Underground Storage Tank Regulations

J. Kemper Will

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UNDERGROUND STORAGE TANK REGULATIONS

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Denver, Colorado

Getting A Handle on Hazardous Waste Controls

A short course sponsored by the
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I. BACKGROUND

A. Because underground tanks are not amenable to visual inspection, ruptures or leaks from the tanks or associated piping can occur without being detected. If a tank contains a substance hazardous to health and environment, substantial damage can occur before the leak manifests itself.

B. Accurate estimates of the number of underground tanks and the percentage of those leaking do not exist. EPA estimates over one million underground tanks exist. Colorado estimates that approximately thirty thousand underground tanks exist in the state and that 15 to 30 percent of those tanks may be leaking. The probably of a leak increases dramatically with the age of a tank.

C. Underground tanks containing hazardous waste have been regulated since 1980 under the Resource Conservation and Recovery Act (RCRA). 42 USC 6901 et seq. Final amendments to EPA hazardous waste tank rules are due June, 1986, and should offer a hint at what regulatory mechanism will be employed for non-hazardous underground tanks. In 1984 RCRA was amended by the Hazardous and Solid Waste
Amendments (HSWA). Subtitle I of the amendments established a new regulatory program for underground storage tanks containing regulated substances other than hazardous wastes. The remainder of this outline will focus only on the new Subtitle I regulatory program. A schedule of regulatory dates appears as Attachment A.

II. THE EPA REGULATORY PROGRAM

A. What tanks are covered?

1. The new program applies to all tanks, including associated piping, which have greater than 10 percent of their total volume underground and which are used to contain a "regulated substance".

   a. "Underground tank" includes any one or combination of tanks and the piping, pumps or any other appurtenances associated with the tank, as long as at least 10% of the total volume of the tank and piping is underground. Section 9001.

   b. "Regulated substance" Section (9001 (2)) includes (1) any substance regulated by Section 101 (14) of CERCLA ("hazardous
substances") and (2) liquid petroleum, crude oil or any petroleum fraction, but importantly, does not include any hazardous waste tank, which are regulated under Subtitle C of RCRA. This definition will include most product and non-hazardous waste tanks. Both operational and non-operational tanks are regulated.

c. Several categories of tanks are exempt from the program:
° Farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
° Tanks used for storing heating oil for consumptive use on the premises where stored;
° Septic tanks;
° Pipeline facilities (including gathering lines) regulated under (a) the Natural Gas Pipeline Safety Act of 1968; (b) the Hazardous Liquid Pipeline Safety Act of 1979, or (c) which is an intrastate pipeline facility regulated under State laws comparable to the provisions of law
referred to in (a) and (b) above;
° Surface impoundments, pits, ponds, or lagoons;
° Storm water or wastewater collection systems;
° Flow-through process tanks;
° Liquid traps or associated gathering lines directly related to oil or gas production and gathering operations; or
° Storage tanks situated in an underground area (such as a basement, cellar, mine-working, drift, shaft, or tunnel) if the tank is situated upon or above the surface of the floor.

d. Many states are adopting their own underground storage tank rules. Most state laws will cover the same "regulated substances" but may cover a broader universe of tanks and may require permits and/or fees. For example, the state of Nebraska requires a one-time notice for all tanks. Revised Statutes of Nebraska, Section 81-526 (1986).
B. Legislative Requirements.

1. Notification of the existence of regulated tanks.
   a. By May 8, 1986 the owners of regulated tanks were required to submit a notification form to the state or EPA. Attachment B is a copy of the notification form. Notification covered both active and inactive tanks, unless the tank had been removed from the ground prior to May 8, 1986.
   b. There are separate customer notification requirements for product distributors and tank sellers.

2. Interim prohibition regarding new tanks.
   a. To assure that new unprotected tanks would not be put into the ground prior to publication of regulations, effective May 8, 1985, Subtitle I requires that all new tanks: (1) prevent release of substances; (2) be protected from corrosion; and (3) be compatible with the substances stored. Section 9003(g).

C. Regulation Development for Tank Standards.

1. HSWA requires EPA to issue regulations by the following deadlines:
2. The standards have not yet been proposed and it is likely the first statutory deadline will be missed.

3. The future EPA regulations must address:
   a. Requirements designed to identify releases from tanks.
   b. Requirements for maintaining records of any leak monitoring or detection system.
   c. Requirements for reporting of releases and the corrective actions.
   d. Requirements for taking corrective action in response to releases.
   e. Requirements for the closure of tanks after terminating their use.
   f. Requirements for maintaining evidence of financial responsibility for tank releases and corrective actions and injury to third parties.

4. EPA must also establish performance standards for new underground tanks that must include design, construction, installation, release detection, and compatibility standards.
III. STATE AND LOCAL PROGRAMS

A. States can administer their own underground tank programs upon the approval of EPA.
   1. Approval procedures are established in Section 9004.
   2. Preemption of state and local programs is an issue. See Section 9008.

B. Many state programs already exist.
   1. California already requires a double tank wall or secondary containment for regulated tanks.
   2. Colorado does not yet have underground tank statutes for non-hazardous waste regulated substances.
   3. Nebraska recently enacted legislation. Revised Statutes of Nebraska, Section 81-526 (1986). The Nebraska statutes require:
      a. Registration of all storage tanks.
      b. Annual registration permits for regulated tanks.
      c. Minor registration and permit fees.
      d. Rulemaking authority similar to EPA.
      e. Enforcement authorities.
   4. Nebraska requires notification of tanks removed at any time. 20,000 notification forms were mailed.
C. Local Requirements.

1. As an example, the Boulder, Colorado Fire Prevention Code regulates certain aspects of underground tanks including the following:
   b. Requires cathodic protection.
   c. Prohibits installing used tanks underground.
   d. Tank installation must be supervised by a registered professional engineer and be approved by the Fire Department.
   e. Tank removal must comply with NFPA No. 30.

IV. UNDERGROUND TANK CONTROL SYSTEMS

A. Attachment C illustrates an ideal underground tank system.

B. Inventory control approaches are recommended by the National Fire Protection Association and the American Petroleum Institute. See Attachment D for references.

C. There are numerous systems for tank testing. None of them are foolproof.

1. Air pressure testing (empty tanks only).
2. Hydrostatic pressure drop. There are several
proprietary systems of this type.

3. "Precision testing" - NFPA 329. This test is accurate only to .05 gallons per hour.

4. Unsaturated zone monitoring. This system monitors vapors in the unsaturated zone of soils. Vapors are monitored because they move faster than liquids and will be detected earlier than liquids.

5. Groundwater monitoring. This only works well if the groundwater table is high. Otherwise, a substantial release could develop before it is detected in the groundwater.

6. Visual inspections have limited utility.

V. CONCLUSIONS

Liabilities caused by leaking products can be immense under current laws and court decisions. The development of a new underground tank program is focusing new attention on the management of underground tanks. If past or present leaks are known, corrective action should be taken immediately consistent with sound environmental practice. Tank owners should implement an active leak identification program, which does not have to be complicated or expensive. However, the program does need to be followed on a regular basis. Owners should consider three basic functions: (1) check the inventory; (2) watch for environmental and mechanical signs of a leak; and (3) test tanks and piping for leaks.
## KEY UST DATES

<table>
<thead>
<tr>
<th>REGULATORY DATE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/8/84</td>
<td>Enactment of HSWA</td>
</tr>
<tr>
<td>5/85</td>
<td>Interim prohibitions provisions effective</td>
</tr>
<tr>
<td>11/8/85</td>
<td>Notification form became available</td>
</tr>
<tr>
<td>5/8/86</td>
<td>Deadline to notify or remove active and inactive systems</td>
</tr>
<tr>
<td>5/8/87</td>
<td>States apply to administer system</td>
</tr>
<tr>
<td>12/85 to 6/87</td>
<td>Product suppliers notify customers</td>
</tr>
<tr>
<td>2/8/87</td>
<td>Issue draft technical standards on new petroleum tanks</td>
</tr>
<tr>
<td>8/87*</td>
<td>Issue draft technical standards on new nonpetroleum tanks</td>
</tr>
<tr>
<td>30 days after issuance of new tank standards</td>
<td>Tanks sellers notify customers of UST requirements</td>
</tr>
</tbody>
</table>

**NOTES:**
1) *EPA plans to issue technical and financial standards for new and existing tanks in 2/87*
2) Standards are mandated to become final 3 months after publication in draft form
# Notification for Underground Storage Tanks

## GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or, in the absence of such records, your knowledge, belief, or recollection.

### Who Must Notify?

Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means:

1. In the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and
2. In the case of any underground storage tank in use before November 8, 1984, but not later in use on that date, any person who owned such tank immediately before the discontinuance of its use.

### What Tanks Are Included?

Underground storage tank is defined as any one or combination of tanks that:

1. Is used to contain a regulated substance
2. Is located below the surface of the ground
3. Is used for the storage, use, or dispensing of regulated substances

### What Tanks Are Excluded?

Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. Farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes
2. Tanks used for storing heating oil for commercial use on the premises where stored
3. Septic tanks
4. Pipelines facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1960, or the Hazardous Liquid Pipeline Safety Act of 1979, or which are intrastate pipeline facilities regulated under State laws
5. Surface impoundments, pits, ponds, or basins
6. Storm water or waste water collection systems
7. Flow-through process tanks
8. Liquid traps or associated gathering lines directly related to end use or gathering operations
9. Storage tanks situated in an underground area (such as a basement, cellar, masonry vault, shield, or tunnel) if the storage tank is situated upon or above the surface of the floor

### What Substances Are Covered?

The notification requirements apply to underground storage tanks that contain regulated substances. The includes any substance defined as hazardous in section 101 (40) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof, if it is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

### When To Notify?

- Owners of underground storage tanks in use as of May 8, 1986, must notify within 90 days of bringing the tanks into use.
- Owners of underground storage tanks put into use after May 8, 1986, must notify within 30 days of bringing the tanks into use.

### Penalties

Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

## APPENDIX I to §280.3

### INSTRUCTIONS

- Please type or print in ink all items except "signature" in Section V. This form must be completed by the owner for each location containing underground storage tanks. If more than 5 tanks are owned at this location, photocopy the reverse side and staple continuation sheets to this form.

### I. OWNERSHIP OF TANK(S)

- **Owner Name (Corporation, Individual, Public Agency, or Other Entity)**
- **Street Address**
- **County**
- **City**
- **State**
- **ZIP Code**
- **Area Code**
- **Type of Owner**
  - **Current**
  - **Former**
  - **State or Local Gov't**
  - **Federal Gov't**
  - **Private or Corporate**
  - **Ownership uncertain**
- **Number of tanks**
- **Owner's Authorized Representative Name**
- **Signature**
- **Date Signed**

### II. LOCATION OF TANK(S)

- **Facility Name or Company Site Identifier**
- **Street Address or State Road**
- **County**
- **City (nearest)**
- **State**
- **ZIP Code**
- **Number of tanks at this location**
- **Mark box here if tank(s) are located on land within an Indian reservation or on other Indian trust lands**

### III. CONTACT PERSON AT TANK LOCATION

- **Name**
- **Job Title**
- **Area Code**
- **Phone Number**

### IV. TYPE OF NOTIFICATION

- **Mark box here only if this is an amended or subsequent notification for this location**

### V. CERTIFICATION

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

**Name and official title of owner or owner's authorized representative**

**Signature**

**Date Signed**

CONTINUE ON REVERSE SIDE
### VI. DESCRIPTION OF UNDERGROUND STORAGE TANKS

(Complete for each tank at this location.)

<table>
<thead>
<tr>
<th>Tank Identification No. (e.g., ABC-123), or Arbitrarily Assigned Sequential Number (e.g., 1, 2, 3,...)</th>
<th>Tank No.</th>
<th>Tank No.</th>
<th>Tank No.</th>
<th>Tank No.</th>
<th>Tank No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Status of Tank</strong> (Mark all that apply)</td>
<td>Currently in Use</td>
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<td></td>
<td>Temporarily Out of Use</td>
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<td></td>
<td>Permanently Out of Use</td>
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<td></td>
<td>Brought into Use after 5/8/86</td>
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<td><strong>2. Estimated Age (Years)</strong></td>
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<tr>
<td><strong>3. Estimated Total Capacity (Gallons)</strong></td>
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<tr>
<td><strong>4. Material of Construction</strong> (Mark one)</td>
<td>Steel</td>
<td></td>
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<td></td>
<td>Concrete</td>
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<tr>
<td></td>
<td>Fiberglass Reinforced Plastic</td>
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<tr>
<td></td>
<td>Unknown</td>
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<tr>
<td>Other, Please Specify</td>
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<tr>
<td><strong>5. Internal Protection</strong> (Mark all that apply)</td>
<td>Cathodic Protection</td>
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<td></td>
<td>Interior Lining (e.g., epoxy resins)</td>
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<td></td>
<td>None</td>
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<td></td>
<td>Unknown</td>
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<tr>
<td>Other, Please Specify</td>
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<td><strong>6. External Protection</strong> (Mark all that apply)</td>
<td>Cathodic Protection</td>
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<td></td>
<td>Painted (e.g., asphaltic)</td>
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<tr>
<td></td>
<td>Fiberglass Reinforced Plastic Coated</td>
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<td></td>
<td>None</td>
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<td>Unknown</td>
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<td>Other, Please Specify</td>
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<tr>
<td><strong>7. Piping</strong> (Mark all that apply)</td>
<td>Bare Steel</td>
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<tr>
<td></td>
<td>Galvanized Steel</td>
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<td></td>
<td>Fiberglass Reinforced Plastic</td>
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<tr>
<td></td>
<td>Cathodically Protected</td>
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<td></td>
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<tr>
<td></td>
<td>Unknown</td>
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<tr>
<td>Other, Please Specify</td>
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<tr>
<td><strong>8. Substance Currently or Last Stored in Greatest Quantity by Volume</strong> (Mark all that apply)</td>
<td>a. Empty</td>
<td></td>
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<td></td>
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<td></td>
<td>b. Petroleum</td>
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<td></td>
<td>Diesel</td>
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<td></td>
<td>Kerosene</td>
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<td></td>
<td>Gasoline (including alcohol-blends)</td>
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<td></td>
<td>Used Oil</td>
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<td>Other, Please Specify</td>
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<td></td>
<td>c. Hazardous Substance</td>
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<tr>
<td>Please Indicate Name of Principal CERCLA Substance or Chemical Abstract Service (CAS) No.</td>
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<tr>
<td>Mark box if tank stores a mixture of substances</td>
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<tr>
<td></td>
<td>d. Unknown</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>9. Additional Information (for tanks permanently taken out of service)</strong></td>
<td>a. Estimated date last used (mo/yr)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Estimated quantity of substance remaining (gal)</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>c. Mark box if tank was filled with inert material (e.g., sand, concrete)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UNDERGROUND STORAGE TANK REFERENCES

Source:

- National Fire Protection Association (NFPA), Batterymarch Park, Quincy, Massachusetts 02269
- American Petroleum Institute (API), 1220 L Street, N.W., Washington, D.C. 20005
- National Association of Corrosion Engineers (NACE), P.O. Box 218340, Houston, Texas 77218
- Underwriters Laboratories (UL), 333 Pfingston Road, Northbrook, Illinois 60062
- Petroleum Equipment Institute, P.O. Box 2380, Tulsa, Oklahoma 74101

Titles of documents

- National Fire Protection Association Standards
  1. Standard Number 30, 1981, Flammable and Combustible Liquids Codes

- American Petroleum Institute Standards and Publications
  3. Publication 1110, 1981, Recommended Practice for the Pressure Testing of Liquid Petroleum Pipelines
7 Publication 1604, 1981, Recommended Practice for Abandonment or Removal of Used Underground Service Station Tanks

8 Publication 1615, 1979, Installation of Underground Petroleum Storage Systems

9 Publication 1621, Recommended Practice for Bulk Liquid Stock Control at Retail Outlets


11 Publication 1631, 1983, Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks


13 Publication 1635, 1984, Recommended Practice for Underground Petroleum Product Storage Systems at Marketing and Distribution Facilities

* National Association of Corrosion Engineers Standard

1. Standard Number RP-01-69, 1976, Control of External Corrosion on Underground or Submerged Metallic Piping Systems

* Underwriters Laboratories Standards


3. Specification 142, 1982, Steel Aboveground Tanks for Flammable and Combustible Liquids

* American Society for Testing and Materials Standard


* Uniform Fire Code Standard

1. Standard no. 79-7, 1979, Interior Lining of Existing Steel Underground Storage Tanks
* Petroleum Equipment Institute Publication

1. *Report RP100-85, 1985, Recommended Practice for Installation of Underground Liquid Storage Systems*

* Environmental Protection Agency Publications

1. *Move About Leaking Underground Storage Tanks, A Background Booklet for the Chemical Advisory, 1984*


TO ALARM

MANWAY EXTENSION TO GRADE

NON CORROSIVE BACKFILL MATERIAL

COATING FOR CORROSION PROTECTION

MANHOLE

LEAK DETECTION PIPE

TURNBUCKLE

ANCHOR STRAP

OUTER TANK JACKET INTERSTITIAL SPACE ANCHOR BOLT

SHELL SPACER

ANODE

INTERIOR TANK JACKET

OUTER TANK JACKET

ANCHOR BOLT

CONCRETE SLAB OR DEADMAN

BEDDING

NOTES:
1. NOT TO SCALE.
2. TURNBUCKLES, ANCHOR STRAPS, ANCHOR BOLTS, AND CONCRETE SLABS ARE NEEDED IN WATER CONDITIONS.