

ENVIRONMENTAL QUALITY

CHAPTER 56

UNDERGROUND STORAGE TANKS
PETROLEUM AND CHEMICAL SUBSTANCES

Subchapter 2

UST Systems: Design, Construction, and Installation

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Subchapter 2

UST Systems:
Design, Construction, and Installation

17.56.201 PERFORMANCE STANDARDS FOR NEW UST SYSTEMS

(1) 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 shall meet the following requirements:

(a) each tank must be properly designed and constructed, and any portion underground that routinely contains product must be protected from corrosion, in accordance with any one of the codes of practice developed by a nationally recognized association or independent testing laboratory identified in (1)(a)(i) through (iii):

(i) the tank is constructed of fiberglass-reinforced plastic in accordance with any one of the standards in (2)(a) through (c); or

(ii) the tank is constructed of steel and cathodically protected in the following manner and in accordance with any one of the standards in (2)(d) through (j):

(A) the tank 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 as required in ARM 17.56.302; and

(D) cathodic protection systems are operated and maintained in accordance with ARM 17.56.302; or

(iii) the tank is constructed of a steel-fiberglass-reinforced-plastic composite in accordance with all of the standards in (2)(e) and (k);

(b) the piping that routinely contains regulated substances, and is in contact with the ground, must be properly designed, constructed, and protected from corrosion in accordance with any one of the codes of practice developed by a nationally recognized association or independent testing laboratory identified in (1)(b)(i) and (ii):

(i) the piping is constructed of fiberglass-reinforced plastic in accordance with all of the standards in (2)(l) through (o); or

- (ii) the piping is constructed of steel and cathodically protected in the following manner and in accordance with all of the standards in (2)(p) through (s):
 - (A) the 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 as required in ARM 17.56.302; and
 - (D) cathodic protection systems are operated and maintained in accordance with ARM 17.56.302;
- (c) to prevent spilling and overflowing associated with product transfer to the UST system, owners and operators shall use the following spill and overflow prevention equipment:
 - (i) spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and
 - (ii) overflow prevention equipment that will:
 - (A) automatically shut off flow into the tank when the tank is no more than 95% full; or
 - (B) alert the transfer operator when the tank is no more than 90% full by restricting the flow into the tank or triggering a high-level alarm.
 - (d) all tanks and piping must be properly installed in accordance with this chapter, the manufacturer's instructions or specifications, all permit conditions, and all applicable standards identified in (2)(q) and (t) through (v);
 - (e) upon completion of all work and testing performed pursuant to a permit issued under subchapter 13 for the installation or modification of an underground storage tank system, the licensed installer or department inspector shall certify, on a form approved by the department, compliance with the following requirements:
 - (i) installation or modification in accordance with (1)(d);
 - (ii) corrosion protection of steel tanks and piping under (1)(a) and (b);
 - (iii) release detection under ARM 17.56.402 and 17.56.403; and
 - (iv) spill and overflow protection under ARM 17.56.301.
- (2) The department adopts and incorporates by reference the version in effect on January 1, 2016, of the following standards, specifications, and publications:
 - (a) Underwriters Laboratories Standard 1316, "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products," which sets forth requirements for the manufacture and installation of glass-fiber-reinforced plastic underground storage tanks for petroleum products, a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(b) Underwriters Laboratories of Canada Standard ULC-S615, "Standard for Fibre Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids," which sets forth requirements for the manufacture and installation of horizontal reinforced plastic underground tanks for petroleum products, a copy of which may be obtained from Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9;

(c) American Society of Testing and Materials Standard D4021, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks," which sets forth design standards for Fiber Reinforced Polyester (FRP) UST tanks, a copy of which may be obtained from The American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017;

(d) Steel Tank Institute, "Specification for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks," which sets forth design and installation standards of cathodically protected steel underground storage tanks, a copy of which may be obtained from Steel Tank Institute, 570 Oakwood Road, Lake Zurich, IL 50047, (800) 438-8265;

(e) Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks," which sets forth requirements for corrosion protection systems for underground storage tanks, a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(f) Underwriters Laboratories of Canada Standard ULC-S603, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," which sets forth the requirements that cover single-wall and double-wall cylindrical steel tanks of the horizontal, nonpressure type that are used for the underground storage of flammable liquids and combustible liquids, a copy of which may be obtained from Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9;

(g) Underwriters Laboratories of Canada Standard ULC-S603.1, "External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids," which sets forth the requirements for external corrosion protection systems on carbon steel underground storage tanks, a copy of which may be obtained from Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9;

(h) Underwriters Laboratories of Canada Standard ULC-S631, "Standard for Isolating Bushing for Steel Underground Tanks Protected with External Corrosion Protection Systems," which sets forth requirements for low profile nylon isolating bushings with internal and external threads and component thread sealant, which are intended for use in the external corrosion protection of underground steel tanks, a copy of which may be obtained from Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9;

(i) National Association of Corrosion Engineers Standard RP0285, "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection," which sets forth cathodic protection standards for buried or submerged metallic liquid storage systems, a copy of which may be obtained from NACE, International, P.O. Box 201009, Houston, TX 77216-1009, (281) 228-6200;

(j) Underwriters Laboratories Standard 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," which sets forth requirements for horizontal atmospheric-type steel tanks intended for the underground storage of flammable and combustible liquids, and single wall tanks, secondary containment tanks, multiple compartment single wall, and multiple compartment secondary containment tanks, a copy of which may be obtained from Underwriters Laboratory, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(k) the Association for Composite Tanks ACT-100, "Specification for the Fabrication of FRP Clad Underground Storage Tanks," which sets forth a minimum consensus standard for the fabrication of FRP clad/composite tanks, a copy of which may be obtained from the Association for Composite Tanks, 108 N. State Street, Suite 720, Chicago, IL 60602;

(l) Underwriters Laboratories Subject 971, "Standard for Nonmetallic Underground Piping For Flammable Liquids," which sets forth design standards for fiberglass reinforced plastic pipe, a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(m) Underwriters Laboratories Standard 567, "Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas," which sets forth manufacture and installation standards for pipe connectors, a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709;

(n) Underwriters Laboratories of Canada Guide ULC-107, "Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids," which sets forth requirements of manufacture and installation of fiberglass reinforced plastic pipe and fittings, a copy of which may be obtained from Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9;

- (o) Underwriters Laboratories of Canada Standard ULC-S633, "Flexible Underground Hose Connectors," which sets forth requirements for flexible underground hose connectors for petroleum products, a copy of which may be obtained from Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9;
- (p) National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code," which sets forth transferring and dispensing practices for flammable and combustible liquids, a copy of which may be obtained from National Fire Protection Association, Batterymarch Park, Quincy, MA 02269, (800) 344-3555;
- (q) American Petroleum Institute Recommended Practice 1615, "Installation of Underground Petroleum Storage Systems," which sets forth proper installation procedures for UST systems, a copy of which may be obtained from Global Engineering Documents, 15 Inverness Way East, M/S C303B, Englewood, CO 80112-5776, (303) 397-7956;
- (r) American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," which sets forth the cathodic protection standards for UST systems, a copy of which may be obtained from API Publications Department, 1220 L Street NW, Washington, DC 20005, (202) 682-8375;
- (s) National Association of Corrosion Engineers RP0169, "Control of External Corrosion on Underground or Submerged Metallic Piping Systems," which sets forth practices for the control of external corrosion on buried or submerged metallic piping systems, a copy of which may be obtained from NACE, International, P.O. Box 201009, Houston, TX 77216-1009, (281) 228-6200;
- (t) Petroleum Equipment Institute Publication RP100, "Recommended Practices for Installation of Underground Liquid Storage Systems," which sets forth proper installation procedures for UST systems, a copy of which may be obtained from Petroleum Equipment Institute, P.O. Box 2380, Tulsa, OK 74101, (918) 494-9696;
- (u) American National Standards Institute Standard B31.3, "Process Piping," which sets forth proper installation and design standards for piping of an UST system, a copy of which may be obtained from The American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017;
- (v) American National Standards Institute Standard B31.4, "Pipeline Transportation Systems for Liquids and Slurries," which sets forth proper installation and design standards for piping of an UST system, a copy of which may be obtained from The American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017;

(w) Underwriters Laboratory 1856, "Underground Fuel Tank Internal Retrofit Systems," which sets forth requirements for nonmetallic retrofit systems intended for field installation inside steel or fiberglass underground fuel tanks, a copy of which may be obtained from Underwriters Laboratories, Inc., 12 Laboratory Drive, Research Triangle Park, NC 27709; and

(x) American Petroleum Institute 1626, "Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations," which describes recommended practices for the storing, handling, and fire protection of ethanol and gasoline-ethanol blends from E1 to E15 and from E65 to E100 (used for E85) at distribution terminals and filling stations, a copy of which may be obtained from API Publications Department, 1220 L Street NW, Washington, DC 20005, (202) 682-8375. (History: 75-11-505, MCA; IMP, 75-11-505, MCA; NEW, 1989 MAR p. 1912, Eff. 11/23/89; TRANS, from DHES, 1995 MAR p. 2259; AMD, 2003 MAR p. 1079, Eff. 5/23/03; AMD, 2007 MAR p. 1189, Eff. 8/24/07; AMD, 2010 MAR p. 1888, Eff. 8/27/10; AMD, 2013 MAR p. 1826, Eff. 10/18/13; AMD, 2016 MAR p. 1694, Eff. 9/24/16.)

17.56.202 UPGRADING OF EXISTING UST SYSTEMS (1) All existing UST systems must comply with one of the following requirements:

- (a) new UST system performance standards under ARM 17.56.201;
- (b) the upgrading requirements in (2) through (4); or
- (c) closure requirements under subchapter 7, including applicable requirements for corrective action under subchapter 6.

(2) Steel tanks must be upgraded to meet any one of the following requirements in accordance with all of the standards in (5):

- (a) a tank may be upgraded by internal lining if:
 - (i) the lining is installed in accordance with the requirements of ARM 17.56.304; and
 - (ii) within ten years after lining, and every five years thereafter, the lined tank is internally inspected and found to be structurally sound with the lining still performing in accordance with original design specifications;
- (b) a tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of ARM 17.56.201(1)(a)(ii)(B), (C), and (D) and the integrity of the tank is ensured using one of the following methods:
 - (i) the tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic protection system; or
 - (ii) the tank has been installed for less than ten years and is monitored monthly for releases in accordance with ARM 17.56.407(1)(d) through (g); or
 - (iii) the tank has been installed for less than ten years and is assessed for corrosion holes by conducting two tightness tests that meet the requirements of ARM 17.56.407(1)(c). The first tightness test must be conducted prior to installing the cathodic protection system. The second tightness test must be conducted between three and six months following the first operation of the cathodic protection system; and
- (c) a tank may be upgraded by both internal lining and cathodic protection if:
 - (i) the lining is installed in accordance with the requirements of ARM 17.56.304; and
 - (ii) the cathodic protection system meets the requirements of ARM 17.56.201(1)(a)(ii)(B), (C) and (D).

(3) Metal piping that routinely contains regulated substances, and is in contact with the ground, must be cathodically protected in accordance with all of the standards adopted by reference in ARM 17.56.201(2)(p) through (s) and must meet the requirements of ARM 17.56.201(1)(b)(ii)(B), (C), and (D).

(4) To prevent spilling and overfilling associated with product transfer to the UST system, all existing UST systems must comply with new UST system spill and overfill prevention equipment requirements specified in ARM 17.56.201(1)(c).

(5) The department adopts and incorporates by reference the version in effect on January 1, 2016, of the following publications and standards:

(a) American Petroleum Institute Publication 1631, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks," which sets forth repair and lining standards for UST systems, a copy of which may be obtained from API Publications Department, 1220 L Street NW, Washington, DC 20005, (202) 682-8375;

(b) National Leak Prevention Association Standard 631, "Spill Prevention, Minimum 10 Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection," which sets forth repair and lining standards for UST systems, a copy of which may be obtained from National Leak Prevention Association, 7685 Fields Ertel Road, Cincinnati, OH 45241, (800) 543-1838;

(c) National Association of Corrosion Engineers Standard RP0285, "Corrosion Control of Underground Storage Tank Systems by Cathodic Protection," which sets forth cathodic protection standards for buried or submerged metallic liquid storage systems, a copy of which may be obtained from NACE, International, P.O. Box 201009, Houston, TX 77216-1009, (281) 228-6200; and

(d) American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," which sets forth cathodic protection standards for UST systems, a copy of which may be obtained from API Publications Department, 1220 L Street NW, Washington, DC 20005, (202) 682-8375. (History: 75-11-505, MCA; IMP, 75-11-505, MCA; NEW, 1989 MAR p. 1912, Eff. 11/23/89; TRANS, from DHES, 1995 MAR p. 2259; AMD, 2003 MAR p. 1079, Eff. 5/23/03; AMD, 2007 MAR p. 1189, Eff. 8/24/07; AMD, 2010 MAR p. 1888, Eff. 8/27/10; AMD, 2013 MAR p. 1826, Eff. 10/18/13; AMD, 2016 MAR p. 1694, Eff. 9/24/16.)

17.56.203 ADDITIONAL PERFORMANCE STANDARDS FOR NEW UNDERGROUND PIPING CONNECTED TO ABOVEGROUND TANKS OR TO UNDERGROUND TANKS WITH A CAPACITY OF 660 GALLONS OR LESS USED TO STORE HEATING OIL

(1) Primary underground piping connected to aboveground tanks or to underground tanks with a capacity of 660 gallons or less used exclusively to store heating oil for consumptive use on the premises where stored may be constructed of copper provided that the piping is enclosed in secondary containment consistent with these rules.

(2) In addition to cathodically protected steel or nonmetallic pipe listed for use with petroleum products and/or motor fuels, schedule 40 or greater PVC pipe and fittings may be used to provide secondary containment for heating oil tank systems subject to this rule provided that only adhesives resistant to petroleum products are used to bond PVC joints.

(3) If liquid or vapor sensors are not used to monitor the interstitial space for a release, the piping system must be installed so that any liquid released into the interstitial space will not move more than 20 feet before being visually detected in a sump or standpipe. (History: 75-11-302, 75-11-505, MCA; IMP, 75-11-302, 75-11-505, MCA; NEW, 1995 MAR p. 2488, Eff. 11/23/95; TRANS, from DHES, 1995 MAR p. 2259; AMD, 2007 MAR p. 1189, Eff. 8/24/07.)

17.56.204 SECONDARY CONTAINMENT, UNDER-DISPENSER CONTAINMENT, AND INTERSTITIAL MONITORING (1) Any UST that is replaced or installed must employ:

- (a) secondary containment and approved continuous interstitial monitoring, as described in ARM 17.56.407(1)(g) and (2), as a monthly leak detection method;
- (b) under-dispenser containment that provides access; and
- (c) a liquid-tight tank top sump where the product piping exits the tank.

(2) Any pressurized product piping regulated under this chapter that is installed or replaced must:

- (a) employ secondary containment;
- (b) terminate in a liquid tight sump at each end. The sumps must:
 - (i) be liquid-tight on their sides, bottom, and at any penetrations;
 - (ii) be compatible with the substance conveyed by the piping; and
 - (iii) allow for visual inspection and access to the components in the containment system and/or otherwise allow the system to be monitored; and
- (c) employ approved continuous interstitial monitoring, as described in ARM 17.56.407(1)(g) and (2), as a monthly leak detection method.

(3) If over 50% of the length (measured from the piping terminus at the tank to the nearest point where the product is dispensed or otherwise used) or a pressurized product pipe regulated under this chapter is replaced, then the entire length of product piping must be replaced with secondarily-contained piping. The replacement of a line of product piping from a particular UST does not require the replacement of product pipes connected to other USTs.

- (4) Under-dispenser containment must be installed under dispensers when:
- (a) a new UST system is installed;
 - (b) dispensers and any associated hardware used to attach the dispenser to the product piping are replaced;
 - (c) product piping is repaired or replaced at an associated dispenser island;
 - (d) significant modifications are made to the concrete at a dispenser island;

or

(e) the department determines under-dispenser containment is necessary to meet the requirements of this rule.

(5) If under-dispenser containment is required pursuant to (1) or (4), the containment must:

- (a) employ approved interstitial monitoring, as described in ARM 17.56.407(1)(g) and (2), as a monthly leak detection method;
- (b) be liquid-tight on its sides, bottom, and at any penetrations;
- (c) be compatible with the substance conveyed by the piping; and
- (d) allow for visual inspection and access to the components in the containment system and/or allow the system to be monitored. (History: 75-11-505, MCA; IMP, 75-11-509, MCA; NEW, 2007 MAR p. 1189, Eff. 8/24/07.)

17.56.205 ANTI-SIPHON REQUIREMENTS (1) The owner or operator of an UST system that is located at an elevation that produces a gravity head on an underground piping system shall ensure that the product pipe is equipped with one of the following devices:

- (a) a department-approved anti-siphon valve;
 - (b) a department-approved normally closed solenoid valve; or
 - (c) any other department-approved device designed to prevent siphoning.
- (History: 75-11-505, MCA; IMP, 75-11-505, MCA; NEW, 2011 MAR p. 145, Eff. 2/11/11.)

Rules 17.56.206 through 17.56.220 reserved

17.56.221 ISSUANCE OF COMPLIANCE TAGS AND CERTIFICATES (REPEALED) (History: 75-11-505, MCA; IMP, 75-11-505, MCA; NEW, 1998 MAR p. 3108, Eff. 11/20/98; AMD, 2002 MAR p. 1477, Eff. 5/17/02; AMD, 2003 MAR p. 1079, Eff. 5/23/03; REP, 2003 MAR p. 2759, Eff. 12/12/03.)

