Part II

Environmental Protection Agency

40 CFR Parts 280 and 281
Underground Storage Tanks; Technical Requirements and State Program Approval; Final Rules
treatment facility regulated under section 402 or 307(b) of the Clean Water Act.

(3) Equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment tanks.

(4) Any UST system whose capacity is 110 gallons or less.

(5) Any UST system that contains a de minimis concentration of regulated substances.

(6) Any emergency spill or overflow containment UST system that is expressly exempted after use.

(c) Definitions. Subparts B, C, D, E, and G do not apply to any of the following types of UST prevent releases due to overflow:

(1) Wastewater treatment tank systems;

(2) Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954 (42 U.S.C. 2021 and following);

(3) Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR Part 50, Appendix A;

(4) Airport hydrant fuel distribution systems; and

(5) UST systems with field-constructed tanks.

(d) Definitions. Subpart D does not apply to any UST system that stores fuel solely for use by emergency power generating equipment.

§ 280.11 Interim prohibition for deferred UST systems.

(a) No person may install an UST system listed in § 280.10(c) for the purpose of storing regulated substances unless the UST system (whether of single- or double-wall construction):

(i) Will not corrode the corrosion, construction of noncorrosive metal, steel clad with a noncorrosible material, or designed in a manner to prevent the release or threatened release of any stored substance; and

(ii) Will be constructed or lined with material that is compatible with the stored substance.

(b) Notwithstanding paragraph (a) of this section, an UST system without corrosion protection may be installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life. Owners and operators must maintain records that demonstrate compliance with the requirements of this paragraph for the remaining life of the tank.

Note: The National Association of Corrosion Engineers Standard RP-02-85, "Guidelines for External Corrosion on Metallic Barrels, Partially Buried, or Submerged Liquid Storage Systems," may be used as guidance for complying with paragraph (b) of this section.

§ 280.12 Definitions.

"Aboveground release" means any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the surface ground portion of an UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from an UST system.

"Auxiliary equipment" means any devices including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from an UST.

"Belowground release" means any release to the sub-surface of the land and to ground water. This includes, but is not limited to, releases from the belowground portions of an underground storage tank system and belowground releases associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank.

"Beneath the surface of the ground" means beneath the ground surface or otherwise covered with earth or other material.

"Cathodic protection" is a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current.

"Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems.


"Compatiblity" means the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the UST.

"Connected piping" means all underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins two UST systems should be allocated equally between them.

"Consistent use" with respect to heating oil means consumed on the premises.

"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.

"Dielectric materials" means a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric bushings are used to electrically isolate portions of the UST system (e.g., tank from piping).

"Electrical equipment" means underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electrical cable.

"Excavation zone" means the volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation.

"Existing tank system" means a tank system used to contain an accumulation of regulated substances or for which installation has commenced on or before December 23, 1988. Installation is considered to have commenced if:

(a) The owner or operator has obtained all federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system; and if

(b) Either a continuous on-site physical construction or installation program has begun or

(2) The owner or operator has entered into contractual obligations—which cannot be cancelled or modified without substantial loss—for physical
construction at the site or installation of the tank system to be completed within a reasonable time.

The term "tank" is a tank located on a plant or facility used to store quantities of other regulated substances. Such systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils. "Piping" or "pipelines" means a hollow cylinder or tubular conduit that is constructed of non-earth materials.

The term "regulated substance" includes but is not limited to petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils. "Release" means any spilling, leaking, emitting, discharging, escaping, leaking or disposing of an ETS into ground water, surface water or subsurface soils. "Release detection" means determining whether a release of a regulated substance has occurred from the ETS system into the environment or into the interstitial space between the ETS system and its secondary barrier or secondary containment around it. "Repair" means to restore a tank or ETS system component that has caused a release of product from the ETS system. "Residential tank" is a tank located on property used primarily for dwelling purposes. "SARA" means the Superfund Amendments and Reauthorization Act of 1986. "Septic tank" is a water-tight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage from a building sewer. The effluent from such receptacles is distributed for disposal through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility. "Storm water or wastewater collection system" means piping, pumps, conduits, and any other equipment.
necessary to collect and transport the flow of surface water run off resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of storm water and wastewater does not include treatment except where incidental to conveyance.

"Surface impoundment" is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials) that is not an injection well.

"Tank" is a stationary device designed to contain an accumulation of regulated substances and constructed of non-corrosive materials (e.g., concrete, steel, plastic) that provide structural support.

"Underground area" means an underground room, such as a basement, cellar, shaft, or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor.

"Underground release" means any below-ground release.

"Underground storage tank" or "UST" means any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include

(a) Farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
(b) Tank used for storing heating oil for consumptive use on the premises where stored;
(c) Septic tank;
(d) Petroleum facility [including gatherings lines] regulated under:
(i) The Natural Gas Pipeline Safety Act of 1960 (49 U.S.C. App. 1571, et seq.), or

(3) Which is an interstate pipeline facility regulated under state laws comparable to the provisions of the law referred to in paragraph (d)(1) or (d)(2) of this definition;
(e) Surface impoundment, pit, pond, or lagoon;
(f) Storm-water or wastewater collection system;
(g) Flow-through process tank;
(h) Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations; or
(i) Storage tank situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or below the surface of the floor.

The term "underground storage tank" or "UST" does not include any pipes connected to any tank which is described in paragraphs (a) through (i) of this definition.

"Upgrade" means the addition or retrofit of some systems such as cathodic protection, lining, or spil and overfill controls to improve the ability of an underground storage tank system to prevent the release of product.

"UST system" or "Tank system" means an underground storage tank connected underground piping, underground auxiliary equipment, and containment system, if any.

"Wastewater treatment tank" means a tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods.

Support B—UST Systems: Design, Construction, Installation and Notification

§ 290.20 Performance standards for new UST systems.

In order to prevent releases due to structural failure, corrosion, or spills and overfills for as long as the UST system is used to store regulated substances, all owners and operators of new UST systems must meet the following requirements.

(a) Tanks. Each tank must be properly designed and constructed, and any portion underground that routinely contains product must be protected from corrosion, in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory as specified below:

1. The tank is constructed of fiberglass-reinforced plastic,
   or
2. The tank is constructed of a steel-fiberglass-reinforced-plastic composite;


(b) The tank is constructed of steel and cathodically protected in the following manner:

1. The tank is coated with a suitable dielectric material;
2. Field-installed cathodic protection systems are designed by a corrosion expert;
3. Impressed current systems are designed to allow determination of current operating status as required in § 290.31(c); and
4. Cathodic protection systems are operated and maintained in accordance with § 290.31 or according to guidelines established by the implementing agency;

Note: The following codes and standards may be used to comply with paragraph (a)(3) of this section:

A. Steel Tank Institute "Specification for SI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks"
B. Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks";
D. CAN-565-M83, "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products"; and

3. The tank is constructed of a steel-fiberglass-reinforced-plastic composite;

   Note: The following industry codes may be used to comply with paragraph (a)(3) of this section: Underwriters Laboratories Standard 1316, "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products"; or the Association for Composite Tanks ACT-100, "Specification for the Fabrication of FRP Clad Underground Storage Tanks."

4. The tank is constructed of metal without additional corrosion protection measures provided that:

(a) The tank is installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life; and

(b) Owners and operators maintain records that demonstrate compliance with the requirements of paragraphs (a)(4)(i) for the remaining life of the tank;

5. The tank construction and corrosion protection are determined by the implementing agency to be designed to prevent the release or threatened release of any stored regulated substance in a manner that is no less protective of human health and the environment than paragraphs (a)(1) through (i) of this section.
### SCHEDULE FOR PHASE-IN OF RELEASE DETECTION

<table>
<thead>
<tr>
<th>Year system was installed</th>
<th>Year when release detection is required by December 20 of the year indicated</th>
</tr>
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<tbody>
<tr>
<td>Below 1985</td>
<td>RD</td>
</tr>
<tr>
<td>or date unknown: 1985-89</td>
<td>P/RD</td>
</tr>
<tr>
<td>1970-74</td>
<td>P/RD</td>
</tr>
<tr>
<td>1975-79</td>
<td>P</td>
</tr>
<tr>
<td>1980-88</td>
<td>P</td>
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</tbody>
</table>

New tanks (after December 22) immediately upon installation.

- P = Must begin release detection for all pressurized piping in accordance with § 280.41(b)(1) and § 280.42(b)(1)
- RD = Must begin release detection for tanks and suction piping in accordance with § 280.41(a), § 280.41(b), and § 280.42

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**Subpart D—Release Detection**

### § 280.40 General requirements for all UST systems.

(a) Owners and operators of new and existing UST systems must provide a method, or combination of methods, of release detection that:

1. Can detect a release from any portion of the tank and the connected underground piping that routinely contains product;
2. Is installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance and service checks for operability or running condition; and
3. Meets the performance requirements of § 280.42.

(b) When a release detection method operated in accordance with the performance standards in § 280.42.

(c) Owners and operators of all UST systems must comply with the release detection requirements of this Subpart by December 22 of the year listed in the following table:

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**Notes:**

- The recordkeeping and reporting requirements in this section have been approved by the Office of Management and Budget and have been assigned OMB Control No. 2520-0068.

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**Subpart G—Release Detection**

### § 280.41 Requirements for petroleum UST systems.

Owners and operators of petroleum UST systems must provide release detection for tanks and piping as follows:

(a) Tanks. Tanks must be monitored at least every 30 days for releases using one of the methods listed in § 280.43(d) through (h) except that:

1. UST systems that meet the performance standards in § 280.20 or § 280.21, and the monthly inventory control requirements in § 280.43(a) or (b), may use tank tightness testing conducted in accordance with § 280.43(c) at least every 5 years until December 22, 1990, or until 10 years after the tank is installed or upgraded under § 280.31(b), whichever is later;
2. UST systems that do not meet the performance standards in § 280.20 or § 280.21 may use monthly inventory controls conducted in accordance with § 280.43(a) or (b) and annual tank tightness testing conducted in accordance with § 280.43(c) until December 22, 1990 when the tank must be upgraded under § 280.21 or permanently closed under § 280.71; and
3. Tanks with a capacity of 550 gallons or less may use weekly tank gauging conducted in accordance with § 280.43(d).

(b) Piping. Underground piping that routinely contains regulated substances must be monitored for releases in a manner that meets one of the following requirements:

1. **Pressurized piping.** Underground piping that conveys regulated substances under pressure must:
   - Be equipped with an automatic line leak detector conducted in accordance with § 280.44(a); and
   - Have an annual line tightness test conducted in accordance with § 280.44(b) or have monthly monitoring conducted in accordance with § 280.44(c).
2. **Suction piping.** Underground piping that conveys regulated substances under suction must either:
   - Have a line tightness test conducted at least every 3 years and in accordance with § 280.44(a), or use a monthly monitoring method conducted in accordance with § 280.44(c). No release detection is required for suction piping that is designed and constructed to meet the following standards:
     - The below-grade piping operates at less than atmospheric pressure;
     - The below-grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;
     - Only one check valve is included in each suction line;
     - The check valve is located directly below and as close as practicable to the suction pump; and
   - A method is provided that allows compliance with paragraphs (b)(2)(i)—(iv) of this section to be readily determined.

### § 280.42 Requirements for hazardous substance UST systems.

Owners and operators of hazardous substance UST systems must provide release detection that meets the following requirements:

(a) Release detection at existing UST systems must meet the requirements for petroleum UST systems in § 280.41. By December 22, 1990, all existing hazardous substance UST systems must meet the release detection requirements for new systems in paragraph (b) of this section.

(b) Release detection at new hazardous substance UST systems must meet the following requirements:

1. 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
determined by the implementing agency.
Any schedules of required calibration and maintenance provided by the release detection equipment manufacturer must be retained for 5 years from the date of installation.

Subpart E—Release Reporting, Investigation, and Confirmation

§ 290.50 Reporting of suspected releases.

Owners and operators of operating units within 24 hours, or another reasonable time period specified by the implementing agency, and any other procedure authorized by the implementing agency, shall either the following steps or another procedure

Subpart F—Release Response and Corrective Action for UST Systems

§ 290.60 General.

Owners and operators of UST systems must contain and immediately clean up a spill or overfill of petroleum that is less than 25 gallons or another reasonable amount specified by the implementing agency, or that causes a sheen on nearby surface water, and in accordance with section 309(a) of the Resource Conservation and Recovery Act, as amended.

§ 290.61 Initial response.

Upon confirmation of a release in accordance with § 290.62, or after a release from the UST system is identified in any other manner, owners and operators must perform the following steps.

(a) Report the release to the implementing agency (e.g. by telephone or electronic mail);
(b) Take immediate action to prevent any further release of the regulated substance into the environment; and
(c) Monitor the release and surrounding area for any changes.

Subpart G—Criteria for UST System

§ 290.70 Criteria for UST systems.

Systems must meet the following criteria:

(a) The storage capacity of the tank shall be designed and constructed in accordance with the applicable standards.
(b) The tank shall be adequately supported to prevent movement or settlement.
(c) The tank shall be tested for leaks, corrosion, and pressure resistance.
(d) The tank shall be insulated to prevent temperature fluctuations.
(e) The tank shall be equipped with appropriate monitoring equipment.

Subpart H—Environmental Monitoring

§ 290.80 Environmental monitoring.

Owners and operators of UST systems must conduct periodic monitoring of the surrounding environment to determine if a release has occurred.

(a) Initial monitoring shall be conducted within 24 hours of the release.
(b) Additional monitoring shall be conducted at least once per week.
(c) Monitoring results shall be reviewed and reported to the implementing agency.

Subpart I—Closure

§ 290.90 Closure of UST systems.

Owners and operators of UST systems must complete the following steps to ensure the system is safe for closure:

(a) Conduct a final inspection of the system.
(b) Remove all hazardous substances from the system.
(c) Install a cap or plug to prevent any future releases.
(d) Notify the implementing agency of the closure.

Subpart J—Contingency Plans

§ 290.100 Contingency plans.

Owners and operators of UST systems must develop and implement contingency plans that address the following:

(a) Spill response procedures.
(b) Overfill response procedures.
(c) Emergency communication procedures.
(d) Training of personnel.

Subpart K—Inspections and Enforcement

§ 290.110 Inspections.

The implementing agency shall conduct inspections of UST systems to ensure compliance with the regulations.

(a) Inspections shall be conducted on a regular basis.
(b) Inspections shall include an evaluation of the system's integrity and functionality.
(c) Inspections shall be documented and reported to the implementing agency.

Subpart L—Recordkeeping

§ 290.120 Recordkeeping.

Owners and operators of UST systems must maintain the following records:

(a) Records of releases and corrective actions.
(b) Records of inspections and testing.
(c) Records of training and certification.

Subpart M—Reporting

§ 290.130 Reporting requirements.

Owners and operators of UST systems must report any releases that meet the following criteria:

(a) Releases that result in a sheen on nearby surface water.
(b) Releases that result in the loss of more than 25 gallons or another reasonable amount of petroleum.
(c) Releases that result in a release to the environment that exceeds the reportable quantity under CFR 40 CFR Part 300.

Subpart N—Permits

§ 290.140 Permits.

Owners and operators of UST systems must obtain permits from the implementing agency to operate the system.