

North Carolina Administrative Code

Title 15A

Department of Environmental Quality
Division of Waste Management



Subchapter 02N

Sections .0100
thru .1000

Criteria and
Standards
Applicable to
Underground
Storage Tanks

Last Amended on June 1, 2017
Environmental Management Commission
Raleigh, North Carolina

Dear Citizen:

The following pages describe the criteria and standards applicable to underground storage tank (UST) rules for the State of North Carolina. Because the state's UST rules adopt much of the federal regulations, the federal regulations are incorporated into the document for your convenience. Each federal section is preceded with the words "Adoption by Reference."

The information presented here is not official and is not intended to replace any official source. Although every attempt is made to ensure that the information is accurate and timely, the information is presented "as is" and without warranties, either expressed or implied. An official copy of the state's UST rules may be found at <http://reports.oah.state.nc.us/ncac.asp> The federal UST regulations may be found at <https://www.ecfr.gov/cgi-bin/text-idx?SID=60d23e6cfea1e7debc0e5f6c57253ce3&pid=20160601&node=pt40.27.280&rgn=div5>

We appreciate your interest in environmental protection and hope you will find the enclosed rules useful.

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SECTION .0100 - GENERAL CONSIDERATIONS

15A NCAC 02N .0101 GENERAL

- (a) The purpose of this Subchapter is to establish the technical standards and corrective action requirements for owners and operators of underground storage tanks.
- (b) The UST Section of the Division of Waste Management shall administer the underground storage tank program for the State of North Carolina.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

15A NCAC 02N .0102 COPIES OF REFERENCED FEDERAL REGULATIONS

Copies of the Code of Federal Regulations, Sections 40 CFR 280.10-280.252 and Appendices Part 280 (80 FR 41624 – 41625, October 13, 2015) for this Subchapter, may be obtained at www.ecfr.gov/cgi-bin/ECFR?page=browse at no cost.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

15A NCAC 02N .0103 ADOPTION BY REFERENCE UPDATES

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. January 1, 1991;
Repealed Eff. June 1, 2017.

15A NCAC 02N .0104 IDENTIFICATION OF TANKS

- (a) Owners and operators shall maintain at each underground storage tank location a current diagram that indicates, for each underground storage tank:
- (1) location with respect to property boundaries and any permanent on-site structures;
 - (2) total storage capacity, in gallons;
 - (3) the exact type of petroleum product (such as unleaded gasoline, No. 2 fuel oil, diesel) or hazardous substance stored; and
 - (4) the year the tank was installed.
- (b) The diagram shall be made available for inspection to authorized representatives of the Division.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

SECTION .0200 - PROGRAM SCOPE AND INTERIM PROHIBITION
(TITLE 40, PART 280 SUBPART A-PROGRAM SCOPE AND INSTALLATION [280.10-280.12])

15A NCAC 02N .0201 APPLICABILITY

The regulations governing "Applicability" set forth in 40 CFR 280.10 (Subpart A) are hereby incorporated by reference, except that:

- (1) Underground storage tanks (UST) containing de minimis concentrations of regulated substances are also subject to the requirements for permanent closure in Rules .0802 and .0803 of this Subchapter; and
- (2) UST systems that store fuel solely for use by emergency power generators installed on or after November 1, 2007 shall also meet the requirements of Section .0900 of this Subchapter.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017; November 1, 2007.

Adoption by Reference

§280.10 Applicability.

(a) The requirements of this part apply to all owners and operators of an UST system as defined in §280.12 except as otherwise provided in paragraphs (b) and (c) of this section.

(1) *Previously deferred UST systems.* Airport hydrant fuel distribution systems, UST systems with field-constructed tanks, and UST systems that store fuel solely for use by emergency power generators must meet the requirements of this part as follows:

(i) Airport hydrant fuel distribution systems and UST systems with field-constructed tanks must meet the requirements in subpart K of this part.

(ii) UST systems that store fuel solely for use by emergency power generators installed on or before October 13, 2015 must meet the subpart D requirements on or before October 13, 2018.

(iii) UST systems that store fuel solely for use by emergency power generators installed after October 13, 2015 must meet all applicable requirements of this part at installation.

(2) Any UST system listed in paragraph (c) of this section must meet the requirements of §280.11.

(b) *Exclusions.* The following UST systems are excluded from the requirements of this part:

(1) Any UST system holding hazardous wastes listed or identified under Subtitle C of the Solid Waste Disposal Act, or a mixture of such hazardous waste and other regulated substances.

(2) Any wastewater treatment tank system that is part of a wastewater 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 expeditiously emptied after use.
- (c) *Partial Exclusions*. Subparts B, C, D, E, G, J, and K of this part do not apply to:
 - (1) Wastewater treatment tank systems not covered under paragraph (b)(2) of this section;
 - (2) Aboveground storage tanks associated with:
 - (i) Airport hydrant fuel distribution systems regulated under subpart K of this part; and
 - (ii) UST systems with field-constructed tanks regulated under subpart K of this part;
 - (3) Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954 (42 U.S.C. 2011 and following); and
 - (4) Any UST system that is part of an emergency generator system at nuclear power generation facilities licensed by the Nuclear Regulatory Commission and subject to Nuclear Regulatory Commission requirements regarding design and quality criteria, including but not limited to 10 CFR part 50.

15A NCAC 02N .0202 INSTALLATION REQUIREMENTS FOR PARTIALLY EXCLUDED UST SYSTEMS

The regulations governing "Installation requirements for partially excluded UST systems" set forth in 40 CFR 280.11 (Subpart A) are hereby incorporated by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017.

Adoption by Reference

§280.11 Installation requirements for partially excluded UST systems.

(a) Owners and operators must install an UST system listed in §280.10(c)(1), (3), or (4) storing regulated substances (whether of single or double wall construction) that meets the following requirements:

- (1) Will prevent releases due to corrosion or structural failure for the operational life of the UST system;
- (2) Is cathodically protected against corrosion, constructed of non-corrodible material, steel clad with a non-corrodible material, or designed in a manner to prevent the release or threatened release of any stored substance; and
- (3) Is 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 to paragraphs (a) and (b). The following codes of practice may be used as guidance for complying with this section:

(A) NACE International Standard Practice SP 0285, "External Corrosion Control of Underground Storage Tank Systems by Cathodic Protection";

(B) NACE International Standard Practice SP 0169, "Control of External Corrosion on Underground or Submerged Metallic Piping Systems";

(C) American Petroleum Institute Recommended Practice 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems"; or

(D) Steel Tank Institute Recommended Practice R892, "Recommended Practice for Corrosion Protection of Underground Piping Networks Associated with Liquid Storage and Dispensing Systems".

15A NCAC 02N .0203 DEFINITIONS

(a) The regulations governing "Definitions" set forth in 40 CFR 280.12 (Subpart A) are hereby incorporated by reference, except that:

- (1) 40 CFR 280.12 "UST system" shall be changed to read "'UST system' or 'Tank system' means an underground storage tank, connected underground piping, underground ancillary equipment, dispenser, and containment system, if any";
- (2) 40 CFR 280.12 "Class A operator" shall not be incorporated by reference;
- (3) 40 CFR 280.12 "Class B operator" shall not be incorporated by reference;
- (4) 40 CFR 280.12 "Class C operator" shall not be incorporated by reference;
- (5) 40 CFR 280.12 "Replaced" shall not be incorporated by reference; and
- (6) 40 CFR 280.12 "Secondary containment or secondarily contained" shall not be incorporated by reference.

(b) This Rule shall apply throughout this Subchapter except that:

- (1) "Implementing agency" shall mean the "Division of Waste Management."
- (2) "Division" shall mean the "Division of Waste Management."
- (3) "Director" and "Director of the Implementing Agency" shall mean the "Director of the Division of Waste Management."

(c) The following definitions shall apply throughout this Subchapter:

- (1) "De minimis concentration" means the amount of a regulated substance that does not exceed one percent (1%) of the capacity of a tank, excluding piping and vent lines.
- (2) "Expediently emptied after use" means the removal of a regulated substance from an emergency spill or overflow containment UST system within 48 hours after use of the UST system has ceased.
- (3) "Previously closed" means:
 - (A) An UST system from which all regulated substances had been removed, the tank had been filled with a solid inert material, and tank openings had been sealed or capped prior to December 22, 1988; or
 - (B) An UST system removed from the ground prior to December 22, 1988.
- (4) "Temporarily closed" means:
 - (A) An UST system from which the product has been removed such that not more than one inch of product and residue are present in any portion of the tank; or
 - (B) Any UST system in use as of December 22, 1988 that complies with the provisions of 15A NCAC 02N .0801.
- (5) "Secondary containment" means a method or combination of methods of release detection for UST systems that includes:
 - (A) For tank installations or replacements completed prior to November 1, 2007, double-walled construction and external liners (including vaults);
 - (B) For underground piping installations or replacements completed prior to November 1, 2007, trench liners and double-walled construction;
 - (C) For tank installations or replacements completed on or after November 1, 2007, double-walled construction and interstitial release detection monitoring that meet the requirements of Section .0900 of this Subchapter; and

- (D) For all other UST system component installations or replacements completed on or after November 1, 2007, double-walled construction or containment within a liquid-tight sump and interstitial release detection monitoring that meet the requirements of Section .0900 of this Subchapter. Upon written request, the Division shall approve other methods of secondary containment for connected piping that it determines are capable of meeting the requirements of Section .0900 of this Subchapter.
- (6) "Interstitial space" means the opening formed between the inner and outer wall of an UST system with double-walled construction or the opening formed between the inner wall of a containment sump and the UST system component that it contains.
- (7) "Replace" means to remove an UST system or UST system component and to install another UST system or UST system component in its place.
- (8) "UST system component or tank system component" means any part of an UST system.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Temporary Amendment Eff. January 7, 1991 For a Period of 180 Days to Expire on July 6, 1991; Temporary Amendment Expired July 6, 1991; Amended Eff. June 1, 2017; November 1, 2007.

Adoption by Reference

§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 aboveground 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.

Ancillary 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 subsurface of the land and to groundwater. 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 earthen materials.

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.

CERCLA means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended.

Class A operator means the individual who has primary responsibility to operate and maintain the UST system in accordance with applicable requirements established by the implementing agency. The Class A operator typically manages resources and personnel, such as establishing work assignments, to achieve and maintain compliance with regulatory requirements.

Class B operator means the individual who has day-to-day responsibility for implementing applicable regulatory requirements established by the implementing agency. The Class B operator typically implements in-field aspects of operation, maintenance, and associated recordkeeping for the UST system.

Class C operator means the individual responsible for initially addressing emergencies presented by a spill or release from an UST system. The Class C operator typically controls or monitors the dispensing or sale of regulated substances.

Compatible 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.

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

Containment Sump means a liquid-tight container that protects the environment by containing leaks and spills of regulated substances from piping, dispensers, pumps and related components in the containment area. Containment sumps may be single walled or secondarily contained and located at the top of tank (tank top or submersible turbine pump sump), underneath the dispenser (under-dispenser containment sump), or at other points in the piping run (transition or intermediate sump).

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 material 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).

Dispenser means equipment located aboveground that dispenses regulated substances from the UST system.

Dispenser system means the dispenser and the equipment necessary to connect the dispenser to the underground storage tank system.

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 22, 1988. Installation is considered to have commenced if:

(1) 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,

(2)(i) Either a continuous on-site physical construction or installation program has begun; or,

(ii) 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.

Farm tank is a tank located on a tract of land devoted to the production of crops or raising animals, including fish, and associated residences and improvements. A farm tank must be located on the farm property. *Farm* includes fish hatcheries, rangeland and nurseries with growing operations.

Flow-through process tank is a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process or for the storage of finished products or by-products from the production process.

Free product refers to a regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water).

Gathering lines means any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production or gathering operations.

Hazardous substance UST system means an underground storage tank system that contains a hazardous substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (but not including any substance regulated as a hazardous waste under subtitle C) or any mixture of such substances and petroleum, and which is not a petroleum UST system.

Heating oil means petroleum that is No. 1, No. 2, No. 4—light, No. 4—heavy, No. 5—light, No. 5—heavy, and No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel Oil and Bunker C); and other fuels when used as substitutes for one of these fuel oils. Heating oil is typically used in the operation of heating equipment, boilers, or furnaces.

Hydraulic lift tank means a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.

Implementing agency means EPA, or, in the case of a state with a program approved under section 9004 (or pursuant to a memorandum of agreement with EPA), the designated state or local agency responsible for carrying out an approved UST program.

Liquid trap means sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extraction operations (including gas production plants), for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream.

Maintenance means the normal operational upkeep to prevent an underground storage tank system from releasing product.

Motor fuel means a complex blend of hydrocarbons typically used in the operation of a motor engine, such as motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any blend containing one or more of these substances (for example: motor gasoline blended with alcohol).

New tank system means a tank system that will be used to contain an accumulation of regulated substances and for which installation has commenced after December 22, 1988. (See also *Existing Tank System*.)

Noncommercial purposes with respect to motor fuel means not for resale.

On the premises where stored with respect to heating oil means UST systems located on the same property where the stored heating oil is used.

Operational life refers to the period beginning when installation of the tank system has commenced until the time the tank system is properly closed under subpart G.

Operator means any person in control of, or having responsibility for, the daily operation of the UST system.

Overfill release is a release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment.

Owner means:

(1) In the case of an UST system in use on November 8, 1984, or brought into use after that date, any person who owns an UST system used for storage, use, or dispensing of regulated substances; and

(2) In the case of any UST system in use before November 8, 1984, but no longer in use on that date, any person who owned such UST immediately before the discontinuation of its use.

Person means an individual, trust, firm, joint stock company, federal agency, corporation, state, municipality, commission, political subdivision of a state, or any interstate body. Person also includes a consortium, a joint venture, a commercial entity, and the United States Government.

Petroleum UST system means an underground storage tank system that contains petroleum or a mixture of petroleum with *de minimis* 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.

Pipe or Piping means a hollow cylinder or tubular conduit that is constructed of non-earthen materials.

Pipeline facilities (including gathering lines) are new and existing pipe rights-of-way and any associated equipment, facilities, or buildings.

Regulated substance means:

(1) Any substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (but not including any substance regulated as a hazardous waste under subtitle C); and

(2) Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute). The term regulated substance includes but is not limited to petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons, 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, leaching or disposing from an UST into groundwater, surface water or subsurface soils.

Release detection means determining whether a release of a regulated substance has occurred from the UST system into the environment or a leak has occurred into the interstitial space between the UST system and its secondary barrier or secondary containment around it.

Repair means to restore to proper operating condition a tank, pipe, spill prevention equipment, overfill prevention equipment, corrosion protection equipment, release detection equipment or other UST system component that has caused a release of product from the UST system or has failed to function properly.

Replaced means:

(1) For a tank—to remove a tank and install another tank.

(2) For piping—to remove 50 percent or more of piping and install other piping, excluding connectors, connected to a single tank. For tanks with multiple piping runs, this definition applies independently to each piping run.

Residential tank is a tank located on property used primarily for dwelling purposes.

SARA means the Superfund Amendments and Reauthorization Act of 1986.

Secondary containment or *Secondarily contained* means a release prevention and release detection system for a tank or piping. This system has an inner and outer barrier with an interstitial space that is monitored for leaks. This term includes containment sumps when used for interstitial monitoring of piping.

Septic tank is a water-tight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle 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-earthen materials (e.g., concrete, steel, plastic) that provide structural support.

Training program means any program that provides information to and evaluates the knowledge of a Class A, Class B, or Class C operator through testing, practical demonstration, or another approach acceptable to the implementing agency regarding requirements for UST systems that meet the requirements of subpart J of this part.

Under-dispenser containment or *UDC* means containment underneath a dispenser system designed to prevent leaks from the dispenser and piping within or above the UDC from reaching soil or groundwater.

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 belowground 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 any:

- (1) Farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
- (2) Tank used for storing heating oil for consumptive use on the premises where stored;
- (3) Septic tank;
- (4) Pipeline facility (including gathering lines):
 - (i) Which is regulated under 49 U.S.C. chapter 601; or
 - (ii) Which is an intrastate pipeline facility regulated under state laws as provided in 49 U.S.C. chapter 601, and which is determined by the Secretary of Transportation to be connected to a pipeline, or to be operated or intended to be capable of operating at pipeline pressure or as an integral part of a pipeline;
- (5) Surface impoundment, pit, pond, or lagoon;
- (6) Storm water or wastewater collection system;
- (7) Flow-through process tank;
- (8) Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations; or
- (9) 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 above the surface of the floor.

Note to the definition of Underground storage tank or UST. The term *underground storage tank or UST* does not include any pipes connected to any tank which is described in paragraphs (1) through (9) of this definition.

Upgrade means the addition or retrofit of some systems such as cathodic protection, lining, or spill 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 ancillary 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.

SECTION .0300 - UST SYSTEMS: DESIGN, CONSTRUCTION, INSTALLATION, AND NOTIFICATION
(TITLE 40, PART 280 SUBPART B-UST SYSTEMS:DESIGN [280.20-280.22])

15A NCAC 02N .0301 PERFORMANCE STANDARDS FOR UST SYSTEM INSTALLATIONS OR REPLACEMENTS COMPLETED AFTER DECEMBER 22, 1988 AND BEFORE NOVEMBER 1, 2007

(a) The regulations governing "Performance standards for new UST systems" set forth in 40 CFR 280.20 (Subpart B) are hereby incorporated by reference, except that:

- (1) 40 CFR 280.20(a)(4) shall not be incorporated by reference;
- (2) 40 CFR 280.20(b)(3) shall not be incorporated by reference; and
- (3) UST system or UST system component installations or replacements completed on or after November 1, 2007, shall also meet the requirements of Section .0900 of this Subchapter.

(b) No UST system shall be installed within 100 feet of a well serving a public water system, as defined in G.S. 130A-313(10), or within 50 feet of any other well supplying water for human consumption.

(c) An UST system existing on January 1, 1991, and located within the area described in Paragraph (b) of this Rule may be replaced with a new tank meeting the performance standards of 40 CFR 280.20 and the secondary containment provisions of 40 CFR 280.42(a) through (d). The replacement UST system shall not be located nearer to the water supply source than the UST system being replaced.

(d) Except as prohibited in Paragraph (b) of this Rule, an UST system shall meet the requirements for secondary containment described at 40 CFR 280.42(a) through (d):

- (1) Within 500 feet of a well serving a public water supply or within 100 feet of any other well supplying water for human consumption; or
- (2) Within 500 feet of any surface water classified as High Quality Water (HQW), Outstanding Resource water (ORW), WS-I, WS-II or SA.

(e) An UST system or UST system component installation completed on or after November 1, 2007, to replace an UST system or UST system component located within the areas described in Paragraphs (b), (c), or (d) of this Rule shall meet the requirements of Section .0900 of this Subchapter.

(f) 40 CFR 280.20 Note to paragraph (d) is amended to include Petroleum Equipment Institute Publication RP1000, "Recommended Practices for the Installation of Marina Fueling Systems."

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017; November 1, 2007*

Adoption of Reference

§280.20 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. In addition, except for suction piping that meets the requirements of §280.41(b)(1)(ii)(A) through (E), tanks and piping installed or replaced after April 11, 2016 must be secondarily contained and use interstitial monitoring in accordance with §280.43(g). Secondary containment must be able to contain regulated substances leaked from the primary containment until they are detected and removed and prevent the release of regulated substances to the environment at any time during the operational life of the UST system. For cases where the piping is considered to be replaced, the entire piping run must be secondarily contained.

(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

Note to paragraph (a)(1). The following codes of practice may be used to comply with paragraph (a)(1) of this section:

(A) Underwriters Laboratories Standard 1316, “Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures”; or

(B) Underwriter’s Laboratories of Canada S615, “Standard for Reinforced Plastic Underground Tanks for Flammable and Combustible Liquids”.

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

(i) The tank is coated with a suitable dielectric material;

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

(iii) Impressed current systems are designed to allow determination of current operating status as required in §280.31(c); and

(iv) Cathodic protection systems are operated and maintained in accordance with §280.31 or according to guidelines established by the implementing agency; or

Note to paragraph (a)(2). The following codes of practice may be used to comply with paragraph (a)(2) of this section:

(A) Steel Tank Institute “Specification STI-P3[®] Specification and Manual for External Corrosion Protection of Underground Steel Storage Tanks”;

(B) Underwriters Laboratories Standard 1746, “External Corrosion Protection Systems for Steel Underground Storage Tanks”;

(C) Underwriters Laboratories of Canada S603, “Standard for Steel Underground Tanks for Flammable and Combustible Liquids,” and S603.1, “Standard for External Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids,” and S631, “Standard for Isolating Bushings for Steel Underground Tanks Protected with External Corrosion Protection Systems”;

(D) Steel Tank Institute Standard F841, “Standard for Dual Wall Underground Steel Storage Tanks”; or

(E) NACE International Standard Practice SP 0285, “External Corrosion Control of Underground Storage Tank Systems by Cathodic Protection,” and Underwriters Laboratories Standard 58, “Standard for Steel Underground Tanks for Flammable and Combustible Liquids”.

(3) The tank is constructed of steel and clad or jacketed with a non-corrodible material; or

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

(A) Underwriters Laboratories Standard 1746, “External Corrosion Protection Systems for Steel Underground Storage Tanks”;

(B) Steel Tank Institute ACT-100[®] Specification F894, “Specification for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks”;

(C) Steel Tank Institute ACT-100-U[®] Specification F961, “Specification for External Corrosion Protection of Composite Steel Underground Storage Tanks”; or

(D) Steel Tank Institute Specification F922, “Steel Tank Institute Specification for Permatank[®]”.

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

(i) 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

(ii) Owners and operators maintain records that demonstrate compliance with the requirements of paragraph (a)(4)(i) of this section for the remaining life of the tank; or

(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 (4) of this section.

(b) *Piping.* 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 a code of practice developed by a nationally recognized association or independent testing laboratory as specified below.

(1) The piping is constructed of a non-corrodible material; or

Note to paragraph (b)(1). The following codes of practice may be used to comply with paragraph (b)(1) of this section:

(A) Underwriters Laboratories Standard 971, “Nonmetallic Underground Piping for Flammable Liquids”; or

(B) Underwriters Laboratories of Canada Standard S660, “Standard for Nonmetallic Underground Piping for Flammable and Combustible Liquids”.

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

(i) The piping is coated with a suitable dielectric material;

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

(iii) Impressed current systems are designed to allow determination of current operating status as required in §280.31(c); and

(iv) Cathodic protection systems are operated and maintained in accordance with §280.31 or guidelines established by the implementing agency; or

Note to paragraph (b)(2). The following codes of practice may be used to comply with paragraph (b)(2) of this section:

(A) American Petroleum Institute Recommended Practice 1632, “Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems”;

(B) Underwriters Laboratories Subject 971A, “Outline of Investigation for Metallic Underground Fuel Pipe”;

(C) Steel Tank Institute Recommended Practice R892, “Recommended Practice for Corrosion Protection of Underground Piping Networks Associated with Liquid Storage and Dispensing Systems”;

(D) NACE International Standard Practice SP 0169, “Control of External Corrosion on Underground or Submerged Metallic Piping Systems”; or

(E) NACE International Standard Practice SP 0285, “External Corrosion Control of Underground Storage Tank Systems by Cathodic Protection”.

(3) The piping is constructed of metal without additional corrosion protection measures provided that:

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

(ii) Owners and operators maintain records that demonstrate compliance with the requirements of paragraph (b)(3)(i) of this section for the remaining life of the piping; or

(4) The piping 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 the requirements in paragraphs (b)(1) through (3) of this section.

(c) Spill and overfill prevention equipment.

(1) Except as provided in paragraphs (c)(2) and (3) of this section, to prevent spilling and overfilling associated with product transfer to the UST system, owners and operators must use the following spill and overfill 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) Overfill prevention equipment that will:

(A) Automatically shut off flow into the tank when the tank is no more than 95 percent full; or

(B) Alert the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank or triggering a high-level alarm; or

(C) Restrict flow 30 minutes prior to overfilling, alert the transfer operator with a high level alarm one minute before overfilling, or automatically shut off flow into the tank so that none of the fittings located on top of the tank are exposed to product due to overfilling.

(2) Owners and operators are not required to use the spill and overfill prevention equipment specified in paragraph (c)(1) of this section if:

(i) Alternative equipment is used that is determined by the implementing agency to be no less protective of human health and the environment than the equipment specified in paragraph (c)(1)(i) or (ii) of this section; or

(ii) The UST system is filled by transfers of no more than 25 gallons at one time.

(3) Flow restrictors used in vent lines may not be used to comply with paragraph (c)(1)(ii) of this section when overfill prevention is installed or replaced after October 13, 2015.

(4) Spill and overfill prevention equipment must be periodically tested or inspected in accordance with §280.35.

(d) *Installation.* The UST system must be properly installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and in accordance with the manufacturer's instructions.

Note to paragraph (d). Tank and piping system installation practices and procedures described in the following codes of practice may be used to comply with the requirements of paragraph (d) of this section:

(A) American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage System";

(B) Petroleum Equipment Institute Publication RP100, "Recommended Practices for Installation of Underground Liquid Storage Systems"; or

(C) National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code" and Standard 30A, "Code for Motor Fuel Dispensing Facilities and Repair Garages".

(e) *Certification of installation.* All owners and operators must ensure that one or more of the following methods of certification, testing, or inspection is used to demonstrate compliance with paragraph (d) of this section by providing a certification of compliance on the UST notification form in accordance with §280.22.

- (1) The installer has been certified by the tank and piping manufacturers; or
- (2) The installer has been certified or licensed by the implementing agency; or
- (3) The installation has been inspected and certified by a registered professional engineer with education and experience in UST system installation; or
- (4) The installation has been inspected and approved by the implementing agency; or
- (5) All work listed in the manufacturer's installation checklists has been completed; or
- (6) The owner and operator have complied with another method for ensuring compliance with paragraph (d) of this section that is determined by the implementing agency to be no less protective of human health and the environment.

(f) *Dispenser systems.* Each UST system must be equipped with under-dispenser containment for any new dispenser system installed after April 11, 2016.

(1) A dispenser system is considered new when both the dispenser and the equipment needed to connect the dispenser to the underground storage tank system are installed at an UST facility. The equipment necessary to connect the dispenser to the underground storage tank system includes check valves, shear valves, unburied risers or flexible connectors, or other transitional components that are underneath the dispenser and connect the dispenser to the underground piping.

(2) Under-dispenser containment must be liquid-tight on its sides, bottom, and at any penetrations. Under-dispenser containment must allow for visual inspection and access to the components in the containment system or be periodically monitored for leaks from the dispenser system.

15A NCAC 02N .0302 UPGRADING OF EXISTING UST SYSTEMS AFTER DECEMBER 22, 1998 AND BEFORE NOVEMBER 1, 2007

(a) The regulations governing "Upgrading of existing UST systems" set forth in 40 CFR 280.21 (Subpart B) are hereby incorporated by reference, except that:

- (1) existing UST systems located within the areas described in Rule .0301(b) and (d) of this Section shall be upgraded in accordance with the provisions of 40 CFR 280.21(b) through (d) and shall be provided with secondary containment as described in 40 CFR 280.42(a) through (d). An UST system upgraded shall not be located nearer to a source of drinking water supply than its location prior to being upgraded; and
- (2) 40 CFR 280.21 Note to paragraph b(1)(ii)(C) shall not be incorporated by reference.

(b) Owners and operators shall submit notice of the upgrading of any UST system conducted in accordance with the requirements of 40 CFR 280.21 to the Division, within 30 days following completion of the upgrading activity. The notice shall include form "UST-8 Notification of Activities Involving Underground Storage Tank Systems," which is set forth in Rule .0303(1)(b) of this Section.

(c) UST systems upgraded in accordance with 40 CFR 280.21 prior to January 1, 1991, are in compliance with this Rule.

(d) An UST system or UST system component installation completed on or after November 1, 2007, to upgrade or replace an UST system or UST system component described in Paragraph (a) of this Rule shall meet the performance standards of Section .0900 of this Subchapter.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017; November 1, 2007.

Adoption by Reference

§280.21 Upgrading of existing UST systems.

Owners and operators must permanently close (in accordance with subpart G of this part) any UST system that does not meet the new UST system performance standards in §280.20 or has not been upgraded in accordance with paragraphs (b) through (d) of this section. This does not apply to previously deferred UST systems described in subpart K of this part and where an upgrade is determined to be appropriate by the implementing agency.

(a) *Alternatives allowed.* All existing UST systems must comply with one of the following requirements:

- (1) New UST system performance standards under §280.20;
- (2) The upgrading requirements in paragraphs (b) through (d) of this section; or
- (3) Closure requirements under subpart G of this part, including applicable requirements for corrective action under subpart F of this part.

(b) *Tank upgrading requirements.* Steel tanks must be upgraded to meet one of the following requirements in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory:

(1) *Interior lining.* Tanks upgraded by internal lining must meet the following:

- (i) The lining was installed in accordance with the requirements of §280.33; and
- (ii) Within 10 years after lining, and every 5 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. If the internal lining is no longer performing in accordance with original design specifications and cannot be repaired in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory, then the lined tank must be permanently closed in accordance with subpart G of this part.

(2) *Cathodic protection.* Tanks upgraded by cathodic protection must meet the requirements of §280.20(a)(2)(ii), (iii), and (iv) and the integrity of the tank must have been ensured using one of the following methods:

(i) The tank was internally inspected and assessed to ensure that the tank was structurally sound and free of corrosion holes prior to installing the cathodic protection system; or

(ii) The tank had been installed for less than 10 years and is monitored monthly for releases in accordance with §280.43(d) through (i); or

(iii) The tank had been installed for less than 10 years and was assessed for corrosion holes by conducting two tightness tests that meet the requirements of §280.43(c). The first tightness test must have been conducted prior to installing the cathodic protection system. The second tightness test must have been conducted between three and six months following the first operation of the cathodic protection system; or

(iv) The tank was assessed for corrosion holes by a method that is determined by the implementing agency to prevent releases in a manner that is no less protective of human health and the environment than paragraphs (b)(2)(i) through (iii) of this section.

(3) *Internal lining combined with cathodic protection.* Tanks upgraded by both internal lining and cathodic protection must meet the following:

(i) The lining was installed in accordance with the requirements of §280.33; and

(ii) The cathodic protection system meets the requirements of §280.20(a)(2)(ii), (iii), and (iv).

Note to paragraph (b). The following historical codes of practice were listed as options for complying with paragraph (b) of this section:

(A) American Petroleum Institute Publication 1631, “Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks”;

(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”;

(C) National Association of Corrosion Engineers Standard RP-02-85, “Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems”; and

(D) American Petroleum Institute Recommended Practice 1632, “Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems”.

Note to paragraph b(1)(ii). The following codes of practice may be used to comply with the periodic lining inspection requirement of this section:

(A) American Petroleum Institute Recommended Practice 1631, “Interior Lining and Periodic Inspection of Underground Storage Tanks”;

(B) National Leak Prevention Association Standard 631, Chapter B “Future Internal Inspection Requirements for Lined Tanks”; or

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

(c) *Piping upgrading requirements.* Metal piping that routinely contains regulated substances and is in contact with the ground must be cathodically protected in accordance with a code of practice developed by a nationally

recognized association or independent testing laboratory and must meet the requirements of §280.20(b)(2)(ii), (iii), and (iv).

Note to paragraph (c). The codes of practice listed in the note following §280.20(b)(2) may be used to comply with this requirement.

(d) *Spill and overfill prevention equipment.* To prevent spilling and overfilling associated with product transfer to the UST system, all existing UST systems must comply with UST system spill and overfill prevention equipment requirements specified in §280.20(c).

15A NCAC 02N .0303 NOTIFICATION REQUIREMENTS

The regulations governing "Notification requirements" set forth in 40 CFR 280.22 (Subpart B) are hereby incorporated by reference, except that:

- (1) Owners and operators of an UST system shall submit to the Division, on forms provided by the Division, a notice of intent to conduct any of the following activities:
 - (a) notice of installation of a new UST system or UST system component shall be in accordance with Rule .0902 of this Subchapter;
 - (b) notice of installation of a leak detection device installed outside of the outermost wall of the tank and piping, such as vapor detection or groundwater monitoring devices, shall be given at least 30 days before the activity begins. The notice shall be provided on form "UST-8 Notification of Activities Involving Underground Storage Tank Systems," which may be accessed free of charge at <http://deq.nc.gov/about/divisions/waste-management/underground-storage-tanks-section/forms>. Form "UST-8 Notification of Activities Involving Underground Storage Tank Systems" shall include:
 - (i) the same information provided in Appendix I to 40 CFR 280, except that Sections X (2) and (3), and Section XI shall not be included on the form;
 - (ii) operator identification and contact information;
 - (iii) number of tank compartments and tank compartment identity, capacity, and product stored;
 - (iv) identity of tanks that are manifold together with piping;
 - (v) stage I Vapor Recovery equipment type and installation date;
 - (vi) corrosion protection methods for metal flexible connectors, submersible pumps, and riser pipes;
 - (vii) UST system and UST system component installation date, manufacturer, model, and leak detection monitoring method;
 - (viii) spill containment equipment installation date, manufacturer, model, and leak detection monitoring method;
 - (ix) overfill prevention equipment installation date, manufacturer, and model; and
 - (x) leak detection equipment manufacturer and model;
 - (c) notice of permanent closure or change-in-service of an UST system shall be given at least 30 days before the activity begins, unless a North Carolina Professional Engineer or North Carolina Licensed Geologist retained by the owner or operator to provide professional services for the tank closure or change-in-service submits the notice. A North Carolina Professional Engineer or North Carolina Licensed Geologist may submit the notice at least five business days before the activity begins. The notice shall be provided on form "UST-3 Notice of Intent: UST Permanent Closure or Change-in-Service," which may be accessed free of charge at <http://deq.nc.gov/about/divisions/waste-management/underground-storage-tanks-section/forms>. Form "UST-3 Notice of Intent: UST Permanent Closure or Change-in-Service" shall include:
 - (i) owner identification and contact information;
 - (ii) site location information;
 - (iii) site contact information;
 - (iv) contractor and consultant identification and contact information;
 - (v) identity of UST systems to be permanently closed or that will undergo a change-in-service;

- (vi) for permanent closure, the proposed method of UST System closure – removal or fill in-place;
 - (vii) for a change-in-service, the new contents to be stored;
 - (viii) proposed UST system closure or change-in-service date; and
 - (ix) signature of UST system owner;
- (d) notice of a change of ownership of a UST system pursuant to 40 CFR 280.22(b) shall be provided on form "UST-15 Change of Ownership of UST System(s)," which may be accessed free of charge at <http://deq.nc.gov/about/divisions/waste-management/underground-storage-tanks-section/forms>. Form "UST-15 Change of Ownership of UST System(s)" shall include:
- (i) the same information provided in Appendix II to 40 CFR 280;
 - (ii) site location information;
 - (iii) notarized signature of the new owner of an UST system;
 - (iv) name and notarized signature of the previous owner of an UST system; and
 - (v) appended information shall include documentation of an UST system ownership transfer such as a property deed or bill of sale and for a person signing the form on behalf of another, such as an officer of a corporation, administrator of an estate, representative of a public agency, or as having power of attorney, documentation showing that the person can legally sign in such capacity.
- (2) Owners and operators of UST systems that were in the ground on or after May 8, 1986, were required to notify the Division in accordance with the Hazardous and Solid Waste Amendments of 1984, Public Law 98-616, on a form published by the Environmental Protection Agency on November 8, 1985 (50-FR 46602) 46602), unless notice was given pursuant to Section 103(c) of CERCLA. Owners or operators who have not complied with the notification requirements shall complete the appropriate form "UST-8 Notification of Activities Involving Underground Storage Tank Systems" and submit the form to the Division.
- (3) Beginning October 24, 1988, any person who sells a tank intended to be used as an UST shall notify the purchaser of such tank of the owner's notification obligations under Item (1) of this Rule.
- (4) Any reference in 40 CFR Part 280 to the notification form in Appendix I shall refer to the North Carolina notification form "UST-8 Notification of Activities Involving Underground Storage Tank Systems".

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017.

Adoption by Reference

§280.22 Notification requirements.

(a) After May 8, 1986, an owner must submit notice of a tank system's existence to the implementing agency within 30 days of bringing the underground storage tank system into use. Owners must use the form in appendix I of this part or a state form in accordance with paragraph (c) of this section.

Note to paragraph (A). Owners and operators of UST systems that were in the ground on or after May 8, 1986, unless taken out of operation on or before January 1, 1974, were required to notify the designated state or local agency in accordance with the Hazardous and Solid Waste Amendments of 1984, Public Law 98-616, on a form published by EPA on November 8, 1985 unless notice was given pursuant to section 103(c) of CERCLA. Owners and operators who have not complied with the notification requirements may use portions I through X of the notification form contained in appendix I of this part.

(b) Within 30 days of acquisition, any person who assumes ownership of a regulated underground storage tank system, except as described in paragraph (a) of this section, must submit a notice of the

ownership change to the implementing agency, using the form in appendix II of this part or a state form in accordance with paragraph (c) of this section.

(c) In states where state law, regulations, or procedures require owners to use forms that differ from those set forth in appendix I and appendix II of this part to fulfill the requirements of this section, the state forms may be submitted in lieu of the forms set forth in appendix I and appendix II. If a state requires that its form be used in lieu of the form presented in appendix I and appendix II, such form must, at a minimum, collect the information prescribed in appendix I and appendix II.

(d) Owners required to submit notices under paragraph (a) or (b) of this section must provide notices to the appropriate implementing agency for each tank they own. Owners may provide notice for several tanks using one notification form, but owners who own tanks located at more than one place of operation must file a separate notification form for each separate place of operation.

(e) All owners and operators of new UST systems must certify in the notification form compliance with the following requirements:

- (1) Installation of tanks and piping under §280.20(e);
- (2) Cathodic protection of steel tanks and piping under §280.20(a) and (b);
- (3) Financial responsibility under subpart H of this part; and
- (4) Release detection under §§280.41 and 280.42.

(f) All owners and operators of new UST systems must ensure that the installer certifies in the notification form that the methods used to install the tanks and piping complies with the requirements in §280.20(d).

(g) Beginning October 24, 1988, any person who sells a tank intended to be used as an underground storage tank must notify the purchaser of such tank of the owner's notification obligations under paragraph (a) of this section. The statement provided in appendix III of this part, when used on shipping tickets and invoices, may be used to comply with this requirement.

15A NCAC 02N .0304 IMPLEMENTATION SCHEDULE FOR PERFORMANCE STANDARDS FOR NEW UST SYSTEMS AND UPGRADING REQUIREMENTS FOR EXISTING UST SYSTEMS LOCATED IN AREAS DEFINED IN RULE .0301(D)

(a) The following implementation schedule shall apply only to owners and operators of UST systems located within areas described in Rule .0301(d) of this Section. This implementation schedule shall govern tank owners and operators in complying with the secondary containment requirements set forth in Rule .0301(d) for new UST systems and the secondary containment requirements set forth in Rule .0302(a) for existing UST systems.

- (1) All new UST systems and replacements to an UST system shall be provided with secondary containment as of April 1, 2001.
- (2) All steel or metal connected piping and ancillary equipment of an UST, regardless of date of installation, shall be provided with secondary containment as of January 1, 2005.
- (3) All fiberglass or non-metal connected piping and ancillary equipment of an UST, regardless of date of installation, shall be provided with secondary containment as of January 1, 2008.
- (4) All UST systems installed on or before January 1, 1991 shall be provided with secondary containment as of January 1, 2008.
- (5) All USTs installed after January 1, 1991, and prior to April 1, 2001, shall be provided with secondary containment as of January 1, 2020. Owners of USTs located within 100 to 500 feet of a public water

supply well, if the well serves only a single facility and is not a community water system, may seek a variance in accordance with Paragraphs (d) through (i) of this Rule.

(b) All owners and operators of UST systems shall implement the following enhanced leak detection monitoring as of April 1, 2001. The enhanced leak detection monitoring shall consist of the following:

- (1) An automatic tank gauging system for each UST;
- (2) An electronic line leak detector for each pressurized piping system;
- (3) One 0.1 gallon per hour (gph) test per month or one 0.2 gph test per week on each UST system;
- (4) A line tightness test capable of detecting a leak rate of 0.1 gph, once per year for each suction piping system. No release detection shall be required for suction piping that is designed and constructed in accordance with 40 CFR 280.41(b)(1)(ii)(A) through (E);
- (5) If the UST system is located within 500 feet of a public water supply well or within 100 feet of any other well supplying water for human consumption, owners or operators shall sample the water supply well at least once per year. The sample collected from the well shall be characterized in accordance with:
 - (A) Standard Method 6200B, Volatile Organic Compounds Purge and Trap Capillary-Column Gas Chromatographic/Mass Spectrometric Method, which is incorporated by reference including subsequent amendments and editions, and may be obtained at <http://www.standardmethods.org/> at a cost of sixty-nine dollars (\$69.00);
 - (B) EPA Method 625, Base/Neutrals and Acids, which is incorporated by reference including subsequent amendments and editions, and may be accessed free of charge at http://water.epa.gov/scitech/methods/cwa/organics/upload/2007_07_10_methods_method_organics_625.pdf; and
 - (C) If a waste oil UST system is present that does not meet the requirements for secondary containment in accordance with 40 CFR 280.42(b)(1) through (4), the sample shall also be analyzed for lead and chromium using Method 6010C, Inductively Coupled Plasma-Atomic Emission Spectrometry, which is incorporated by reference including subsequent amendments and editions, and may be accessed free of charge at <http://www.epa.gov/epawaste/hazard/testmethods/sw846/pdfs/6010c.pdf> or Method 6020A, Inductively Coupled Plasma-Mass Spectrometry, which is incorporated by reference including subsequent amendments and editions, and may be accessed free of charge at <http://www.epa.gov/epawaste/hazard/testmethods/sw846/pdfs/6020a.pdf>; and
- (6) The first sample collected in accordance with Subparagraph (b)(5) of this Rule shall be collected and the results received by the Division by October 1, 2000, and yearly thereafter.

(c) An UST system or UST system component installation completed on or after November 1, 2007, to upgrade or replace an UST system or UST system component as required in Paragraph (a) of this Rule shall meet the performance standards of Section .0900 of this Subchapter.

(d) The Environmental Management Commission may grant a variance from the secondary containment requirements in Subparagraph (a)(5) of this Rule for USTs located within 100 to 500 feet of a public water supply well if the well serves only a single facility and is not a community water system. Any request for a variance shall be in writing by the owner of the UST for which the variance is sought. The request for variance shall be submitted to the Director, Division of Waste Management, 1646 Mail Service Center, Raleigh, NC 27699-1646. The Environmental Management Commission shall grant the variance if the Environmental Management Commission finds facts to support the following conclusions:

- (1) The variance will not endanger human health and welfare or groundwater; and
- (2) UST systems are operated and maintained in compliance with 40 CFR Part 280, Article 21A of G.S. 143B, and the rules in this Subchapter.

(e) The Environmental Management Commission may require the variance applicant to submit such information as the Environmental Management Commission deems necessary to make a decision to grant or deny the variance.

Information that may be requested includes the following:

- (1) Water supply well location, depth, construction specifications, and sampling results;
- (2) Groundwater depth and flow direction; and
- (3) Leak detection monitoring and testing results.

(f) The Environmental Management Commission may impose such conditions on a variance as the Environmental Management Commission deems necessary to protect human health and welfare and groundwater. Conditions for a variance may include the following:

- (1) Increased frequency of leak detection and leak prevention monitoring and testing;

- (2) Periodic water supply well sampling; and
 - (3) Increased reporting and recordkeeping.
- (g) The findings of fact supporting any variance under this Rule shall be in writing and made part of the variance.
- (h) The Environmental Management Commission may rescind a variance that was previously granted if the Environmental Management Commission discovers through inspection or reporting that the conditions of the variance are not met or that the facts no longer support the conclusions in Subparagraphs (d)(1) and (2) of this Rule.
- (i) An owner of an UST system who is aggrieved by a decision of the Environmental Management Commission to deny or rescind a variance or to conditionally grant a variance may commence a contested case by filing a petition pursuant to G.S. 150B-23 within 60 days after receipt of the decision.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Temporary Adoption Eff. May 1, 2000;
Eff. April 1, 2001;
Amended Eff. June 1, 2017; June 1, 2015; November 1, 2007.*

SECTION .0400 - GENERAL OPERATING REQUIREMENTS
(TITLE 40, PART 280 SUBPART C-GENERAL OPERATING REQUIREMENTS [280.30-280.36])

15A NCAC 02N .0401 SPILL AND OVERFILL CONTROL

The regulations governing "Spill and overfill control" set forth in 40 CFR 280.30 (Subpart C) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.30 Spill and overfill control.

(a) Owners and operators must ensure that releases due to spilling or overfilling do not occur. The owner and operator must ensure that the volume available in the tank is greater than the volume of product to be transferred to the tank before the transfer is made and that the transfer operation is monitored constantly to prevent overfilling and spilling.

Note to paragraph (a). The transfer procedures described in National Fire Protection Association Standard 385, "Standard for Tank Vehicles for Flammable and Combustible Liquids" or American Petroleum Institute Recommended Practice 1007, "Loading and Unloading of MC 306/DOT 406 Cargo Tank Motor Vehicles" may be used to comply with paragraph (a) of this section. Further guidance on spill and overfill prevention appears in American Petroleum Institute Recommended Practice 1621, "Bulk Liquid Stock Control at Retail Outlets".

(b) The owner and operator must report, investigate, and clean up any spills and overfills in accordance with §280.53.

15A NCAC 02N .0402 OPERATION AND MAINTENANCE OF CORROSION PROTECTION

The regulations governing "Operation and maintenance of corrosion protection" set forth in 40 CFR 280.31 (Subpart C) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.31 Operation and maintenance of corrosion protection.

All owners and operators of metal UST systems with corrosion protection must comply with the following requirements to ensure that releases due to corrosion are prevented until the UST system is permanently closed or undergoes a change-in-service pursuant to §280.71:

(a) All corrosion protection systems must be operated and maintained to continuously provide corrosion protection to the metal components of that portion of the tank and piping that routinely contain regulated substances and are in contact with the ground.

(b) All UST systems equipped with cathodic protection systems must be inspected for proper operation by a qualified cathodic protection tester in accordance with the following requirements:

(1) *Frequency.* All cathodic protection systems must be tested within 6 months of installation and at least every 3 years thereafter or according to another reasonable time frame established by the implementing agency; and

(2) *Inspection criteria.* The criteria that are used to determine that cathodic protection is adequate as required by this section must be in accordance with a code of practice developed by a nationally recognized association.

Note to paragraph (b). The following codes of practice may be used to comply with paragraph (b) of this section:

(A) NACE International Test Method TM 0101, “Measurement Techniques Related to Criteria for Cathodic Protection of Underground Storage Tank Systems”;

(B) NACE International Test Method TM0497, “Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems”;

(C) Steel Tank Institute Recommended Practice R051, “Cathodic Protection Testing Procedures for STI-P3[®] USTs”;

(D) NACE International Standard Practice SP 0285, “External Control of Underground Storage Tank Systems by Cathodic Protection”; or

(E) NACE International Standard Practice SP 0169, “Control of External Corrosion on Underground or Submerged Metallic Piping Systems”.

(c) UST systems with impressed current cathodic protection systems must also be inspected every 60 days to ensure the equipment is running properly.

(d) For UST systems using cathodic protection, records of the operation of the cathodic protection must be maintained (in accordance with §280.34) to demonstrate compliance with the performance standards in this section. These records must provide the following:

(1) The results of the last three inspections required in paragraph (c) of this section; and

(2) The results of testing from the last two inspections required in paragraph (b) of this section.

15A NCAC 02N .0403 COMPATIBILITY

The regulations governing "Compatibility" set forth in 40 CFR 280.32 (Subpart C) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.32 Compatibility.

(a) Owners and operators must use an UST system made of or lined with materials that are compatible with the substance stored in the UST system.

(b) Owners and operators must notify the implementing agency at least 30 days prior to switching to a regulated substance containing greater than 10 percent ethanol, greater than 20 percent biodiesel, or any other regulated substance identified by the implementing agency. In addition, owners and operators with UST systems storing these regulated substances must meet one of the following:

(1) Demonstrate compatibility of the UST system (including the tank, piping, containment sumps, pumping equipment, release detection equipment, spill equipment, and overfill equipment). Owners and operators may demonstrate compatibility of the UST system by using one of the following options:

(i) Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored; or

(ii) Equipment or component manufacturer approval. The manufacturer's approval must be in writing, indicate an affirmative statement of compatibility, specify the range of biofuel blends the equipment or component is compatible with, and be from the equipment or component manufacturer; or

(2) Use another option determined by the implementing agency to be no less protective of human health and the environment than the options listed in paragraph (b)(1) of this section. (c) Owners and operators must maintain records in accordance with §280.34(b) documenting compliance with paragraph (b) of this section for as long as the UST system is used to store the regulated substance.

Note to §280.32. The following code of practice may be useful in complying with this section: American Petroleum Institute Recommended Practice 1626, "Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Filling Stations."

15A NCAC 02N .0404 REPAIRS ALLOWED

The regulations governing "Repairs Allowed" set forth in 40 CFR 280.33 (Subpart C) are hereby incorporated by reference, except that the first sentence of 40 CFR 280.33(d) shall be read: "Repairs to secondary containment areas of tanks and piping used for interstitial monitoring and to containment sumps used for interstitial monitoring of piping shall have the secondary containment tested for tightness as directed by the Division within 30 days following the date of completion of the repair." When determining the required test method, the Division may consider the following:

- (1) installation date of the repaired UST system component;
- (2) test methods that are third-party certified as being capable of detecting a 0.10 gallon per hour leak rate with a probability of detection (Pd) of at least 95 percent and a probability of false alarm (Pfa) of no more than 5 percent;
- (3) codes of practice developed by a nationally recognized association;
- (4) written manufacturer's guidelines for installation testing and testing after repairs are conducted; and
- (5) test methods developed by an independent laboratory.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

Adoption by Reference

§280.33 Repairs allowed.

Owners and operators of UST systems must ensure that repairs will prevent releases due to structural failure or corrosion as long as the UST system is used to store regulated substances. The repairs must meet the following requirements:

- (a) Repairs to UST systems must be properly conducted in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.

Note to paragraph (a). The following codes of practice may be used to comply with paragraph (a) of this section:

- (A) National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code";
- (B) American Petroleum Institute Recommended Practice RP 2200, "Repairing Crude Oil, Liquefied Petroleum Gas, and Product Pipelines";
- (C) American Petroleum Institute Recommended Practice RP 1631, "Interior Lining and Periodic Inspection of Underground Storage Tanks";
- (D) National Fire Protection Association Standard 326, "Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair";
- (E) National Leak Prevention Association Standard 631, Chapter A, "Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks";
- (F) Steel Tank Institute Recommended Practice R972, "Recommended Practice for the Addition of Supplemental Anodes to STI-P3® Tanks";
- (G) NACE International Standard Practice SP 0285, "External Control of Underground Storage Tank Systems by Cathodic Protection"; or
- (H) Fiberglass Tank and Pipe Institute Recommended Practice T-95-02, "Remanufacturing of Fiberglass Reinforced Plastic (FRP) Underground Storage Tanks".

(b) Repairs to fiberglass-reinforced plastic tanks may be made by the manufacturer's authorized representatives or in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.

(c) Metal pipe sections and fittings that have released product as a result of corrosion or other damage must be replaced. Non-corrodible pipes and fittings may be repaired in accordance with the manufacturer's specifications.

(d) Repairs to secondary containment areas of tanks and piping used for interstitial monitoring and to containment sumps used for interstitial monitoring of piping must have the secondary containment tested for tightness according to the manufacturer's instructions, a code of practice developed by a nationally recognized association or independent testing laboratory, or according to requirements established by the implementing agency within 30 days following the date of completion of the repair. All other repairs to tanks and piping must be tightness tested in accordance with §280.43(c) and §280.44(b) within 30 days following the date of the completion of the repair except as provided in paragraphs (d)(1) through (3) of this section:

(1) The repaired tank is internally inspected in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory; or

(2) The repaired portion of the UST system is monitored monthly for releases in accordance with a method specified in §280.43(d) through (i); or

(3) Another test method is used that is determined by the implementing agency to be no less protective of human health and the environment than those listed in paragraphs (d)(1) and (2) of this section.

Note to paragraph (d). The following codes of practice may be used to comply with paragraph (d) of this section:

(A) Steel Tank Institute Recommended Practice R012, "Recommended Practice for Interstitial Tightness Testing of Existing Underground Double Wall Steel Tanks"; or

(B) Fiberglass Tank and Pipe Institute Protocol, "Field Test Protocol for Testing the Annular Space of Installed Underground Fiberglass Double and Triple-Wall Tanks with Dry Annular Space".

(C) Petroleum Equipment Institute Recommended Practice RP1200, "Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities".

(e) Within 6 months following the repair of any cathodically protected UST system, the cathodic protection system must be tested in accordance with §280.31(b) and (c) to ensure that it is operating properly.

(f) Within 30 days following any repair to spill or overfill prevention equipment, the repaired spill or overfill prevention equipment must be tested or inspected, as appropriate, in accordance with §280.35 to ensure it is operating properly.

(g) UST system owners and operators must maintain records (in accordance with §280.34) of each repair until the UST system is permanently closed or undergoes a change-in-service pursuant to §280.71.

15A NCAC 02N .0405 REPORTING AND RECORDKEEPING

(a) The regulations governing "Reporting and recordkeeping" set forth in 40 CFR 280.34 (Subpart C) are hereby incorporated by reference.

(b) Owners and operators shall submit to the Division, within 30 days following completion, results of the site investigation conducted:

- (1) at permanent closure or change-in-service. The results of the site investigation for permanent closure or change-in-service shall be reported in a format that includes the following:
 - (A) site location information;
 - (B) identification and contact information for the owner, operator, property owner, consultant, contractor, and analytical laboratory;
 - (C) the same information provided in Appendix I to 40 CFR Part 280, Section X;
 - (D) information about any release discovered, including discovery date, estimated quantity of petroleum or hazardous substance released, and the cause and source;
 - (E) information about any previous releases at the site, including owner or operator at the time of the release, source, cause, and location relative to the current release;
 - (F) description of site characteristics, such as use of the site and surrounding area, drinking water supplies, presence and location of water supply wells and surface water, depth to and nature of bedrock, depth to groundwater, and direction of groundwater flow;
 - (G) date of permanent closure or change-in-service of an UST system and last contents stored;
 - (H) procedures and methods used to clean an UST system prior to permanent closure or change-in-service;
 - (I) procedures and methods used to permanently close an UST system;
 - (J) description of condition of tank, piping, and dispenser;
 - (K) documentation of disposal of tank and its contents;
 - (L) description of condition of excavation, volume of soil excavation, soil type encountered, type and source of backfill used, and any groundwater, free product, or bedrock encountered in the excavation;
 - (M) method of temporary storage, sampling, and treatment or disposal of excavated soil;
 - (N) procedures and methods used for sample collection, field screening, and laboratory analysis;
 - (O) quality assurance and quality control procedures and methods for decontamination of field and sampling equipment and for sample handling, preservation, and transportation;
 - (P) field screening results and analytical results for samples collected, comparison of analytical results to standards set forth in 15A NCAC 02L, and the presence and quantity of any free product; and
 - (Q) maps and figures showing the site and surrounding topography, current and former UST system locations, surface water, water supply wells, monitoring wells, types and locations of samples, analytical results for samples, ground water flow direction, geologic boring logs, and monitoring well construction specifications; or
- (2) to insure compliance with the requirements for installation of vapor monitoring and groundwater monitoring devices, as specified in 40 CFR 280.43(e)(1) through (e)(4) and 280.43(f)(1) through (f)(5), respectively. The site investigation shall be conducted in accordance with Rule .0504 of this Subchapter.

(c) Owners shall submit to the Division, on forms provided by the Division and within 30 days following completion:

- (1) A description of the upgrading of any UST system conducted in accordance with requirements of 40 CFR 280.21. The description of upgrading shall be provided on form "UST-8 Notification of Activities Involving Underground Storage Tank Systems," which is set forth in Rule .0303(1)(b) of this Section;
- (2) Certification of the proper operation of a corrosion protection system upon completion of testing in compliance with 40 CFR 280.31; and
 - (A) Certification of proper operation and testing of a galvanic corrosion protection system shall be provided on form "UST-7A Cathodic Protection System Evaluation for Galvanic (Sacrificial Anode) Systems," which may be accessed free of charge at <http://deq.nc.gov/about/divisions/waste-management/underground-storage-tanks->

section/forms. Form "UST-7A Cathodic Protection System Evaluation for Galvanic (Sacrificial Anode) Systems" shall include:

- (i) owner identification and contact information;
- (ii) site location information;
- (iii) reason that a corrosion protection system was evaluated, including a routine test within six months of corrosion protection system installation, a routine test every three years following corrosion protection system installation, or a test following a repair or modification;
- (iv) corrosion protection tester's name, contact information, corrosion protection tester certification number, certifying organization, and certification type;
- (v) corrosion protection tester's evaluation, including pass, fail, or inconclusive;
- (vi) corrosion expert's name, address, contact information, National Association of Corrosion Engineers certification number, and certification type or Professional Engineer number, state, and specialty;
- (vii) corrosion expert's evaluation, including pass or fail;
- (viii) criteria for evaluation, including 850 millivolt on, 850 millivolt instant off, or 100 millivolt polarization;
- (ix) action required as a result of the evaluation, including none, or repair and retest;
- (x) description of UST system, including tank identity, product stored, tank capacity, tank and piping construction material, and presence of metal flexible connectors;
- (xi) description of any repair or modification made to the corrosion protection system;
- (xii) site drawing, including the UST systems, on-site buildings, adjacent streets, anodes and wires, reference electrode placement, and test stations;
- (xiii) corrosion protection continuity survey, including location of fixed remote reference electrode placement, structures evaluated using fixed remote instant-off voltages or point-to-point voltage differences, and if structures are continuous or isolated; and
- (xiv) corrosion protection system survey, including locations of remote reference electrode, structure evaluated, structure contact point, local reference cell placement, local voltage, remote voltage, and if tested structure passed, failed, or was inconclusive relative to the criteria for evaluation.

(B) Certification of proper operation and testing of an impressed current corrosion protection system shall be provided on form "UST-7B Cathodic Protection System Evaluation for Impressed Current Systems," which may be accessed free of charge at <http://deq.nc.gov/about/divisions/waste-management/underground-storage-tanks-section/forms>. Form "UST-7B Cathodic Protection System Evaluation for Impressed Current Systems" shall include:

- (i) owner identification and contact information;
- (ii) site location information;
- (iii) reason that a corrosion protection system was evaluated, including a routine test within six months of corrosion protection system installation, a routine test every three years following corrosion protection system installation, or a test following a repair or modification;
- (iv) corrosion protection tester's name, contact information, corrosion protection tester certification number, certifying organization, and certification type;
- (v) corrosion protection tester's evaluation, including pass, fail, or inconclusive;
- (vi) corrosion expert's name, address, contact information, National Association of Corrosion Engineers certification number, and certification type or Professional Engineer number, state, and specialty;
- (vii) corrosion expert's evaluation, including pass or fail;
- (viii) criteria for evaluation, including 850 millivolt instant off or 100 millivolt polarization;
- (ix) action required as a result of the evaluation, including none or repair and retest;
- (x) description of UST system, including tank identity, product stored, tank capacity, tank and piping construction material, and presence of metal flexible connectors;

- (xi) impressed current rectifier data, including rectifier manufacturer, model, serial number rated DC output, shunt size, shunt factor, hour meter, tap settings, DC output (gauge), and DC output (multimeter);
 - (xii) impressed current positive and negative circuit measurements;
 - (xiii) description of any repair or modifications made to the corrosion protection system;
 - (xiv) site drawing, including the UST systems, on-site buildings, adjacent streets, anodes and wires, reference electrode placement, and test stations;
 - (xv) corrosion protection continuity survey, including location of fixed remote reference electrode placement, structures evaluated using fixed remote instant-off voltages or point-to-point voltage differences, and if structures are continuous or isolated; and
 - (xvi) corrosion protection system survey, including structure evaluated, structure contact point, reference cell placement, on voltage, instant off voltage, 100 millivolt polarization ending voltage and voltage change, and if the tested structure passed or failed relative to the criteria for evaluation.
- (3) Certification of compliance with the requirements for leak detection specified in 40 CFR 280.40, 40 CFR 280.41, 40 CFR 280.42, 40 CFR 280.43, and 40 CFR 280.44. The certification shall specify the leak detection method and date of compliance for each UST. The certification of compliance with leak detection requirements shall be provided on form "UST-8 Notification of Activities Involving Underground Storage Tank Systems," which is set forth in Rule .0303(1)(b) of this Section.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
 Eff. January 1, 1991;
 Amended Eff. June 1, 2017.

Adoption by Reference

§280.34 Reporting and recordkeeping.

Owners and operators of UST systems must cooperate fully with inspections, monitoring and testing conducted by the implementing agency, as well as requests for document submission, testing, and monitoring by the owner or operator pursuant to section 9005 of Subtitle I of the Solid Waste Disposal Act, as amended.

(a) *Reporting.* Owners and operators must submit the following information to the implementing agency:

- (1) Notification for all UST systems (§280.22), which includes certification of installation for new UST systems (§280.20(e)) and notification when any person assumes ownership of an UST system (§280.22(b));
- (2) Notification prior to UST systems switching to certain regulated substances (§280.32(b));
- (3) Reports of all releases including suspected releases (§280.50), spills and overfills (§280.53), and confirmed releases (§280.61);
- (4) Corrective actions planned or taken including initial abatement measures (§280.62), initial site characterization (§280.63), free product removal (§280.64), investigation of soil and groundwater cleanup (§280.65), and corrective action plan (§280.66); and
- (5) A notification before permanent closure or change-in-service (§280.71).

(b) *Recordkeeping.* Owners and operators must maintain the following information:

- (1) A corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used (§280.20(a)(4); §280.20(b)(3)).

- (2) Documentation of operation of corrosion protection equipment (§280.31(d));
- (3) Documentation of compatibility for UST systems (§280.32(c));
- (4) Documentation of UST system repairs (§280.33(g));
- (5) Documentation of compliance for spill and overfill prevention equipment and containment sumps used for interstitial monitoring of piping (§280.35(c));
- (6) Documentation of periodic walkthrough inspections (§280.36(b));
- (7) Documentation of compliance with release detection requirements (§280.45);
- (8) Results of the site investigation conducted at permanent closure (§280.74); and
- (9) Documentation of operator training (§280.245).

(c) *Availability and maintenance of records.* Owners and operators must keep the records required either:

- (1) At the UST site and immediately available for inspection by the implementing agency; or
- (2) At a readily available alternative site and be provided for inspection to the implementing agency upon request.
- (3) In the case of permanent closure records required under §280.74, owners and operators are also provided with the additional alternative of mailing closure records to the implementing agency if they cannot be kept at the site or an alternative site as indicated in paragraphs (c)(1) and (2) of this section.

15A NCAC 02N .0406 PERIODIC TESTING OF SPILL PREVENTION EQUIPMENT AND CONTAINMENT SUMPS USED FOR INTERSTITIAL MONITORING OF PIPING AND PERIODIC INSPECTION OF OVERFILL PREVENTION EQUIPMENT

The regulations governing "Periodic testing of spill prevention equipment and containment sumps used for interstitial monitoring of piping and periodic inspection of overfill prevention equipment" set forth in 40 CFR 280.35 (Subpart C) are hereby incorporated by reference, except that UST system or UST system component installations or replacements completed on or after November 1, 2007, shall meet the requirements of Section .0900 of this Subchapter.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. June 1, 2017.

Adoption by Reference

§280.35 Periodic testing of spill prevention equipment and containment sumps used for interstitial monitoring of piping and periodic inspection of overfill prevention equipment.

(a) Owners and operators of UST systems with spill and overfill prevention equipment and containment sumps used for interstitial monitoring of piping must meet these requirements to ensure the equipment is operating properly and will prevent releases to the environment:

(1) Spill prevention equipment (such as a catchment basin, spill bucket, or other spill containment device) and containment sumps used for interstitial monitoring of piping must prevent releases to the environment by meeting one of the following:

(i) The equipment is double walled and the integrity of both walls is periodically monitored at a frequency not less than the frequency of the walkthrough inspections described in §280.36. Owners and operators must begin meeting paragraph (a)(1)(ii) of this section and conduct a test within 30 days of discontinuing periodic monitoring of this equipment; or

(ii) The spill prevention equipment and containment sumps used for interstitial monitoring of piping are tested at least once every three years to ensure the equipment is liquid tight by using vacuum, pressure, or liquid testing in accordance with one of the following criteria:

(A) Requirements developed by the manufacturer (Note: Owners and operators may use this option only if the manufacturer has developed requirements);

(B) Code of practice developed by a nationally recognized association or independent testing laboratory; or

(C) Requirements determined by the implementing agency to be no less protective of human health and the environment than the requirements listed in paragraphs (a)(1)(ii)(A) and (B) of this section.

(2) Overfill prevention equipment must be inspected at least once every three years. At a minimum, the inspection must ensure that overfill prevention equipment is set to activate at the correct level specified in §280.20(c) and will activate when regulated substance reaches that level. Inspections must be conducted in accordance with one of the criteria in paragraph (a)(1)(ii)(A) through (C) of this section.

Note to paragraphs (a)(1)(ii) and (a)(2). The following code of practice may be used to comply with paragraphs (a)(1)(ii) and (a)(2) of this section: Petroleum Equipment Institute Publication RP1200, "Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities".

(b) Owners and operators must begin meeting these requirements as follows:

(1) For UST systems in use on or before October 13, 2015, the initial spill prevention equipment test, containment sump test and overfill prevention equipment inspection must be conducted not later than October 13, 2018.

(2) For UST systems brought into use after October 13, 2015, these requirements apply at installation.

(c) Owners and operators must maintain records as follows (in accordance with §280.34) for spill prevention equipment, containment sumps used for interstitial monitoring of piping, and overfill prevention equipment:

(1) All records of testing or inspection must be maintained for three years; and

(2) For spill prevention equipment and containment sumps used for interstitial monitoring of piping not tested every three years, documentation showing that the prevention equipment is double walled and the integrity of both walls is periodically monitored must be maintained for as long as the equipment is periodically monitored.

15A NCAC 02N .0407 PERIODIC OPERATION AND MAINTENANCE WALKTHROUGH INSPECTIONS

The regulations governing "Periodic operation and maintenance walkthrough inspections" set forth in 40 CFR 280.36 (Subpart C) are hereby incorporated by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. June 1, 2017.

Adoption by Reference

§280.36 Periodic operation and maintenance walkthrough inspections.

(a) To properly operate and maintain UST systems, not later than October 13, 2018 owners and operators must meet one of the following:

(1) Conduct a walkthrough inspection that, at a minimum, checks the following equipment as specified below:

(i) Every 30 days (Exception: spill prevention equipment at UST systems receiving deliveries at intervals greater than every 30 days may be checked prior to each delivery):

(A) Spill prevention equipment—visually check for damage; remove liquid or debris; check for and remove obstructions in the fill pipe; check the fill cap to make sure it is securely on the fill pipe; and, for double walled spill prevention equipment with interstitial monitoring, check for a leak in the interstitial area; and

(B) Release detection equipment—check to make sure the release detection equipment is operating with no alarms or other unusual operating conditions present; and ensure records of release detection testing are reviewed and current; and

(ii) Annually:

(A) Containment sumps—visually check for damage, leaks to the containment area, or releases to the environment; remove liquid (in contained sumps) or debris; and, for double walled sumps with interstitial monitoring, check for a leak in the interstitial area; and

(B) Hand held release detection equipment—check devices such as tank gauge sticks or groundwater bailers for operability and serviceability;

(2) Conduct operation and maintenance walkthrough inspections according to a standard code of practice developed by a nationally recognized association or independent testing laboratory that checks equipment comparable to paragraph (a)(1) of this section; or

Note to paragraph (a)(2). The following code of practice may be used to comply with paragraph (a)(2) of this section: Petroleum Equipment Institute Recommended Practice RP 900, “Recommended Practices for the Inspection and Maintenance of UST Systems”.

(3) Conduct operation and maintenance walkthrough inspections developed by the implementing agency that checks equipment comparable to paragraph (a)(1) of this section.

(b) Owners and operators must maintain records (in accordance with §280.34) of operation and maintenance walkthrough inspections for one year. Records must include a list of each area checked, whether each area checked was acceptable or needed action taken, a description of actions taken to correct an issue, and delivery records if spill prevention equipment is checked less frequently than every 30 days due to infrequent deliveries.

SECTION .0500 - RELEASE DETECTION
(TITLE 40, PART 280 SUBPART D-RELEASE DETECTION [280.40-280.45])

15A NCAC 02N .0501 GENERAL REQUIREMENTS FOR ALL UST SYSTEMS

The regulations governing "General requirements for all UST systems" set forth in 40 CFR 280.40 (Subpart D) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.40 General requirements for all UST systems.

(a) Owners and operators of 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 and calibrated in accordance with the manufacturer's instructions;
- (3) Beginning on October 13, 2018, is operated and maintained, and electronic and mechanical components are tested for proper operation, in accordance with one of the following: manufacturer's instructions; a code of practice developed by a nationally recognized association or independent testing laboratory; or requirements determined by the implementing agency to be no less protective of human health and the environment than the two options listed in paragraphs (a)(1) and (2) of this section. A test of the proper operation must be performed at least annually and, at a minimum, as applicable to the facility, cover the following components and criteria:
 - (i) Automatic tank gauge and other controllers: test alarm; verify system configuration; test battery backup;
 - (ii) Probes and sensors: inspect for residual buildup; ensure floats move freely; ensure shaft is not damaged; ensure cables are free of kinks and breaks; test alarm operability and communication with controller;
 - (iii) Automatic line leak detector: test operation to meet criteria in §280.44(a) by simulating a leak;
 - (iv) Vacuum pumps and pressure gauges: ensure proper communication with sensors and controller; and
 - (v) Hand-held electronic sampling equipment associated with groundwater and vapor monitoring: ensure proper operation.

Note to paragraph (a)(3). The following code of practice may be used to comply with paragraph (a)(3) of this section: Petroleum Equipment Institute Publication RP1200, "Recommended Practices for the Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities".

(4) Meets the performance requirements in §280.43, §280.44, or subpart K of this part, as applicable, with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer. In addition, the methods listed in §280.43(b), (c), (d), (h), and (i), §280.44(a) and (b), and subpart K of this part, must be capable of detecting the leak rate or quantity specified for that method in the corresponding section of the rule with a probability of detection of 0.95 and a probability of false alarm of 0.05.

(b) When a release detection method operated in accordance with the performance standards in §280.43, §280.44, or subpart K of this part indicates a release may have occurred, owners and operators must notify the implementing agency in accordance with subpart E of this part.

(c) Any UST system that cannot apply a method of release detection that complies with the requirements of this subpart must complete the closure procedures in subpart G of this part. For previously deferred UST systems described in subparts A and K of this part, this requirement applies after the effective dates described in §280.10(a)(1)(ii) and (iii) and §280.251(a)

15A NCAC 02N .0502 REQUIREMENTS FOR PETROLEUM UST SYSTEMS

The regulations governing "Requirements for petroleum UST systems" set forth in 40 CFR 280.41 (Subpart D) are hereby incorporated by reference, except that UST systems located within areas described in Rule .0301(d) of this Subchapter shall meet the requirements for secondary containment described at 40 CFR 280.42(a) through (d) if the UST system installation or replacement was completed before November 1, 2007. UST system or UST system component installations or replacements completed on or after November 1, 2007, shall meet the secondary containment requirements of Section .0900 of this Subchapter.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017; November 1, 2007.

Adoption by Reference

§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 for releases as follows:

(1) Tanks installed on or before April 11, 2016 must be monitored for releases at least every 30 days using one of the methods listed in §280.43(d) through (i) except that:

(i) 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 10 years after the tank was installed; and

(ii) Tanks with capacity of 550 gallons or less and tanks with a capacity of 551 to 1,000 gallons that meet the tank diameter criteria in §280.43(b) may use manual tank gauging (conducted in accordance with §280.43(b)).

(2) Tanks installed after April 11, 2016 must be monitored for releases at least every 30 days in accordance with §280.43(g).

(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) Piping installed on or before April 11, 2016 must meet one of the following:

(i) *Pressurized piping.* Underground piping that conveys regulated substances under pressure must:

(A) Be equipped with an automatic line leak detector conducted in accordance with §280.44(a); and

(B) Have an annual line tightness test conducted in accordance with §280.44(b) or have monthly monitoring conducted in accordance with §280.44(c).

(ii) *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(b), 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:

- (A) The below-grade piping operates at less than atmospheric pressure;
- (B) 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;
- (C) Only one check valve is included in each suction line;
- (D) The check valve is located directly below and as close as practical to the suction pump; and
- (E) A method is provided that allows compliance with paragraphs (b)(1)(ii)(B) through (D) of this section to be readily determined.

(2) Piping installed or replaced after April 11, 2016 must meet one of the following:

- (i) Pressurized piping must be monitored for releases at least every 30 days in accordance with §280.43(g) and be equipped with an automatic line leak detector in accordance with §280.44(a)
- (ii) Suction piping must be monitored for releases at least every 30 days in accordance with §280.43(g). No release detection is required for suction piping that meets paragraphs (b)(1)(ii)(A) through (E) of this section.

15A NCAC 02N .0503 REQUIREMENTS FOR HAZARDOUS SUBSTANCE UST SYSTEMS

The regulations governing "Requirements for hazardous substance UST systems" set forth in 40 CFR 280.42 (Subpart D) are hereby incorporated by reference, except that hazardous substance UST systems or UST system components installed or replacements completed on or after November 1, 2007, shall meet the secondary containment requirements of Section .0900 of this Subchapter.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017; November 1, 2007.

Adoption by Reference

§280.42 Requirements for hazardous substance UST systems.

Owners and operators of hazardous substance UST systems must provide containment that meets the following requirements and monitor these systems using §280.43(g) at least every 30 days:

- (a) Secondary containment systems must be designed, constructed, and installed to:
 - (1) Contain regulated substances leaked from the primary containment until they are detected and removed;
 - (2) Prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and
 - (3) Be checked for evidence of a release at least every 30 days.

Note to paragraph (a). The provisions of 40 CFR 265.193, Containment and Detection of Releases, may be used to comply with these requirements for tanks installed on or before October 13, 2015.

- (b) Double walled tanks must be designed, constructed, and installed to:
 - (1) Contain a leak from any portion of the inner tank within the outer wall; and
 - (2) Detect the failure of the inner wall.
- (c) External liners (including vaults) must be designed, constructed, and installed to:

- (1) Contain 100 percent of the capacity of the largest tank within its boundary;
- (2) Prevent the interference of precipitation or groundwater intrusion with the ability to contain or detect a release of regulated substances; and
- (3) Surround the tank completely (*i.e.*, it is capable of preventing lateral as well as vertical migration of regulated substances).
- (d) Underground piping must be equipped with secondary containment that satisfies the requirements of this section (*e.g.*, trench liners, double walled pipe). In addition, underground piping that conveys regulated substances under pressure must be equipped with an automatic line leak detector in accordance with §280.44(a).
- (e) For hazardous substance UST systems installed on or before October 13, 2015 other methods of release detection may be used if owners and operators:
 - (1) Demonstrate to the implementing agency that an alternate method can detect a release of the stored substance as effectively as any of the methods allowed in §280.43(b) through (i) can detect a release of petroleum;
 - (2) Provide information to the implementing agency on effective corrective action technologies, health risks, and chemical and physical properties of the stored substance, and the characteristics of the UST site; and,
 - (3) Obtain approval from the implementing agency to use the alternate release detection method before the installation and operation of the new UST system.

15A NCAC 02N .0504 METHODS OF RELEASE DETECTION FOR TANKS

- (a) The regulations governing "Methods of release detection for tanks" set forth in 40 CFR 280.43 (Subpart D) are hereby incorporated by reference, except that 40 CFR 280.43(f)(3), (f)(4), and (f)(5) shall not be adopted by reference.
- (b) Wells used for monitoring or testing for free product in the groundwater shall be:
 - (1) Located as follows:
 - (A) for new installations, within and at the end of the excavation having the lowest elevation and along piping at intervals not exceeding 50 feet; or
 - (B) for existing installations, in the excavation zone or as near to it as technically feasible and installed in a borehole at least four inches larger than the diameter of the casing;
 - (2) A minimum of two inches in diameter. The number of wells installed shall be sufficient to detect releases from the UST system;
 - (3) Equipped with a screen that extends from two feet below land surface to a depth of 20 feet below land surface or two feet below the seasonal low water level, whichever is shallower. The screen shall be designed and installed to prevent the migration of natural soils or filter pack into the well while allowing the entry of regulated substances into the well under both high and low groundwater level conditions;
 - (4) Surrounded with clean sand or gravel to the top of the screen, plugged and grouted the remaining distance to finished grade with cement grout;
 - (5) Constructed of a permanent casing and screen material that is inert to the stored substance and is corrosion resistant;
 - (6) Developed upon completion of installation until the water is clear and sediment free;
 - (7) Protected with a water-tight cover and lockable cap;
 - (8) Labeled as a liquid monitor well; and
 - (9) Equipped with a liquid leak detection device continuously operating on an uninterrupted basis; or
 - (A) For tanks storing petroleum products, tested at least once every 14 days with a device or hydrocarbon-sensitive paste capable of detecting the liquid stored; or
 - (B) For tanks storing hazardous substances, sampled and tested at least once every 14 days for the presence of the stored substance.

(c) Wells used for monitoring or testing for free product in the groundwater at new installations and constructed in accordance with Paragraph (b) of this Rule shall be deemed to be permitted in accordance with the requirements of 15A NCAC 02C .0105.

(d) Any person completing or abandoning any well used for testing of vapors or monitoring for free product in the groundwater shall submit the record required by 15A NCAC 02C .0114(b).

(e) Wells used for monitoring for the presence of vapors in the soil gas of the excavation zone shall be equipped with a continuously operating vapor detection device or tested at least once every 14 days for vapors of the substance stored.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017.

Adoption by Reference

§280.43 Methods of release detection for tanks.

Each method of release detection for tanks used to meet the requirements of §280.41 must be conducted in accordance with the following:

(a) *Inventory control.* Product inventory control (or another test of equivalent performance) must be conducted monthly to detect a release of at least 1.0 percent of flow-through plus 130 gallons on a monthly basis in the following manner:

(1) Inventory volume measurements for regulated substance inputs, withdrawals, and the amount still remaining in the tank are recorded each operating day;

(2) The equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest one-eighth of an inch;

(3) The regulated substance inputs are reconciled with delivery receipts by measurement of the tank inventory volume before and after delivery;

(4) Deliveries are made through a drop tube that extends to within one foot of the tank bottom;

(5) Product dispensing is metered and recorded within the local standards for meter calibration or an accuracy of 6 cubic inches for every 5 gallons of product withdrawn; and

(6) The measurement of any water level in the bottom of the tank is made to the nearest one-eighth of an inch at least once a month.

Note to paragraph (a). Practices described in the American Petroleum Institute Recommended Practice RP 1621, "Bulk Liquid Stock Control at Retail Outlets" may be used, where applicable, as guidance in meeting the requirements of this paragraph (a).

(b) *Manual tank gauging.* Manual tank gauging must meet the following requirements:

(1) Tank liquid level measurements are taken at the beginning and ending of a period using the appropriate minimum duration of test value in the table below during which no liquid is added to or removed from the tank;

(2) Level measurements are based on an average of two consecutive stick readings at both the beginning and ending of the period;

(3) The equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest one-eighth of an inch;

(4) A release is suspected and subject to the requirements of subpart E if the variation between beginning and ending measurements exceeds the weekly or monthly standards in the following table:

Nominal tank capacity	Minimum duration of test	Weekly standard (one test)	Monthly standard (four test average)
550 gallons or less	36 hours	10 gallons	5 gallons
551-1,000 gallons (when tank diameter is 44 inches)	44 hours	9 gallons	4 gallons
551-1,000 gallons (when tank diameter is 48 inches)	58 hours	12 gallons	6 gallons
551-1,000 gallons (also requires periodic tank tightness testing)	36 hours	13 gallons	7 gallons
1,001-2,000 gallons (also requires periodic tank tightness testing)	36 hours	26 gallons	13 gallons

(5) Tanks of 550 gallons or less nominal capacity and tanks with a nominal capacity of 551 to 1,000 gallons that meet the tank diameter criteria in the table in paragraph (b)(4) of this section may use this as the sole method of release detection. All other tanks with a nominal capacity of 551 to 2,000 gallons may use the method in place of inventory control in §280.43(a). Tanks of greater than 2,000 gallons nominal capacity may not use this method to meet the requirements of this subpart.

(c) *Tank tightness testing.* Tank tightness testing (or another test of equivalent performance) must be capable of detecting a 0.1 gallon per hour leak rate from any portion of the tank that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.

(d) *Automatic tank gauging.* Equipment for automatic tank gauging that tests for the loss of product and conducts inventory control must meet the following requirements:

(1) The automatic product level monitor test can detect a 0.2 gallon per hour leak rate from any portion of the tank that routinely contains product;

(2) The automatic tank gauging equipment must meet the inventory control (or other test of equivalent performance) requirements of §280.43(a); and

(3) The test must be performed with the system operating in one of the following modes:

(i) In-tank static testing conducted at least once every 30 days; or

(ii) Continuous in-tank leak detection operating on an uninterrupted basis or operating within a process that allows the system to gather incremental measurements to determine the leak status of the tank at least once every 30 days.

(e) *Vapor monitoring.* Testing or monitoring for vapors within the soil gas of the excavation zone must meet the following requirements:

(1) The materials used as backfill are sufficiently porous (e.g., gravel, sand, crushed rock) to readily allow diffusion of vapors from releases into the excavation area;

(2) The stored regulated substance, or a tracer compound placed in the tank system, is sufficiently volatile (*e.g.*, gasoline) to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank;

(3) The measurement of vapors by the monitoring device is not rendered inoperative by the groundwater, rainfall, or soil moisture or other known interferences so that a release could go undetected for more than 30 days;

(4) The level of background contamination in the excavation zone will not interfere with the method used to detect releases from the tank;

(5) The vapor monitors are designed and operated to detect any significant increase in concentration above background of the regulated substance stored in the tank system, a component or components of that substance, or a tracer compound placed in the tank system;

(6) In the UST excavation zone, the site is assessed to ensure compliance with the requirements in paragraphs (e)(1) through (4) of this section and to establish the number and positioning of monitoring wells that will detect releases within the excavation zone from any portion of the tank that routinely contains product; and

(7) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

(f) *Groundwater monitoring.* Testing or monitoring for liquids on the groundwater must meet the following requirements:

(1) The regulated substance stored is immiscible in water and has a specific gravity of less than one;

(2) Groundwater is never more than 20 feet from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the monitoring wells or devices is not less than 0.01 cm/sec (*e.g.*, the soil should consist of gravels, coarse to medium sands, coarse silts or other permeable materials);

(3) The slotted portion of the monitoring well casing must be designed to prevent migration of natural soils or filter pack into the well and to allow entry of regulated substance on the water table into the well under both high and low groundwater conditions;

(4) Monitoring wells shall be sealed from the ground surface to the top of the filter pack;

(5) Monitoring wells or devices intercept the excavation zone or are as close to it as is technically feasible;

(6) The continuous monitoring devices or manual methods used can detect the presence of at least one-eighth of an inch of free product on top of the groundwater in the monitoring wells;

(7) Within and immediately below the UST system excavation zone, the site is assessed to ensure compliance with the requirements in paragraphs (f)(1) through (5) of this section and to establish the number and positioning of monitoring wells or devices that will detect releases from any portion of the tank that routinely contains product; and

(8) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

(g) *Interstitial monitoring.* Interstitial monitoring between the UST system and a secondary barrier immediately around or beneath it may be used, but only if the system is designed, constructed, and installed to detect a leak from any portion of the tank that routinely contains product and also meets one of the following requirements:

(1) For double walled UST systems, the sampling or testing method can detect a leak through the inner wall in any portion of the tank that routinely contains product;

(2) For UST systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a leak between the UST system and the secondary barrier;

- (i) The secondary barrier around or beneath the UST system consists of artificially constructed material that is sufficiently thick and impermeable (at least 10^{-6} cm/sec for the regulated substance stored) to direct a leak to the monitoring point and permit its detection;
 - (ii) The barrier is compatible with the regulated substance stored so that a leak from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected;
 - (iii) For cathodically protected tanks, the secondary barrier must be installed so that it does not interfere with the proper operation of the cathodic protection system;
 - (iv) The groundwater, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days;
 - (v) The site is assessed to ensure that the secondary barrier is always above the groundwater and not in a 25-year flood plain, unless the barrier and monitoring designs are for use under such conditions; and,
 - (vi) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.
- (3) For tanks with an internally fitted liner, an automated device can detect a leak between the inner wall of the tank and the liner, and the liner is compatible with the substance stored.
- (h) *Statistical inventory reconciliation.* Release detection methods based on the application of statistical principles to inventory data similar to those described in §280.43(a) must meet the following requirements:
- (1) Report a quantitative result with a calculated leak rate;
 - (2) Be capable of detecting a leak rate of 0.2 gallon per hour or a release of 150 gallons within 30 days; and
 - (3) Use a threshold that does not exceed one-half the minimum detectible leak rate.
- (i) *Other methods.* Any other type of release detection method, or combination of methods, can be used if:
- (1) It can detect a 0.2 gallon per hour leak rate or a release of 150 gallons within a month with a probability of detection of 0.95 and a probability of false alarm of 0.05; or
 - (2) The implementing agency may approve another method if the owner and operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in paragraphs (c) through (h) of this section. In comparing methods, the implementing agency shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected. If the method is approved, the owner and operator must comply with any conditions imposed by the implementing agency on its use to ensure the protection of human health and the environment.

15A NCAC 02N .0505 METHODS OF RELEASE DETECTION FOR PIPING

The regulations governing "Methods of release detection for piping" set forth in 40 CFR 280.44 (Subpart D) are hereby incorporated by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
 Eff. January 1, 1991;
 Amended Eff. June 1, 2017.

Adoption by Reference

§280.44 Methods of release detection for piping.

Each method of release detection for piping used to meet the requirements of §280.41 must be conducted in accordance with the following:

(a) *Automatic line leak detectors.* Methods which alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping or triggering an audible or visual alarm may be used only if they detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within 1 hour. An annual test of the operation of the leak detector must be conducted in accordance with §280.40(a)(3).

(b) *Line tightness testing.* A periodic test of piping may be conducted only if it can detect a 0.1 gallon per hour leak rate at one and one-half times the operating pressure.

(c) *Applicable tank methods.* Except as described in §280.41(a), any of the methods in §280.43(e) through (i) may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances.

15A NCAC 02N .0506 RELEASE DETECTION RECORDKEEPING

The regulations governing "Release detection recordkeeping" set forth in 40 CFR 280.45 (Subpart D) are hereby incorporated by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

Adoption by Reference

§280.45 Release detection recordkeeping.

All UST system owners and operators must maintain records in accordance with §280.34 demonstrating compliance with all applicable requirements of this subpart. These records must include the following:

(a) All written performance claims pertaining to any release detection system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or installer, must be maintained for 5 years, or for another reasonable period of time determined by the implementing agency, from the date of installation. Not later than October 13, 2018, records of site assessments required under §280.43(e)(6) and (f)(7) must be maintained for as long as the methods are used. Records of site assessments developed after October 13, 2015 must be signed by a professional engineer or professional geologist, or equivalent licensed professional with experience in environmental engineering, hydrogeology, or other relevant technical discipline acceptable to the implementing agency;

(b) The results of any sampling, testing, or monitoring must be maintained for at least one year, or for another reasonable period of time determined by the implementing agency, except as follows:

(1) The results of annual operation tests conducted in accordance with §280.40(a)(3) must be maintained for three years. At a minimum, the results must list each component tested, indicate whether each component tested meets criteria in §280.40(a)(3) or needs to have action taken, and describe any action taken to correct an issue; and

(2) The results of tank tightness testing conducted in accordance with §280.43(c) must be retained until the next test is conducted; and

(3) The results of tank tightness testing, line tightness testing, and vapor monitoring using a tracer compound placed in the tank system conducted in accordance with §280.252(d) must be retained until the next test is conducted; and

(c) Written documentation of all calibration, maintenance, and repair of release detection equipment permanently located on-site must be maintained for at least one year after the servicing work is completed, or for another reasonable time period determined by the implementing agency. Any schedules of required calibration and maintenance provided by the release detection equipment manufacturer must be retained for five years from the date of installation.

SECTION .0600 - RELEASE REPORTING, INVESTIGATION, AND CONFIRMATION
(TITLE 40, PART 280 SUBPART E-RELEASE REPORTING [280.50-280.23])

15A NCAC 02N .0601 REPORTING OF SUSPECTED RELEASES

The regulations governing "Reporting of suspected releases" set forth in 40 CFR 280.50 (Subpart E) are hereby incorporated by reference, except that the words "or another reasonable period specified by the implementing agency," shall be deleted from the first sentence.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.50 Reporting of suspected releases.

Owners and operators of UST systems must report to the implementing agency within 24 hours, or another reasonable period specified by the implementing agency, and follow the procedures in §280.52 for any of the following conditions:

- (a) The discovery by owners and operators or others of released regulated substances at the UST site or in the surrounding area (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water).
- (b) Unusual operating conditions observed by owners and operators (such as the erratic behavior of product dispensing equipment, the sudden loss of product from the UST system, an unexplained presence of water in the tank, or liquid in the interstitial space of secondarily contained systems), unless:
 - (1) The system equipment or component is found not to be releasing regulated substances to the environment;
 - (2) Any defective system equipment or component is immediately repaired or replaced; and
 - (3) For secondarily contained systems, except as provided for in §280.43(g)(2)(iv), any liquid in the interstitial space not used as part of the interstitial monitoring method (for example, brine filled) is immediately removed.
- (c) Monitoring results, including investigation of an alarm, from a release detection method required under §§280.41 and 280.42 that indicate a release may have occurred unless:
 - (1) The monitoring device is found to be defective, and is immediately repaired, recalibrated or replaced, and additional monitoring does not confirm the initial result;
 - (2) The leak is contained in the secondary containment and:
 - (i) Except as provided for in §280.43(g)(2)(iv), any liquid in the interstitial space not used as part of the interstitial monitoring method (for example, brine filled) is immediately removed; and
 - (ii) Any defective system equipment or component is immediately repaired or replaced;
 - (3) In the case of inventory control described in §280.43(a), a second month of data does not confirm the initial result or the investigation determines no release has occurred; or
 - (4) The alarm was investigated and determined to be a non-release event (for example, from a power surge or caused by filling the tank during release detection testing).

15A NCAC 02N .0602 INVESTIGATION DUE TO OFF-SITE IMPACTS

The regulations governing "Investigation due to off-site impacts" set forth in 40 CFR 280.51 (Subpart E) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.51 Investigation due to off-site impacts.

When required by the implementing agency, owners and operators of UST systems must follow the procedures in §280.52 to determine if the UST system is the source of off-site impacts. These impacts include the discovery of regulated substances (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface and drinking waters) that has been observed by the implementing agency or brought to its attention by another party.

15A NCAC 02N .0603 RELEASE INVESTIGATION AND CONFIRMATION STEPS

The regulations governing "Release investigation and confirmation steps" set forth in 40 CFR 280.52 (Subpart E) are hereby incorporated by reference, except that in 40 CFR 280.52 the words "or another reasonable time period specified by the implementing agency" shall not be adopted by reference. Upon written request, the Division may grant additional time to investigate and confirm suspected releases as specified in 40 CFR 280.53. The request shall be made to the Division prior to the expiration of the required time period. When considering such a request, the Division may consider factors as follows:

- (1) the extent to which the request for additional time is due to factors outside of the control of the tank owner or operator;
- (2) the previous history of the tank owner or operator submitting the report in complying with deadlines established under the Commission's rules;
- (3) the technical complications associated with investigating and confirming suspected releases; and
- (4) the necessity for action to eliminate an imminent threat to public health or the environment.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.52 Release investigation and confirmation steps.

Unless corrective action is initiated in accordance with subpart F, owners and operators must immediately investigate and confirm all suspected releases of regulated substances requiring reporting under §280.50 within 7 days, or another reasonable time period specified by the implementing agency, using either the following steps or another procedure approved by the implementing agency:

(a) *System test.* Owners and operators must conduct tests (according to the requirements for tightness testing in §§280.43(c) and 280.44(b) or, as appropriate, secondary containment testing described in §280.33(d)).

(1) The test must determine whether:

(i) A leak exists in that portion of the tank that routinely contains product, or the attached delivery piping; or

(ii) A breach of either wall of the secondary containment has occurred.

(2) If the system test confirms a leak into the interstice or a release, owners and operators must repair, replace, upgrade, or close the UST system. In addition, owners and operators must begin corrective action in accordance with subpart F of this part if the test results for the system, tank, or delivery piping indicate that a release exists.

(3) Further investigation is not required if the test results for the system, tank, and delivery piping do not indicate that a release exists and if environmental contamination is not the basis for suspecting a release.

(4) Owners and operators must conduct a site check as described in paragraph (b) of this section if the test results for the system, tank, and delivery piping do not indicate that a release exists but environmental contamination is the basis for suspecting a release.

(b) *Site check.* Owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the nature of the stored substance, the type of initial alarm or cause for suspicion, the type of backfill, the depth of groundwater, and other factors appropriate for identifying the presence and source of the release.

(1) If the test results for the excavation zone or the UST site indicate that a release has occurred, owners and operators must begin corrective action in accordance with subpart F of this part;

(2) If the test results for the excavation zone or the UST site do not indicate that a release has occurred, further investigation is not required.

15A NCAC 02N .0604 REPORTING AND CLEANUP OF SPILLS AND OVERFILLS

The regulations governing "Reporting and cleanup of spills and overfills" set forth in 40 CFR 280.53 (Subpart E) are hereby incorporated by reference, except that:

- (1) In 40 CFR 280.53(a) the words "or another reasonable time period specified by the implementing agency" shall not be adopted by reference;
- (2) In 40 CFR 280.53(b) the words "or another reasonable time period established by the implementing agency" shall not be adopted by reference;
- (3) In 40 CFR 280.53(a)(1) and (b), the words, "or another reasonable amount specified by the implementing agency" shall not be adopted by reference; and
- (4) Upon written request, the Division may grant additional time to submit the reports specified in 40 CFR 280.53. The request shall be made to the Division prior to the expiration of the required time period. When considering such a request, the Division may consider factors as follows:
 - (a) the extent to which the request for additional time is due to factors outside of the control of the tank owner or operator;
 - (b) the previous history of the tank owner or operator submitting the report in complying with deadlines established under the Commission's rules;
 - (c) the technical complications associated with reporting and cleanup of spills and overfills; and
 - (d) the necessity for action to eliminate an imminent threat to public health or the environment.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

Adoption by Reference

§280.53 Reporting and cleanup of spills and overfills.

(a) Owners and operators of UST systems must contain and immediately clean up a spill or overfill and report to the implementing agency within 24 hours, or another reasonable time period specified by the implementing agency, and begin corrective action in accordance with subpart F of this part in the following cases:

(1) Spill or overfill of petroleum that results in a release to the environment that exceeds 25 gallons or another reasonable amount specified by the implementing agency, or that causes a sheen on nearby surface water; and

(2) Spill or overfill of a hazardous substance that results in a release to the environment that equals or exceeds its reportable quantity under CERCLA (40 CFR part 302).

Note to paragraph (a). Pursuant to §§302.6 and 355.40 of this chapter, a release of a hazardous substance equal to or in excess of its reportable quantity must also be reported immediately (rather than within 24 hours) to the National Response Center under sections 102 and 103 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and to appropriate state and local authorities under Title III of the Superfund Amendments and Reauthorization Act of 1986.

(b) 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, and a spill or overfill of a hazardous substance that is less than the reportable quantity. If cleanup cannot be accomplished within 24 hours, or another reasonable time period established by the implementing agency, owners and operators must immediately notify the implementing agency.

**SECTION .0700 - RELEASE RESPONSE AND CORRECTIVE ACTION FOR UST SYSTEMS
CONTAINING PETROLEUM OR HAZARDOUS SUBSTANCES
(TITLE 40, PART 280 SUBPART F-RELEASE RESPONSE [280.60-280.67])**

15A NCAC 02N .0701 GENERAL

(a) The regulations governing "General" set forth in 40 CFR 280.60 (Subpart F) are hereby incorporated by reference.

(b) Any corrective action undertaken in accordance with this Section shall meet the requirements and standards specified in 15A NCAC 02L.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. September 1, 1992;
Temporary Amendment Eff. January 2, 1998;
Amended Eff. June 1, 2017; October 29, 1998.*

Adoption by Reference

§280.60 General.

Owners and operators of petroleum or hazardous substance UST systems must, in response to a confirmed release from the UST system, comply with the requirements of this subpart except for USTs excluded under §280.10(b) and UST systems subject to RCRA Subtitle C corrective action requirements under section 3004(u) of the Resource Conservation and Recovery Act, as amended.

15A NCAC 02N .0702 INITIAL RESPONSE

The regulations governing "Initial response" set forth in 40 CFR 280.61 (Subpart F) are hereby incorporated by reference, except that the words "or within another reasonable period of time determined by the implementing agency" in the first sentence shall not be adopted by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.61 Initial response.

Upon confirmation of a release in accordance with §280.52 or after a release from the UST system is identified in any other manner, owners and operators must perform the following initial response actions within 24 hours of a release or within another reasonable period of time determined by the implementing agency:

- (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) Identify and mitigate fire, explosion, and vapor hazards.

15A NCAC 02N .0703 INITIAL ABATEMENT MEASURES AND SITE CHECK

The regulations governing "Initial abatement measures and site check" set forth in 40 CFR 280.62 (Subpart F) are hereby incorporated by reference, except that:

- (1) 40 CFR 280.62(a)(6) shall read, "Investigate to determine the possible presence of free product and begin free product removal within 14 days in accordance with 40 CFR 280.64." Upon written request, the Division may grant additional time to begin free product removal. The request shall be made to the Division prior to the expiration of the required time period. When considering such a request, the Division may consider factors as follows:
 - (a) the extent to which the request for additional time is due to factors outside of the control of the tank owner or operator;
 - (b) the previous history of the tank owner or operator submitting the report in complying with deadlines established under the Commission's rules;
 - (c) the technical complications associated with free product removal; and
 - (d) the necessity for action to eliminate an imminent threat to public health or the environment; and
- (2) In 40 CFR 280.62(b) the words, "or within another reasonable period of time determined by the implementing agency," shall not be adopted by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. January 1, 1991; Amended Eff. June 1, 2017.

Adoption by Reference

§280.62 Initial abatement measures and site check.

(a) Unless directed to do otherwise by the implementing agency, owners and operators must perform the following abatement measures:

- (1) Remove as much of the regulated substance from the UST system as is necessary to prevent further release to the environment;
 - (2) Visually inspect any aboveground releases or exposed belowground releases and prevent further migration of the released substance into surrounding soils and groundwater;
 - (3) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that have migrated from the UST excavation zone and entered into subsurface structures (such as sewers or basements);
 - (4) Remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, abatement, or corrective action activities. If these remedies include treatment or disposal of soils, the owner and operator must comply with applicable state and local requirements;
 - (5) Measure for the presence of a release where contamination is most likely to be present at the UST site, unless the presence and source of the release have been confirmed in accordance with the site check required by §280.52(b) or the closure site assessment of §280.72(a). In selecting sample types, sample locations, and measurement methods, the owner and operator must consider the nature of the stored substance, the type of backfill, depth to groundwater and other factors as appropriate for identifying the presence and source of the release; and
 - (6) Investigate to determine the possible presence of free product, and begin free product removal as soon as practicable and in accordance with §280.64.
- (b) Within 20 days after release confirmation, or within another reasonable period of time determined by the implementing agency, owners and operators must submit a report to the implementing agency summarizing the initial abatement steps taken under paragraph (a) of this section and any resulting information or data.

15A NCAC 02N .0704 INITIAL SITE CHARACTERIZATION

The regulations governing "Initial site characterization" set forth in 40 CFR 280.63 (Subpart F) are hereby incorporated by reference, except that in 40 CFR 280.63(b) the words "or another reasonable period of time determined by the implementing agency" shall not be adopted by reference. Upon written request, the Division may grant additional time to submit the information collected in compliance with 40 CFR 280.63(a). The request shall be made to the Division prior to the expiration of the required time period. When considering such a request, the Division may consider factors as follows:

- (1) the extent to which the request for additional time is due to factors outside of the control of the tank owner or operator;
- (2) the previous history of the tank owner or operator submitting the report in complying with deadlines established under the Commission's rules;
- (3) the technical complications associated with an initial site characterization; and
- (4) the necessity for action to eliminate an imminent threat to public health or the environment.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

Adoption by Reference

§280.63 Initial site characterization.

(a) Unless directed to do otherwise by the implementing agency, owners and operators must assemble information about the site and the nature of the release, including information gained while confirming the release or completing the initial abatement measures in §§280.60 and 280.61. This information must include, but is not necessarily limited to the following:

- (1) Data on the nature and estimated quantity of release;
 - (2) Data from available sources and/or site investigations concerning the following factors: Surrounding populations, water quality, use and approximate locations of wells potentially affected by the release, subsurface soil conditions, locations of subsurface sewers, climatological conditions, and land use;
 - (3) Results of the site check required under §280.62(a)(5); and
 - (4) Results of the free product investigations required under §280.62(a)(6), to be used by owners and operators to determine whether free product must be recovered under §280.64.
- (b) Within 45 days of release confirmation or another reasonable period of time determined by the implementing agency, owners and operators must submit the information collected in compliance with paragraph (a) of this section to the implementing agency in a manner that demonstrates its applicability and technical adequacy, or in a format and according to the schedule required by the implementing agency.

15A NCAC 02N .0705 FREE PRODUCT REMOVAL

The regulations governing "Free product removal" set forth in 40 CFR 280.64 (Subpart F) are hereby incorporated by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.

Adoption by Reference

§280.64 Free product removal.

At sites where investigations under §280.62(a)(6) indicate the presence of free product, owners and operators must remove free product to the maximum extent practicable as determined by the implementing agency while continuing, as necessary, any actions initiated under §§280.61 through 280.63, or preparing for actions required under §§280.65 through 280.66. In meeting the requirements of this section, owners and operators must:

(a) Conduct free product removal in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable local, state, and federal regulations;

(b) Use abatement of free product migration as a minimum objective for the design of the free product removal system;

(c) Handle any flammable products in a safe and competent manner to prevent fires or explosions; and

(d) Unless directed to do otherwise by the implementing agency, prepare and submit to the implementing agency, within 45 days after confirming a release, a free product removal report that provides at least the following information:

(1) The name of the person(s) responsible for implementing the free product removal measures;

(2) The estimated quantity, type, and thickness of free product observed or measured in wells, boreholes, and excavations;

(3) The type of free product recovery system used;

(4) Whether any discharge will take place on-site or off-site during the recovery operation and where this discharge will be located;

(5) The type of treatment applied to, and the effluent quality expected from, any discharge;

(6) The steps that have been or are being taken to obtain necessary permits for any discharge; and

(7) The disposition of the recovered free product.

15A NCAC 02N .0706 INVESTIGATIONS FOR SOIL AND GROUNDWATER CLEANUP

The regulations governing "Investigations for soil and groundwater cleanup" set forth in 40 CFR 280.65 (Subpart F) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.65 Investigations for soil and groundwater cleanup.

(a) In order to determine the full extent and location of soils contaminated by the release and the presence and concentrations of dissolved product contamination in the groundwater, owners and operators must conduct investigations of the release, the release site, and the surrounding area possibly affected by the release if any of the following conditions exist:

- (1) There is evidence that groundwater wells have been affected by the release (*e.g.*, as found during release confirmation or previous corrective action measures);
 - (2) Free product is found to need recovery in compliance with §280.64;
 - (3) There is evidence that contaminated soils may be in contact with groundwater (*e.g.*, as found during conduct of the initial response measures or investigations required under §§280.60 through 280.64); and
 - (4) The implementing agency requests an investigation, based on the potential effects of contaminated soil or groundwater on nearby surface water and groundwater resources.
- (b) Owners and operators must submit the information collected under paragraph (a) of this section as soon as practicable or in accordance with a schedule established by the implementing agency.

15A NCAC 02N .0707 CORRECTIVE ACTION PLAN

The regulations governing "Corrective action plan" set forth in 40 CFR 280.66 (Subpart F) are hereby incorporated by reference, except that 40 CFR 280.66(a) shall read: "After reviewing the information submitted in compliance with 40 CFR 280.61 through 40 CFR 280.63, the Division may require owners and operators to submit additional information or to develop and submit a corrective action plan for responding to contaminated soils and groundwater. If a plan is required, owners and operators must prepare a plan in accordance with the requirements specified in 15A NCAC 02L."

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. January 1, 1991;
Amended Eff. September 1, 1992;
Temporary Amendment Eff. January 2, 1998;
Amended Eff. June 1, 2017; October 29, 1998.*

Adoption by Reference

§280.66 Corrective action plan.

(a) At any point after reviewing the information submitted in compliance with §§280.61 through 280.63, the implementing agency may require owners and operators to submit additional information or to develop and submit a corrective action plan for responding to contaminated soils and groundwater. If a plan is required, owners and operators must submit the plan according to a schedule and format established by the implementing agency. Alternatively, owners and operators may, after fulfilling the requirements of §§280.61 through 280.63, choose to

submit a corrective action plan for responding to contaminated soil and groundwater. In either case, owners and operators are responsible for submitting a plan that provides for adequate protection of human health and the environment as determined by the implementing agency, and must modify their plan as necessary to meet this standard.

(b) The implementing agency will approve the corrective action plan only after ensuring that implementation of the plan will adequately protect human health, safety, and the environment. In making this determination, the implementing agency should consider the following factors as appropriate:

- (1) The physical and chemical characteristics of the regulated substance, including its toxicity, persistence, and potential for migration;
- (2) The hydrogeologic characteristics of the facility and the surrounding area;
- (3) The proximity, quality, and current and future uses of nearby surface water and groundwater;
- (4) The potential effects of residual contamination on nearby surface water and groundwater;
- (5) An exposure assessment; and
- (6) Any information assembled in compliance with this subpart.

(c) Upon approval of the corrective action plan or as directed by the implementing agency, owners and operators must implement the plan, including modifications to the plan made by the implementing agency. They must monitor, evaluate, and report the results of implementing the plan in accordance with a schedule and in a format established by the implementing agency.

(d) Owners and operators may, in the interest of minimizing environmental contamination and promoting more effective cleanup, begin cleanup of soil and groundwater before the corrective action plan is approved provided that they:

- (1) Notify the implementing agency of their intention to begin cleanup;
- (2) Comply with any conditions imposed by the implementing agency, including halting cleanup or mitigating adverse consequences from cleanup activities; and
- (3) Incorporate these self-initiated cleanup measures in the corrective action plan that is submitted to the implementing agency for approval.

15A NCAC 02N .0708 PUBLIC PARTICIPATION

The regulations governing "Public participation" set forth in 40 CFR 280.67 (Subpart F) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.67 Public participation.

- (a) For each confirmed release that requires a corrective action plan, the implementing agency must provide notice to the public by means designed to reach those members of the public directly affected by the release and the planned corrective action. This notice may include, but is not limited to, public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households, or personal contacts by field staff.
- (b) The implementing agency must ensure that site release information and decisions concerning the corrective action plan are made available to the public for inspection upon request.
- (c) Before approving a corrective action plan, the implementing agency may hold a public meeting to consider comments on the proposed corrective action plan if there is sufficient public interest, or for any other reason.
- (d) The implementing agency must give public notice that complies with paragraph (a) of this section if implementation of an approved corrective action plan does not achieve the established cleanup levels in the plan and termination of that plan is under consideration by the implementing agency.

SECTION .0800 - OUT-OF-SERVICE UST SYSTEMS AND CLOSURE
(TITLE 40, PART 280 SUBPART G-OUT-OF-SERVICE UST SYSTEMS [280.70-280.74])

15A NCAC 02N .0801 TEMPORARY CLOSURE

The regulations governing "Temporary closure" set forth in 40 CFR 280.70 (Subpart G) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.70 Temporary closure.

(a) When an UST system is temporarily closed, owners and operators must continue operation and maintenance of corrosion protection in accordance with §280.31, and any release detection in accordance with subparts D and K of this part. Subparts E and F of this part must be complied with if a release is suspected or confirmed. However, release detection and release detection operation and maintenance testing and inspections in subparts C and D of this part are not required as long as the UST system is empty. The UST system is empty when all materials have been removed using commonly employed practices so that no more than 2.5 centimeters (one inch) of residue, or 0.3 percent by weight of the total capacity of the UST system, remain in the system. In addition, spill and overfill operation and maintenance testing and inspections in subpart C of this part are not required.

(b) When an UST system is temporarily closed for 3 months or more, owners and operators must also comply with the following requirements:

(1) Leave vent lines open and functioning; and

(2) Cap and secure all other lines, pumps, manways, and ancillary equipment.

(c) When an UST system is temporarily closed for more than 12 months, owners and operators must permanently close the UST system if it does not meet either performance standards in §280.20 for new UST systems or the upgrading requirements in §280.21, *except that* the spill and overfill equipment requirements do not have to be met. Owners and operators must permanently close the substandard UST systems at the end of this 12-month period in accordance with §§280.71 through 280.74, *unless* the implementing agency provides an extension of the 12-month temporary closure period. Owners and operators must complete a site assessment in accordance with §280.72 before such an extension can be applied for.

15A NCAC 02N .0802 PERMANENT CLOSURE AND CHANGES-IN-SERVICE

The regulations governing "Permanent closure and changes-in-service" set forth in 40 CFR 280.71 (Subpart G) are hereby incorporated by reference, except that an UST system containing de minimis concentrations of a regulated substance shall meet the closure requirements of this Rule within 12 months of the effective date of this Subchapter.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.71 Permanent closure and changes-in-service.

(a) At least 30 days before beginning either permanent closure or a change-in-service under paragraphs (b) and (c) of this section, or within another reasonable time period determined by the implementing agency, owners and operators must notify the implementing agency of their intent to permanently close or make the change-in-service, *unless* such action is in response to corrective action. The required assessment of the excavation zone under §280.72 must be performed after notifying the implementing agency but before completion of the permanent closure or a change-in-service.

(b) To permanently close a tank, owners and operators must empty and clean it by removing all liquids and accumulated sludges. All tanks taken out of service permanently must: be removed from the ground, filled with an inert solid material, or closed in place in a manner approved by the implementing agency.

(c) Continued use of an UST system to store a non-regulated substance is considered a change-in-service. Before a change-in-service, owners and operators must empty and clean the tank by removing all liquid and accumulated sludge and conduct a site assessment in accordance with §280.72.

Note to §280.71. The following cleaning and closure procedures may be used to comply with this section:

(A) American Petroleum Institute Recommended Practice RP 1604, "Closure of Underground Petroleum Storage Tanks";

(B) American Petroleum Institute Standard 2015, "Safe Entry and Cleaning of Petroleum Storage Tanks, Planning and Managing Tank Entry From Decommissioning Through Recommissioning";

(C) American Petroleum Institute Recommended Practice 2016, "Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks";

(D) American Petroleum Institute Recommended Practice RP 1631, "Interior Lining and Periodic Inspection of Underground Storage Tanks," may be used as guidance for compliance with this section;

(E) National Fire Protection Association Standard 326, "Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair"; and

(F) National Institute for Occupational Safety and Health Publication 80-106, "Criteria for a Recommended Standard. . . Working in Confined Space" may be used as guidance for conducting safe closure procedures at some hazardous substance tanks

15A NCAC 02N .0803 ASSESSING THE SITE AT CLOSURE OR CHANGE-IN-SERVICE

The regulations governing "Assessing the site at closure or change-in-service" set forth in 40 CFR 280.72 (Subpart G) are hereby incorporated by reference, except that:

- (1) references to methods and requirements shall include all applicable references and methods listed in 15A NCAC 02N .0504; and
- (2) the number and location of samples and method of their collection shall be determined in accordance with procedures established by the Division. In establishing procedures, the Division may consider factors such as:
 - (a) dimensions of the USTs;
 - (b) type of products stored in the USTs;
 - (c) method of closure;
 - (d) type of and length of associated product lines;
 - (e) number of associated dispensers;
 - (f) number of associated containment sumps;
 - (g) methods of field sample analysis and laboratory sample analysis;
 - (h) potential for vapor intrusion;
 - (i) proximity to surface waters; and
 - (j) site conditions such as site geology and hydrology.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.72 Assessing the site at closure or change-in-service.

(a) Before permanent closure or a change-in-service is completed, owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release. The requirements of this section are satisfied if one of the external release detection methods allowed in §280.43(e) and (f) is operating in accordance with the requirements in §280.43 at the time of closure, and indicates no release has occurred.

(b) If contaminated soils, contaminated groundwater, or free product as a liquid or vapor is discovered under paragraph (a) of this section, or by any other manner, owners and operators must begin corrective action in accordance with subpart F of this part.

15A NCAC 02N .0804 APPLICABILITY TO PREVIOUSLY CLOSED UST SYSTEMS

The regulations governing "Applicability to previously closed UST systems" set forth in 40 CFR 280.73 (Subpart G) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.73 Applicability to previously closed UST systems.

When directed by the implementing agency, the owner and operator of an UST system permanently closed before December 22, 1988 must assess the excavation zone and close the UST system in accordance with this subpart if releases from the UST may, in the judgment of the implementing agency, pose a current or potential threat to human health and the environment.

15A NCAC 02N .0805 CLOSURE RECORDS

The regulations governing "Closure records" set forth in 40 CFR 280.74 (Subpart G) are hereby incorporated by reference.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6;
Eff. January 1, 1991;
Amended Eff. June 1, 2017.*

Adoption by Reference

§280.74 Closure records.

Owners and operators must maintain records in accordance with §280.34 that are capable of demonstrating compliance with closure requirements under this subpart. The results of the excavation zone assessment required in §280.72 must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the UST system out of service;
- (b) By the current owners and operators of the UST system site; or
- (c) By mailing these records to the implementing agency if they cannot be maintained at the closed facility.

**SECTION .0900 - PERFORMANCE STANDARDS FOR UST SYSTEM OR UST SYSTEM COMPONENT
INSTALLATION OR REPLACEMENT COMPLETED ON OR AFTER NOVEMBER 1, 2007**

15A NCAC 02N .0901 GENERAL REQUIREMENTS

- (a) This Section applies to a UST system or UST system component installation or replacement completed on or after November 1, 2007.
- (b) A UST system or UST system component shall not be installed or replaced within an area defined at 15A NCAC 02N .0301(b).
- (c) A tank shall meet the requirements for secondary containment including interstitial release detection monitoring in accordance with this Rule.
- (d) All UST system components other than tanks including connected piping, underground ancillary equipment, dispensers, line leak detectors, submersible pumps, spill buckets, siphon bars, and remote fill pipes shall meet the requirements for secondary containment including interstitial release detection monitoring in accordance with this Rule. Gravity-fed vertical fill pipes, vapor recovery, vent lines, and containment sumps are excluded from the secondary containment requirements in this Rule.
- (e) A UST system design is required for installation or replacement of a UST system, UST, or connected piping. If required by G.S. 89C, UST system designs must be prepared by a Professional Engineer licensed by the North Carolina Board of Examiners for Engineers and Surveyors.
- [Note: The North Carolina Board of Examiners for Engineers and Surveyors has determined via letter dated December 20, 1993, that preparation of a UST system design constitutes practicing engineering under G.S. 89C.]
- (f) If required by the equipment manufacturer, persons installing, replacing or repairing UST systems or UST system components must be trained and certified by the equipment manufacturer or the equipment manufacturer's authorized representative to install, replace or repair such equipment.
- (g) UST systems or UST system components shall be installed, tested, operated, and maintained in accordance with the manufacturer's specifications and the codes of practice, and industry standards described at 15A NCAC 02N .0907.
- (h) UST systems or UST system components shall not be installed or replaced in areas where they will be in contact with contaminated soil or free product.
- (i) Secondary containment systems shall be designed, constructed, installed and maintained to:
- (1) Detect the failure of the inner wall and outer wall for UST system components with double wall construction;
 - (2) Contain regulated substances released from a UST system until they are detected and removed;
 - (3) Prevent a release of regulated substances to the environment outside of the containment system;
 - (4) Direct releases to a monitoring point or points;
 - (5) Provide a release detection monitoring device or monitoring method for the interstitial space;
 - (6) Continuously monitor the inner and outer walls of double-walled tanks for breaches of integrity using pressure, vacuum or hydrostatic monitoring methods or monitor the interstitial space of double-walled tanks for releases using an electronic liquid detecting sensor method along with periodic testing as specified in Rule .0903(f);
 - (7) Continuously monitor the inner and outer walls of double-walled non-tank components for breaches of integrity using pressure, vacuum, or hydrostatic methods, or monitor a non-tank component for releases by using an electronic liquid detecting sensor placed in a containment sump and in the interstitial space of a double-walled spill bucket along with periodic integrity testing as specified in Rules .0904(h), .0905(f), and .0906(e); and
 - (8) Provide a printed record of release detection monitoring results and an alarm history for each month.
- (j) Electronic liquid detecting sensors used to monitor the interstitial space of double-walled tanks and non-tank components shall meet the following requirements:
- (1) Electronic liquid detecting sensors used for tanks and spill buckets must be located at the lowest point in the interstitial space. Electronic liquid detecting sensors used for containment sumps must be located as specified in Rule .0905(d).
 - (2) A tank must have a method to verify that an electronic liquid detecting sensor is located at the lowest point of the interstitial space. Verification of the sensor location must be available for inspection.
 - (3) Electronic liquid detecting sensors must detect the presence of any liquid in the interstitial space and must activate an alarm when any type of liquid is detected.
 - (4) Any liquid detected in the interstitial space must be removed within 48 hours of discovery.

- (k) New or replacement dispensers shall be provided with under dispenser containment sumps and shall meet the secondary containment requirements and performance standards of this Rule.
- (l) All release detection monitoring equipment shall be installed, calibrated, operated and maintained in accordance with manufacturer's instructions. All release detection monitoring equipment shall be checked annually for operability, proper operating condition and proper calibration in accordance with the manufacturers written guidelines. The results of the last annual check must be recorded, maintained at the UST site or the tank owner or operator's place of business, and made available for inspection.
- (m) Releases detected in an interstitial space shall be reported in accordance with Rule .0601 and investigated in accordance with the manufacturers written guidelines. Any changes in the original physical characteristics or integrity of a piping system or a containment sump must also be reported in accordance with Rule .0601 and investigated in accordance with the manufacturer's written guidelines.
- (n) UST systems and UST system components shall also meet all of the installation requirements specified in 40 CFR 280.20(c), (d) and (e). In addition, overfill prevention equipment shall be checked annually for operability, proper operating condition and proper calibration in accordance with the manufacturer's written guidelines. The results of the last annual check must be recorded, maintained at the UST site or the tank owner or operator's place of business, and made available for inspection.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. November 1, 2007;
Amended Eff. February 1, 2010.*

15A NCAC 02N .0902 NOTIFICATION

- (a) Owners and operators must provide notification of installation or replacement of an UST system, UST, or connected piping to the Division in accordance with 15A NCAC 02N .0303. The notice shall also include:
 - (1) An UST system design.
 - (2) Equipment to be installed including model and manufacturer and the materials of construction.
 - (3) Device or method to be used to allow piping to be located after it is buried underground.
 - (4) A site plan drawn to scale showing the proposed location of UST systems relative to buildings and other permanent structures, roadways, utilities, other UST systems, monitoring wells, and water supply wells used for human consumption within 500 feet.
 - (5) A schedule for UST system installation or replacement.
- (b) Owners and operators must notify the Division at least 48 hours prior to the following stages of construction so that the Division may perform an inspection of the installation:
 - (1) Pre-installation tightness testing of tanks; and
 - (2) Final tightness testing of piping before it is backfilled.
- (c) Documents showing the following information shall be submitted to the Division within 30 days after UST system, UST, or connected piping installation or replacement is completed and shall be maintained at the UST system site or the owner's or operator's place of business for the life of the UST system. These records shall be transferred to a new tank owner at the time of a transfer of tank ownership:
 - (1) Certification from the UST system installer containing:
 - (A) The UST system installer's name, address and telephone number; training and any certification received from the manufacturer of the equipment that was installed or replaced or the equipment manufacturer's authorized representative including any certification number;
 - (B) An as-built diagram drawn to scale showing: the name and address of the UST system site; the date of UST system, UST, or connected piping installation or replacement; the equipment that was installed including model and manufacturer; the information described at 15A NCAC 02N .0903(b); the method used to anchor a tank in the ground; if the equipment has single-walled or double-walled construction; the year the piping was manufactured and any production code; and the device or method used to allow piping to be located after it is buried underground. The as-built diagram shall also show the location of the installed or replaced UST systems relative to: buildings and other permanent structures, utilities, monitoring wells and other UST systems located at the site; adjacent roadways; and water supply wells used for human consumption within 500 feet;
 - (C) A listing of the manufacturer's written guidelines, codes of practice, and industry standards used for installation; and

- (D) A statement that the UST system was installed in accordance with the design and the manufacturer's specifications.
- (2) Manufacturer warranties;
- (3) Any equipment performance claims; and
- (4) Records of all tightness testing performed.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); Eff. November 1, 2007.

15A NCAC 02N .0903 TANKS

- (a) Tanks must be protected from external corrosion in accordance with 40 CFR 280.20(a)(1), (2), (3), or (5).
- (b) Owners and operators of tanks installed in accordance with 40 CFR 280.20(a)(2) shall comply with all applicable requirements for corrosion protection systems contained in this Subchapter.
- (c) The exterior surface of a tank shall bear a permanent marking, code stamp, or label showing the following information:
 - (1) The engineering standard used;
 - (2) The diameter in feet;
 - (3) The capacity in gallons;
 - (4) The materials of construction of the inner and outer walls of the tank, including any external or internal coatings;
 - (5) Serial number or other unique identification number designated by the tank manufacturer;
 - (6) Date manufactured; and
 - (7) Identity of manufacturer.
- (d) Tanks that will be reused shall be certified by the tank manufacturer prior to re-installation and meet all of the requirements of this Section. Tank owners and operators shall submit proof of certification to the Division along with a notice of intent (Rule .0902).
- (e) Tanks shall be tested before and after installation in accordance with the following requirements:
 - (1) Pre- Installation Test - Before installation, the primary containment and the interstitial space shall be tested in accordance with the manufacturers written guidelines and PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems." PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Petroleum Equipment Institute, P.O. Box 2380, Tulsa, Oklahoma 74101-2380 at a cost of ninety-five dollars (\$95.00). The presence of soap bubbles or water droplets during a pressure test, any change in vacuum beyond the limits specified by the tank manufacturer during a vacuum test, or any change in liquid level in an interstitial space liquid reservoir beyond the limits specified by the tank manufacturer, shall be considered a failure of the integrity of the tank.
 - (2) Post-installation Test – The interstitial space shall be checked for a loss of pressure or vacuum, or a change in liquid level in an interstitial space liquid reservoir. Any loss of pressure or vacuum beyond the limits specified by the tank manufacturer, or a change in liquid level beyond the limits specified by the tank manufacturer, shall be considered a failure of the integrity of the tank.
 - (3) If a tank fails a pre-installation or post-installation test, tank installation shall be suspended until the tank is replaced or repaired in accordance with the manufacturer's specifications. Following any repair, the tank shall be re-tested in accordance with Subparagraph (e)(1) of this Rule if it failed the pre-installation test and in accordance with Subparagraph (e)(2) of this Rule if it failed the post-installation test.
- (f) The interstitial spaces of tanks that are not monitored using vacuum, pressure, or hydrostatic methods shall be tested for tightness before UST system start-up, between six months and the first anniversary of start-up, and every three years thereafter. The interstitial space shall be tested using an interstitial tank tightness test method that is capable of detecting a 0.10 gallon per hour leak rate with a probability of detection (Pd) of at least 95 percent and a probability of false alarm (Pfa) of no more than 5 percent. The test method shall be evaluated by an independent testing laboratory, consulting firm, not-for-profit research organization, or educational institution using the most recent version of the United States Environmental Protection Agency's (EPA's) "Standard Test Procedures for Evaluating Leak Detection Methods." EPA's "Standard Test Procedures for Evaluating Leak Detection Methods" is hereby incorporated by reference including subsequent amendments and additions. A copy may be obtained by visiting EPA's Office of Underground Storage Tank website: <http://www.epa.gov/OUST/pubs/protocol.htm> and may

be accessed free of charge. The independent testing laboratory, consulting firm, not-for-profit research organization, or educational institution shall certify that the test method can detect a 0.10 gallon per hour leak rate with a Pd of at least 95 percent and a Pfa of no more than 5 percent for the specific tank model being tested. If a tank fails an interstitial tank tightness test, it shall be replaced by the owner or operator or repaired by the manufacturer or the manufacturer's authorized representative in accordance with manufacturer's specifications. Tank owners and operators shall report all failed interstitial tank tightness tests to the Division within 24 hours. Failed interstitial tank tightness tests shall be reported by fax to the Division of Waste Management, Underground Storage Tank Section, at (919) 715-1117. Following any repair, the tank interstitial space shall be re-tested for tightness. The most recent interstitial tightness test record shall be maintained at the UST site or the tank owner's or operator's place of business and shall be available for inspection.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. November 1, 2007;
Amended Eff. June 1, 2015; February 1, 2010.

15A NCAC 02N .0904 PIPING

- (a) Piping, with the exception of flexible connectors and piping connections, shall be pre-fabricated with double-walled construction. Any flexible connectors or piping connections that do not have double-walled construction shall be installed in containment sumps that meet the requirements of 15A NCAC 02N .0905.
- (b) Piping shall be constructed of non-corroding materials. Metal flexible connectors and piping connections shall be installed in containment sumps that meet the requirements of 15A NCAC 02N .0905.
- (c) Piping shall comply with the UL 971 standard "Nonmetallic Underground Piping for Flammable Liquids;" that is in effect at the time the piping is installed. UL 971 standard "Nonmetallic Underground Piping for Flammable Liquids" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 at a cost of four hundred and two dollars (\$402.00).
- (d) Piping that is buried underground shall be constructed with a device or method that allows it to be located once it is installed.
- (e) Piping that conveys regulated substances under pressure shall also be equipped with an automatic line leak detector that meets the requirements of 40 CFR 280.44(a).
- (f) At the time of installation, the primary containment and interstitial space of the piping shall be initially tested, monitored during construction, and finally tested in accordance with the manufacturers written guidelines and PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems." The presence of soap bubbles or water droplets or any loss of pressure beyond the limits specified by the piping manufacturer during testing shall be considered a failure of the integrity of the piping. If the piping fails a tightness test, it shall be replaced by the owner or operator or repaired by the manufacturer or the manufacturer's authorized representative in accordance with the manufacturer's written specifications. Following any repair, the piping shall be re-tested for tightness in accordance with the manufacturers written guidelines and PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems."
- (g) Piping that is not monitored continuously for releases using vacuum, pressure, or hydrostatic methods, shall be tested for tightness every three years following installation. The primary containment and interstitial space of the piping shall be tested in accordance with the manufacturers written guidelines and PEI/RP100 "Recommended Practice for Installation of Underground Liquid Storage Systems." If the piping fails a tightness test, it shall be replaced or repaired by the manufacturer or the manufacturer's authorized representative in accordance with the manufacturer's specifications. Following any repair, the piping shall be re-tested for tightness. The most recent periodic tightness test record shall be maintained at the UST site or the tank owner or operator's place of business and shall be available for inspection.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h);
Eff. November 1, 2007;
Amended Eff. June 1, 2015.

15A NCAC 02N .0905 CONTAINMENT SUMPS

- (a) Containment sumps must be constructed of non-corroding materials.
- (b) Containment sumps must be designed and manufactured expressly for the purpose of containing and detecting a release.

- (c) Containment sumps must be designed, constructed, installed and maintained to prevent water infiltration.
- (d) Electronic sensor probes used for release detection monitoring must be located no more than two inches above the lowest point of the containment sump.
- (e) At installation, containment sumps shall be tested for tightness after construction, but before backfilling. Tightness testing shall be conducted in accordance with the manufacturers written guidelines and PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems." Any change in water level shall be considered a failure of the integrity of the sump. Other tightness test methods may be used if they are approved by the Division. In approving a containment sump tightness testing method the Division shall consider the following factors:
 - (1) The inner surface of the sump is tested to at least six inches above the highest joint or penetration fitting, whichever is higher; and
 - (2) The method is capable of detecting a fracture, perforation or gap in the sump within the specified test period.
- (f) If a containment sump fails an installation tightness test, the sump must be replaced or repaired by the manufacturer or the manufacturer's authorized representative in accordance with the manufacturer's specifications. Following replacement or repair, the containment sump must be re-tested for tightness in accordance with Paragraph (e) of this Rule. Containment sumps that are not monitored continuously for releases using vacuum, pressure or hydrostatic interstitial monitoring methods shall be tested for tightness every three years following installation in accordance with the manufacturers written guidelines and PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems." If a containment sump fails a periodic tightness test, the sump must be replaced or repaired by the manufacturer or the manufacturer's authorized representative in accordance with the manufacturer's specifications. Following replacement or repair, the containment sump must be re-tested for tightness in accordance with Paragraph (e) of this Rule. The last periodic tightness test record must be maintained at the UST site or the tank owner or operator's place of business and must be readily available for inspection.
- (g) All containment sumps shall be visually inspected at least annually for the presence of water or regulated substance. Any water or regulated substance must be removed from the sump within 48 hours of discovery. The visual inspection results must be documented and must be maintained for at least one year at the UST site or the tank owner's or operator's place of business and must be readily available for inspection.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(2)(h); Eff. November 1, 2007.

15A NCAC 02N .0906 SPILL BUCKETS

- (a) Spill buckets shall be pre-fabricated with double-walled construction.
- (b) Spill buckets must be protected from corrosion by being constructed of non-corroding materials.
- (c) Spill buckets must be designed, constructed, installed and maintained to prevent water infiltration.
- (d) After installation but before backfilling, the primary containment and interstitial space of the spill bucket shall be tested in accordance with the manufacturers written guidelines and PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems." Any change in vacuum during a vacuum test or any change in liquid level in an interstitial space liquid reservoir beyond the limits specified by the equipment manufacturer shall be considered a failure of the integrity of the spill bucket. If the spill bucket fails a tightness test, it must be replaced or repaired by the manufacturer or the manufacturer's authorized representative in accordance with the manufacturer's specifications. Following any repair, the spill bucket must be re-tested for tightness in accordance with the manufacturers' written guidelines and PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems."
- (e) Spill buckets that are not monitored continuously for releases using vacuum, pressure or hydrostatic methods, must be tested for tightness every three years following installation. The primary containment and interstitial space of the spill bucket shall be tested in accordance with the manufacturers' written guidelines and PEI/RP100 "Recommended Practice for Installation of Underground Liquid Storage Systems." If the spill bucket fails a tightness test, it must be replaced or repaired by the manufacturer or the manufacturer's authorized representative in accordance with the manufacturer's specifications. Following any repair, the spill bucket must be re-tested for tightness. The last periodic tightness test record must be maintained at the UST site or the tank owner or operator's place of business and must be readily available for inspection.

*History Note: Authority G.S. 143-215.3(a)(15); 143B-282(2)(h);
Eff. November 1, 2007.*

15A NCAC 02N .0907 NATIONAL CODES OF PRACTICE AND INDUSTRY STANDARDS

In order to comply with this Section, owners and operators must comply with either of the following standards:

- (1) The most recent versions of the following national codes of practice and industry standards applicable at the time of UST system installation or replacement shall be used to comply with this Section.
 - (a) American Concrete Institute (ACI) International 224R-89, "Control of Cracking in Concrete Structures." ACI International 224R-89, "Control of Cracking in Concrete Structures" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from ACI International, P.O. Box 9094, Farmington Hills, Michigan 48333-9094 at a cost of sixty-seven dollars and fifty cents (\$67.50).
 - (b) ACI International 350-06, "Environmental Engineering Concrete Structures." ACI International 350-06, "Environmental Engineering Concrete Structures" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from ACI International, P.O. Box 9094, Farmington Hills, Michigan 48333-9094 at a cost of one hundred sixty-six dollars and fifty cents (\$166.50).
 - (c) American Petroleum Institute (API) Standard 570, "Piping Inspection Code: Inspection Repair, Alteration and Re-rating of In-Service Piping Systems." API Standard 570, "Piping Inspection Code: Inspection Repair, Alteration and Re-rating of In-Service Piping Systems" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from API Publications, 15 Inverness Way East, M/S C303B, Englewood, Colorado 80112-5776 at a cost of one hundred eight dollars (\$108.00).
 - (d) API Recommended Practice 1110, "Recommended Practice for the Pressure Testing of Liquid Petroleum Pipelines." API Recommended Practice 1110, "Recommended Practice for the Pressure Testing of Liquid Petroleum Pipelines" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from API Publications, 15 Inverness Way East, M/S C303B, Englewood, Colorado 80112-5776 at a cost of fifty-five dollars (\$55.00).
 - (e) API Recommended Practice 1615, "Installation of Underground Petroleum Storage Systems." API Recommended Practice 1615, "Installation of Underground Petroleum Storage Systems" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from API Publications, 15 Inverness Way East, M/S C303B, Englewood, Colorado 80112-5776 at a cost of one hundred eight dollars (\$108.00).
 - (f) API Recommended Practice 1621, "Bulk Liquid Stock Control at Retail Outlets." API Recommended Practice 1621, "Bulk Liquid Stock Control at Retail Outlets" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from API Publications, 15 Inverness Way East, M/S C303B, Englewood, Colorado 80112-5776 at a cost of seventy-three dollars (\$73.00).
 - (g) API Recommended Practice 1631, "Interior Lining of Underground Storage Tanks." API Recommended Practice 1631, "Interior Lining of Underground Storage Tanks" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from API Publications, 15 Inverness Way East, M/S C303B, Englewood, Colorado 80112-5776 at a cost of seventy-six dollars (\$76.00).
 - (h) API Recommended Practice 1637, "Using the API Color Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals." API Recommended Practice 1637, "Using the API Color Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from API Publications, 15 Inverness Way East, M/S C303B, Englewood, Colorado 80112-5776 at a cost of fifty-nine dollars (\$59.00).
 - (i) American Society of Mechanical Engineers (ASME) International: B31.4-2006, "2006 Pipeline Transportation Systems for Liquid Hydrocarbons and other Liquids." ASME

International: B31.4-2006, "2006 Pipeline Transportation Systems for Liquid Hydrocarbons and other Liquids" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from ASME, 22 Law Drive, Box 2900, Fairfield, NJ 07007-2900 at a cost of one hundred twenty-nine dollars (\$129.00).

- (j) National Fire Protection Association (NFPA) 30, "Flammable and Combustible Liquids Code." NFPA 30, "Flammable and Combustible Liquids Code" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02169-7471 at a cost of forty-two dollars and fifty cents (\$42.50).
- (k) NFPA 30A, "Automotive and Marine Service Station Code." NFPA 30A, "Automotive and Marine Service Station Code" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02169-7471 at a cost of thirty-three dollars and fifty cents (\$33.50).
- (l) NFPA 329, "Handling Underground Releases of Flammable and Combustible Liquids." NFPA 329, "Handling Underground Releases of Flammable and Combustible Liquids" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from National Fire Protection Association, 1 Batterymarch Park, Quincy, Massachusetts 02169-7471 at a cost of thirty-three dollars and fifty cents (\$33.50).
- (m) PEI: PEI/RP100, "Recommended Practice for Installation of Underground Liquid Storage Systems."
- (n) Steel Tank Institute (STI) ACT 100 F894, "Specifications for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks." Steel Tank Institute (STI) ACT 100 F894, "Specifications for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Steel Tank Institute, 570 Oakwood Road, Lake Zurich, Illinois 60047 at a cost of fifty dollars (\$50.00).
- (o) STI ACT 100-U F961, "Specifications for External Corrosion Protection of Composite Steel Underground Storage Tanks." STI ACT 100-U F961, "Specifications for External Corrosion Protection of Composite Steel Underground Storage Tanks" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Steel Tank Institute, 570 Oakwood Road, Lake Zurich, Illinois 60047 at a cost of fifty dollars (\$50.00).
- (p) STI 922, "Specifications for Permatank." STI 922, "Specifications for Permatank" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Steel Tank Institute, 570 Oakwood Road, Lake Zurich, Illinois 60047 at a cost of fifty dollars (\$50.00).
- (q) Underwriters UL 58, "Steel Underground tanks for Flammable and Combustible Liquids." UL 58, "Steel Underground tanks for Flammable and Combustible Liquids" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 at a cost of four hundred forty-five dollars (\$445.00).
- (r) UL 567, "Pipe Connectors for Petroleum Products and LP Gas." UL 567, "Pipe Connectors for Petroleum Products and LP Gas" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 at a cost of eight hundred eighty-five dollars (\$885.00).
- (s) UL 971, "Nonmetallic Underground Piping for Flammable Liquids;"
- (t) UL 1316, "Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures." UL 1316, "Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 at a cost of four hundred forty-five dollars (\$445.00); or

- (u) UL 1746, "External Corrosion Protection Systems for Steel Underground Storage Tanks." UL 1746, "External Corrosion Protection Systems for Steel Underground Storage Tanks" is hereby incorporated by reference including subsequent amendments and editions. A copy may be obtained from Underwriters Laboratories, 333 Pfingsten Road, Northbrook, Illinois 60062-2096 at a cost of eight hundred eighty-five dollars (\$885.00); or
- (2) Other appropriate codes or standards applicable at the time of UST system installation or replacement may be used provided they are developed by ACI, American National Standards Institute (ANSI), API, ASME, ASTM, NFPA, PEI, STI and UL.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); Eff. November 1, 2007.

See: [North Carolina Administration Code Title 15A Subchapter 020 for Financial Responsibility Requirements for Owners and Operators of Underground Storage Tanks](#) and [Title 40 of the Code of Federal Regulations Subpart H-Financial Responsibility \[280.90-280.116\]](#).

See: [NC General Statute Part 2D. Training for Underground Storage Tank Operators 143-215.94NN thru 143-215.94SS](#) (note that *Title 40, Code of Federal Register, Part 280 Subpart J-Operator Training [280.240-280.245]* was not adopted).

See: [NC General Statute Part 2A. Leaking Petroleum Underground Storage Tank Cleanup 143-215.94L\(b\) Definitions](#) and [Title 40, Code of Federal Register Part 280 Subpart I-Lender Liability \[280.200-280.230\]](#).

SECTION .1000 – UST SYSTEMS WITH FIELD-CONSTRUCTED TANKS AND AIRPORT HYDRANT FUEL DISTRIBUTION SYSTEMS

(TITLE 40, PART 280 SUBPART K-UST SYSTEMS WITH FIELD-CONSTRUCTED TANKS AND AIRPORT HYDRANT FUEL DISTRIBUTION SYSTEMS [280.250-280.252])

15A NCAC 02N .1001 DEFINITIONS

The regulations governing "UST systems with field-constructed tanks and airport hydrant fuel distribution systems" set forth in 40 CFR 280.250 (Subpart K) are hereby incorporated by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. June 1, 2017.

Adoption by Reference

§280.250 Definitions.

For purposes of this subpart, the following definitions apply:

Airport hydrant fuel distribution system (also called airport hydrant system) means an UST system which fuels aircraft and operates under high pressure with large diameter piping that typically terminates into one or more hydrants (fill stands). The airport hydrant system begins where fuel enters one or more tanks from an external source such as a pipeline, barge, rail car, or other motor fuel carrier.

Field-constructed tank means a tank constructed in the field. For example, a tank constructed of concrete that is poured in the field, or a steel or fiberglass tank primarily fabricated in the field is considered field-constructed.

15A NCAC 02N .1002 GENERAL REQUIREMENTS

The regulations governing "General Requirements" set forth in 40 CFR 280.251 (Subpart K) are hereby incorporated by reference.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. June 1, 2017.

Adoption by Reference

(a) *Implementation of requirements.* Owners and operators must comply with the requirements of this part for UST systems with field-constructed tanks and airport hydrant systems as follows:

(1) For UST systems installed on or before October 13, 2015 the requirements are effective according to the following schedule:

Requirement	Effective date
Upgrading UST systems; general operating requirements; and operator training	October 13, 2018.
Release detection	October 13, 2018.
Release reporting, response, and investigation; closure; financial responsibility and notification (except as provided in paragraph (b) of this section)	October 13, 2015.

(2) For UST systems installed after October 13, 2015, the requirements apply at installation.

(b) Not later than October 13, 2018, all owners of previously deferred UST systems must submit a one-time notice of tank system existence to the implementing agency, using the form in appendix I of this part or a state form in accordance with §280.22(c). Owners and operators of UST systems in use as of October 13, 2015 must demonstrate financial responsibility at the time of submission of the notification form.

(c) Except as provided in §280.252, owners and operators must comply with the requirements of subparts A through H and J of this part.

(d) In addition to the codes of practice listed in §280.20, owners and operators may use military construction criteria, such as Unified Facilities Criteria (UFC) 3-460-01, *Petroleum Fuel Facilities*, when designing, constructing, and installing airport hydrant systems and UST systems with field-constructed tanks.

15A NCAC 02N .1003 ADDITIONS, EXCEPTIONS, AND ALTERNATIVES FOR UST SYSTEMS WITH FIELD-CONSTRUCTED TANKS AND AIRPORT HYDRANT SYSTEMS

The regulations governing "Additions, exceptions, and alternatives for UST systems with field-constructed tanks and airport hydrant systems" set forth in 40 CFR 280.252 (Subpart K) are hereby incorporated by reference, except that:

- (1) piping associated with UST systems with field-constructed tanks less than or equal to 50,000 gallons not part of an airport hydrant fueling system shall comply with the requirements of Section .0900 of this Subchapter; and
- (2) UST systems with field-constructed tanks and airport hydrant systems shall comply with the spill and overfill prevention requirements of Section .0900 of this Subchapter.

History Note: Authority G.S. 143-215.3(a)(15); 143B-282(a)(2)(h); 150B-21.6; Eff. June 1, 2017.

Adoption by Reference

§280.252 Additions, exceptions, and alternatives for UST systems with field-constructed tanks and airport hydrant systems.

(a) *Exception to piping secondary containment requirements.* Owners and operators may use single walled piping when installing or replacing piping associated with UST systems with field-constructed tanks greater than 50,000 gallons and piping associated with airport hydrant systems. Piping associated with UST systems with field-constructed tanks less than or equal to 50,000 gallons not part of an airport hydrant system must meet the secondary containment requirement when installed or replaced.

(b) *Upgrade requirements.* Not later than October 13, 2018, airport hydrant systems and UST systems with field-constructed tanks where installation commenced on or before October 13, 2015 must meet the following requirements or be permanently closed pursuant to subpart G of this part.

(1) *Corrosion protection.* UST system components in contact with the ground that routinely contain regulated substances must meet one of the following:

(i) Except as provided in paragraph (a) of this section, the new UST system performance standards for tanks at §280.20(a) and for piping at §280.20(b); or

(ii) Be constructed of metal and cathodically protected according to a code of practice developed by a nationally recognized association or independent testing laboratory and meets the following:

(A) Cathodic protection must meet the requirements of §280.20(a)(2)(ii), (iii), and (iv) for tanks, and §280.20(b)(2)(ii), (iii), and (iv) for piping.

(B) Tanks greater than 10 years old without cathodic protection must be assessed to ensure the tank is structurally sound and free of corrosion holes prior to adding cathodic protection. The assessment must be by internal inspection or another method determined by the implementing agency to adequately assess the tank for structural soundness and corrosion holes.

Note to paragraph (b). The following codes of practice may be used to comply with this paragraph (b):

(A) NACE International Standard Practice SP 0285, "External Control of Underground Storage Tank Systems by Cathodic Protection";

(B) NACE International Standard Practice SP 0169, "Control of External Corrosion on Underground or Submerged Metallic Piping Systems";

(C) National Leak Prevention Association Standard 631, Chapter C, "Internal Inspection of Steel Tanks for Retrofit of Cathodic Protection"; or

(D) American Society for Testing and Materials Standard G158, "Standard Guide for Three Methods of Assessing Buried Steel Tanks".

(2) *Spill and overfill prevention equipment.* To prevent spilling and overfilling associated with product transfer to the UST system, all UST systems with field-constructed tanks and airport hydrant systems must comply with new UST system spill and overfill prevention equipment requirements specified in §280.20(c).

(c) *Walkthrough inspections.* In addition to the walkthrough inspection requirements in §280.36, owners and operators must inspect the following additional areas for airport hydrant systems at least once every 30 days if confined space entry according to the Occupational Safety and Health Administration (see 29 CFR part 1910) is not required or at least annually if confined space entry is required and keep documentation of the inspection according to §280.36(b).

(1) Hydrant pits—visually check for any damage; remove any liquid or debris; and check for any leaks, and

(2) Hydrant piping vaults—check for any hydrant piping leaks.

(d) *Release detection.* Owners and operators of UST systems with field-constructed tanks and airport hydrant systems must begin meeting the release detection requirements described in this subpart not later than October 13, 2018.

(1) *Methods of release detection for field-constructed tanks.* Owners and operators of field-constructed tanks with a capacity less than or equal to 50,000 gallons must meet the release detection requirements in subpart D of this part. Owners and operators of field-constructed tanks with a capacity greater than 50,000 gallons must meet either the requirements in subpart D (except §280.43(e) and (f) must be combined with inventory control as stated below) or use one or a combination of the following alternative methods of release detection:

(i) Conduct an annual tank tightness test that can detect a 0.5 gallon per hour leak rate;

(ii) Use an automatic tank gauging system to perform release detection at least every 30 days that can detect a leak rate less than or equal to one gallon per hour. This method must be combined with a tank tightness test that can detect a 0.2 gallon per hour leak rate performed at least every three years;

(iii) Use an automatic tank gauging system to perform release detection at least every 30 days that can detect a leak rate less than or equal to two gallons per hour. This method must be combined with a tank tightness test that can detect a 0.2 gallon per hour leak rate performed at least every two years;

(iv) Perform vapor monitoring (conducted in accordance with §280.43(e) for a tracer compound placed in the tank system) capable of detecting a 0.1 gallon per hour leak rate at least every two years;

(v) Perform inventory control (conducted in accordance with Department of Defense Directive 4140.25; ATA Airport Fuel Facility Operations and Maintenance Guidance Manual; or equivalent procedures) at least every 30 days that can detect a leak equal to or less than 0.5 percent of flow-through; and

(A) Perform a tank tightness test that can detect a 0.5 gallon per hour leak rate at least every two years; or

(B) Perform vapor monitoring or groundwater monitoring (conducted in accordance with §280.43(e) or (f), respectively, for the stored regulated substance) at least every 30 days; or

(vi) Another method approved by the implementing agency if the owner and operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in paragraphs (d)(1)(i) through (v) of this section. In comparing methods, the implementing agency shall consider the size of release that the method can detect and the frequency and reliability of detection.

(2) *Methods of release detection for piping.* Owners and operators of underground piping associated with field-constructed tanks less than or equal to 50,000 gallons must meet the release detection requirements in subpart D of this part. Owners and operators of underground piping associated with airport hydrant systems and field-constructed tanks greater than 50,000 gallons must follow either the requirements in subpart D (except §280.43(e) and (f) must be combined with inventory control as stated below) or use one or a combination of the following alternative methods of release detection:

(i)(A) Perform a semiannual or annual line tightness test at or above the piping operating pressure in accordance with the table below.

Maximum Leak Detection Rate Per Test Section Volume

Test section volume (gallons)	Semiannual test—leak detection rate not to exceed (gallons per hour)	Annual test—leak detection rate not to exceed (gallons per hour)
<50,000	1.0	0.5
≥50,000 to <75,000	1.5	0.75
≥75,000 to <100,000	2.0	1.0
≥100,000	3.0	1.5

(B) Piping segment volumes ≥100,000 gallons not capable of meeting the maximum 3.0 gallon per hour leak rate for the semiannual test may be tested at a leak rate up to 6.0 gallons per hour according to the following schedule:

Phase in for Piping Segments ≥100,000 Gallons in Volume

First test	Not later than October 13, 2018 (may use up to 6.0 gph leak rate).
Second test	Between October 13, 2018 and October 13, 2021 (may use up to 6.0 gph leak rate).
Third test	Between October 13, 2021 and October 13, 2022 (must use 3.0 gph for leak rate).
Subsequent tests	After October 13, 2022, begin using semiannual or annual line testing according to the Maximum Leak Detection Rate Per Test Section Volume table above.

(ii) Perform vapor monitoring (conducted in accordance with §280.43(e) for a tracer compound placed in the tank system) capable of detecting a 0.1 gallon per hour leak rate at least every two years;

(iii) Perform inventory control (conducted in accordance with Department of Defense Directive 4140.25; ATA Airport Fuel Facility Operations and Maintenance Guidance Manual; or equivalent procedures) at least every 30 days that can detect a leak equal to or less than 0.5 percent of flow-through; and

(A) Perform a line tightness test (conducted in accordance with paragraph (d)(2)(i) of this section using the leak rates for the semiannual test) at least every two years; or

(B) Perform vapor monitoring or groundwater monitoring (conducted in accordance with §280.43(e) or (f), respectively, for the stored regulated substance) at least every 30 days; or

(iv) Another method approved by the implementing agency if the owner and operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in paragraphs (d)(2)(i) through (iii) of this section. In comparing methods, the implementing agency shall consider the size of release that the method can detect and the frequency and reliability of detection.

(3) *Recordkeeping for release detection.* Owners and operators must maintain release detection records according to the recordkeeping requirements in §280.45.

(e) *Applicability of closure requirements to previously closed UST systems.* When directed by the implementing agency, the owner and operator of an UST system with field-constructed tanks or airport hydrant system permanently closed before October 13, 2015 must assess the excavation zone and close the UST system in accordance with subpart G of this part if releases from the UST may, in the judgment of the implementing agency, pose a current or potential threat to human health and the environment.