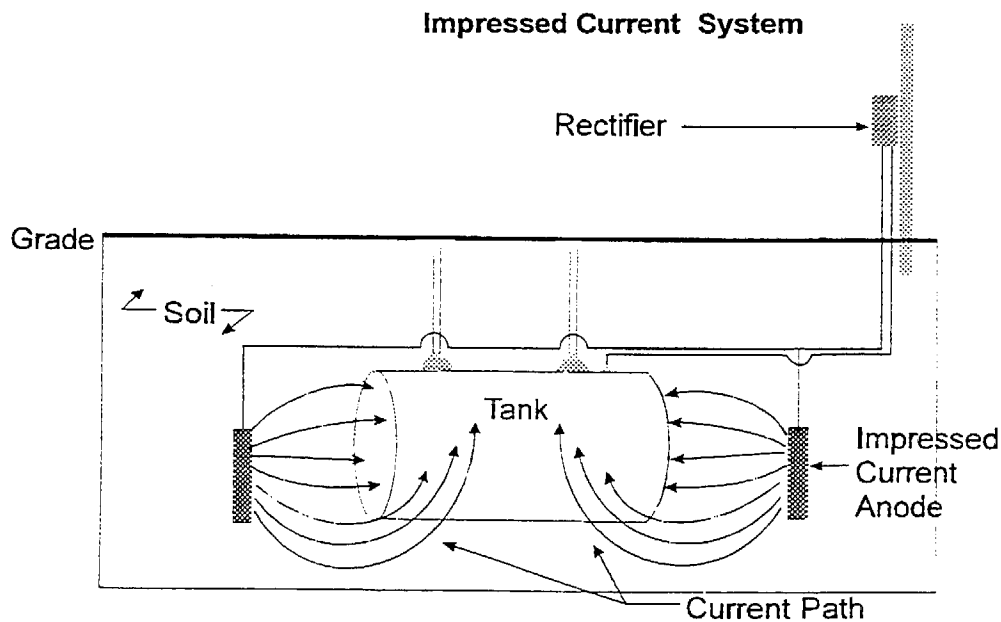
For more information on corrosion and how USTs can be protected, contact NACE (See Appendix A under General Information).

What Cathodic Protection Methods are There?

IMPRESSED CURRENT SYSTEM

Using cathodic protection requires periodic tests and inspections, as well as consistent recordkeeping.

An impressed current system uses a rectifier to convert alternating current to direct current (see illustration below). This current is sent through an insulated wire to the "anodes," which are special metal bars buried in the soil near the tank and piping. The current then flows through the soil to the UST system, and returns to the rectifier through an insulated wire attached to the UST. The UST is protected because the current going to it overcomes the corrosion-causing current normally flowing away from it.



SACRIFICIAL ANODE SYSTEM

Another type of cathodic protection (not illustrated here) is called a sacrificial anode or galvanic system. Although sacrificial anode systems work with new USTs, corrosion protection experts generally agree that **sacrificial anodes do not work effectively or economically with most existing steel USTs**. Only a qualified corrosion specialist can determine what kind of cathodic protection will work on your UST system. Corrosion specialists must be state registered corrosion engineers or certified by NACE (see Appendix A under General Information).

How Do I Add Cathodic Protection?

Find a qualified corrosion specialist. Regulations require a corrosion specialist to design and certify cathodic protection systems when they are installed onsite. A licensed contractor must supervise the installation.

Only tanks proven to be structurally sound can have cathodic protection and lining added to them.

Have the system tested by a qualified cathodic protection tester within six months of installation and at least every three years after that. You will need to keep the results of the three most recent tests to prove to your local agency that the cathodic protection is working and properly adjusted.

Inspect the impressed-current system every 60 days to verify that the system is operating. Keep 6 ½ years worth of inspection reports to prove to your local agency that the impressed current system is working.


Existing single-wall steel piping that contains motor vehicle fuel may be upgraded with cathodic protection if approved by the local agency.

Piping made only of (or enclosed in) noncorrodible material such as fiberglass, does not need cathodic protection.

SPILL PREVENTION



How Do Spills Happen?

Mostly human error. Spills often happen when the delivery truck driver disconnects the truck's hose from a tank's fill pipe. Although these spills are usually small, many small spills can cause big environmental problems. 

To prevent spills, the driver must watch the delivery from beginning to end. If you and the driver follow standard filling practices, nearly all spills can be prevented. To order a copy of EPA's video, "Keeping It Clean: Making Safe and Spill Free Motor Fuel Deliveries" see Appendix A, under "Fuel Deliveries."





What Is A Spill Container?

It's a bucket, connected to the tank's fill pipe, that captures fuel spilled during deliveries to the tank. These containers are also called "catchment basins," and "spill buckets."

Some spill containers are designed with spring-loaded valves which allow product to be drained into the tank. Other spill containers have to be emptied with a hand pump.

What Are the Requirements for Spill Containers?

They must:

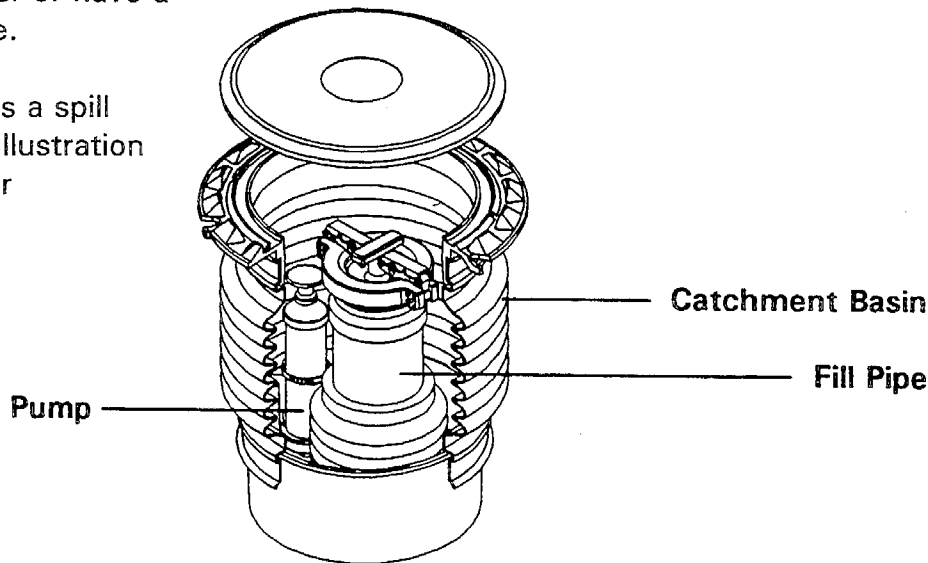
-  be corrosion resistant;
-  hold at least five gallons;
-  have a drain valve or another means to keep them empty;
-  be approved by an independent testing organization, or the specifications must be approved by a state-registered engineer.

The spill container should be large enough to contain whatever amount of product that may spill when the delivery hose is disconnected from the fill pipe. Spill containers sizes range from about 5 gallons to 25 gallons. The larger the spill container, the more protection it provides.

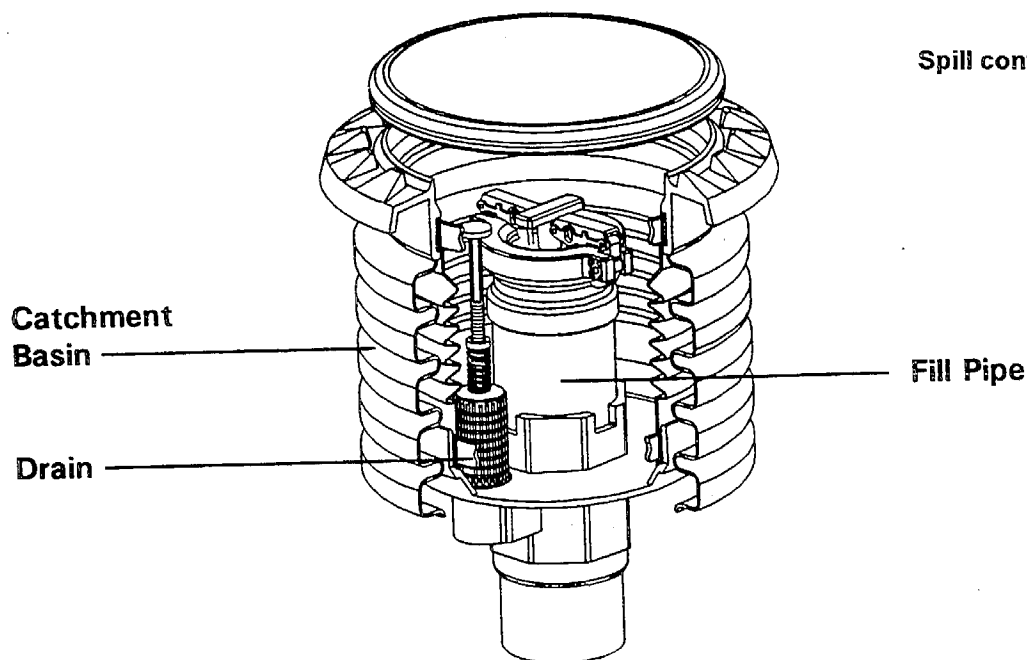
You need a way to remove spilled liquid from the buckets. Some manufacturers equip spill containers with drain valves to drain the liquid into the tank or into another bucket. You may also install a pump in the container or have a portable hand pump available.

The illustration at right shows a spill container with a pump. The illustration below shows a spill container with a drain.

Spill container with a pump



Spill container with a drain



More about spill containers



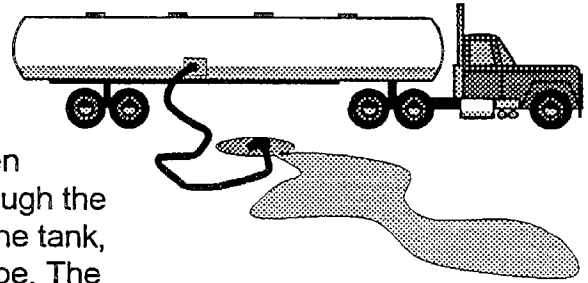
Spill containers that have drains may allow toxic fumes to escape into the atmosphere. Therefore, the California Air Resources Board (CARB) must certify the spill container if it is equipped with a drain. If your spill container has a pump installed, it doesn't need CARB certification. For more information, call CARB, Compliance Division, at (916) 327-1525.

You should try to keep water out of your spill container. If the water and sediment are collected along with spilled hazardous substances, you shouldn't drain this mixture back into your tank. If you **do** get water in the spill container, you should pump it out along with any spilled fuel, and dispose of the liquid properly. Since this combination is a hazardous waste, you need to contact the Department of Toxic Substances Control (DTSC) to find out how to handle it. DTSC's general information number is (800) 618-6942. You may also call your regional office - those numbers are on the last page of Appendix A under, "Dept. of Toxic Substances Control ..."

OVERFILL PREVENTION

How Do Overfills Happen?

Overfills happen when someone tries to put more product in a tank than it will hold. Overfills usually result in the loss of much larger volumes of fuel than spills. When a tank is overfilled, product can back up through the fill pipe, through loose fittings on the top of the tank, or through a loose vent or vapor recovery pipe. The tightness of these fittings normally would not be a problem if the tank were not filled beyond its capacity.



How Can I Help Prevent Overfills?

If fuel being delivered to your tank winds up anywhere except inside the tank or spill container, you must report it to your local agency as an unauthorized release. Then you have to do paperwork and pay for remediation (cleanup). NOT what you want to do, so take these precautions:

If you meet the three criteria below, you don't need overfill protection. Many small waste oil tanks fall into this category.

- Don't order more fuel than your tank has room for.
- Keep an eye on the delivery process if you can, and make sure the driver pays close attention.
- Use equipment that prevents overfills. This includes alarms, flow restrictors, and automatic shut-off devices.

Your local agency has the option to waive the overfill prevention requirement if:

1. you can see the tank inlet; ***and***
2. the spill container alone will collect any overfill; ***and,***
3. you do not put more than 25 gallons at one time into the tank.

What Types of Overfill Prevention Devices Are There?

Overfill Alarms - With these devices, an audible and visual alarm is activated when the fuel reaches 90% of the tank's capacity.

Overfill alarms use probes installed in the tank (see illustration on the right) to activate an alarm when the tank is 90% full. This provides enough time for the driver to close the truck's shutoff valve before the tank overfills. Alarms must be located where the driver can see and hear them easily. (Overfill alarms are often part of automatic tank gauging systems.)

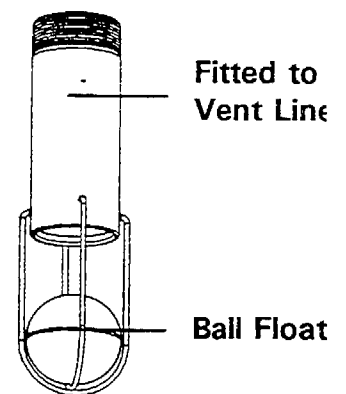
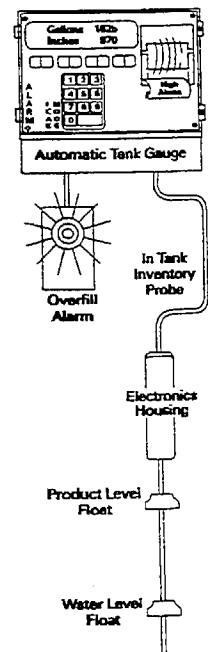
Overfill alarms work only if they alert the driver at the right time and the driver responds quickly. Remember to put the alarm on an electrical circuit that is active all the time so the alarm will always work. Many deliveries are made at night when the facility is closed. You don't want to turn off your alarm when you turn off the office lights.

Flow restrictors - These are usually **ball float valves** installed in the vent and vapor recovery line. They restrict the flow of fuel to the tank before the tank is 90% full.

Ball float valves (see illustration on the right) are placed at the bottom of the vent line several inches below the top of the tank. The ball floats on the product and rises with product during delivery until it restricts vapor flowing out the vent line—before the tank is full. This creates enough back pressure to restrict product flow into the tank. The driver is then alerted to close the truck's shutoff valve.

Note: Manufacturers do not recommend using ball float valves with suction piping, pressurized delivery, or coaxial Stage I vapor recovery.

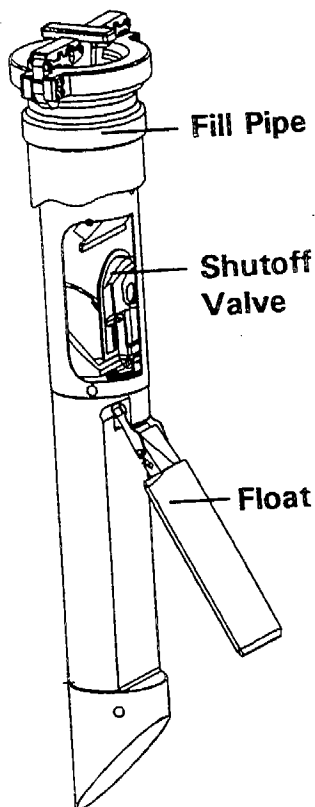
Overfill alarm connected to an automatic tank gauge



Ball Float Valve

Automatic shutoff devices - These are also called “fill pipe devices” because they are installed inside the drop tube. They slow and then stop the flow of fuel when the tank is no more than 95% full. They have one or two valves that are operated by a float mechanism (the illustration on the left shows one kind of automatic shutoff device).

Automatic shutoff device



Some devices work in two stages. The first stage drastically reduces the flow of fuel to alert the driver that the tank is nearly full. The driver can then close the delivery valve and still have room in the tank for the product left in the delivery hose.

If the driver neglects to close the delivery hose valve, the fuel level will rise too high, the automatic shutoff valve closes completely and no more fuel can be delivered, leaving the driver with a delivery hose full of product.

To work properly, overfill devices must be installed carefully at the distance below the tank top specified by the manufacturer.

If you have pumped delivery where fuel is delivered under pressure, you must make sure your overfill prevention device works compatibly with pumped deliveries. Also, remember that these devices are effective only when combined with careful filling practices.

Interior Tank Lining

What is Tank Lining?

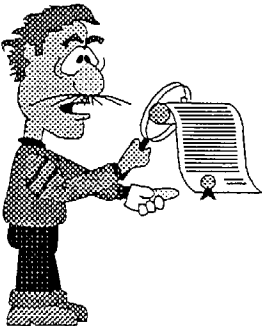
Tank lining is a coating process that provides corrosion protection to the tank's interior. It is also a means to ensure that the tank is tight. It is used both to upgrade and to repair tanks. Both the tank lining material and the application procedures must be approved by an independent testing organization such as Underwriters Laboratories. Approval is given if the lining meets voluntary consensus standards. Only licensed contractors may line tanks.

Your local agency will not allow you to line your tank if you are unable to show that it will be tight after lining.

Before you have your tank lined, do one of the two procedures below.

1. If your tank is made of non-corrodible material (such as fiberglass), and you decide to line it, this is what you need to do:

- ◆ have the inside of the tank cleaned
- ◆ have a special inspector do an interior inspection
- ◆ get a certificate from the inspector



2. If your tank is made of steel or steel clad with a non-corrodible material, this is what you need to do:

- ◆ have the interior surface blasted with an abrasive to completely remove scale, rust, and foreign matter;
- ◆ have a special inspector do an interior inspection using an ultrasound thickness gauge; and
- ◆ get a certificate from the inspector.

You must close your tank if:

- ◆ the tank's average metal thickness is less than 75% of the original wall thickness; or,
- ◆ the tank has perforations, open seams or splits; or
- ◆ the special inspector does not certify that it is suitable for lining.

Before returning your newly-lined tank to service, this is what you need to do:

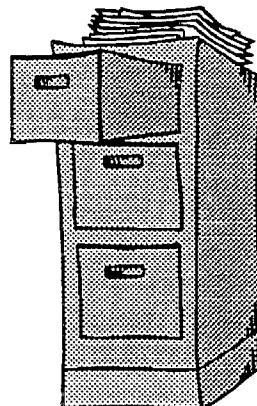
- ◆ have a coatings expert or special inspector check the interior; and
- ◆ have the tank tested by a licensed tank integrity tester.

Will My Lined Tank Have to Be Inspected in the Future?

Yes. Within 10 years of lining and every 5 years after that, a coatings expert or special inspector must inspect your tank.

The inspection includes testing the lining for thickness and hardness to verify that it meets the standards under which it was applied. Lining applied to steel tanks must also be tested using an electrical resistance holiday detector. The average metal thickness must be determined again. Records of these inspections must be kept and made available to your local agency.

Inspection records



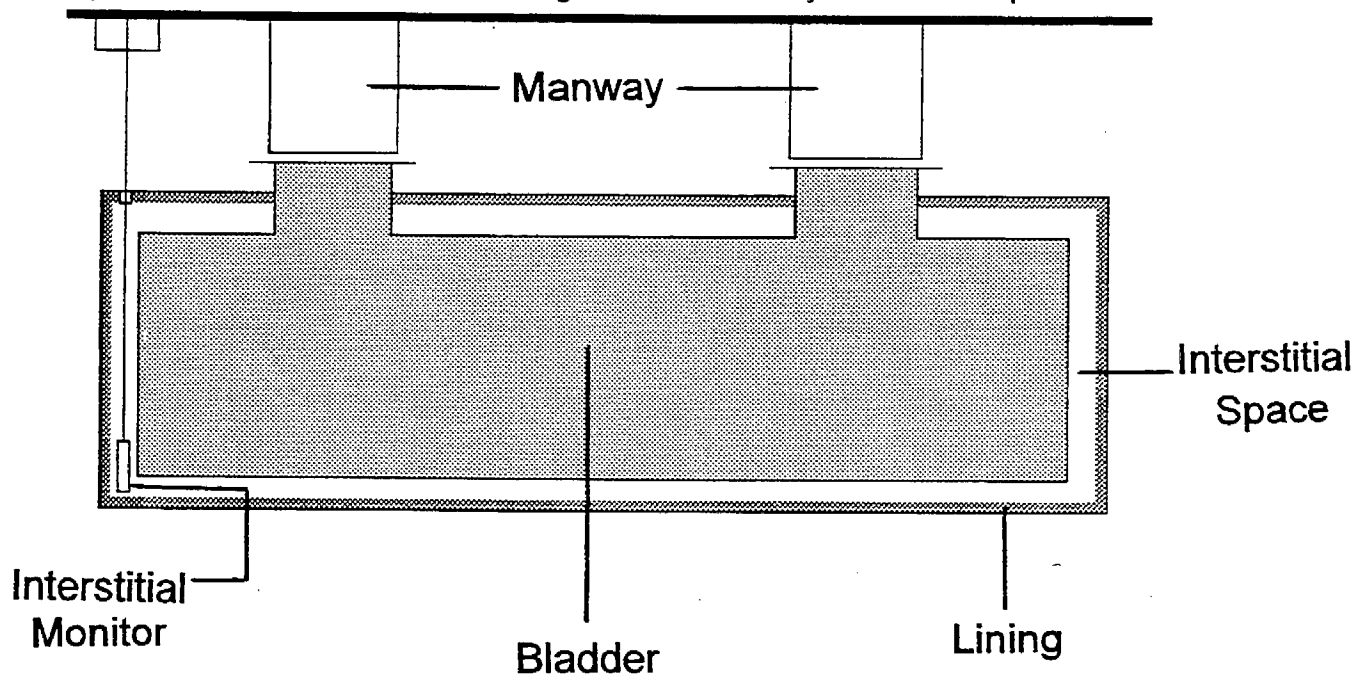
DON'T WAIT UNTIL IT'S TOO LATE!

Bladder Systems

Bladder systems provide an option for upgrading motor vehicle fuel tanks only.

A bladder is a fuel cell installed in a tank after the tank has been cleaned, certified sound, and lined. The bladder creates a primary containment vessel which actually holds the fuel. The existing tank becomes the secondary containment vessel. The space between these vessels is called the interstitial space. This space can be monitored for fuel leaks from the bladder and for water entering from the secondary containment.

This diagram shows how the interior lining and a bladder system are coupled.



Both the bladder material(s) and the manufacturing must be approved by an independent testing organization. Approval is given if the bladder meets voluntary consensus standards (such as UL approval), an industry code, or an engineering standard. For a material to be certified, it must be tested to show that it is product-tight, compatible with the substance stored, and capable of detecting and containing a leak from any portion of the tank.

When the system is approved, the manufacturer receives a certificate for the material and/or manufacturing process.

OTHER HAZARDOUS SUBSTANCE TANKS

There are two basic types of hazardous substances:

- 1) The first is listed in a National Fire Protection Association (NFPA) standard which defines liquids based on specific flammability and combustibility criteria. They are:

Class II combustible liquids - these have flash points at or above 100°F (37.8°C) and below 140°F (60°C).

Class IIIA combustible liquids - these have flash points at or above 140°F (60°C) and below 200°F (93°C).

Flammable liquids having a flash point below 100° F (37.8°C) and having a vapor pressure not exceeding 40 lbs. per square inch (absolute) (2,068 mm Hg) at 100°F (37.8°C).

- 2) The remaining hazardous substances are listed in Appendix C. The list at Appendix C covers hazardous substances which are regulated by various federal and state laws. If you have questions regarding the definition of hazardous substances in the UST law, call the State Water Resources Control Board at (916) 227-4319.

My Tank Holds a Hazardous Substance Other Than Motor Vehicle Fuel - Can I Upgrade It?

No. You have two choices: Replace it; or close it.

If you're going to replace your system, you need to know the requirements for installing new tanks and piping that will contain hazardous substances. They are on the next page.

New Hazardous Substance Tank Requirements:

1. They must have secondary containment that is either built into the primary containment or as a separate containment system.
2. They must be monitored by either:
 - a. a continuous interstitial monitoring system; *or*,
 - b. visual monitoring - only if you can see all the way around the tank including under it (usually tanks in vaults or basements).
3. If the primary containment is in direct contact with interstitial space backfill, it must have corrosion protection. The secondary containment must have corrosion protection even if it's not in contact with the backfill.

Hazardous Substance Piping Requirements:

1. Piping must be secondarily contained with: another pipe, a vault, or a lined trench.
2. If the primary piping or the secondary containment for the piping is in direct contact with the backfill, it must have corrosion protection.
3. Piping must be monitored by:
 - a. a continuous monitoring system which activates an audible and visible alarm in the interstitial space; an automatic line leak detector (on pressurized piping); and an annual pipe integrity test; *or*,
 - b. a continuous monitoring system which activates an audible and visible alarm and shuts down the pump when the monitoring system fails or is disconnected.

CLOSING YOUR TANK

If you decide not to upgrade or replace your UST, then you must stop using it (permanently close it).

Here are the rules:

- Let your local agency know as soon as you have made the decision to close your tank. You must have permission to close it before you start the work.
- Determine if you have had any releases that contaminated the surrounding environment. You may be able to use the results of monthly vapor or ground water monitoring to show that your site is not contaminated. Otherwise, you will need to do a site assessment.

WARNING:
*Only licensed
contractors
holding
hazardous
waste
certifications
may remove
USTs. It's
dangerous!*

If you find contamination, you will have to clean it up by taking "corrective action." See Article 11 of the UST regulations for corrective action requirements.

- Have the tank emptied of liquids, accumulated sludge, and dangerous vapor levels. This is very hazardous work that needs to be done by trained people who follow standard safety practices. These people must be contractors who have a Hazardous Waste Certification issued by the Contractors State License Board.
- Have the tank removed by a licensed contractor and disposed of. Or you may close it in place if approved by your local agency.

Check to see if your local agency has additional requirements.

GENERAL INFORMATION

API (American Petroleum Institute)
1220 L Street, N.W.
Washington, DC 20005
(202) 682-8000

ASTM (American Society for Testing and
Materials)
1916 Race Street
Philadelphia, PA 19103
(215) 299-5585

Fiberglass Petroleum Tank and Pipe Institute
9801 Westheimer, Suite 606
Houston, TX 77042-3951
(713) 465-3310

NACE International (formerly the National
Association of Corrosion Engineers)
Box 218340
Houston, TX 77218-8340
(713) 492-0535

National Fire Protection Association
1 Batterymarch Park
Box 9109
Quincy, MA 02269-9101
(617) 770-3000

NLPA (National Leak Prevention Association)
Box 1643
Boise, ID 83701
(208) 389-2074

PEI (Petroleum Equipment Institute)
Box 2380
Tulsa, OK 74101-2380
(918) 494-9696

STI (Steel Tank Institute)
570 Oakwood Road
Lake Zurich, IL 60047
(708) 438-8265



INDUSTRY CODES AND STANDARDS

Tank Lining

API Recommended Practice 1631 (1992),
"Interior Lining of Underground Storage Tanks"
Phone: (202) 682-8000

UL Subject 1856 (1992), "Outline of Proposed
Investigation for Underground Storage Tank Lining
Systems for Petroleum Products, Alcohols and
Alcohol-Gasoline Mixtures"
Phone: (708) 272-8800

Uniform Fire Code Standard 79-6, "Interior Lining
of Underground Storage Tanks"

NLPA Standard 631 (1991), "Entry, Cleaning,
Interior Inspection, Repair, and Lining of
Underground Storage Tanks"
Phone: (208) 389-2074

Cathodic Protection

API Recommended Practice 1632 (1987),
"Cathodic Protection of Underground Petroleum
Storage Tanks and Piping Systems"
Phone: (202) 682-8000

NACE RP-0169-92 (1992), Recommended
Practice: "Control of Corrosion on External
Underground or Submerged Metallic Piping
Systems"
Phone: (713) 492-0535

NACE RP-0285-85 (1985), "Recommended
Practice: Control of External Corrosion on Metallic
Buried, Partially Buried, or Submerged Liquid
Storage Systems"
Phone: (713) 492-0535

STI R892-91 (1991), "Recommended Practice for
Corrosion Protection of Underground Piping
Networks Associated with Liquid Storage and
Dispensing Systems"
Phone: (708) 438-8265

Closing USTs

API Recommended Practice 1604 (1987),
"Removal and Disposal of Used Underground
Petroleum Storage Tanks"
Phone: (202) 682-8000

Tank and Piping Installation

API Recommended Practice 1615 (1987),
"Installation of Underground Petroleum Storage
Systems"
Phone: (202) 682-8000

PEI RP100-94 (1994), "Recommended Practice
for Installation of Underground Liquid Storage
Systems"
Phone: (918) 494-9696

UST Regulations

State Water Resources Control Board
P.O. Box 944212
Sacramento, CA 94244-2120
(916) 227-4303

EPA PUBLICATIONS

Leak Detection Requirements

"Straight Talk On Tanks: A Summary of Leak
Detection Methods for Petroleum Underground
Storage Tanks." To order this free publication,
call EPA's toll-free RCRA/Superfund Hotline at
800 424-9346 and ask for EPA 530/UST-90/012.

Taking Corrective Action

"Oh No! Petroleum Leaks and Spills: What Do You
Do?" To order this free publication, call EPA's
toll-free RCRA/Superfund Hotline at 800 424-
9346 and ask for EPA 530/UST-88/004.

Fuel Deliveries

"Keeping It Clean: Making Safe and Spill-Free
Motor Fuel Deliveries." For ordering information
call EPA's toll-free RCRA/Superfund Hotline at
800 424-9346 (video costs about \$60).

Closure

"Tank Closure Without Tears" and "What Do We
Have Here?" Videos and companion booklets
available (\$20 to \$45) from New England
Interstate Water Pollution Control Commission,
ATTN: VIDEOS, 84 Merrimac St., Boston, MA
02114

***Dept. of Toxic Substances Control Regional
Office Contacts (handling hazardous
material)***

General Information (800) 618-6942

Region 1 - Sacramento (916) 255-3618
Region 1 - Clovis Dist. Office
(209) 297-3901

Region 2 - Berkeley (510) 540-3739
Region 3 - Glendale (818) 551-2830
Region 4 - Long Beach (310) 590-4968

Quick Compliance Checklist

If you can check off items below that apply to your UST systems by **December 22, 1998**, you should be in compliance with the upgrade requirements.

- Secondary containment** is installed for non-motor vehicle fuel tanks and piping.
- Spill protection** is provided by a spill container.
- Overfill prevention** is provided by an automatic shutoff device, overfill alarm, or ball float valve.
- Automatic line leak detector** is installed to shut down pumps for pressurized piping.
- Corrosion protection for the tank** is provided by one of the following:
 - Steel tank has corrosion-resistant interior coating AND exterior cathodic protection.
 - Tank is made of noncorrodible material (such as fiberglass).
 - Steel tank is clad with (or enclosed in) noncorrodible material.
 - Steel tank has cathodic protection, interior lining, and a bladder system.
- Corrosion protection for piping** is provided by one of the following:
 - Steel piping has corrosion protection.
 - Steel piping has a corrosion-resistant coating AND cathodic protection.
 - Piping is made of (or enclosed in) noncorrodible material.
- Striker plate** or fill tube-mounted bottom protector.

Note: If you have decided not to upgrade your UST system, you must remove it or close it in place. If you replace the old system with a new one, the new system must meet all regulatory requirements for new installations.

STATE WATER RESOURCES CONTROL BOARD**DIVISION OF CLEAN WATER PROGRAMS**

2014 T STREET, SUITE 130
P.O. BOX 944212
SACRAMENTO, CA 94244-2120



916/227-4483

Facsimile 916/227-4349

JUL 16 1993

To: Local Implementing Agencies and Interested Parties:

LG-127 CLASSIFICATIONS OF UNDERGROUND STORAGE TANKS (USTS) STORING
OXYGENATED MOTOR VEHICLE FUELS AND GASOLOLS

Several inquiries have been made to our office questioning whether USTs containing oxygenated motor vehicle fuels and gasohols must comply with the requirements for tanks storing motor vehicle fuels or with requirements for tanks storing hazardous substances other than motor vehicle fuels.

Classification of these regulated substances is important when considering compliance with the December 22, 1998 UST upgrade requirements and eligibility for participation in the UST Cleanup Fund. The need to classify these alternative motor vehicle fuels will become increasingly significant as their production and use increases.

This office requested the United States Environmental Protection Agency (U.S. EPA), Office of Underground Storage Tanks to provide guidance on 40 CFR 280.42 and other relevant portions of the federal regulations pertaining to the storage of oxygenated motor fuels and gasohols.

The U.S. EPA's February 5, 1993 response (see Enclosure 1) states that oxygenated motor vehicle fuels and gasohols containing more than a five percent concentration of Comprehensive Environmental Response Compensation and Liability Act (CERCLA)-listed substances are subject to requirements pertaining to hazardous substances. Hazardous substances include solvents, waste oils, methanol, new motor oils, among others. The enclosed table specifies which oxygenated blending agents are currently CERCLA-listed (Enclosure 2).

A motor vehicle fuel is classified as a petroleum product used primarily to fuel engines or self-propelled devices by which any person or property may be propelled, moved, or drawn. Section 2611 of the California UST regulations defines petroleum to include crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means at 60 degrees Fahrenheit and 14.7 pounds per square inch absolute.

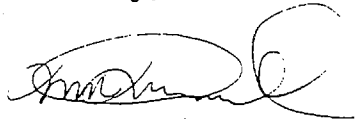
JUL 16 1995

Enclosure 3 lists several motor vehicle fuels and several hazardous substances. Any UST storing a product that meets the description of a CERCLA-listed hazardous substance, but also meets the description of a motor vehicle fuel hazardous substance, must comply with the more stringent UST requirements; that is, the UST may not be regulated under the requirements for motor vehicle fuel tanks.

Sites which are contaminated primarily with a CERCLA-listed hazardous substance or any substance that is not a complex blend of hydrocarbons derived from crude oil are not eligible for participation in the UST Cleanup Fund.

If you have questions regarding the information in this letter, please contact us. Inquiries regarding the UST Cleanup Fund should be directed to Jim Munch at (916) 227-4430. Inquiries regarding petroleum fuels or other hazardous substances should be directed to Kim Ward at (916) 227-4319. Questions regarding UST monitoring requirements should be directed to David Holtry at (916) 227-4332.

Sincerely,



Mike McDonald, Manager
Underground Storage Tank Program

Enclosures



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Michael McDonald
State Water Resources Control Board
Division of Clean Water Programs
2014 T ST., Suite 130
P.O. Box 944212
Sacramento, CA 94244-2120

Dear Mr. McDonald: *Mike*

This is in response to the request by your staff for regulatory interpretation of 40 CFR 280.42 and other relevant portions of the Federal Regulations pertaining to the storage of methanol and other alternative fuels. We have consulted with Headquarters on this interpretation.

Currently, gasohols containing 5% or less methanol do not need to meet hazardous substance UST system regulations, and are treated as petroleum. Methanol, M85, and other high-level methanol fuels (M90, M80, and M70) are considered hazardous substances. Oxygenated motor fuels and gasohols (10% ethanol and 90% unleaded gasoline) are considered petroleum and can be stored as such. Storage of ethanol alone is unregulated under Subtitle I. The attached table clarifies hazardous waste classification for other blended alcohols and ethers.

Existing single-walled methanol UST systems are in compliance if they meet the leak detection requirements of petroleum UST systems as outlined in 40 CFR 280.41, and the stored substance is compatible with the existing system, until Dec. 22, 1998, when they must be upgraded to secondary containment. The following interpretation pertains to the storage of methanol for new and upgraded systems, and variances.

Owners and operators of new hazardous substance UST systems must currently provide release detection that meets all requirements listed in 40 CFR 280.42 (b). Existing hazardous substance systems must be upgraded to be in compliance with these provisions by Dec. 22, 1998. 40 CFR 280.42 establishes minimum requirements for secondary containment systems, double-walled tank systems, external liners, underground piping, and any other methods of release detection.

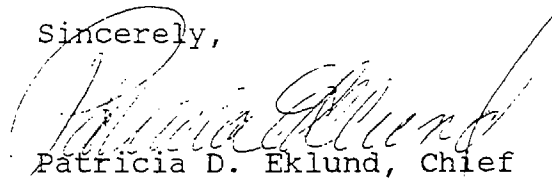
Double-walled tank systems are exclusively those for which an interstitial space exists which would prevent a leak from an inner wall from exiting the outer wall, and where leak detection equipment could warn an operator of an inner wall breach (40 CFR 280.42 b(2)). Secondary containment systems must be designed, constructed and installed to contain regulated substances released from the tank system until they are detected and removed; prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and be checked for evidence of a release every 30 days (40 CFR 280.42 b(1)). Under these definitions, bonded liners and similar methods of treating the inside of a tank wall are not considered equivalent to double-walled or secondarily contained, and would not meet the Federal requirements.

Variance Procedures

Section 280.42(b)(5) allows for other methods of release detection if owners or operators meet all the requirements of this paragraph. The Preamble to the final rule (40 CFR 280 and 281, pp. 37156 - 37157) supports this position. The State may develop a variance procedure for allowing leak detection systems other than those described in 280.43 (b) through (h). In our view, this kind of variance would be very difficult to obtain. Since it relies in part on site specific data, applications for such a variance would need to be site specific.

Please note that the Agency does not at this time intend to develop variance application options that can be used by implementing agencies, as indicated in several paragraphs of the preamble. If you have any more questions on the storage of methanol, please don't hesitate to call me, or Heidi Hall at (415) 744-2077.

Sincerely,



Patricia D. Eklund, Chief
Office of Underground Storage Tanks

Attachment

cc: RPMs, Regions I-VIII, X

**OXYGENATED BLENDING AGENTS
IN UNLEADED GASOLINE**

CERCLA-Listed Hazardous Substances		Non-CERCLA-Listed Hazardous Substances	
<u>Common Names</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>Scientific Name</u>
Methyl alcohol, Wood alcohol	methanol	Ethyl alcohol, Alcohol, Anhydrous alcohol	ethanol
Butyl alcohol, n-butyl alcohol	1-butanol	Propyl alcohol	1-propanol
Isobutyl alcohol	2-methyl-1- propanol	Isopropanol	2-propanol
		Butanols	*
		sec-Butyl alcohol, TBA	2-butanol
		tert-Butyl alcohol	2-methyl- 2-propanol
		MTBE	methyl- tertiary- butyl ether
		ETBE	ethyl- tertiary- butyl ether
		Pentanol	*
		Hexanol	*
		Heptanol	*
		Octanol	*

* Mixtures of isomers

Partial List of Regulated Substances
Stored in USTs in California*

MOTOR VEHICLE FUEL HAZARDOUS SUBSTANCES

unleaded gasoline
diesel to fuel vehicles
diesel for back-up generators
aviation fuel
jet fuel
ethanol products to fuel motor vehicles
any concentration of 2-butanol w/ gasoline (to fuel vehicles only)

NON-"MOTOR VEHICLE FUEL" HAZARDOUS SUBSTANCES

Methanol 85 (M85)
Methanol M70 (M70)
solvents
new motor oil
waste oil
diesel for boiler systems
ethanol products used other than to fuel motor vehicles
more than 5% concentration of 1-butanol with gasoline

* This is not a complete list of regulated substances.

UNDERGROUND STORAGE TANK PROGRAM
LOCAL AGENCIES
February 10, 1997

LOCAL AGENCY =====	CONTACT PERSON =====	PHONE =====	FAX =====
COUNTY OF ALAMEDA	GORDON COLEMAN	(510) 567-6713	337-9335
CITY OF BERKELEY	NABIL AL-HADITHY	(510) 644-7719	644-7708
CITY OF FREMONT	JULIE BELOMY	(510) 494-4279	494-4822
CITY OF HAYWARD	JOHN BOYKIN	(510) 293-8695	
CITY OF NEWARK	JACKIE BRETSCHNEIDER	(510) 790-7254	790-7281
CITY OF PLEASANTON	BILL HALVORSEN	(510) 484-8114	484-8178
CITY OF SAN LEANDRO	MIKE BAKALDIN	(510) 577-3331	618-3445
CITY OF UNION CITY	JAY SWARDENSKI	(510) 471-1424	475-7318
COUNTY OF ALPINE	JIM GOODLOE	(916) 694-2146	694-2770
COUNTY OF AMADOR	TIM HALL	(209) 223-6439	223-6228
COUNTY OF BUTTE	VANCE SEVERIN	(916) 891-2727	895-6512
CITY OF OROVILLE	DEAN HILL JR	(916) 538-2487	538-2409
COUNTY OF CALAVERAS	TONY MARIS	(209) 754-6399	754-6722
COUNTY OF COLUSA	JAIME FAVILA	(916) 458-0397	458-4136
COUNTY OF CONTRA COSTA	LEWIS PASCALLI	(510) 646-2286	646-2073
COUNTY OF DEL NORTE	DALE WATSON	(707) 464-7227	465-4573
COUNTY OF EL DORADO	JEFF RUSERT	(916) 621-6684	642-1531
COUNTY OF FRESNO	TIM CASAGRANDE	(209) 445-3271	445-3379
COUNTY OF GLENN	ED ROMANO	(916) 934-6500	
COUNTY OF HUMBOLDT	JIM CLARK	(707) 441-2002	441-5699
COUNTY OF IMPERIAL	JURG HEUBERGER	(619) 339-5692	353-8338
COUNTY OF INYO	ROBERT KENNEDY	(619) 878-2411	872-2712
COUNTY OF KERN	AMY GREEN	(805) 862-8754	862-8701
CITY OF BAKERSFIELD	RALPH E. HUEY	(805) 326-3979	326-0576
COUNTY OF KINGS	KEITH WINKLER	(209) 584-1411	584-6040
COUNTY OF LAKE	MANUAL RAMIREZ	(707) 263-2222	263-1681
COUNTY OF LASSEN	KENNETH SMITH	(916) 251-8110	
COUNTY OF LOS ANGELES	CARL SJOBERG	(818) 458-3539	458-3569
CITY OF BURBANK	JOSEPH SOLARES	(818) 238-3473	238-3483
CITY OF GLENDALE	VASKEN DEMIRJIAN	(818) 548-4030	549-9777
CITY OF LONG BEACH	CAPTAIN JIM MAY	(310) 570-2571	570-2566
CITY OF LOS ANGELES	CAPTAIN TERRY WORTHAM	(213) 237-0605	237-0321
CITY OF PASADENA	JAMES WECKERLE	(818) 405-4115	585-9164
CITY OF SANTA MONICA	BRIAN JOHNSON	(310) 458-8227	393-1279
CITY OF TORRANCE	KEN LEW	(310) 618-2973	781-7506
CITY OF VERNON	LEWIS POZZEBON	(213) 583-8811	583-4451
COUNTY OF MADERA	JILL NISHI	(209) 675-7823	
COUNTY OF MARIN	TIM UNDERWOOD	(415) 499-6647	499-6910
CITY OF SAN RAFAEL	FORREST CRAIG	(415) 485-3308	453-1627
COUNTY OF MARIPOSA	DAVE CONWAY	(209) 966-0200	
COUNTY OF MENDOCINO	DAVID KOPPEL	(707) 463-4466	463-4038
COUNTY OF MERCED	DAVID BLOCK	(209) 385-7391	
COUNTY OF MODOC	LES WRIGHT	(916) 233-6401	
COUNTY OF MONO	DENNIS LAMPSON	(619) 932-7484	932-5284
COUNTY OF MONTEREY	JON JENNINGS	(408) 755-4541	
COUNTY OF NAPA	JILL PAHL	(707) 253-4269	253-4545
COUNTY OF NEVADA	TRACY GIDEL	(916) 265-1452	
COUNTY OF ORANGE	STEVE WONG	(714) 667-3773	972-0749
CITY OF ANAHEIM	JULIE KUNZE	(714) 254-4050	254-4008
CITY OF FULLERTON	STEVE LONG	(714) 738-3160	738-5355
CITY OF ORANGE	KATHY DASCOMB	(714) 288-2541	997-3281

UNDERGROUND STORAGE TANK PROGRAM
LOCAL AGENCIES
February 10, 1997

LOCAL AGENCY =====	CONTACT PERSON =====	PHONE =====	FAX =====
CITY OF SANTA ANA	BOB HONISH	(714) 647-5700	647-5779
COUNTY OF PLACER	JOHN MINERS	(916) 889-7335	889-7370
CITY OF ROSEVILLE	STEVE ANDERSON	(916) 774-5805	774-5810
COUNTY OF PLUMAS	JERRY SIPE	(916) 283-6355	283-6241
COUNTY OF RIVERSIDE	EARL E TUNTLAND	(909) 358-5055	358-5017
COUNTY OF SACRAMENTO	MEL KNIGHT	(916) 386-6160	386-7011
CITY OF SACRAMENTO	DENNIS SMITH	(916) 264-5266	
COUNTY OF SAN BENITO	RAY STEVENSON	(408) 636-4037	637-9073
CITY OF HOLLISTER	DAVE LANTIS	(408) 636-4325	636-4329
COUNTY OF SAN BERNARDINO	JIM SMITH	(909) 387-3080	387-4323
CITY OF HESPERIA	DONN FUNDERBURK	(619) 947-1603	244-9174
CITY OF VICTORVILLE	GREG COON	(619) 955-5229	955-1098
COUNTY OF SAN DIEGO	JANET ORTIZ	(619) 338-2395	441-6656
COUNTY OF SAN FRANCISCO	SUE CONE	(415) 554-2733	554-2772
COUNTY OF SAN JOAQUIN	DONNA HERAN	(209) 468-3420	468-3433
COUNTY OF SAN LUIS OBISPO	RALF LOPEZ	(805) 781-5550	781-4211
CITY OF SAN LUIS OBISPO	SPENCER MEYER	(805) 781-7380	543-8019
COUNTY OF SAN MATEO	DEAN PETERSON	(415) 363-4565	363-7882
COUNTY OF SANTA BARBARA	ANN MARIE NELSON	(805) 681-4044	681-5553
COUNTY OF SANTA CLARA	JIM BLAMEY	(408) 299-6930	280-6479
CITY OF CAMPBELL	STEVE GUBBER	(408) 378-4010	378-9342
CITY OF CUPERTINO	STEVE GUBBER	(408) 378-4010	378-9342
CITY OF GILROY	NICK AMPER	(408) 848-0430	
CITY OF LOS GATOS	STEVE GUBBER	(408) 378-4010	378-9342
CITY OF MILPITAS	PATRICIA JOKI	(408) 942-2389	
CITY OF MORGAN HILL	STEVE GUBBER	(408) 378-4010	378-9342
CITY OF MOUNTAIN VIEW	GARY LEINWEBER	(415) 903-6378	903-6122
CITY OF PALO ALTO	GORDON SIMPKINSON	(415) 329-2184	
CITY OF SAN JOSE	JANET McCARRON	(408) 277-4659	
CITY OF SANTA CLARA	LARRY MONETTE	(408) 984-3084	
CITY OF SUNNYVALE	RON STARICHA	(408) 730-7212	
COUNTY OF SANTA CRUZ	STEPHEN SCHNEIDER	(408) 454-2022	454-3128
CITY OF SCOTTS VALLEY	SCOTT HAMBY	(408) 438-0732	438-7218
CITY OF WATSONVILLE	DAVE WILLIAMS	(408) 728-6062	763-4054
COUNTY OF SHASTA	JIM SMITH	(916) 225-5787	225-5237
COUNTY OF SIERRA	ELIZABETH MORGAN	(916) 993-6700	993-6741
COUNTY OF SISKIYOU	TERRY BARBER	(916) 842-8230	842-8239
COUNTY OF SOLANO	CLIFF COVEY	(707) 421-6770	
CITY OF VALLEJO	GREGORY WHITE	(707) 648-4565	648-5214
COUNTY OF SONOMA	JEFF LEWIN	(707) 525-6560	
CITY OF HEALDSBURG	RANDY COLLINS	(707) 431-3360	431-3146
CITY OF SANTA ROSA	CLIFF VANAMON	(707) 543-3533	543-3520
CITY OF SEBASTOPOL	JOHN ZANZI	(707) 823-8061	
COUNTY OF STANISLAUS	TED GARCIA	(209) 525-4150	525-4163
COUNTY OF SUTTER	MARK P. QUISENBERRY	(916) 741-7500	741-7510
COUNTY OF TEHAMA	LARRY OLSON	(916) 527-8020	527-6617
COUNTY OF TRINITY	PETER R. HEDTKE	(916) 623-1358	623-1297
COUNTY OF TULARE	LAWRENCE DWOSKIN	(209) 733-6441	733-6932
COUNTY OF TUOLUMNE	DANIEL KERMOYAN	(209) 533-5990	533-5994
COUNTY OF VENTURA	JIM WADA	(805) 654-3518	654-2480
CITY OF VENTURA	BRIAN CLARK	(805) 658-4711	658-9335

Page No. 3

UNDERGROUND STORAGE TANK PROGRAM
LOCAL AGENCIES
February 10, 1997

LOCAL AGENCY =====	CONTACT PERSON =====	PHONE =====	FAX ===
COUNTY OF YOLO	BRUCE SARAZIN	(916) 666-8646	666-8674
COUNTY OF YUBA	NABUL PURDOM	(916) 741-6254	

