



State of Oregon
Department of
Environmental
Quality

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY
Underground Storage Tank Program

UNDERGROUND STORAGE TANK COMPLIANCE RULES

DIVISION 150

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APPENDIX A

OAR 340-150-0300

Installation of USTs and Piping

The following codes and standards may be used to comply with this rule:

- (1) American Petroleum Institute Publication 1615 (1996), "Installation of Underground Petroleum Storage System";
- (2) Petroleum Equipment Institute Publication RP100-2000 (2000), "Recommended Practices for Installation of Underground Liquid Storage Systems";
- (3) National Fire Protection Association Standard 30 (2000), "Flammable and Combustible Liquids Code"; and
- (4) American Petroleum Institute Publication 2200 (1994), "Repairing Crude Oil, Liquified Petroleum Gas and Product Pipelines".

APPENDIX B

OAR 340-150-0300(3)

Installation of USTs and Piping

The following codes may be used for USTs or underground piping storing alcohol blends to comply with this section of the rule:

- (1) American Petroleum Institute Publication 1626 (1985), "Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations"; and
- (2) American Petroleum Institute Publication 1627 (1986), "Storing and Handling of Gasoline-Methanol/Cosolvent Blends at Distribution Terminals and Service Stations".

APPENDIX C

340-150-0310

Spill and Overfill Prevention Equipment and Requirements

The following codes and standards may be used to comply with this rule:

- (1) Transfer procedures described in National Fire Protection Association Publication 385 (1990);
- (2) Further guidance on spill and overfill prevention appears in:
 - (a) American Petroleum Institute Publication 1621 (1993), "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets," and
 - (b) National Fire Protection Association Standard 30 (2000), "Flammable and Combustible Liquids Code".

APPENDIX D1-USTs

340-150-0320(2)

Corrosion Protection Performance Standards for USTs and Piping

The following standard may be used for USTs constructed of fiberglass-reinforced plastic to comply with this section of the rule:

Underwriters Laboratories Standard 1316 (1994), "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products".

APPENDIX D2-Piping

340-150-0320(2)

Corrosion Protection Performance Standards for USTs and Piping

The following codes and standards may be used for underground piping constructed of fiberglass-reinforced plastic to comply with this section of the rule:

- (1) Underwriters Laboratories Subject 971 (1995), "UL Listed Non-Metal Pipe";
- (2) Underwriters Laboratories Standard 567 (1996), "Pipe Connectors for Flammable and Combustible and LP Gas"; and
- (3) American Petroleum Institute Standard 2610 (1994), "Design, Construction, Operation, Maintenance and Inspection of Terminal & Tank Facilities".

APPENDIX E1-USTs

OAR 340-150-0320(3)

Corrosion Protection Performance Standards for USTs and Piping

The following codes and standards may be used for USTs constructed of steel or other metal to comply with this section of the rule:

- (1) Steel Tank Institute STI-P3-00 (2000), "Specification and Manual for External Corrosion Protection of Underground

Steel Storage Tanks”;

(2) Underwriters Laboratories Standard 1746 (1993), “Corrosion Protection Systems for Underground Storage Tanks”;
and

(3) National Association of Corrosion Engineers Standard RP 0285-2002, Standard Recommended Practice: “Control of External Corrosion on Metallic Buried, Partially Buried or Submerged Liquid Storage Systems,” and Underwriters Laboratories Standard 58, “Standard for Steel Underground Tanks for Flammable and Combustible Liquids”.

APPENDIX E2-Piping

OAR 340-150-0320(3)

Corrosion Protection Performance Standards for USTs and Piping

The following codes and standards may be used for underground piping constructed of steel or other metal to comply with this section of the rule:

- (1) National Fire Protection Association Standard 30 (2000), “Flammable and Combustible Liquids Code”;
- (2) American Petroleum Institute Publication 1615 (1996), “Installation of Underground Petroleum Storage Systems”;
- (3) American Petroleum Institute Publication 1632 (1996), “Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems”;
- (4) Steel Tank Institute -R922-00 (2000), “Specification for Permatank”;
- (5) Steel Tank Institute -F961-00 (2000), “ACT-100-U Specification for External Corrosion Protection of Composite Steel Underground Storage Tanks”;
- (6) National Association of Corrosion Engineers RP-0169-2002 (01-JUL-02), Standard Recommended Practice: “Control of External Corrosion on Underground or Submerged Metallic Piping Systems”;
- (7) National Association of Corrosion Engineers Test Method TM 0101-2001 (2001), “Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems”;
- (8) Steel Tank Institute -R892-91 (1991), “Recommended Practice for Corrosion Protection of Underground Piping Networks Associated with Liquid Storage and Dispensing Systems”;
- (9) Steel Tank Institute -R972-98 (1998), “Recommended Practice for the Installation of Supplemental Anodes for STI-P3 USTs”; and
- (10) National Association of Corrosion Engineers Test Method TM 0497-2002 (2002), “Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems”.

APPENDIX F

OAR 340-150-0320(4)

Corrosion Protection Performance Standards for USTs and Piping

The following codes may be used for USTs constructed of steel-fiberglass reinforced plastic composite to comply with this section of the rule:

- (1) Underwriters Laboratories Standard 1746 (1993), “Corrosion Protection Systems for Underground Storage Tanks”;
- (2) Steel Tank Institute -F894-00 (2000), “ACT-100 Specification for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks”; and
- (3) Steel Tank Institute -F961-00 (2000), “ACT-100U Specification for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks”.

APPENDIX G

340-150-0325

Operation and Maintenance of Corrosion Protection

The following standard may be used to comply with this rule:

The National Association of Corrosion Engineers Standard RP-0285-2002 (2002), “Standard Recommended Practice: Corrosion Control of Underground Storage Tank Systems by Cathodic Protection”.

APPENDIX H

340-150-0350(3) UST System Repairs

340-150-0352 UST System Modifications and Additions

The following codes and standards may be used to comply with these rules:

- (1) National Fire Protection Association Standard 326 (1999), “Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning or Repair”;
- (2) American Petroleum Institute Publication 1631 (2001), “Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks”;
- (3) National Association of Corrosion Engineers Standard RP-0285-2002, “Control of External Corrosion on Metallic

Buried, Partially Buried or Submerged Liquid Storage Systems”;

(4) American Petroleum Institute Publication 1632 (1996), “Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems”;

(5) Ken Wilcox Associates (1999), “Recommended Practice for Inspecting Buried Lined Steel Tanks Using a Video Camera”;

(6) National Association of Corrosion Engineers Standard RP-0178-95, “Recommended Practice: Design, Fabrication and Surface Finish of Metal Tanks and Vessels to be Lined for Chemical Immersion Service”;

(7) National Association of Corrosion Engineers Standard RP-0184-91 (1991), “Recommended Practice: Repair of Lining systems”;

(8) National Association of Corrosion Engineers Standard RP-0288-94 (1994), “Standard Recommended Practice: Inspection of Linings on Steel and Concrete”;

(9) Fiberglass Petroleum Tank & Pipe Institute Recommended Practice T-95-02 (1995), “Remanufacturing of Fiberglass Reinforced Underground Storage Tanks”;

(10) American Society of Testing and Materials G 158-98 (1998), “Standard Guide for Three Methods of Assessing Buried Steel Tanks”;

(11) American Society of Testing and Materials E 1990-98 (1998), “Standard Guide for Performing Evaluations of Underground Storage Tank Systems for Operational Compliance with 40 CFR, Part 280 Regulations”.

APPENDIX I

OAR 340-150-0400

General Release Detection Requirements for All UST Systems

The following code may be used to comply with this rule:

American Society of Testing and Materials E 1526-93 (1993), “Standard Practice for Evaluating the Performance of Release Detection Systems for Underground Storage Tank Systems”.

APPENDIX J

General Guidance Documents for UST Owners and Permittees

The following codes and standards may be useful for UST owners and permittees:

(1) American Petroleum Institute Recommended Practice 2003 (1998), “Protection Against Ignitions Arising Out of Static, Lightning and Stray Currents”;

(2) American Petroleum Institute Publication 2005 (1996), “Service Station Safety”;

(3) National Association of Corrosion Engineers Standard RP 0177-95 (1995) Recommended Practice: “Mitigation of Alternating Current and Lightning Effects on Metallic Structures and Corrosion Systems”;

(4) National Fire Protection Association 30A (1996), “Automotive and Marine Service Station Code”;

(5) National Fire Protection Association 385 (1990), “Standard for Tank Vehicles for Flammable and Combustible Liquids”; and

(6) Underwriters Laboratories 58 (1996), Standard for Safety: “Steel Underground Tanks for Flammable and Combustible Liquids”.

APPENDIX K

340-150-0180

Site Assessment Requirements for Permanent Closure or Change-In-Service

Written site assessment plans must be submitted to the department for review and approval before initiating:

- Permanent closure in-place;
- Change-in-service from regulated to nonregulated status; or
- Decommissioning an UST that contains a hazardous substance other than petroleum (by removal, closure in-place or change-in-service).

The site assessment plan may be prepared by completing a form provided by the department or the plan may be a written report that covers all elements of this Appendix. The requirements of OAR 340-150-0180(3) and (4) must be met. This Appendix includes the required information.

UST facility and permittee information:

Name and address of the UST facility, UST Facility ID number issued by DEQ and name, address and contact number for the permittee. The permittee must sign and date the completed report as true and correct.

Service provider and supervisor information:

Name, address and contact number for the service provider performing the work (including license number and expiration date) and supervisor assigned to the project (including license number and expiration date). The supervisor must sign and date the completed report as true and correct.

UST information:

For each UST: tank material or type, date installed, size, and contents. Include any information about tank history that could be significant (e.g., previous suspected or confirmed release reported, repairs, testing failures, etc.).

Type of decommissioning:

State which type of decommissioning will be performed: permanent closure in-place or change-in-service from regulated to nonregulated status for petroleum USTs or decommissioning an UST that contains a hazardous substance other than petroleum by removal, closure in-place or change-in-service.

Site diagram:

A site diagram (*drawn approximately to scale*) that notes the location of all USTs and underground piping, buildings and nearby properties must be attached to the site assessment plan. Note if there are any surface water bodies within ¼ mile of the UST facility or if any potential conduits exist that could spread contamination (e.g., water or sewer lines). Important: Identify the proposed location of all samples to be collected on the site diagram.

Site conditions:

The site assessment plan must address the possibility of encountering groundwater. If questionable, verify the depth to groundwater *and be prepared with contingency sampling should groundwater be encountered.*

- If there were to be a release of a regulated substance during the decommissioning process, could surface water be impacted, either directly or via conduits such as surface drainage systems? If yes, discuss strategy developed to prevent a discharge to surface water or other contingency plans. Any release that results in sheen to surface waters must be reported and cleaned up immediately.

Sample collection methods and analytical procedures:

- Describe the sample collection and analytical methods to be used for this project. The Hydrocarbon Identification analytical procedure specified in OAR 340-122-0218(1)(d) (NWTPH-HCID) must be used for determining whether a confirmed petroleum release exists and then quantified by the appropriate method. For hazardous substances other than petroleum, describe the specific analytical method to be used and sample collection procedures to be followed.

Soil sample locations:

The site assessment plan and site diagram must address where and how samples will be collected.

General Information

- The UST and associated systems must be evaluated for contamination in all areas where contamination is likely to be present. If contamination is observed or suspected *at any time* during decommissioning, samples must be collected from the contaminated soil.
- If water is present in the UST pit, regardless of whether obvious contamination is or is not present, the department must be notified of this fact within 24 hours of discovery.
- If contamination is discovered, the permittee must report the release to the department within 24 hours. If not reported within 24 hours, the licensed service provider must provide the required notice to the department within 72 hours. If contamination is found to be present, removal of the UST may be required.
- Note: This Appendix addresses site assessment plans only. Correct industry practices or codes, safety measures and report preparation requirements for actual decommissioning of the UST system must be complied with at all times.

USTs

- All areas exposed during the uncovering of the UST when it is cut open and cleaned must be examined for signs of contamination. The UST must also be examined for holes by doing an examination of the interior after cleaning. Holes in the UST may be an indication of leakage and contamination.
- For an individual UST, four samples must be collected; one each from beneath both ends of the tank and on each side or as otherwise directed by the department (e.g., only two may be required if collected through a hole cut in the bottom of the tank). For multiple USTs in the same pit, a minimum of one sample must be collected for each 100 square feet of area in the pit. Soil samples must be collected from the native soils located no more than two feet beneath the UST pit in areas where contamination is most likely to be found.

Piping and Dispensers

- In cases where UST components (e.g., underground piping or dispensers) are located above an area to be excavated as

part of the UST decommissioning, the area must first be visually assessed and soil samples collected if contamination is observed or suspected before conducting the excavation work.

- *For underground piping*, a minimum of two soil samples must be collected from the native soils directly beneath the areas where contamination is most likely to be found and must be collected at 20-foot intervals;
 - Include information about the fate of lines containing a regulated substance. Regulated substance line trenches must be opened up and visually assessed during removal of the underground piping and soil samples collected from impacted areas.
 - If lines that contained a regulated substance are to remain in-place, samples must be collected from the native soils directly beneath the areas where contamination is observed, in addition to samples collected at 20 lineal foot intervals beginning at the dispensers.
- *For dispensers*, at least one soil sample must be collected from the native soils directly beneath each dispenser.
 - Dispenser areas must also be evaluated for signs of contamination during the process of removal. If contamination is observed or suspected, samples must be collected from the contaminated soil. If contamination is not observed, collect one sample from beneath each dispenser.

APPENDIX L

OAR 340-150-0200

Training Elements

The following topics must be covered in each UST system operator training session or by an equivalent training or testing method to meet UST system operation and maintenance training requirements:

- (1) General overview of department UST program administrative requirements:
 - (a) Types of registration certificates (i.e., permits) and process for modification of registration certificates;
 - (b) Notification process and general technical requirements for new UST installation, decommissioning, equipment replacement and retrofits, confirmed releases, suspected releases (including confirmation steps for suspected releases) and other system or test failures;
 - (c) Annual UST compliance fees and invoicing process;
 - (d) General requirements for maintaining financial responsibility;
 - (e) Department process for inspections and technical assistance resources available; and
 - (f) Enforcement process for violations.
- (2) General overview of other regulations pertaining to USTs, including, but not limited to, fire codes, occupational health and safety and any related industry practices pertaining to safety.
- (3) Spill prevention and overfill protection:
 - (a) Rule requirements, including record keeping;
 - (b) Equipment requirements; and
 - (c) Operation and maintenance needs.
- (4) Release detection: For each type of release detection method listed in OAR 340-150-0400 through 340-150-0470 for both USTs and underground piping:
 - (a) Rule requirements, including record keeping;
 - (b) Monitoring and equipment, including third party approval requirements; and
 - (c) Operation and maintenance requirements.
- (5) Corrosion protection, galvanic and impressed current:
 - (a) UST rule requirements (OAR chapter 340, division 150), including record keeping;
 - (b) Equipment requirements; and
 - (c) Operation and maintenance needs, including periodic inspections and testing.
- (6) Lined USTs:
 - (a) Rule requirements, including record keeping; and
 - (b) Operation and maintenance needs, including periodic inspections and testing.