# CHAPTER 19

# UNDERGROUND STORAGE TANKS

## 19-1 SCOPE

This Chapter contains criteria to control and abate pollution resulting from POL products and hazardous substances stored in underground storage tanks. Standards for underground storage tanks containing hazardous wastes are covered in Chapter 6.

## 19-2 DEFINITIONS

19-2.1 POL. Includes, but is not limited to, petroleum and petroleum-based substances comprised of complex blends of hydrocarbons derived from crude oil such as motor fuels, residual fuel oils, lubricants, petroleum solvents and used oils.

19-2.2 Hazardous Substance. See Appendix A.

19-2.3 Underground Storage Tank (UST). Any tank including underground piping connected thereto, larger than 415 liters (110 gallons) used to contain POL products or hazardous substances and the volume of which, including the volume of connected pipes, is 10 percent or more beneath the surface of the ground, but does not include:

a. Tanks containing heating oil used for consumption on the premises where it is stored,

b. Septic tanks,

c. Stormwater or wastewater collection systems,

d. Flow through process tanks,

e. Surface impoundments, pits, ponds or lagoons,

f. Field constructed tanks,

g. Hydrant fueling systems, and

h. Tanks situated in an underground area (i.e. basement, cellar, shaft, or tunnel) upon or above the surface of the floor.

Notes for exclusion of heating oil and field constructed tanks: Although these tanks are excluded from UST performance standards and corrective action under Chapter 19, SPCC performance standards will be applicable for these tanks. Specifically, the tanks must be designed to contain a release of petroleum. The subsequent corrective action shall be taken for a release that reaches or has the potential to reach receiving waters. Tank operators need to be aware that there are other JEGS requirements which regulated excluded USTs.

19-2.4 New UST. Any UST installed on or after 1 October 1995.

19-2.5 Hazardous Substance UST. Any UST that contains a hazardous substance (but not including hazardous waste as defined in Chapter 6), or any mixture of such hazardous substances and petroleum, and which is not a petroleum UST.

19-2.6 Above Ground Storage Tank (AST). Standards are covered under Chapter 9.

19-2.7 Corrosion Expert. Corrosion expert means a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

**19-3 CRITERIA**

19-3.1 All installations shall maintain the UST inventory.

19-3.2 New POL USTs. All new petroleum UST systems shall be properly installed, protected from corrosion, provided with spill/overfill prevention, and incorporate leak detection as described below.

a. Corrosion protection. New UST systems must be provided with corrosion protection as specified below-

(1) The tank and/or piping are constructed of fiberglass-reinforced plastic; or

(2) The tank and/or piping is constructed of steel and cathodically protected in the following manner:

(a) The tank and/or piping is coated with a suitable dielectric material;

(b) Field installed cathodic protection systems are designed by a corrosion expert;

(c) Impressed current systems are designed to allow determination of current operating status; and

(d) Cathodic protection systems are operated and maintained in accordance with approved guidelines.

(3) Or, the tank is constructed of a steel-fiberglass-reinforced-plastic composite.

b. Spill/overflow protection: New USTs shall be provided with spill and overfill prevention equipment, except where transfers are made in the amounts of 95 liters (25 gallons) or less. Where spill and overfill protection are required, a spill containment box shall be installed around the fill pipe. Overfill prevention shall be provided by one of the following methods:

(1) Automatic shut-off device (set at 95% of tank capacity); or

(2) High level alarm (set at 90% of tank capacity).

c. Leak detection: Leak detection systems shall be capable of detecting a 0.750 liters (0.2 gallons) per hour leak rate, or a release of 460 liters (150 gallons) (or one percent of tank volume, whichever is greater), within 30 days with a probability of detection (PD) of 95% and a probability of false alarm (PFA) of no more than 0.05%.

(1) New USTs shall use one of the following leak detection methods:

(a) Automatic tank gauging;

(b) Vapor monitoring;

(c) Groundwater monitoring; or

(d) Interstitial monitoring.

(2) All new pressurized UST piping shall be equipped with automatic line leak detectors and utilize either an annual tightness test or monthly monitoring using any of the following tank release leak detection methods: vapor monitoring, ground water monitoring, interstitial monitoring, or a method capable of detecting a leak rate of 0.2 gph at a PD of 95% and a PFA of 0.05%.

(3) Suction piping shall either have a line tightness (leak) test conducted every three years or use monthly monitoring.

19-3.3 Existing POL USTs. Existing POL USTs and piping shall be properly closed if not needed, or be upgraded or replaced to meet new UST system requirements as indicated in Section 19.3.2 by 1 October 2004.

a. Existing USTs and piping not incorporating leak detection shall be tightness tested annually using tank tightness testing capable of detecting a 0.1 gph leak rate and inventoried monthly using American Piping Industry (API) inventory control and/or manual tank gaging procedures.

b. All existing leaking USTs shall be immediately removed from service, and their contents will also be removed to prevent future release to the environment. Soil and groundwater contaminated by the release that poses an immediate and substantial threat to human health or safety shall be remediated. If the UST is still required, it shall be repaired or replaced. If the UST is no longer required, it shall be removed from the ground.

c. When the UST has not been used for one year and is not leaking, all of the product and sludges shall be removed. Subsequently, the tank shall be either cleaned and filled with an inert substance, or removed if the UST is not considered as mission essential in the future. Tank wastes shall be tested in accordance with Section 9-3.3 in Chapter 9.

d. USTs that are removed must have a site assessment study and record of closure.

19-3.4 New Hazardous Substance USTs

a. All new hazardous substance USTs and piping shall meet the same design and construction standards as required for new petroleum USTs and piping, and in addition must be provided with secondary containment for both tank and piping. Secondary containment can be met by using double-walled tanks and piping or vaults.

b. Leak detection: Refer to Section 19-3.2.c. above.

19-3.5 Existing Hazardous Substance USTs

a. Existing hazardous substance tanks and piping shall be upgraded or replaced to meet the new hazardous substance tanks and piping requirements indicated in Section 19-3.4 above by 1 January 1999.

b. Existing tanks and piping not incorporating leak detection shall be tightness tested annually and inventoried monthly.

19-3.6 Markers and Signs (Waiver not Required as Written)

a. USTs shall have a white sign board larger than 0.3 meters wide and 0.6 meters long (approx. 12 inches by 24 inches). The sign shall contain the following information in English and Japanese letters: identification number, maximum storage capacity, title, and telephone number of the point of contact.

b. A UST fill pipe shall have a white sign board, larger than 0.3 meters wide and 0.6 meters long (approx. 12 inches by 24 inches), as necessary to be readily identified. The board shall contain the following information in black letters (In English and Japanese): “Fill pipe for an Underground Storage Tank, ” content

identification, and the words: “DANGER:  NO FLAMMABLE OR IGNITION SOURCES WITHIN 50 FEET OR 16 METERS” in red letters (In English and Japanese).