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STATE OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL
RESOURCES DIVISION OF ENVIRONMENTAL MANAGEMENT ADMINISTRATIVE CODE
SECTION 15A SUBCHAPTER 2N SECTIONS .0100 THROUGH .0800 CRITERIA AND
STANDARDS APPLICABLE TO UNDERGROUND STORAGE TANKS MCAS CHERRY POINT

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STATE OF NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL
RESOURCES

North Carolina Administrative Code

Title 15A

**Department of Environment, Health, and Natural Resources
Division of Environmental Management**



Subchapter 2N

**Sections .0100
thru .0800**

**Criteria and
Standards
Applicable To
Underground
Storage Tanks**

**Current Through September 1, 1992
Environmental Management Commission
Raleigh, North Carolina**

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SUBCHAPTER 2N - UNDERGROUND STORAGE TANKS

SECTION .0100 GENERAL CONSIDERATIONS

.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 Groundwater Section of the Division of Environmental Management shall administer the underground storage tank program for the State of North Carolina.

(c) Division staff may conduct inspections as necessary to ensure compliance with this Subchapter.

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

.0102 COPIES OF REFERENCED FEDERAL REGULATIONS

(a) Copies of applicable Code of Federal Regulations sections referred to in this Subchapter are available for public inspection at Department of Environment, Health and Natural Resources regional offices. They are:

- (1) Asheville Regional Office, Interchange Building, 59 Woodfin Place, Asheville, North Carolina 28801;
- (2) Winston-Salem Regional Office, Suite 100, 8025 North Point Boulevard, Winston-Salem, North Carolina 27106;
- (3) Mooresville Regional Office, 919 North Main Street, Mooresville, North Carolina 28115;
- (4) Raleigh Regional Office, 3800 Barrett Drive, Post Office Box 27687, Raleigh, North Carolina 27609;
- (5) Fayetteville Regional Office, Wachovia Building, Suite 714, Fayetteville, North Carolina 28301;
- (6) Washington Regional Office, 1424 Carolina Avenue, Farish Building, Washington, North Carolina 27889;
- (7) Wilmington Regional Office, 127 Cardinal Drive Extension, Wilmington, North Carolina 28405-3845.

(b) Copies of such regulations can be made at these regional offices for ten cents (\$0.10) per page.

History Note: Statutory Authority G.S. 12-3.1(c);
143-215.3(a)(15); 143B-282(2)(h)
Eff. January 1, 1991

.0103 ADOPTION BY REFERENCE UPDATES

The Code of Federal Regulations adopted by reference in this Subchapter shall automatically include any later amendments thereto as allowed by G.S. 150B-14(c).

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

.0104 IDENTIFICATION OF TANKS

(a) Owners and operators shall maintain at each facility a current diagram that clearly 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, during normal operating hours, to authorized representatives of the Department.

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

SECTION .0200 PROGRAM SCOPE AND INTERIM PROHIBITION

.0201 APPLICABILITY

The provisions for "Applicability" contained in 40 CFR 280.10 (Subpart A) have been adopted by reference in accordance with G.S. 150B-14(c) except that underground storage tanks containing de minimis concentrations of regulated substances are subject to the requirements for permanent closure in Rules .0802 and .0803 of this Subchapter.

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

(b) 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) Deferrals. Subparts B, C, D, E, and G do not apply to any of the following types of UST systems:

- (1) Wastewater treatment tank systems;
- (2) Any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954 (42 USC 2011 and following);
- (3) Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50 Appendix A;
- (4) Airport hydrant fuel distribution systems; and
- (5) UST systems with field-constructed tanks.

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

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0202 INTERIM PROHIBITION FOR DEFERRED UST SYSTEMS

The provisions for "Interim Prohibition for deferred UST systems" contained in 40 CFR 280.11 (Subpart A) have been adopted by reference in accordance with G.S. 150B-14(c).

Adoption by Reference

§ 280.11 Interim Prohibition for deferred UST systems.

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

- (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 noncorrodible material, steel clad with a noncorrodible 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: The National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," may be used as guidance for complying with paragraph (b) of this section.]

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0203 DEFINITIONS

(a) The definitions contained in 40 CFR 280.12 (Subpart A) have been adopted by reference in accordance with G.S. 150B-14(c).

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

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

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

- (1) "De minimis concentration" means that amount of a regulated substance which does not exceed one percent (1%) of the capacity of the 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 the necessity for use of the UST system has ceased.
- (3) "Previously closed" means:
 - (A) An UST system from which all regulated substances had been removed using commonly employed practices, the tank filled with a solid inert material, and tank openings were 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 which complies with the provisions of 15A NCAC 2N .0801.
- (5) "Secondary containment" means a method or combination of methods of release detection for UST systems that includes, but is not limited to:
 - (A) For tanks, double-walled construction, external liners (including vaults) or other methods, approved by the Division, which meets the provisions of 40 CFR 280.42(b)(5); and
 - (B) For underground piping, trench liners, double-walled construction or other methods, approved by the Division, which meet the provisions of 40 CFR 280.42(b)(5).
- (6) "Person qualified to assess site conditions" means a person who, through a combination of training and experience, is competent to evaluate the conditions existing at an UST system site, including the physical and chemical conditions of the subsurface.

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 above-ground portion of an UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from an UST system.

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

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

"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.

"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).

"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:

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

(b)(1) either a continuous on-site physical construction or installation program has begun; or,

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

"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 petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any grade of gasohol, and is typically used in the operation of a motor engine.

"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: (a) 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 (b) 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

(a) 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

(b) 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 derived from crude oil through processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

"Release" means any spilling, leaking, emitting, discharging, escaping, leaching or disposing from an UST into ground water, 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 into the interstitial space between the UST system and its secondary barrier or secondary containment around it.

"Repair" means to restore a tank or UST system component that has caused a release of product from the UST system.

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

"SARA" means the Superfund Amendments and Reauthorization Act of 1986.

"Septic tank" is a water-tight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage 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.

"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:

- (a) Farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
- (b) Tank used for storing heating oil for consumptive use on the premises where stored;
- (c) Septic tank;
- (d) Pipeline facility (including gathering lines) regulated under:
 - (1) The Natural Gas Pipeline Safety Act of 1968 (49 U.S.C. App. 1671, et seq.), or
 - (2) The Hazardous Liquid Pipeline Safety Act of 1979 (49 U.S.C. App. 2001, et seq.), or
 - (3) Which is an intrastate pipeline facility regulated under state laws comparable to the provisions of the law referred to in paragraph (d)(1) or (d)(2) of this definition;
- (e) Surface impoundment, pit, pond, or lagoon;
- (f) Storm-water or wastewater collection system;
- (g) Flow-through process tank;
- (h) Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations; or
- (i) Storage tank situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

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

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

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

SECTION .0300 UST SYSTEMS: DESIGN, CONSTRUCTION,
INSTALLATION, AND NOTIFICATION

.0301 PERFORMANCE STANDARDS FOR NEW UST SYSTEMS

(a) The "Performance standards for new UST systems" contained in 40 CFR 280.20 (Subpart B) have been adopted by reference in accordance with G.S. 150B-14(c) except that:

- (1) 40 CFR 280.20(a)(2)(iv) has been changed to read "Cathodic protection systems are operated and maintained in accordance with 15A NCAC 2N.0402, or as approved by the Director;"
- (2) 40 CFR 280.20(b)(2)(iv) has been changed to read "Cathodic protection systems are operated and maintained in accordance with 15A NCAC 2N.0402, or as approved by the Director;"
- (3) 40 CFR 280.20(a)(4) is not adopted by reference; and
- (4) 40 CFR 280.20(b)(3) is not adopted by reference.

(b) No UST system shall be installed within 100 feet of a well serving a public water system, as defined in 15A NCAC 18C .0102, or within 50 feet of any other well supplying water for human consumption.

(c) An UST system, existing on the date of adoption of this Subchapter 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 (b)(1) through (4). The replacement UST system may not be located nearer to the water supply source than the UST system being replaced.

(d) Except as prohibited in (b) of this Rule an UST system must meet the requirements for secondary containment described at 40 CFR 280.42(b)(1) through (4) if installed:

- (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 Waters (ORW), WS-I, WS-II, or SA;
- (3) in a location determined by the Director to be unsuitable for conventional installation based on an evaluation of the site by Division staff.

Adoption by 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.

(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: The following industry codes may be used to comply with paragraph (a)(1) of this section: Underwriters Laboratories Standard 1316, "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products"; Underwriter's Laboratories of Canada CAN4-S615-M83, "Standard for Reinforced Plastic Underground Tanks for Petroleum Products"; or American Society of Testing and Materials Standard D4021-86, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks."]

- (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: The following codes and standards may be used to comply with paragraph (a)(2) of this section:

- (A) Steel Tank Institute "Specification for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks";

- (B) Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks";

- (C) Underwriters Laboratories of Canada CAN4-S603-M85, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," and CAN4-G03.1-M85, "Standard for Galvanic Corrosion Protection Systems for Underground Tanks for Flammable and Combustible Liquids," and CAN4-S631-M84, "Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic Systems"; or

- (D) National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and Underwriters Laboratories Standard 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids."]

(3) The tank is constructed of a steel-fiberglass-reinforced-plastic composite; or

[Note: The following industry codes may be used to comply with paragraph (a)(3) of this section: Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks," or the Association for Composite Tanks ACT-100, "Specification for the Fabrication of FRP Clad Underground Storage Tanks."]

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

(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 fiberglass-reinforced plastic;
or

[Note: The following codes and standards may be used to comply with paragraph (b)(1) of this section:

(A) Underwriters Laboratories Subject 971, "UL Listed Non-Metal Pipe";

(B) Underwriters Laboratories Standard 567, "Pipe Connectors for Flammable and Combustible and LP Gas";

(C) Underwriters Laboratories of Canada Guide ULC-107, "Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids"; and

(D) Underwriters Laboratories of Canada Standard CAN 4-S633-MB1, "Flexible Underground Hose Connectors."]

(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: The following codes and standards may be used to comply with paragraph (b)(2) of this section:

(A) National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code";

(B) American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage Systems";

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

(D) National Association of Corrosion Engineers Standard RP-01-69, "Control of External Corrosion on Submerged Metallic Piping Systems."]

(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

[Note: National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code"; and National Association of Corrosion Engineers Standard RP-01-69, "Control of External Corrosion on Submerged Metallic Piping Systems," may be used to comply with paragraph (b)(3) of this section.]

(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 overflow prevention equipment.

(1) Except as provided in paragraph (c)(2) of this section, to prevent spilling and overflowing associated with product transfer to the UST system, owners and operators must use the following spill and overflow prevention equipment:

(i) Spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and

(ii) Overflow prevention equipment that will:

(A) Automatically shut off flow into the tank when the tank is no more than 95 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 overflowing, alert the operator with a high level alarm one minute before overflowing, 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 overflowing.

(2) Owners and operators are not required to use the spill and overflow 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.

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

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

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

(iii) American National Standards Institute Standard B31.3, "Petroleum Refinery Piping," and American National Standards Institute Standard B31.4 "Liquid Petroleum Transportation Piping System."]

(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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0302 UPGRADING OF EXISTING UST SYSTEMS

(a) The provisions for "Upgrading of existing UST systems" contained in 40 CFR 280.21 (Subpart B) have been adopted by reference in accordance with G.S. 150B-14(c) except that existing UST systems located within areas defined at 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 secondary containment as described at 40 CFR 280.42(b)(1) through (4). An UST system so upgraded may not be relocated nearer to a source of drinking water supply than its location prior to being upgraded.

(b) Owners must submit to the Division, on forms provided by the Division, and within 30 days following completion, a description of the upgrading of any UST system conducted in accordance with the requirements of 40 CFR 280.21.

(c) UST systems upgraded in accordance with 40 CFR 280.21 prior to the adoption of this Subchapter are in compliance with these Rules.

Adoption by Reference

§ 280.21 Upgrading of existing UST systems.

(a) Alternatives allowed. Not later than December 22, 1998, 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 sections (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.

(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. A tank may be upgraded by internal lining if:

(i) The lining is 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.

(2) Cathodic protection. A tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of § 280.20(a)(2)(ii), (iii), and (iv) and the integrity of the tank is ensured using one of the following methods:

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

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

(iii) The tank has been installed for less than 10 years and is assessed for corrosion holes by conducting two (2) tightness tests that meet the requirements of § 280.43(c). The first tightness test must be conducted prior to installing the cathodic protection system. The second tightness test must be conducted between three (3) and six (6) months following the first operation of the cathodic protection system; or

(iv) The tank is 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. A tank may be upgraded by both internal lining and cathodic protection if:

(i) The lining is 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: The following codes and standards may be used to comply with 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 Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems."]

(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: The codes and standards listed in the note following § 280.20(b)(2) may be used to comply with this requirement.]

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

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0303 NOTIFICATION REQUIREMENTS

The "Notification requirements" contained in 40 CFR 280.22 (Subpart B) have been adopted by reference in accordance with G.S. 150B-14(c) except that:

(1) Any owner of an UST system must submit to the Division, on forms provided by the Division, a notice of intent to conduct any of the following activities:

- (a) Installation of a new UST system;
- (b) 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;
- (c) Permanent closure or change-in-service of an UST system.

(2) Notification as required in Paragraph (1) of this Rule shall be given at least 30 days before the activity is begun except as authorized by the Director.

(3) 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) unless notice was given pursuant to Section 103(c) of CERCLA. Owners or operators who have not complied with the notification requirements may complete the appropriate portions of the form, provided by the Division, and submit the form to the Division.

(4) 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 owners notification obligations under Paragraphs (1) and (2) of this Rule.

(5) Any reference in 40 CFR 280 to the notification form in Appendix I shall refer to the North Carolina notification form approved by the Division and EPA.

Adoption by Reference

§ 280.22 Notification requirements.

(a) Any owner who brings an underground storage tank system into use after May 8, 1986, must within 30 days of bringing such tank into use, submit, in the form prescribed in Appendix I of this Part, a notice of existence of such tank system to the state or local agency or department designated in Appendix II of this Part to receive such notice.

[Note: 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 (50 FR 46602) 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 VI of the notification form contained in Appendix I of this Part.]

(b) In states where state law, regulations, or procedures require owners to use forms that differ from those set forth in Appendix I 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 of this Part. If a state requires that its form be used in lieu of the form presented in this regulation, such form must meet the requirements of Section 9002.

(c) Owners required to submit notices under paragraph (a) of this section must provide notices to the appropriate agencies or departments identified in Appendix II of this Part 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.

(d) Notices required to be submitted under paragraph (a) of this section must provide all of the information in Sections I through VI of the prescribed form (or appropriate state form) for each tank for which notice must be given. Notices for tanks installed after December 22, 1988 must also provide all of the information in Section VII of the prescribed form (or appropriate state form) for each tank for which notice must be given.

(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 form provided in Appendix III of this part may be used to comply with this requirement.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

SECTION .0400 GENERAL OPERATING REQUIREMENTS

.0401 SPILL AND OVERFILL CONTROL

The provisions for "Spill and overfill control" contained in 40 CFR 280.30 (Subpart C) have been adopted by reference in accordance with G.S. 150B-14(c).

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: The transfer procedures described in National Fire Protection Association Publication 385 may be used to comply with paragraph (a) of this section. Further guidance on spill and overfill prevention appears in American Petroleum Institute Publication 1621, "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets," and National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code."]

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

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0402 OPERATION AND MAINTENANCE OF CORROSION PROTECTION

The provisions for "Operation and maintenance of corrosion protection" contained in 40 CFR 280.31 (Subpart C) have been adopted by reference in accordance with G.S. 150B-14(c).

Adoption by Reference

§ 280.31 Operation and maintenance of corrosion protection.

All owners and operators of steel UST systems with corrosion protection must comply with the following requirements to ensure that releases due to corrosion are prevented for as long as the UST system is used to store regulated substances:

(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: National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," may be used to comply with paragraph (b)(2) of this section.]

(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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0403 COMPATIBILITY

The provisions for "Compatibility" contained in 40 CFR 280.32 (Subpart C) have been adopted by reference in accordance with G.S. 150B-14(c).

Adoption by Reference

§ 280.32 Compatibility.

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.

[Note: Owners and operators storing alcohol blends may use the following codes to comply with the requirements of this section:

(A) American Petroleum Institute Publication 1626, "Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations"; and

(B) American Petroleum Institute Publication 1627, "Storage and Handling of Gasoline-Methanol/Cosolvent Blends at Distribution Terminals and Service Stations."]

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0404 REPAIRS ALLOWED

The "Repairs Allowed" provisions contained in 40 CFR 280.33 (Subpart C) have been adopted by reference in accordance with G.S. 150B-14(c).

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: The following codes and standards may be used to comply with paragraph (a) of this section: National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code"; American Petroleum Institute Publication 2200, "Repairing Crude Oil, Liquefied Petroleum Gas, and Product Pipelines"; American Petroleum Institute Publication 1631, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"; and 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."]

(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. Fiberglass pipes and fittings may be repaired in accordance with the manufacturer's specifications.

(d) Repaired 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 (h); 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 above.

(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) UST system owners and operators must maintain records of each repair for the remaining operating life of the UST system that demonstrate compliance with the requirements of this section.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0405 REPORTING AND RECORDKEEPING

(a) The "Reporting and recordkeeping" procedures contained in 40 CFR 280.34 (Subpart C) have been adopted by reference in accordance with G.S. 150B-14(c).

(b) Owners and operators must also submit to the Division, on forms provided by the Division and within 30 days following completion, results of the site investigation conducted:

- (1) at permanent closure; 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.

(c) Owners must 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 the requirements of 40 CFR 280.21;
- (2) Certification of the proper operation of a corrosion

- protection system upon completion of testing and at a frequency and in a manner specified in 40 CFR 280.31; and
- (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 must specify the leak detection method and date of compliance for each UST.

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 Resource Conservation and Recovery 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));

- (2) Reports of all releases including suspected releases (§ 280.50), spills and overfills (§ 280.53), and confirmed releases (§ 280.61);

- (3) 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 ground-water cleanup (§ 280.65), and corrective action plan (§ 280.66); and

- (4) A notification before permanent closure or change-in-service (§ 280.71). [not adopted]

(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);

- (3) Documentation of UST system repairs (§ 280.33(f));

- (4) Recent compliance with release detection requirements (§ 280.45); and

(5) Results of the site investigation conducted at permanent closure (§ 280.74).

(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 above.

(Note: The recordkeeping and reporting requirements listed in this section have been approved by the Office of Management and Budget and have been assigned OMB Control No. 2050-0068.)

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

SECTION .0500 RELEASE DETECTION

.0501 GENERAL REQUIREMENTS FOR ALL UST SYSTEMS

The "General requirements for all UST systems" provisions contained in 40 CFR 280.40 (Subpart D) have been adopted by reference in accordance with G.S. 150B-14(c).

Adoption by Reference

§ 280.40 General requirements for all UST systems.

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

(1) Can detect a release from any portion of the tank and the connected underground piping that routinely contains product;

(2) Is installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance and service checks for operability or running condition; and

(3) Meets the performance requirements in section 280.43 or 280.44, with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer. In addition, methods used after the date shown in the following table corresponding with the specified method except for methods permanently installed prior to that date, must be capable of detecting the leak rate or quantity specified for that method in the corresponding section of the rule (also shown in the table) with a probability of detection (Pd) of 0.95 and a probability of false alarm (Pfa) of 0.05.

Method	Section	Date after which Pd/Pfa must be demonstrated
Manual Tank Gauging	280.43(b)	December 22, 1990
Tank Tightness Testing	280.43(c)	December 22, 1990
Automatic Tank Gauging	280.43(d)	December 22, 1990
Automatic Line Leak Detectors	280.44(a)	September 22, 1991
Line Tightness Testing	280.44(b)	December 22, 1990

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

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

Year Installed	SCHEDULE FOR PHASE-IN OF RELEASE DETECTION				
	Year Release Detection Is Required (By December 22 of the Year Indicated)				
	1989	1990	1991	1992	1993
Before 1965 or date unknown.	RD	P			
1965-69..		P/RD			
1970-74..		P	RD		
1975-79..		P		RD	
1980-88..		P			RD
New tanks (after December 22) immediately upon installation.					

P = Must begin release detection for all pressurized piping as defined in 280.41(b)(1).

RD = Must begin release detection for tanks and suction piping in accordance with 280.41(a), 280.41(b)(2), and 280.42.

(d) Any existing 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 by the date on which release detection is required for that UST system under paragraph (c) of this section.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0502 REQUIREMENTS FOR PETROLEUM UST SYSTEMS

The "Requirements for petroleum UST systems" provisions contained in 40 CFR 280.41 (Subpart D) have been adopted by reference in accordance with G.S. 150B-14(c) except that UST systems designated in Rule .0301(d) must meet the requirements for secondary containment described at 40 CFR 280.42(b)(1) through (4).

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 at least every 30 days for releases using one of the methods listed in § 280.43 (d)-(h) except that:

(1) UST systems that meet the performance standards in § 280.20 or § 280.21, and the monthly inventory control requirements in § 280.43(a) or (b), may use tank tightness testing (conducted in accordance with § 280.43(c)) at least every 5 years until December 22, 1998, or until 10 years after the tank is installed or upgraded under § 280.21(b), whichever is later;

(2) UST systems that do not meet the performance standards in § 280.20 or § 280.21 may use monthly inventory controls (conducted in accordance with § 280.43(a) or (b)) and annual tank tightness testing (conducted in accordance with § 280.43(c)) until December 22, 1998, when the tank must be upgraded under § 280.21 or permanently closed under § 280.71; and

(3) Tanks with capacity of 550 gallons or less may use weekly tank gauging (conducted in accordance with § 280.43(b)).

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

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

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

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

(2) Suction piping. Underground piping that conveys regulated substances under suction must either have a line tightness test conducted at least every 3 years and in accordance with § 280.44(b), or use a monthly monitoring method conduct in accordance with § 280.44(c). No release detection is required for suction piping that is designed and constructed to meet the following standards:

(i) The below-grade piping operates at less than atmospheric pressure;

(ii) 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;

(iii) Only one check valve is included in each suction line;

(iv) The check valve is located directly below and as close as practical to the suction pump; and

(v) A method is provided that allows compliance with paragraphs (b)(2)(ii)-(iv) of this section to be readily determined.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0503 REQUIREMENTS FOR HAZARDOUS SUBSTANCE UST SYSTEMS

The "Requirements for hazardous substance UST systems" provisions contained in 40 CFR 280.42 (Subpart D) have been adopted by reference in accordance with G.S. 150B-14(c) except that the requirements for secondary containment described at 40 CFR 280.42(b)(1) through (4) shall also apply to petroleum UST systems described at Rule .0301(d).

Adoption by Reference

§ 280.42 Requirements for hazardous substance UST systems.

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

(a) Release detection at existing UST systems must meet the requirements for petroleum UST systems in § 280.41. By December 22, 1998, all existing hazardous substance UST systems must meet the release detection requirements for new systems in paragraph (b) of this section.

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

(1) Secondary containment systems must be designed, constructed and installed to:

(i) Contain regulated substances released from the tank system until they are detected and removed;

(ii) Prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and

(iii) Be checked for evidence of a release at least every 30 days.

[Note: The provisions of 40 CFR 265.193, Containment and Detection of Releases, may be used to comply with these requirements.]

(2) Double-walled tanks must be designed, constructed, and installed to:

(i) Contain a release from any portion of the inner tank within the outer wall; and

(ii) Detect the failure of the inner wall.

(3) External liners (including vaults) must be designed, constructed, and installed to:

(i) Contain 100 percent of the capacity of the largest tank within its boundary;

(ii) Prevent the interference of precipitation or ground-water intrusion with the ability to contain or detect a release of regulated substances; and

(iii) Surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances).

(4) Underground piping must be equipped with secondary containment that satisfies the requirements of paragraph (b)(1) of this section (e.g., trench liners, jacketing of 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).

(5) Other methods of release detection may be used if owners and operators:

(i) 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)-(h) can detect a release of petroleum;

(ii) 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,

(iii) Obtain approval from the implementing agency to use the alternate release detection method before the installation and operation of the new UST system.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0504 METHODS OF RELEASE DETECTION FOR TANKS

(a) The "Methods of release detection for tanks" contained in 40 CFR 280.43 (Subpart D) have been adopted by reference in accordance with G.S. 150B-14(c) except that:

(1) 40 CFR 280.43(d)(2) is amended to read: "Inventory control, or another test of equivalent performance approved by the Department, conducted in accordance with the requirements of 40 CFR 280.43(a);

- (2) 40 CFR 280.43(f)(7) is amended to read: "Within and immediately below the UST system excavation zone, the site is assessed to ensure compliance with the requirements of 40 CFR 280.43(f)(1) through (f)(5), as modified by this Rule, 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
 - (3) 40 CFR 280.43(f)(3), (f)(4), and (f)(5) are not adopted by reference.
- (b) Wells used for monitoring or testing for liquids on the groundwater shall be:
- (1) For new installations, located within and at the end of the excavation having the lowest elevation and along piping at intervals not exceeding 50 feet; or
 - (2) For existing installations, located 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;
 - (3) A minimum of two inches in diameter. The number of wells installed must be sufficient to detect releases from the UST system;
 - (4) 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;
 - (5) Surrounded with a clean sand or gravel to the top of the screen, plugged, and grouted the remaining distance to finished grade with cement grout;
 - (6) Constructed of a permanent casing and screen material that is inert to the stored substance and is corrosion resistant;
 - (7) Developed upon completion of installation until the water is clear and relatively sediment free;
 - (8) Protected with a water tight cover and lockable cap;
 - (9) Labeled as a liquid monitor well; and
 - (10) Equipped with a continuously operating liquid leak detection device; 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 liquids on 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 2C .0105.

(d) Any person completing or abandoning any well, used for testing of vapors or monitoring for liquids on the groundwater, shall submit the record required by Rule .0114(b) of the Well Construction Standards (15A NCAC 2C .0100).

(e) The site assessments required by 40 CFR 280.43(e)(6) and 40 CFR 280.43(f)(7) shall be conducted by or under the supervision of a person qualified to assess site conditions.

(f) 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 the presence of the substance stored.

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: Practices described in the American Petroleum Institute Publication 1621, "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets," may be used, where applicable, as guidance in meeting the requirements of this paragraph.]

(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 of at least 36 hours 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 leak 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	Weekly Standard (one test)	Monthly Standard (average of four tests)
550 gallons or less	10 gallons	5 gallons
551-1,000 gallons	13 gallons	7 gallons
1,001-2,000 gallons	26 gallons	13 gallons

(5) Only tanks of 550 gallons or less nominal capacity may use this as the sole method of release detection. Tanks of 551 to 2,000 gallons may use the method in place of manual 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; and

(2) Inventory control (or another test of equivalent performance) is conducted in accordance with the requirements of § 280.43(a).

(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 ground water, 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)-(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) Ground-water monitoring. Testing or monitoring for liquids on the ground water must meet the following requirements:

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

(2) Ground water 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 ground-water 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 ground water 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)-(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 release through the inner wall in any portion of the tank that routinely contains product;

[Note: The provisions outlined in the Steel Tank Institute's "Standard for Dual Wall Underground Storage Tanks" may be used as guidance for aspects of the design and construction of underground steel double-walled tanks.]

(2) For UST systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a release 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 release to the monitoring point and permit its detection;

(ii) The barrier is compatible with the regulated substance stored so that a release 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 ground water, 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 ground water 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 release between the inner wall of the tank and the liner, and the liner is compatible with the substance stored.

(h) 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)-(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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0505 METHODS OF RELEASE DETECTION FOR PIPING

The "Methods of release detection for piping" provisions contained in 40 CFR 280.44 (Subpart D) have been adopted by reference in accordance with G.S. 150B-14(c).

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 the manufacturer's requirements.

(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. Any of the methods in § 280.43(e)-(h) may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0506 RELEASE DETECTION RECORDKEEPING

The provisions for "Release detection recordkeeping" contained in 40 CFR 280.45 (Subpart D) have been adopted by reference in accordance with G.S. 150B-14(c).

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;

(b) The results of any sampling, testing, or monitoring must be maintained for at least 1 year, or for another reasonable period of time determined by the implementing agency, except that the results of tank tightness testing conducted in accordance with § 280.43(c) 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 5 years from the date of installation.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

SECTION .0600 RELEASE REPORTING, INVESTIGATION, AND
CONFIRMATION

.0601 REPORTING OF SUSPECTED RELEASES

The provisions for "Reporting of suspected releases" contained in 40 CFR 280.50 (Subpart E) have been adopted by reference in accordance with G.S. 150B-14(c), except that the words, "or another reasonable time period specified by the implementing agency," are deleted from the first sentence.

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 time 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, or an unexplained presence of water in the tank), unless system equipment is found to be defective but not leaking, and is immediately repaired or replaced; and,

(c) Monitoring results 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; or

(2) In the case of inventory control, a second month of data does not confirm the initial result.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0602 INVESTIGATION DUE TO OFF-SITE IMPACTS

The "Investigation due to off-site impacts" provisions contained in 40 CFR 280.51 (Subpart E) have been adopted by reference in accordance with G.S. 150B-14(c).

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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0603 RELEASE INVESTIGATION AND CONFIRMATION STEPS

The "Release investigation and confirmation steps" provisions contained in 40 CFR 280.52 (Subpart E) have been adopted by reference in accordance with G.S. 150B-14(c), except that the first sentence has been rewritten to read: "Unless corrective action is initiated in accordance with Subpart F, owners must immediately investigate and confirm all suspected releases of regulated substances requiring reporting under 40 CFR 280.50 within seven days, unless approval for an extension of time has been granted by the Division before the seven days have expired, and only upon a showing of good cause by the owner or operator of the UST system. In conducting such investigations, owners and operators must use either the following steps or another procedure approved by the Division:"

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)) that determine whether a leak exists in that portion of the tank that routinely contains product, or the attached delivery piping, or both.

(1) Owners and operators must repair, replace or upgrade the UST system, and begin corrective action in accordance with Subpart F if the test results for the system, tank, or delivery piping indicate that a leak exists.

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

(3) 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 leak 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 ground water, 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;

(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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0604 REPORTING AND CLEANUP OF SPILLS AND OVERFILLS

The "Reporting and cleanup of spills and overfills" provisions contained in 40 CFR 280.53 (Subpart E) have been adopted by reference in accordance with G.S. 150B-14(c), except that:

(1) In 40 CFR 280.53(a) and (b), the words, "or another reasonable time period specified by the implementing agency," are not adopted by reference;

(2) In 40 CFR 280.53(a)(1) and (b), the words, "or another reasonable amount specified by the implementing agency" are not adopted by reference; and

(3) The time periods within which reports required by the provisions of 40 CFR 280.53 must be submitted to the Division may be extended upon approval of requests made to the Division by the owner or operator, before the expiration of the time period and upon a showing of good cause.

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 overflow 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 in the following cases:

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

(b) Owners and operators of UST systems must contain and immediately clean up a spill or overflow of petroleum that is less than 25 gallons or another reasonable amount specified by the implementing agency, and a spill or overflow 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.

[Note: 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 (40 CFR 302.6) and to appropriate state and local authorities under Title III of the Superfund Amendments and Reauthorization Act of 1986 (40 CFR 355.40).]

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

SECTION .0700 RELEASE RESPONSE AND CORRECTIVE ACTION FOR UST
SYSTEMS CONTAINING PETROLEUM OR HAZARDOUS
SUBSTANCES

.0701 GENERAL

(a) The "General" provisions contained in 40 CFR 280.60 (Subpart F) have been adopted by reference in accordance with G.S. 150B-14(c).

(b) Any corrective action undertaken in accordance with this Section must meet the requirements and standards specified in 15A NCAC 2L .0106.

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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0702 INITIAL RESPONSE

The provisions for "Initial response" contained in 40 CFR 280.61 (Subpart F) have been adopted by reference in accordance with G.S. 150B-14(c), except that the words, "or another reasonable time period specified by the implementing agency," in the first sentence are not adopted by reference.

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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0703 INITIAL ABATEMENT MEASURES AND SITE CHECK

The provisions for "Initial abatement measures and site check" contained in 40 CFR 280.62 (Subpart F) have been adopted by reference in accordance with G.S. 150B-14(c), except that:

(1) 40 CFR 280.62(a)(6) is rewritten to 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, unless approval for an extension of time has been granted by the Division upon a showing of good cause, prior to the expiration of the time period; and

(2) In 40 CFR 280.62(b) the words, "or within another reasonable period of time determined by the implementing agency," are not adopted by reference;

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 ground water;

(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 ground water 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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0704 INITIAL SITE CHARACTERIZATION

The provisions for "Initial site characterization" contained in 40 CFR 280.63 (Subpart F) have been adopted by reference in accordance with G.S. 150B-14(c), except that in 40 CFR 280.63(b) the words, "or another reasonable period of time determined by the implementing agency," are replaced by the words, "unless prior approval has been granted by the Division upon a showing of good cause, before the 45 days have expired.

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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0705 FREE PRODUCT REMOVAL

The provisions for "Free product removal" contained in 40 CFR 280.64 (Subpart F) have been adopted by reference in accordance with G.S. 150B-14(c).

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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0706 INVESTIGATIONS FOR SOIL AND GROUND WATER CLEANUP

The provisions for "Investigations for soil and ground-water cleanup" contained in 40 CFR 280.65 (Subpart F) have been adopted by reference in accordance with G.S. 150B-14(c).

Adoption by Reference

§ 280.65 Investigations for soil and ground-water 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 ground water, 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 ground-water 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 ground water (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 ground water on nearby surface water and ground-water 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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0707 CORRECTIVE ACTION PLAN

The provisions for a "Corrective action plan" contained in 40 CFR 280.66 (Subpart F) have been incorporated by reference including any subsequent amendments and editions with the exception of the following Paragraph. This material is available for inspection at the Department of Environment, Health, and Natural Resources, Division of Environmental Management, Groundwater Section, 512 North Salisbury Street, Raleigh, North Carolina. Copies of 40 CFR Parts 260 to 299 may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 at a cost of thirty-one dollars (\$31.00).

40 CFR 280.66(a) has been rewritten to read: "At any point 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 2L .0106, and submit it according to a schedule and format established by the Division. Owners and operators are responsible for submitting a plan that provides for adequate protection of human health and the environment as determined by the Division, and must modify their plan as necessary to meet this standard".

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h);
Eff. January 1, 1991
Amended Eff. September 1, 1992

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 ground water. 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 ground water. 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 ground water;

(4) The potential effects of residual contamination on nearby surface water and ground water;

(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 ground water 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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0708 PUBLIC PARTICIPATION

The provisions for "Public participation" contained in 40 CFR 280.67 (Subpart F) have been adopted by reference in accordance with G.S. 150B-14(c).

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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

SECTION .0800 OUT-OF-SERVICE UST SYSTEMS AND CLOSURE

.0801 TEMPORARY CLOSURE

The provisions for "Temporary closure" contained in 40 CFR 280.70 (Subpart G) have been adopted by reference in accordance with G.S. 150B-14(c).

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 Subpart D. Subparts E and F must be complied with if a release is suspected or confirmed. However, release detection is 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.

(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 overflow 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 § 280.71-280.74, 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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0802 PERMANENT CLOSURE AND CHANGES-IN-SERVICE

The provisions for "Permanent closure and changes-in-service" contained in 40 CFR 280.71 (Subpart G) have been adopted by reference

in accordance with G.S. 150B-14(c) except that an UST system containing de minimis concentrations of a regulated substance must meet the closure requirements of this Rule within 12 months of the effective date of this Subchapter.

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 also be either removed from the ground or filled with an inert solid material.

(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: The following cleaning and closure procedures may be used to comply with this section:

(A) American Petroleum Institute Recommended Practice 1604, "Removal and Disposal of Used Underground Petroleum Storage Tanks";

(B) American Petroleum Institute Publication 2015, "Cleaning Petroleum Storage Tanks";

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

(D) The National Institute for Occupational Safety and Health "Criteria for a Recommended Standard...Working in Confined Space" may be used as guidance for conducting safe closure procedures at some hazardous substance tanks.]

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0803 ASSESSING THE SITE AT CLOSURE OR CHANGE-IN-SERVICE

The provisions for "Assessing the site at closure or change-in-service" contained in 40 CFR 280.72 (Subpart G) have been adopted by reference in accordance with G.S. 150B-14(c), except that:

- (1) references to methods and requirements have been expanded to include all applicable references and methods listed in 15A NCAC 2N .0504;
- (2) site assessments shall be conducted by a person qualified to assess site conditions; and
- (3) the number and location of samples, and method of their collections shall be determined in accordance with procedures established by the Department.

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 ground water, 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 ground water, 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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0804 APPLICABILITY TO PREVIOUSLY CLOSED UST SYSTEMS

The "Applicability to previously closed UST systems" provisions contained in 40 CFR 280.73 (Subpart G) have been adopted by reference in accordance with G.S. 150B-14(c).

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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991

.0805 CLOSURE RECORDS

The "Closure records" provisions contained in 40 CFR 280.74 (Subpart G) have been adopted by reference in accordance with G.S. 150B-14(c).

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 3 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.

History Note: Statutory Authority G.S. 143-215.3(a)(15);
143B-282(2)(h); 150B-14(c);
Eff. January 1, 1991