DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DIVISION OF AIR AND WASTE MANAGEMENT

TANK MANAGEMENT BRANCH

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7 **DE Admin. Code** 1351

PROPOSED

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1351 Regulations Governing Underground Storage Tank Systems

PART C: Requirements For Installation, Operation And Maintenance Of Underground Storage Tank Systems Storing Heating Fuel

1.0 Installation, Operation and Maintenance Requirements for Underground Storage Tank Systems Storing Heating Fuel Installed After ~~The Effective Date of these Regulations~~ January 11, 2008

1.1 General Requirements for UST Systems Storing Heating Fuel

1.1.1 Owners and Operators shall ensure that all Underground Storage Tank Systems with a capacity of greater than 1,100 gallons installed for the storage of Heating Fuel shall be designed, constructed, installed and operated in accordance with manufacturer's specifications, and accepted engineering practices and procedures; and in a manner which will prevent Releases of Heating Fuel to the ground waters, surface waters or soils of the State due to corrosion, structural failure, manufacturing defects, spills, and overfills for the Operational Life of the UST System.

1.1.2 The material used in the construction and lining of the UST System shall be Compatible with the substances to be stored in the UST System.

1.1.3 Components of the UST system shall be approved by Underwriters Laboratories or equivalent third party certified.

1.1.4 All UST Systems installed after ~~the Effective Date of these Regulations~~ January 11, 2008, with a storage capacity of greater than 1,100 gallons, installed for the storage of Heating Fuel shall be designed and installed in accordance with the secondary containment requirements in accordance with §1.4 of this Part, except where specifically exempted.

1.1.5 Bare steel UST Systems or steel UST Systems coated with asphalt are prohibited.

1.1.6 Owners and Operators shall install, operate and maintain all equipment such that manufacturer's warranties are not voided.

1.2 General Installation Requirements for UST Systems Storing Heating Fuel

1.2.1 Prior to the installation of any Heating Fuel UST System with a storage capacity of greater than 1,100 gallons a site survey shall be initiated by the Facility Owner and Operator. The pre installation site survey shall be conducted to determine the locations of nearby buildings, underground utilities and sewer lines.

1.2.2 Private and public drinking water wells, rivers, streams, lakes, canals, and other environmentally sensitive locations shall be recorded and incorporated into the design of the UST System Facility.

1.2.3 UST System Owners and Operators shall notify the Department at least thirty (30) days prior to installation of all Heating Fuel UST Systems with a storage capacity greater than 1,100 gallons. Notice shall include a site plan, the scale of which shall be one inch to ten feet or less (1 inch 10 feet.), and which shall at a minimum include the following:

1.2.3.1 The information determined from the pre-installation site survey in §1.2.1 of this Part; and

1.2.3.2 Size and location of Tanks including Tank dimensions, depth of cover, empty Tank weight, Tank manufacturer and Tank type; and

1.2.3.3 The ~~Tank~~ UST System installation location, streets, roads, other properties bordering the construction site; and

1.2.3.4 Piping dimensions and layout; and

1.2.3.5 Dimensions and locations of vents; and

1.2.3.6 Type of Regulated Substance to be stored; and

1.2.3.7 Location of overfill device, spill prevention system and monitoring devices including dimensions of spill containment devices and sumps when applicable; and

1.2.3.8 Location of burner unit(s), as appropriate; and

1.2.3.9 Materials of construction for Tank(s), ~~lines~~ Piping and associated appurtenances, including manufacturer name, model numbers and any manufacturers catalog information requested by the Department; and

1.2.3.10 Location of and access to check valves, antisiphon valves, automatic ~~l~~Line leak detectors, and flexible connectors; and

1.2.3.11 Location of Cathodic Protection components and test stations; and

1.2.3.12 Location of utilities (both aboveground and underground); and

1.2.3.13 Location of electrical service components; and

1.2.3.14 Details and dimensions of anchoring method including hold down pads, cover pads or deadmen and electrical isolation methods associated with the anchoring system if applicable. Indicate on plan if area is subject to vehicle traffic; and

1.2.3.15 ~~Location of nearby private/ and public drinking water wells and surface water bodies.~~ Map with the distance clearly labeled in feet from the UST System to all Domestic and Industrial wells and surface water bodies within one hundred and fifty (150) feet of the UST System.

1.2.4 After the Effective Date of these Regulations new Heating Fuel UST Systems shall not be installed within a minimum distance of a one hundred and fifty (150) foot radius from Public or Industrial wells, unless otherwise approved by the Department. A Replacement, Retrofit or Upgrade of an UST System shall not be considered a new installation for the purposes of this Section.

1.2.5 After the Effective Date of these Regulations new Heating Fuel UST Systems shall not be installed within a minimum distance of a one hundred (100) foot radius from a Domestic well, unless otherwise approved by the Department. A Replacement, Retrofit or Upgrade of an UST System shall not be considered a new installation for the purposes of this Section.

1.3 Design Requirements for UST Systems Storing Heating Fuel

1.3.1 Acceptable designs for Heating Fuel UST System construction include:

1.3.1.1 Cathodically Protected Steel; or

1.3.1.2 Fiberglass Reinforced Plastic; or

1.3.1.3 Steel with Non-Metallic or Coated Outer Shell; or

1.3.1.4 Other equivalent design approved by the Department.

1.3.2 Heating Fuel UST Systems shall be installed in accordance with these Regulations, the manufacturer's specifications, accepted engineering practices and the following industry standards:

1.3.2.1 PEI RP 100, Recommended Practices for Installation of Liquid Storage Systems.

1.3.2.2 NFPA 30, Flammable and Combustible Liquids Code.

1.3.2.3 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages.

1.3.2.4 OSHA, 29 CFR, 1926 SubPart P, Excavations.

1.3.3 All Tanks shall be equipped with a strike plate located beneath all Tank openings.

1.4 Secondary Containment Design Requirements for UST Systems Storing Heating Fuel

1.4.1 The Department reserves the right to require Secondary containment or equivalent protection on any portion of the UST System where aquifers underlying the UST Facility are determined to need such protection, or where groundwater below the UST Facility is within a well head protection area, or where groundwater is susceptible to contamination in order to protect the safety, health, welfare ~~and/~~ or environment of the State.

1.4.2 Secondary containment systems shall be designed, constructed and installed to:

1.4.2.1 Contain the Heating Fuels Released from the UST System until it is detected and removed; and

1.4.2.2 Prevent the Release of Heating Fuel to the environment at any time during the Operational Life of the UST System; and

1.4.2.3 Be checked for evidence of a Release at least once every thirty (30) calendar days.

1.4.3 Secondary containment systems shall include the following:

1.4.3.1 Double-walled Tank; and

1.4.3.2 Double-walled Regulated Substance and Heating Fuel return Piping and, where required, vent Piping; and

1.4.3.3 Containment Sumps at the Tank top that meet the requirements of §1.25 of this Part; and

1.4.3.4 Tanks and Piping shall have interstitial monitoring that shall be checked for evidence of a Release at a minimum of once very thirty (30) calendar days and shall comply with the preventative maintenance program requirements of §1.9.4.3 of this Part; or

1.4.3.5 Other equivalent technology approved by the Department.

1.4.4 All Secondary containment systems shall be constructed in accordance with acceptable engineering practice and industry standards and shall have a Release Detection system in accordance with §1.9 of this Part.

1.5 Double Walled UST Design Requirements for UST Systems Storing Heating Fuel

1.5.1 Acceptable Heating Fuel UST System designs in §1.3 of this Part shall be fabricated in double walled construction in accordance with accepted engineering practice and industry standards.

1.5.2 A double walled Tank which is designed and manufactured in accordance with the following requirements satisfies the requirements for Secondary containment in §1.4 of this Part and the requirements for Release Detection set forth in §1.9 of this part:

1.5.2.1 The interstitial space of the double walled Tank can be monitored for Releases; and

1.5.2.2 Outer jackets made of steel shall be coated as prescribed in §1.6.2 of this part; and

1.5.2.3 There are no penetrations of any kind through the jacket to the tank except top entry manholes and fittings; and

1.5.2.4 The outer jacket shall cover the entire circumference of the Tank; and

1.5.2.5 The jacket shall be able to contain a liquid or be able to contain a vacuum from the time of manufacture completion until the time of installation.

1.6 Cathodically Protected Steel UST Design Requirements for UST Systems Storing Heating Fuel

1.6.1 Cathodically protected steel UST Systems shall be designed, constructed, installed and tested in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection, and the applicable industry standards, including but not limited to the following:

1.6.1.1 UL 58, Standard for Steel Underground Tanks for Flammable and Combustible Liquids.

1.6.1.2 UL 1746, Standard for Safety: External Corrosion Protection Systems for Steel Underground Storage Tanks.

1.6.1.3 STI P3, Specification for sti P3® System for External Corrosion Protection of Underground Steel Storage Tanks.

1.6.1.4 STI F-841, Standard for Dual Wall Underground Steel Storage Tanks.

1.6.1.5 STI R-972, Recommended Practice for the Addition of Supplemental Anodes to sti-P3® USTs.

1.6.2 The Tank shall be coated with a suitable Dielectric Material in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection.

1.6.3 Field-installed Cathodic Protection systems shall be designed, constructed, installed and tested in accordance with manufacturer's specifications, accepted engineering practice and the requirements listed in this Section.

1.6.4 Each Cathodic Protection system shall include sufficient monitoring stations to enable Owners and Operators to check on the adequacy of the Cathodic Protection system.

1.6.5 UST Systems that are protected by Sacrificial Anodes shall be electrically insulated from the Piping system with dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to petroleum, additives, corrosive soils or groundwater.

1.7 Fiberglass Reinforced Plastic UST Design Requirements for UST Systems Storing Heating Fuel

1.7.1 Fiberglass reinforced plastic UST Systems shall be designed, constructed, installed and tested in accordance with the following industry standards:

1.7.1.1 UL 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols and Alcohol-Gasoline Mixtures.

1.7.2 Fiberglass reinforced plastic UST Systems shall be of sufficient structural strength to withstand normal handling and underground use and shall be compatible with the Regulated Substance and additives stored, corrosive soils and groundwater. UST System construction materials shall be of sufficient density and strength to form a hard impermeable shell which will not crack, wick, wear, soften or separate under normal service conditions.

1.7.3 Fiberglass reinforced plastic Tanks shall be tested for deflection in accordance with the manufacturer's requirements at the time of installation.

1.8 Steel with Non-Metallic or Coated Outer Shell UST Design Requirements for UST Systems Storing Heating Fuel

1.8.1 Steel with Non-Metallic or Coated Outer Shell UST Systems shall be designed, constructed, installed and tested in accordance with the following industry standards, as applicable:

1.8.1.1 UL 1746, Standard for Safety: External Corrosion Protection Systems for Steel Underground Storage Tanks.

1.8.1.2 UL 58; Standard for Steel Underground Tanks for Flammable and Combustible Liquids.

1.8.1.3 STI F-922, Specification for Permatank®.

1.8.1.4 STI F-894, ACT-100® Specification for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks.

1.8.1.5 STI F-961, ACT-100U® Specification for External Corrosion Protection of Composite Steel Underground Storage Tanks.

1.8.1.6 STI F-841, Standard for Dual Wall Underground Steel Storage Tanks.

1.8.2 The coating shall not corrode under adverse underground electrolytic conditions and shall be Compatible with the Regulated Substances and additives stored.

1.8.3 The coating shall be factory inspected for air pockets, cracks, blisters pinholes and electrically tested by a ten thousand (10,000) volts holiday test performed over 100 percent of the surface for coating short circuits or coating faults or in accordance with the manufacturer's specifications.

1.8.4 Any defects shall be Repaired in accordance with standard engineering practice and the manufacturer's requirements.

1.9 Release Detection Requirements for Underground Storage Tanks Storing Heating Fuel

1.9.1 General Requirements

1.9.1.1 Owners and Operators shall provide a method, or combination of methods of Release Detection on all Heating Fuel UST Systems with a storage capacity greater than 1,100 gallons that meets the following requirements:

1.9.1.1.1 Can detect a Release from any portion of the Tank and the connected underground Piping that routinely contain Heating Fuel; and

1.9.1.1.2 Is installed, calibrated, operated, and maintained in accordance with the manufacturer's specifications, including routine Maintenance and service checks for operability or running condition; and

1.9.1.1.3 Meets the performance standards for Release Detection in this Section, with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer. The method shall be capable of detecting the leak rate or quantity specified for ~~p~~Precision ~~tank t~~Testing, automatic tank gauging, ~~l~~Line leak detectors, and line tightness testing methods specified in these Regulations with a probability of detection of at least 0.95 and a probability of false alarm no greater than 0.05.

1.9.1.2 Owners and Operators shall implement the indicated Release investigation procedures in Part E of these Regulations if the Release Detection equipment or method shows indication of a Release.

1.9.1.3 Failure by Owners and Operators to maintain records of required Release Detection monitoring and inspection may be cause for the Department to require Ttank tightness test(s) and inspection(s) of the UST Facility and a Release investigation in accordance with Part E of these Regulations at the expense of Owners and Operators.

1.9.2 Methods of Release Detection for Heating Fuel Underground Storage Tanks

1.9.2.1 Owners and Operators shall monitor Heating Fuel UST Systems greater than 1,100 gallons for Releases through the use of at least one of the following Release Detection methods:

1.9.2.1.1 Continuous ~~l~~interstitial ~~M~~monitoring; or

1.9.2.1.2 Automatic ~~T~~tank ~~G~~gauge performing monthly ~~T~~tank tightness testing; or

1.9.2.1.3 Underground Storage Tanks used solely for the storage of Heating Fuel may utilize annual tank tightness testing as a method of ~~r~~Release ~~d~~Detection for the life of the

UST System provided the tank tightness testing is performed in accordance with the tTank tTightness Ttest Rrequirements in §2.9.6 of this Part; or

1.9.2.1.4 Department Approved Alternative Method.

1.9.3 Interstitial Monitoring Release Detection Requirements for Tanks

1.9.3.1 All interstitial monitoring devices shall be designed, constructed, installed and maintained to continuously detect a leak from any portion of the Tank that routinely contains Heating Fuel.

1.9.3.2 At a minimum of once every thirty (30) calendar days, Owners and Operators shall inspect all interstitial monitoring devices utilized for Release Detection for evidence of a Release from the UST System and shall record the results.

1.9.3.3 Owners and Operators shall maintain records of the monthly interstitial Release monitoring inspections for the life of the UST System.

1.9.3.4 Owners and Operators shall have all interstitial monitoring equipment inspected by a certified technician once every twelve (12) months as Part of a preventive Maintenance program to minimize in-service failures. Any equipment malfunctions identified as a result of the inspection shall be rectified immediately. The inspection shall at a minimum include:

1.9.3.4.1 Inspection of the console for printer operation if so equipped; and

1.9.3.4.2 Verification of the system setup values and battery backup; and

1.9.3.4.3 Verification of the test programming; and

1.9.3.4.4 Verification of the operability of all warning and alarm indicator lights and audible alarms; and

1.9.3.4.5 Inspection and testing of all probes and interstitial sensors in accordance with the manufacturer's specifications or as directed by the Department to verify proper probe and sensor operation; and

1.9.3.4.6 Inspection of all cables that are visible during normal operating conditions for any cracking or swelling; and

1.9.3.4.7 Correction of any problems found as a result of the required inspection.

1.9.3.5 Owners and Operators shall maintain records of the annual inspections of the interstitial monitoring equipment and any Repairs performed as a result of the inspection, for the life of the UST System.

1.9.4 Automatic Tank Gauge Release Detection Requirements for Heating Fuel Tanks

1.9.4.1 Monthly Ttank Ttightness Ttesting using Automatic tank gauge (ATG) equipment shall meet the following requirements:

1.9.4.1.1 The ATG equipment can detect a 0.1 gallons per hour leak rate from any portion of the Tank that routinely contains Regulated Substance; and

1.9.4.1.2 The ATG equipment shall be capable of producing a record of the Release Detection test results; and

1.9.4.1.3 At a minimum of once ~~during each~~ every thirty (30) calendar ~~month~~ days the ATG equipment shall perform a Release Detection test for each Tank and shall produce a record of such test.

1.9.4.2 Owners and Operators shall maintain a record of all Release Detection tests performed by the ATG equipment for the life of the UST System.

1.9.4.3 Owners and Operators shall have all ATGs inspected by a certified technician once every twelve (12) months as Part of a preventive Maintenance program to minimize in-service failures. Any equipment malfunctions identified as a result of the inspection shall be rectified immediately. The inspection shall at a minimum include:

1.9.4.3.1 inspection of the ATG console for printer operation ~~if so equipped~~; and

1.9.4.3.2 verification of the system setup values and battery backup; and

1.9.4.3.3 verification of the test programming; and

1.9.4.3.4 verification of the operability of all warning and alarm indicator lights and audible alarms; and

1.9.4.3.5 inspection and testing of the probes and sensors in accordance with the manufacturer's specifications or as directed by the Department to verify proper probe and sensor operation; and

1.9.4.3.6 Inspection of all cables that are visible during normal operating conditions for any cracking or swelling; an

1.9.4.3.7 Correction of any problems found as a result of the required inspection.

1.9.4.4 Owners and Operators shall maintain records of the annual inspections of the interstitial monitoring equipment and any Repairs performed as a result of the inspection, for the life of the UST System.

1.9.5 Alternative Release Detection Methods for Heating Fuel Tanks

1.9.5.1 Release Detection methods not specified in this Section will be considered an alternative by the Department. A written request detailing the method or combination of methods proposed shall be submitted to the Department prior to installation for approval. Alternative methods shall meet the following requirements:

1.9.5.1.1 The method can detect a 0.1 gallon per hour leak rate or a Release of seventy-five (75) gallons within a month with a probability of detection of 0.95 or greater and a probability of false alarm of 0.05 or less; or

1.9.5.1.2 The method or a combination of methods or devices can detect a Release as effectively as any of the Release Detection methods allowed in Section 1.9.2 of this part. If the method or a combination of methods or devices is approved Owners and Operators shall comply with any conditions imposed by the Department on its use to ensure the protection of human health, safety or the environment.

1.10 Anchoring Requirements for UST Systems Storing Heating Fuel

1.10.1 Support and anchorage shall be provided for all new installations to avoid Tank flotation and shall be installed in accordance with the PEI RP100, Recommended Practices for Installation of Underground Liquid Storage Systems.

1.10.2 One or more of the following methods of anchorage shall be utilized:

1.10.2.1 Reinforced concrete deadmen anchors; or

1.10.2.2 Bottom hold-down pad which consists of eight inches of reinforced concrete that extends 18 inches beyond Tank sides and 12 inches beyond each end; or

1.10.2.3 Reinforced concrete slab over Tank.

1.10.3 All exposed metallic components of hold down systems shall be Electrically Isolated and Cathodically Protected when the hold down system is required by the Department.

1.10.4 The backfill depth shall be consistent with the requirements in PEI RP100, Recommended Practices for Installation of Underground Liquid Storage Systems.

1.11 Backfill Material Requirements for UST Systems Storing Heating Fuel

1.11.1 Backfill material shall consist of sand, crushed rock or pea gravel. The material shall be clean, washed, inert, free flowing, homogeneous, well granulated, non corrosive, and free of debris, rock, ice, snow or organic material. Particle length of crushed rock or pea gravel shall be no less than 1/8" and no more than 3/4" in size. Backfill material shall comply with the Tank manufacturer's specifications. Mixing of backfill with native soil or foreign objects is prohibited.

1.11.2 The backfill depth shall be consistent with the requirements in PEI RP100, Recommended Practices for Installation of Underground Liquid Storage Systems.

1.12 Installation of an UST System Storing Heating Fuel In An Existing UST Field Requirements

1.12.1 If an UST system shall be installed in or near a previous UST System Facility, Owners and Operators shall provide a means of Release Detection that will, at a minimum, detect any future Release from any portion of the UST System.

1.13 Tank and Piping Installation, Inspection and Testing Requirements for UST Systems Storing Heating Fuel

1.13.1 Prior to installation Tank system materials and equipment shall be inspected for flaws, surface cracks, holes, large scrapes, blisters, indentations and other indications of damage. All defects and repairs to the UST System shall be recorded and the record submitted with a site completion report to the Department.

1.13.2 UST(s) shall be pressure tested according to the manufacturer's specifications prior to installation of the UST(s) into the excavation. The installer shall soap the exterior, particularly its seams and fittings, and pressure test the UST(s) using the manufacturer's specifications to locate and correct defects. Tank and interstitial space testing shall be conducted according to the manufacturer's recommendations and accepted engineering practices.

1.13.3 After installation all Piping, including all interstitial spaces, shall be pressure tested according to the manufacturer's specifications prior to backfilling the excavation.

1.13.4 After installation of the ~~T~~tank and integral Piping is complete and prior to the initial use of the UST System, the entire system shall be tested in accordance with current industry standards and practices and in the following manner to ensure the system is tight:

1.13.4.1 All testing of UST Systems shall be accomplished by the Precision Test method described in NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases or other test approved by the Department which is of equivalent or superior accuracy; and

1.13.4.2 All testing of UST Systems shall be able to account for the effects of thermal expansion or contraction of the Heating Fuels, vapor pockets, Tank deformation, evaporation or condensation, temperature stratification in the UST and the location of the water table; and

1.13.4.3 The required Precision Tests shall be conducted by a person trained and certified in the correct use of the necessary equipment, and shall be performed in accordance with the testing procedures and requirements established by the test system manufacturer and current industry standards and practices.

1.13.5 The Department reserves the right to request confirmatory system tightness tests to verify any test results submitted by an Owner, Operator, or contractor.

1.13.6 Owners and Operators shall permit periodic inspection of the UST System installation by the Department.

1.13.7 During the installation of all new UST Systems, every stage of the construction shall be documented with photographs to demonstrate that the UST System was installed in compliance with the requirements for new UST Systems. Upon completion of the installation, copies of the photographs, as built plan, and required certification(s) as required in Part A §§4.6.11 and 4.6.12 shall be submitted to the Department within thirty (30) days of the completion of the UST System installation. The Facility Owner and Operator shall keep copies of all documents and photographs on file for the life of the UST Facility.

1.14 General Piping Installation Requirements for UST Systems Storing Heating Fuel

1.14.1 Piping shall be installed in accordance with the manufacturer's specifications.

1.14.2 The Piping layout shall be designed to minimize crossed ~~lines~~ Pipe and interference with conduit and other UST System components. If crossing of ~~line~~ Pipes is unavoidable, clearance shall be provided to prevent contact of the pipes.

1.14.3 All Heating Fuel and vent Piping shall slope back to the Tank with a minimum slope of 1/8" per foot.

1.14.4 The pipe joints shall be cut and deburred according to manufacturer's specifications to provide liquid tight seals.

1.14.5 When rigid Piping is used, flexible connector(s) shall be installed at the Tank end of each Heating Fuel ~~line~~ Pipe and vent ~~line~~ Pipe as well as at the base of each dispenser and vent riser on all new installations. Double elbow swing joints are prohibited.

1.14.6 All underground metal fittings, flexible connectors, joints, and pipes shall be isolated from contact with the soil.

1.15 UST Piping Design Requirements for UST Systems Storing Heating Fuel

1.15.1 Underground Piping shall be protected from corrosion in accordance with accepted corrosion engineering practices and shall be designed, constructed, installed and tested in accordance with the following industry standards, as applicable:

1.15.1.1 NFPA 30, Flammable and Combustible Liquids Code.

1.15.1.2 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages.

1.15.1.3 NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases.

1.15.1.4 UL Standard 971, Standard for Nonmetallic Underground Piping for Flammable Liquids.

1.15.1.5 UL Standard 567, Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas.

1.15.1.6 PEI RP 100, Recommended Practices for Installation of Underground Liquid Storage Systems.

1.15.2 All integral Piping systems shall be designed, constructed, and installed in a manner which will permit periodic tightness testing of the entire Piping system without the need for excavation.

1.15.3 Acceptable designs for Underground Piping construction include fiberglass reinforced plastic and flexible plastic Piping.

1.16 Fiberglass Reinforced Plastic and Flexible Plastic Piping Design Requirements for UST Systems Storing Heating Fuel

1.16.1 Fiberglass reinforced plastic and flexible plastic Piping shall be designed, constructed, installed and tested in accordance with the manufacturer's specifications.

1.16. Fiberglass reinforced plastic and flexible plastic Piping shall be designed, constructed, installed and tested in accordance with the following industry codes, as applicable:

1.16.2.1 UL 971, Standard for Nonmetallic Underground Piping for Flammable Liquids.

1.16.2.2 UL 567, Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas.

1.16.2.3 NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases.

1.16.2.4 NFPA 30, Flammable and Combustible Liquids Code.

1.16.2.5 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages.

1.16.2.6 PEI RP 100, Recommended Practices for Installation of Underground Liquid Storage Systems.

1.16.3 The construction materials, joints and joint adhesives of all fiberglass reinforced plastic and flexible plastic Pipes shall be compatible with the Regulated Substance and additives stored, soil and groundwater.

1.16.4 Pipes, fittings and adhesives shall be designed, fabricated, and factory tested in accordance with generally accepted structural, material and performance standards for underground Piping systems.

1.16.5 All underground Piping systems shall be designed, constructed and installed with access ports to permit ~~l~~Line tightness testing without the need for extensive excavation.

1.17 Suction Piping Design Requirements for UST Systems Storing Heating Fuel

1.17.1 Suction Piping shall be designed, constructed, and installed to meet the requirements of §1.17.1.1 or §1.17.1.2 of this part:

1.17.1.1 Safe suction Piping systems shall be designed and constructed in accordance with the following requirements:

1.17.1.1.1 The below grade Piping shall be constructed so that if suction is Released the contents of the pipe will drain back into the Tank; and

1.17.1.1.2 Only one (1) check valve shall be included in each suction ~~line~~ Pipe; and

1.17.1.1.3 The check valve shall be located directly below and as close as practical to the suction pump.

1.17.1.2 Suction Piping systems with a foot valve (U.S. Suction) shall be designed and constructed in accordance with the following requirements:

1.17.1.2.1 The below grade Piping shall be constructed so that the Piping slopes back to the Tank; and

1.17.1.2.2 A foot valve is installed at the Tank.

1.18 General Piping Release Detection Requirements for UST Piping for UST Systems Storing Heating Fuel

1.18.1 Owners and Operators shall equip all underground Piping that routinely contains Heating Fuel with a method, or combination of methods of Release Detection that can detect a Release from any portion underground Piping that routinely contains Regulated Substance.

1.18.2 UST Piping interstitial and sump monitoring systems shall be designed, constructed, installed, and maintained to detect a leak from any portion of the Piping that routinely contains Heating Fuel.

1.18.3 Release Detection methods not specified in this Section will be considered an alternative by the Department. A written request detailing the method or combination of methods proposed shall be submitted to the Department prior to installation for approval. Alternative methods shall meet the following requirements:

1.18.3.1 The method can detect a 0.1 gallon per hour leak rate or a Release of seventy-five (75) gallons within a month with a probability of detection of 0.95 or greater and a probability of false alarm of 0.05 or less; or

1.18.3.2 The method or a combination of methods or devices can detect a Release as effectively as any of the Release Detection methods allowed in §1.19 of this part. If the method or a combination of methods or devices is approved, Owners and Operators shall comply with

any conditions imposed by the Department on its use to ensure the protection of human health, safety or the environment.

1.18.4 Owners and Operators shall implement the indicated Release investigation procedure in Part E of these Regulations if the Piping Release Detection equipment or method shows indication of a Release.

1.19 Pressurized Piping Release Detection Requirements for UST Systems Storing Heating Fuel

1.19.1 Line Leak Detector Requirements

1.19.1.1 Underground Piping that conveys Heating Fuel under pressure shall be equipped with an automatic ~~l~~Line leak detector.

1.19.1.2 The automatic ~~l~~Line leak detector shall alert the Owner and Operator to the presence of a leak by restricting or shutting off the flow of the Heating Fuel.

1.19.1.3 Mechanical and Electronic automatic ~~l~~Line leak detectors shall be capable of reacting to leaks of three (3) gallons per hour at ten (10) pounds per square inch line pressure within one (1) hour.

1.19.1.4 Owners and Operators shall conduct an annual test of the operation of the automatic ~~l~~Line leak detector ~~in accordance with the manufacturer's test protocol~~ while installed in the UST System and under normal operating conditions. All Mechanical and Electronic automatic ~~l~~Line leak detectors shall once every twelve (12) months pass a function test at three (3) gallons per hour (gph) at ten (10) pounds per square inch line pressure within one (1) hour.

1.19.2 Tightness Test Requirements

1.19.2.1 Owners and Operators shall conduct an annual tightness test of the entire pressurized underground Piping system, including the primary and secondary Piping, in accordance with NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases.

1.19.2.2 Owners and Operators of UST Systems that have underground pressurized Piping systems shall use a Piping tightness test method designed to detect a Release from any portion of the underground Piping system that routinely contains Heating Fuels.

1.19.2.3 Owners and Operators of Heating Fuel UST Systems with underground pressurized Piping systems constructed of double wall design may utilize interstitial monitoring systems to comply with the annual Piping tightness test requirements in §1.19.2.1 of this Part if the following requirements are met:

1.19.2.3.1 All interstitial monitoring devices shall be designed, constructed, installed and maintained to continuously detect a Release from any portion of the Piping that routinely contains Heating Fuel; and

1.19.2.3.2 At a minimum of once every thirty (30) calendar days, Owners and Operators shall provide proof via the interstitial monitoring equipment record that the interstitial monitoring device is functioning in accordance with the manufacturer's specifications; and

1.19.2.3.3 Owners and Operators shall maintain records of the monthly interstitial Release Detection records for the life of the UST System; and

1.19.2.3.4 The interstitial monitoring device shall alert the Owner and Operator to the presence of a Release by shutting off the flow of the Heating Fuel; and

1.19.2.3.5 All sump and interstitial sensors shall comply with the testing and monitoring requirements of §1.26 of this part; and

1.19.2.3.6 All Containment Sumps shall comply with the testing and monitoring requirements of §1.25 of this Part.

1.19.3 Line Leak Detector and Tightness Test Requirements for Double Wall Piping Systems

1.19.3.1 Owners and Operators of UST Systems with underground pressurized Piping systems constructed of double wall design may utilize interstitial monitoring systems to comply with the ~~l~~Line leak detector requirements of §1.19.1 of this Part and the ~~p~~Piping tightness test requirements in §1.19.2 of this Part if the following requirements are met:

1.19.3.1.1 All interstitial monitoring devices shall be designed, constructed, installed and maintained to continuously detect a Release from any portion of the Piping that routinely contains Heating Fuel; and

1.19.3.1.2 The system shall be designed and maintained to ensure that the delivery system will automatically shut off if a Release is detected; and

1.19.3.1.3 At a minimum of once every thirty (30) calendar days Owners and Operators shall provide proof via the ~~automatic tank gauge record~~ interstitial monitoring equipment record that the interstitial monitoring device is functioning in accordance with the manufacturer's specifications; and

1.19.3.1.4 Owners and Operators shall maintain records of the monthly interstitial Release Detection ATG records for the life of the UST System; and

1.19.3.1.5 All sump and interstitial sensors shall comply with the testing and monitoring requirements of §1.26 of this Part; and

1.19.3.1.6 All ~~t~~Tank top ~~c~~Containment ~~s~~Sumps containing the interstitial monitoring device shall be tested once every twelve (12) calendar months in accordance with §1.25 of this Part.

1.20 Suction Piping Release Detection Requirements for UST Systems Storing Heating Fuel

1.20.1 Release Detection is not required for suction Piping that is designed and constructed to meet the requirements of §1.17.1.1 of this Part.

1.20.2 Suction Piping designed and constructed to meet the requirements of §1.17.1.2 of this Part shall have Release Detection in accordance with §1.18 of this Part.

1.20.3 Owners and Operators of UST Systems with underground suction Piping systems constructed of double wall design may utilize continuous interstitial monitoring systems to comply with the Release Detection requirements of §1.18 of this Part if the following requirements are met:

1.20.3.1.1 All interstitial monitoring devices shall be designed, constructed, installed and maintained to continuously detect a Release from any portion of the Piping that routinely contains Regulated Substance; and

1.20.3.1.2 At a minimum of once every thirty (30) calendar days, Owners and Operators shall provide proof via the interstitial monitoring equipment record that the interstitial monitoring device is functioning in accordance with the manufacturer's specifications; and

1.20.3.1.3 Owners and Operators shall maintain records of the monthly interstitial Release Detection records for the life of the UST System; and

1.20.3.1.4 All sump and interstitial sensors shall comply with the testing and monitoring requirements of §1.26 of this Part; and

1.20.3.1.5 All Containment Sumps shall comply with the testing and monitoring requirements of §1.25 of this Part.

1.21 Spill Protection Requirements for UST Systems Storing Heating Fuel

1.21.1 No Person shall construct, install, use, or maintain any UST Facility without providing a reliable means of ensuring that Releases due to spilling do not occur.

1.21.2 To prevent spilling associated with Regulated Substance transfer to the UST System, Owners and Operators shall comply with the requirements of one of the following industry standards:

1.21.2.1 NFPA 30, Flammable and Combustible Liquids Code; or

1.21.2.2 NFPA 385, Standard for Tank Vehicles for Flammable and Combustible Liquids; or

1.21.2.3 API RP 1621, Bulk Liquid Stock Control at Retail Outlets.

1.21.3 Owners and Operators shall equip all Heating Fuel UST Systems with impervious spill containment devices that form a liquid tight seal around the fill pipe connections.

1.21.4 All spill containment devices around the fill pipe shall have a minimum containment capacity of fifteen (15) gallons or be of a design that provides equivalent environmental protection.

1.21.5 Owners and Operators shall immediately remove water, Heating Fuel, or debris that accumulates in the spill containment device. Owners and Operators shall maintain spill containment devices as to be capable of containing a spill of the containment design capacity at all times.

1.21.6 All precautions shall be taken to prevent Tank overfilling, spilling and dripping.

1.21.7 Owners and Operators shall test spill containment devices once every twelve (12) months for tightness, or in accordance with the manufacturer's specifications, or when deemed necessary by the Department to determine if a threat to human health, safety or environment exists.

1.21.8 Spill containment devices of double wall design with continuous monitoring of the interstitial space are exempt from the testing requirements of §1.21.7 of this Part if the following requirements are met:

1.21.8.1 Owners and Operators shall check the interstitial monitoring at a minimum of once every thirty (30) calendar days for evidence of a Release; and

1.21.8.2 Owners and Operators shall maintain written records of the ~~continuous interstitial~~ required monitoring ~~of the spill containment device~~ in §1.21.8.1 of this Part for the life of the UST System.

1.21.9 Owners and Operators shall report, investigate, and clean up any spills and overfills in accordance with Part E of these Regulations.

1.22 Overfill Protection Requirements for UST Systems Storing Heating Fuel

1.22.1 No Person shall construct, install, use, or maintain any UST Facility without providing a reliable means of ensuring that Releases due to overfilling do not occur.

1.22.2 The Person In Charge of the transfer of Heating Fuel to the UST shall adhere to proper safety precautions and procedures for transfer such as those found in NFPA 385, Standard for Tank Vehicles for Flammable and Combustible Liquids and API RP 1621, Bulk Liquid Stock Control at Retail Outlets and shall comply with the following:

1.22.2.1 The Person In Charge of the transfer operation shall first check the UST to ensure that the volume available in the UST is greater than the volume of Heating Fuel to be transferred to the UST before the transfer is made; and

1.22.2.2 During the transfer, the Person In Charge shall continuously monitor the transfer operation to prevent an Overfill Release; and

1.22.2.3 At the conclusion of the transfer, the Person in Charge shall collect any Heating Fuel that remains in the transfer hose in and shall ensure it is properly managed and does not reach the environment; and

1.22.2.4 The Person in Charge shall take all reasonable precautions to prevent spilling and dripping.

1.22.3 Owners and Operators shall install and maintain overfill protection equipment that shall:

1.22.3.1 Automatically shut off the flow into the UST when the UST is no more than ninety-five (95%) percent full; or

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

1.22.3.3 Restrict flow 30 minutes prior to overfilling, alert the Operator with a high level alarm one minute before overfilling, or automatically shut off flow into the UST so that none of the fittings located on top of the Tank are exposed to Heating Fuel due to overfilling; or

1.22.3.4 Be an automatic partial flow shut off float vent or vapor valve installed inside the UST set to restrict flow when the UST is no more than ninety percent (90%) full. Vent or vapor restriction devices shall not be installed in UST systems that are equipped with suction pumps, remote fill ~~l~~Lines, remote vapor ~~l~~Lines or receive pressurized deliveries.

1.22.4 UST Systems that receive pressurized deliveries require a high level alarm that is triggered at no more than ninety percent (90%) full for overfill protection or automatic flow shut-off valve designed for pressurized deliveries.

1.22.5 Owners and Operators shall report, investigate, and clean up any spills and overfills in accordance with Part E of these Regulations.

1.23 Fill Line Protection Requirements for UST Systems Storing Heating Fuel

1.23.1 Owners and Operators shall clearly mark all fill ~~l~~Lines for UST Systems to indicate the size of the Tank and the type of Regulated Substance stored. These markings shall be as follows:

1.23.1.1 A label or permanent tag at the fill connection which states the size of the UST System and the specific type of Regulated Substance stored; and

1.23.1.2 A color symbol system implemented according to the following requirements:

1.23.1.2.1 All fill covers shall be marked consistent with API RP 1637, Using the API Color-Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals; and

1.23.1.2.2 A different color symbol shall be used for each type of Regulated Substance or grade of substance being stored at the Facility.

1.23.2 Pipes and other openings not used for transfer of Heating Fuel at the UST Facility shall not be painted any color which would be associated with the color symbol designated for marking the Heating Fuel stored at the Facility. It is particularly important that openings with access to soil and ground water, such as Monitor Wells, not be confused with Regulated Substance fill ~~l~~Lines.

1.24 Corrosion Protection Operation and Maintenance Requirements for UST Systems Storing Heating Fuel

1.24.1 General Requirements

1.24.1.1 Owners and Operators of steel UST Systems with corrosion protection systems shall operate and maintain the system in accordance with the following industry standards:

1.24.1.1.1 NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection.

1.24.1.1.2 NACE TM0101, Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Tank Systems.

1.24.1.1.3 NFPA 30, Flammable and Combustible Liquids Code.

1.24.1.1.4 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages.

1.24.1.2 Owners and Operators of steel UST Systems with corrosion protection systems shall maintain and operate the corrosion protection system to continuously provide corrosion protection to the metal components of the UST System that routinely contain a Heating Fuel and are in contact with the ground to ensure that Releases due to corrosion are prevented for the life of the UST System.

1.24.1.3 Cathodic Protection systems shall be designed and installed to allow determination of the current operating status.

1.24.2 Sacrificial Anode Cathodic Protection System Operation and Maintenance Requirements

1.24.2.1 Owners and Operators shall test all UST Systems equipped with Sacrificial Anode Cathodic Protection systems for proper operation using standard corrosion engineering practices and in accordance with the following requirements:

1.24.2.1.1 Testing procedures shall be done in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection and the manufacturer's specifications, and shall include the following:

1.24.2.1.1.1 A minimum of three (3) voltage readings along the center line for UST Systems less than twenty thousand (20,000) gallons and a minimum of five (5) voltage readings along the center line for UST Systems greater than or equal to twenty thousand (20,000) gallons; and

1.24.2.1.1.2 A minimum of one (1) voltage reading for every ten (10) feet of Piping.

1.24.2.2 All Sacrificial Anode Cathodic Protection systems that protect underground Facility components shall be tested by an individual certified by a nationally recognized industry standard setting organization, and in accordance with Department standards, within six (6) months of installation and at least once every twelve (12) months thereafter.

1.24.2.3 The Sacrificial Anode Cathodic Protection system shall be tested by an individual certified by a nationally recognized industry standard setting organization, and in accordance with Department standards, within six (6) weeks after underground work is performed at or near a site with a Sacrificial Anode Cathodic Protection system and once every twelve (12) months thereafter.

1.24.2.4 Owners and Operators shall Repair or replace the Sacrificial Anode Cathodic Protection system in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection and the requirements of §1.6 of this Part if the Sacrificial Anode Cathodic Protection system is not operating in accordance with the manufacturer's specifications and the requirements of these Regulations. This includes but is not limited to failure to register a negative voltage of at least 0.85 volts for each UST An individual certified by a nationally recognized industry standard setting organization shall determine the cause of the failure and make the necessary Repairs within sixty (60) days of the discovery of the failure of the corrosion protection system.

1.24.2.5 Owners and Operators shall notify the Department within forty-eight (48) hours of the discovery of the failure of a Sacrificial Anode Cathodic Protection system.

1.24.2.6 The Department shall approve, either verbally or in writing, all Cathodic Protection Repair or replacement plans prior to work commencing.

1.24.2.7 The Department shall review the Release Detection and Cathodic Protection records of the UST System and based upon this information may require that Owners and Operators determine the current integrity of the UST System if the Cathodic Protection system is not operating in accordance with the manufacturer's specifications and the requirements of these Regulations prior to making Repairs to the corrosion protection system.

1.24.2.8 The following information shall be submitted to the Department prior to Repairs to the Sacrificial Anode Cathodic Protection system:

1.24.2.8.1 Results of one of the following:

1.24.2.8.1.1 The two (2) most recent Sacrificial Anode Cathodic Protection system tests including the failed test, or

1.24.2.8.1.2 The results of an internal assessment, or

1.24.2.8.1.3 The results of a third party approved integrity assessment; and

1.24.2.8.2 Records of the Tank Release Detection method from the date of the most recent passed Sacrificial Anode Cathodic Protection test.

1.24.2.9 If the tank has an internal lining, no internal assessment results will be accepted for the purpose of determining the current integrity of the UST System.

1.24.2.10 Impressed Current Cathodic Protection systems shall not be utilized as a Repair, Upgrade or Replacement after ~~the Effective Date of these Regulations~~ January 11, 2008.

~~1.24.2.9~~ 1.24.2.11 The use of alternate methods of monitoring shall be those described in NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection and shall only be used with prior written approval from the Department.

~~1.24.2.10~~ 1.24.2.12 Owners and Operators shall maintain a record of the operation of Sacrificial Anode Cathodic Protection systems to demonstrate compliance with the requirements of this Section. These records shall be retained in a permanent record and shall at a minimum provide the following information:

~~1.24.2.10.1~~ 1.24.2.12.1 The results of all tests and inspections of the Sacrificial Anode Cathodic Protection system.

1.25 Containment Sump Requirements for UST Systems Storing Heating Fuel

1.25.1 All dispenser, Tank top, transition and any other Containment Sumps shall be Product Tight and shall be tested for tightness once every thirty-six (36) months, or in accordance with the manufacturers' specifications, or when deemed necessary by the Department to determine if a threat to human health, safety or the environment exists.

1.25.2 All dispenser, Tank top, transition and any other Containment Sumps of double wall design with continuous monitoring of the interstitial space are exempt from the testing requirements of §1.25.1 of this Part.

1.25.3 All dispenser, Tank top, transition and any other Containment Sumps tightness testing methods utilized shall be in accordance with the manufacturer's specifications or approved by the Department.

1.25.4 All access manholes associated with Containment Sumps shall be sized such that the manhole skirt is sufficiently larger than the Containment Sump lid to allow adequate access to the sump and to allow for surface water drainage.

1.25.5 All dispenser Containment ~~s~~Sumps shall be installed and maintained as to be capable of being visually inspected at all times for evidence of a Release and shall not be filled with any material such as pea gravel or native soil, or the dispenser Containment ~~s~~Sump shall be continuously monitored for Releases.

1.25.6 Owners and Operators shall immediately remove water, Regulated Substance or debris that accumulates in any Containment Sump.

1.26 Testing and Monitoring Procedures for Sump and Interstitial Sensors for UST Systems Storing Heating Fuel

1.26.1 All sensors shall be equipped with an automatic audible and visual alert system and shall shut down the UST System in the event of an alarm.

1.26.2 Owners and Operators shall inspect and test all sensors at a minimum of once every twelve (12) months in accordance with the manufacturer's specifications or as directed by the Department to verify proper sensor operation.

1.26.3 All sensors installed in a sump for the purpose of detecting a Release from the UST System shall be installed no more than one inch (1") from the bottom of the sump such that the sensor is capable of detecting any accumulation of Regulated Substance.

1.27 Repair, Retrofit and Upgrade Requirements for UST Systems Storing Heating Fuel

1.27.1 All Repairs, Upgrades, Retrofits and replacements to UST Systems shall meet the applicable design, installation, maintenance and operational standards in Part C, §1 of these Regulations.

1.27.2 ~~Documentation of Repair completion shall be submitted to the Department in accordance with Part E, §2.2.2. of these Regulations.~~ Owners and Operators shall report any abnormal operating conditions to the Tank Management Branch in accordance with the requirements of Part E, §1.2. of these Regulations.

1.27.3 All equipment installed after ~~the Effective Date of these Regulations~~ January 11, 2008 shall be installed, operated and maintained such that manufacturer's warranties are not voided.

1.27.4 Owners and Operators shall ensure that Repairs will prevent Releases due to structural failure or corrosion as long as the UST System is used to store Regulated Substance.

1.27.5 Owners and Operators shall test the Cathodic Protection system in accordance with §1.24 of this Part within six (6) weeks and once very twelve (12) months thereafter following the Repair of any Cathodically Protected UST System, to ensure it is operating properly.

1.27.6 UST System Owners and Operators shall maintain records for each Repair, Retrofit and Upgrade for the Operational Life of the UST System.

1.27.7 After any Repair, Retrofit or Upgrade to an UST System, Owners and Operators shall have the applicable portions of the UST System tested for tightness in accordance with ~~§1.13.4 of this Part~~ these Regulations, or as directed by the Department, before the UST System is placed into service.

1.27.8 Repairs to fiberglass reinforced plastic Tanks may be made only by the manufacturer or by its authorized representatives.

1.27.9 Owners and Operators may not Repair holes in Piping and fittings, but shall replace any piece of such Piping or fittings from which a Release has occurred. Replacement Piping and fittings shall meet all applicable Piping requirements in §1of this Part. Loose fittings and joints in Piping that have been tightened to eliminate leakage may be put back into service.

1.27.10 At any time during the course of a Repair, Retrofit or Upgrade there is an indication of a Release the requirements of Part E of these Regulations must be followed.

1.27.11 At any time excavation of soil or removal of concrete, asphalt or other cover is required during the course of a Repair, Retrofit or Upgrade, Owners and Operators shall perform a Site Assessment to 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 shall consider the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a Release. The Site Assessment shall be completed within ten (10) days of the Repair, Retrofit or Upgrade of the UST System.

1.27.12 Within sixty (60) days of completion of a Repair, Retrofit or Upgrade of an UST System Owners and Operators and UST Contractors shall submit documentation to the Tank Management Branch including but not limited to the following:

1.27.12.1 Repair, Retrofit or Upgrade completion documentation; and

1.27.12.2 Results of sampling required in Part E of these Regulations or §1.27.10 of this part; and

1.27.12.3 Results of any UST System tests required by the Department.

1.28 Routine Inspection Requirements for UST Systems Storing Heating Fuel

1.28.1 Owners and Operators shall conduct an inspection ~~once every thirty (30)~~ at an interval no less frequently than once every twenty-eight (28) to thirty-one (31) calendar days ~~during each calendar month~~ to monitor the condition of the UST System including but not limited to all access ports, spill containment devices, sumps, and Containment Sumps. The routine inspection shall include at a minimum the following:

1.28.1.1 The removal of all Containment Sump and sump covers and visual inspection of the sump for any evidence of a Release of Heating Fuel or intrusion of water; and

1.28.1.2 The inspection of all access ports to make sure that the covers, caps, and adaptors are tightly sealed; and

1.28.1.3 The removal of all spill containment device covers and inspection to ensure all spill containment devices are empty and free of debris, water, or Heating Fuel.

1.28.2 A record of all routine inspections shall be kept on file by Owners and Operators for a minimum of three (3) years and shall be made available to the Department upon request. The records shall at a minimum include the results of all inspections including any Repairs made.

1.28.3 If at any time during a routine inspection evidence of a Release of Heating Fuel is discovered Owners and Operators shall follow the investigation requirements of Part E of these Regulations.

1.29 Internal Lining Requirements for UST Systems Storing Heating Fuel

1.29.1 An internal lining may be added to UST Systems to improve the ability of an UST System to prevent the release of Regulated Substance.

1.29.2 An internal lining shall not be utilized to meet corrosion protection requirements after ~~the Effective Date of these Regulations~~ January 11, 2008.

1.29.3 The internal lining installation, operation and maintenance shall meet the following requirements:

1.29.3.1 The lining shall be installed in accordance with the following industry standards:

1.29.3.1.1 API RP 1631, Interior Lining and Periodic Inspection of Underground Storage Tanks.

1.29.3.1.2 NLPA Standard 631, Chapter A, Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks.

1.29.3.1.3 NLPA Standard 631, Chapter B, Future Internal Inspection Requirements for Lined Tanks.

1.29.3.2 The lined Tank shall be tested for tightness in accordance with §2.9.6 of this Part and found to be tight before the Tank is put back into service; and

~~1.29.3.3 Within ten (10) years after lining, and every five (5) years thereafter, Owners and Operators shall conduct an internal inspection of the lined Tank in accordance with NLPA Standard 631, Chapter A, Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks and Chapter B, Future Internal Inspection Requirements for Lined Tanks, and API RP 1631, Interior Lining and Periodic Inspection of Underground Storage Tanks. At the time of the inspection, the lined Tank shall be structurally sound and comply with the original design specifications. If any damage is found, Repairs shall be made in accordance with standard engineering practice, industry standards and the requirements of these Regulations or the Tank shall be replaced in accordance with the requirements in §1 of this Part.~~

2.0 Installation, Operation and Maintenance Requirements for Underground Storage Tank Systems Storing Heating Fuel Installed After May 14, 1993 and Prior to ~~the Effective Date of these Regulations~~ January 11, 2008

2.1 General Requirements for UST Systems Storing Heating Fuel

2.1.1 Owners and Operators shall ensure that all UST Systems installed for the storage of Heating Fuel with a capacity of greater than 1,100 gallons shall be designed, constructed, installed and operated in accordance with manufacturer's specifications, and accepted engineering practices and procedures; and in a manner which will prevent Releases of Heating Fuels to the ground waters, surface waters or soils of the State due to corrosion, structural failure, manufacturing defects, spills, and overfills for the Operational Life of the Tank. The material used in the construction and lining of the Tank shall be Compatible with the substances to be stored in the UST System. All UST Systems installed prior to ~~the Effective Date of these Regulations~~ January 11, 2008 shall meet the requirements of this Section.

2.1.2 Bare steel UST Systems or steel UST Systems coated with asphalt are prohibited.

2.1.3 Owners and Operators shall replace all double elbow swing joints with flexible connectors installed in accordance with Part C, §1.14 of these Regulations not later than January 1, 2011.

2.2 General Installation Requirements for UST Systems Storing Heating Fuel

2.2.1 Prior to the installation of any Heating Fuel UST System with a storage capacity greater than 1,100 gallons, a site survey shall be initiated by the Facility Owner and Operator. The pre installation site survey shall be conducted to determine the locations of nearby buildings, underground utilities and sewer lines.

2.2.2 Private/public drinking water wells, rivers, streams, lakes, canals, and other environmentally sensitive locations shall be recorded and incorporated into the design of the UST System Facility.

2.2.3 Owners and Operators shall submit a written plan of the ~~Tank~~ UST Facility to the Department and to any designated state or local government agency for approval thirty (30) days before the

installation. The scale of the plan shall be one inch to ten feet or less (1 inch 10ft. or less) and shall include the following:

2.2.3.1 Size and location of Tanks; and

2.2.3.2 Piping dimensions and layout; and

2.2.3.3 Dimensions and locations of vents, Observation Tubes, monitoring wells, vadose zone vapor detection tubes, U tubes, gauges and monitoring devices; and

2.2.3.4 Type of Regulated Substance to be stored; and

2.2.3.5 Location of burner unit, as appropriate; and

2.2.3.6 Location of overfill device, spill prevention system and monitoring device; and

2.2.3.7 Materials of Tank(s) and ~~lines~~ Piping construction; and

2.2.3.8 Location of and access to check valves, flexible connectors, swing joints, etc. and

2.2.3.9 Location of Cathodic Protection components and test stations; and

2.2.3.10 Location of utilities (both above and underground); and

2.2.3.11 Location of electrical service components; and

2.2.3.12 Details of hold-down pads or anchoring; and

2.2.3.13 Location of nearby private~~/public~~ drinking water wells and surface water bodies; and

2.2.3.14 Survey results from §2.2.1 of this part.

2.3 UST System Design Requirements for UST Systems Storing Heating Fuel

2.3.1 Acceptable designs for UST system construction include:

2.3.1.1 Cathodically Protected Steel; or

2.3.1.2 Fiberglass-Reinforced Plastic; or

2.3.1.3 Steel Fiberglass Reinforced Plastic Composite; or

2.3.1.4 Composite Coated; or

2.3.1.5 Cathodically Protected Double-walled Steel; or

2.3.1.6 Double-walled Fiberglass-Reinforced Plastic; or

2.3.1.7 Other equivalent design approved by the Department.

2.3.2 Heating Fuel UST Systems shall be installed in accordance with these Regulations, the manufacturer's specifications, accepted engineering practices and the following industry standards:

2.3.2.1 PEI RP 100, Recommended Practices for Installation of Liquid Storage Systems.

2.3.2.2 NFPA 30, Flammable and Combustible Liquids Code.

2.3.2.3 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages.

2.4 Secondary Containment Design Requirements for UST Systems Storing Heating Fuel

2.4.1 The Department reserves the right to require Secondary containment or equivalent protection on any portion of the UST system where aquifers underlying the UST Facility are determined to need such protection, or where groundwater below the UST Facility is within a well head protection area, or where groundwater is susceptible to contamination in order to protect the safety, health, welfare ~~and/~~ or environment of the State.

2.4.2 Secondary containment systems shall be designed, constructed and installed to:

2.4.2.1 Contain the Heating Fuels Released from the UST system until they are detected and removed; and

2.4.2.2 Prevent the Release of Heating Fuel to the environment at any time during the Operational Life of the UST system; and

2.4.2.3 Be checked for evidence of a Release at least once every thirty (30) calendar days.

2.4.3 Secondary containment systems may consist of one of the following:

2.4.3.1 A cathodically protected double walled steel Tank and double walled Piping; or

2.4.3.2 A double walled fiberglass reinforced plastic Tank and double walled Piping; or

2.4.3.3 A double walled fiberglass reinforced plastic composite Tank and double walled Piping; or

2.4.3.4 A single wall Tank placed within a cut-off wall, an excavation liner or trough liner made of material impervious to the Heating Fuel stored; or

2.4.3.5 A vault constructed to meet the following requirements:

2.4.3.5.1 The vault shall be water tight, impervious to leakage of Heating Fuel and able to withstand chemical deterioration and structural stresses from internal and external causes; and

2.4.3.5.2 The vault shall be a continuous structure with a chemically resistant water stop used at any joint; and

2.4.3.5.3 There shall be no drain connections or other entries through the vault other than top entry manholes and other top openings for filling and for emptying the ~~t~~Tank, venting and for monitoring and pumping of petroleum which may leak into the vault; and

2.4.3.5.4 The ~~t~~Tank or ~~t~~Tanks within the vault shall be encased or embedded in a manner consistent with acceptable engineering practices; or

2.4.3.6 A cut off wall constructed to meet the following:

2.4.3.6.1 A cut off wall may be used where groundwater levels are above the bottom of the Tank excavation; and

2.4.3.6.2 A cut off wall shall consist of an impermeable barrier which has a permeability rate with respect to water equal to or less than 1 x 10 7 cm/sec. It shall not deteriorate in an underground environment or in the presence of petroleum; and

2.4.3.6.3 A cut off wall shall extend around the perimeter of the excavation and to an elevation above the mean high groundwater level; and

2.4.3.6.4 If a synthetic membrane is used for a cut-off wall, any seams, punctures or tears in the membrane shall be Repaired and made leak tight prior to backfilling. No penetrations of the cut-off wall will be permitted; or

2.4.3.6.5 Other equivalent technology approved by the Department.

2.4.4 If the Secondary containment system consists of a double walled Tank, the Tank shall be constructed in accordance with acceptable engineering practice and industry standards and shall have a Release Detection system in accordance with §1.9 of this part.

2.5 Double Walled UST Design Requirements for UST Systems Storing Heating Fuel

2.5.1 Any of the acceptable UST system designs in §2.3 of this Part may be fabricated in double walled construction in accordance with accepted engineering practice and industry standards.

2.5.2 A double walled Tank which is designed and manufactured in accordance with the following requirements satisfies the requirements for Secondary containment in §1.1.2 of this Part and the requirements for Release Detection set forth in §1.9 of this Part:

2.5.2.1 The interstitial space of the double walled Tank can be monitored for Releases; and

2.5.2.2 Outer jackets made of steel shall be coated as prescribed in §2.6.2; and

2.5.2.3 There are no penetrations of any kind through the jacket to the Tank except top entry manholes and fittings; and

2.5.2.4 The outer jacket shall, at a minimum, cover the bottom eighty (80) percent of the UST; and

2.5.2.5 The jacket shall be able to contain a liquid or be able to contain a vacuum from the time of manufacture completion until the time of installation; and

2.5.2.6 All Tanks shall be equipped with a strike plate located beneath all Tank openings.

2.6 Cathodically Protected Steel UST Design Requirements for UST Systems Storing Heating Fuel

2.6.1 Cathodically protected steel UST Systems shall be designed, constructed, installed and tested in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection, and the applicable industry standards, including but not limited to the following:

2.6.1.1 API RP 1632, Cathodic Protection of Underground Petroleum Storage Tanks.

2.6.1.2 NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection.

2.6.1.3 UL 58, Standard for Steel Underground Tanks for Flammable and Combustible Liquids.

2.6.1.4 UL 1746, Standard for Safety: External Corrosion Protection Systems For Steel Underground Storage Tanks.

2.6.1.5 STI- P3, Specification for sti P3® System for External Corrosion Protection of Underground Steel Storage Tanks.

2.6.2 The Tank shall be coated with a suitable Dielectric Material in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection.

2.6.3 Field-installed Cathodic Protection systems shall be designed and installed in accordance with manufacturer's specifications, accepted engineering practice and the requirements listed in this Section.

2.6.4 Each Cathodic Protection system shall include sufficient monitoring stations which enable Owners and Operators to check on the adequacy of the Cathodic Protection system.

2.6.5 UST Systems that are protected by Sacrificial Anodes ~~(sti-P3 Tanks)~~ shall be electrically insulated from the Piping system with dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to Heating Fuel, additives, corrosive soils or groundwater.

2.6.6 UST Systems not protected by Sacrificial Anodes shall be factory coated with a material which will provide equivalent protection and corrosion resistance. The minimum finished coating thickness shall be consistent with applicable UL standards. Defects and any inadequacies in the coating shall be Repaired in accordance with the manufacturer's instructions and standard engineering practice.

2.7 Fiberglass Reinforced Plastic UST Design Requirements for UST Systems Storing Heating Fuel

2.7.1 Fiberglass reinforced plastic UST Systems shall be designed, constructed, installed and tested in accordance with the following industry standard:

2.7.1.1 UL 1316, Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols and Alcohol Gasoline Mixtures.

2.7.2 Fiberglass reinforced plastic UST Systems shall be of sufficient structural strength to withstand normal handling and underground use and shall be compatible with the Regulated Substance and additives stored, corrosive soils and groundwater. Tank construction materials shall be of sufficient density and strength to form a hard impermeable shell which will not crack, wick, wear, soften or separate under normal service conditions.

2.7.3 Fiberglass reinforced plastic Tanks shall be tested for deflection in accordance with the manufacturer's requirements at the time of installation.

2.8 Steel with Non-Metallic Outer Shell UST Design Requirements for UST Systems Storing Heating Fuel

2.8.1 Steel Fiberglass Reinforced Plastic UST Systems shall be designed, constructed, installed and tested in accordance with the following industry standards, as applicable:

2.8.1.1 UL 1746, Standard for Safety: External Corrosion Protection Systems for Steel Underground Storage Tanks.

2.8.1.2 UL 58, Standard for Steel Underground Tanks for Flammable and Combustible Liquids.

2.8.1.3 STI F-922, Specification for Permatank®.

2.8.1.4 STI F-894, ACT-100® Specification for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks.

2.8.1.5 STI F-961, ACT-100U® Specification for External Corrosion Protection of Composite Steel Underground Storage Tanks.

2.8.1.6 STI F-841, Standard for Dual Wall Underground Steel Storage Tanks.

2.8.2 The coating shall not corrode under adverse underground electrolytic conditions and shall be Compatible with the Regulated Substances and additives stored.

2.8.3 The coating shall be factory inspected for air pockets, cracks, blisters pinholes and electrically tested by a ten thousand (10,000) volts holiday test performed over 100 percent (100%) of the surface for coating short circuits or coating faults or in accordance with the manufacturer's specifications.

2.8.4 Any defects shall be repaired in accordance with standard engineering practice and manufacturer's requirements to assure compliance with industry standards.

2.9 Release Detection Requirements for Underground Storage Tanks Storing Heating Fuel

2.9.1 General Requirements for Heating Fuel Tank Release Detection

2.9.1.1 Owners and Operators of UST Systems shall provide a method, or combination of methods of Release Detection on all UST Systems that:

2.9.1.1.1 Can detect a Release from any portion of the Tank and the connected underground Piping that routinely contain Heating Fuel; and

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

2.9.1.1.3 Meets the performance standards for Release Detection in this section, with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer. The method shall be capable of detecting the leak rate or quantity specified for ~~p~~Precision ~~Tank t~~Testing, automatic tank gauging, ~~l~~Line leak detectors, and ~~l~~Line tightness testing methods specified in these Regulations with a probability of detection of at least 0.95 and a probability of false alarm no greater than 0.05.

2.9.1.2 Owners and Operators shall implement the Release investigation procedure in Part E of these Regulations if the Release Detection equipment or method shows indication of a Release.

2.9.1.3 Failure by Owners and Operators to maintain records of required Release Detection monitoring and inspection may be cause for the Department to require ~~T~~tank tightness test(s) and inspection(s) of the UST Facility and a Release investigation in accordance with Part E of these Regulations at the expense of Owners and Operators.

2.9.2 Methods of Release Detection for Heating Fuel Tanks

2.9.2.1 Owners and Operators shall monitor Heating Fuel UST Systems for Releases through the use of at least one of the following Release Detection methods:

2.9.2.1.1 Interstitial ~~M~~monitoring; or

2.9.2.1.2 Automatic ~~T~~tank Gauging; or

2.9.2.1.3 Observation Tubes; or

2.9.2.1.4 Tank ~~T~~tightness ~~T~~test; or

2.9.2.1.5 Monitoring Wells; or

2.9.2.1.6 Department ~~A~~approved ~~A~~alternative ~~M~~method.

2.9.3 Interstitial Monitoring Release Detection Requirements for Heating Fuel Tanks

2.9.3.1 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 Heating Fuel and also meets one of the following requirements:

2.9.3.1.1 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 Heating Fuel.

2.9.3.1.2 For UST Systems with a secondary barrier within the Excavation Zone, the sampling or testing method can detect a Release between the UST System and the secondary barrier.

2.9.3.1.3 The secondary barrier around or beneath the UST System consists of artificially constructed material that is sufficiently impermeable (at least 1 x 10 7 cm/sec for the Heating Fuel stored) to direct a Release to the monitoring point and permit its detection.

2.9.3.1.4 The barrier is compatible with the Heating Fuel stored so that a Release from the UST System will not cause deterioration of the barrier allowing a Release to pass through undetected.

2.9.3.1.5 For Cathodically Protected Tanks, the secondary barrier shall be installed so that it does not interfere with the proper operation of the Cathodic Protection system.

2.9.3.1.6 Ground water, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a Release can go undetected for more than thirty (30) days.

2.9.3.1.7 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 are designed for use under such conditions.

2.9.3.1.8 For Tanks with an internally fitted liner, an automated device may be used to detect a Release between the inner wall of the Tank and the liner, and the liner shall be Compatible with the substance stored.

2.9.3.2 At a minimum of once every thirty (30) calendar days Owners and Operators shall inspect all interstitial monitoring devices utilized for Release Detection for evidence of a Release from the UST System and shall record the results.

2.9.3.3 Owners and Operators shall maintain records of the monthly interstitial Release monitoring inspections for the life of the UST System.

2.9.3.4 Owners and Operators shall have all interstitial monitoring equipment inspected by a certified technician once every twelve (12) months as Part of a preventive Maintenance program to minimize in-service failures. The inspection shall at a minimum include:

2.9.3.4.1 Inspection of the console for printer operation if so equipped; and

2.9.3.4.2 Verification of the system setup values and battery backup; and

2.9.3.4.3 Verification of the test programming; and

2.9.3.4.4 Verification of the operability of all warning and alarm indicator lights and audible alarms; and

2.9.3.4.5 Inspection and testing of all probes and interstitial sensors in accordance with the manufacturer's specifications or as directed by the Department to verify proper probe and sensor operation; and

2.9.3.4.6 Inspection of all cables that are visible during normal operating conditions for any cracking or swelling; and

2.9.3.4.7 Correction of any problems found as a result of the required inspection.

2.9.4 Automatic Tank Gauging Release Detection Requirements for Heating Fuel Tanks

2.9.4.1 Monthly ~~T~~tank ~~T~~tightness ~~T~~testing using ~~A~~automatic ~~T~~tank ~~G~~gauging (ATG) equipment shall meet the following requirements:

2.9.4.1.1 The ATG equipment can detect a 0.2 gallon per hour leak rate from any portion of the Tank that routinely contains Heating Fuel; and

2.9.4.1.2 The ATG equipment shall be capable of producing a record of Release Detection test results; and

2.9.4.1.3 At a minimum of once every thirty (30) calendar days the ATG equipment shall perform a Release Detection test for each Tank and shall produce a record of each such test; and

2.9.4.1.4 Owners and Operators shall have all ATG equipment inspected by a certified technician once every twelve (12) months as Part of a preventive Maintenance program to minimize in-service failures. The inspection shall at a minimum include:

2.9.4.1.4.1 Inspection of the ATG console for printer operation if so equipped; and

2.9.4.1.4.2 Verification of the system setup values and battery backup; and

2.9.4.1.4.3 Verification of the test programming; and

2.9.4.1.4.4 Verification of the operability of all warning and alarm indicator lights and audible alarms; and

2.9.4.1.4.5 Inspection and testing of the ~~magnetostrictive~~ probes and sensors in accordance with the manufacturer's specifications or as directed by the Department to verify proper probe and sensor operation; and

2.9.4.1.4.6 Inspection of all cables that are visible during normal operating conditions for any cracking or swelling; and

2.9.4.1.4.7 Correction of any problems found as a result of the required inspection.

2.9.4.2 Owners and Operators shall maintain a record of all Release Detection tests performed by the ATG equipment for the life of the UST system.

2.9.5 Observation Tube Release Detection Requirements for Heating Fuel Tanks

2.9.5.1 Observation Tubes shall be designed, constructed, installed and maintained to detect a Release from any portion of the Tank that routinely contains Heating Fuel.

2.9.5.2 A network of Observation Tubes shall be placed within the excavation of the Tank field without the use of conventional well drilling methods during the installation of an UST and without the need for the installer to obtain a water well contractor's license, pay a monitoring well permit fee, obtain a monitoring well permit, or submit a well completion report to the Department as required in the Delaware Regulations Governing the Construction and Use of Wells. The Observation Tube however, shall meet the remaining standards set forth in the Department's Regulations Governing the Construction and Use of Wells including the requirement for installation of the tube to a depth of at least five (5) feet below the water table. This exception from the standard monitoring well construction criteria pertains only to Observation Tubes placed within the UST excavation pit.

2.9.5.3 The minimum number of Observation Tubes within an UST system excavation pit shall be:

2.9.5.3.1 Four Observation Tubes shall be installed for one UST.

2.9.5.3.2 Six Observation Tubes shall be installed for two to three USTs.

2.9.5.3.3 Eight Observation Tubes shall be installed for four to five USTs.

2.9.5.3.4 Ten or more Observation Tubes shall be installed for six or more USTs

2.9.5.4 Observation Tubes shall be clearly marked and secured to avoid unauthorized access and tampering.

2.9.5.5 Observation Tubes may only be used if the following conditions are met:

2.9.5.5.1 The Heating Fuel stored is immiscible in water and has a specific gravity of less than one; and

2.9.5.5.2 Ground water is never more than twenty (20) feet from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the Observation Tubes is not less than 1 x 10 2 cm/sec (e.g., the soil should consist of gravels, coarse to medium sands, coarse silts or other permeable materials); and

2.9.5.5.3 The continuous monitoring devices or manual methods used can detect the presence of at least one eighth of an inch of Free Product on the top of the ground water on the Observation Tubes; and

2.9.5.5.4 The level of background contamination will not interfere with the method used to detect Releases from the UST System.

2.9.5.6 Owners and Operators shall test all Observation Tubes for evidence of a Release from the UST System by:

2.9.5.6.1 Monitoring with a continuously functioning Release Detection device; or

2.9.5.6.2 Testing at least once ~~during each calendar month~~ every thirty (30) calendar days with a portable device inserted into the tube; or

2.9.5.6.3 Sampling at least once every thirty (30) calendar days with the removal of at least eight (8) ounces of fluid from the tube, using a bailer or a sampler of similar design. The fluid shall be taken from the surface of the water table unless otherwise directed by the Department. The fluid shall:

2.9.5.6.3.1 Be tested on site for the presence of Heating Fuel using portable devices; or

2.9.5.6.3.2 Be sent to an independent certified laboratory and analyzed for the presence of the Heating Fuel(s) stored at the Facility.

2.9.5.7 Owners and Operators shall record the results of the testing required in §2.9.~~6~~5.6 and the records shall be maintained for the life of the UST System.

2.9.5.8 Observation Tubes shall not be used to comply with the Release Detection requirements of §2.9 of this Part after January 1, 2013.

2.9.6 Tank Tightness Test Release Detection Requirements for Heating Fuel Tanks

2.9.6.1 Owners and Operators implementing this Release Detection option shall conduct a separate tightness test for each UST System. The test shall be conducted at least once every twelve (12) months.

2.9.6.2 All testing of UST Systems shall be conducted in accordance with the Precision Test methods and procedures specified in NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases, or other test approved by the Department which is of equivalent or superior accuracy.

2.9.6.3 Testing of UST Systems shall utilize a method capable of detecting a Release of a Heating Fuel at a rate of 0.1 gallons per hour with a probability of detection of 0.95 and a probability of false alarm of 0.05 from any Part of the ~~t~~Tank which routinely contains Heating Fuel. These methods are limited to those tests that account for the following, if applicable:

2.9.6.3.1 The presence of vapor pockets; and

2.9.6.3.2 The expansion or contraction of the Heating Fuel, which include any density considerations; and

2.9.6.3.3 Temperature stratification in the Tank; and

2.9.6.3.4 Evaporation; and

2.9.6.3.5 Pressure variations in the Tank; and

2.9.6.3.6 Deflection of the Tank ends; and

2.9.6.3.7 The location of the water table.

2.9.6.4 These tests shall be conducted by a person trained and certified in the correct use of the necessary equipment, and shall be performed in accordance with the testing procedures and requirements established by the test system manufacturer. The person performing the test shall certify that the test procedure utilized takes into account the variables specified in §2.9.7.3.of this Part.

2.9.6.5 Owners and Operators of the UST System Facility shall retain a copy of the results of the ~~T~~tank tightness tests for the life of the UST System.

2.9.6.6 If the UST System fails NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases, criteria Owners and Operators and the UST System test contractor shall report the tank test failure to the Department within twenty-four (24) hours and shall submit a paper copy of the test results to the Department within seven (7) days of the tank test failure. The test results shall include at a minimum the following information:

2.9.6.6.1 The procedures used including any deviations from those recommended by the developer of the test procedure for the Release Detection method; and

2.9.6.6.2 The name of the company performing the test; and

2.9.6.6.3 The method used; and

2.9.6.6.4 The results of the test.

2.9.7 Monitoring Well Release Detection Requirements for Heating Fuel Tanks

2.9.7.1 Monitoring Wells shall be designed, constructed, installed and maintained to detect a Release from any portion of the ~~t~~Tank that routinely contains Heating Fuel.

2.9.7.2 Monitoring Wells shall be designed, constructed and installed in accordance with the Delaware Regulations Governing the Construction and Use of Wells.

2.9.7.3 A network of a minimum of four (4) monitoring wells shall be placed immediately outside of the excavation around the Tank.

2.9.7.4 Monitoring wells shall be clearly marked and secured to avoid unauthorized access and tampering.

2.9.7.5 Monitoring wells may be used only if the following conditions are met:

2.9.7.5.1 The Heating Fuel stored is immiscible in water and has a specific gravity of less than one; and

2.9.7.5.2 Ground water is never more than twenty (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 1 x 10 2 cm/sec (e.g., the soil should consist of gravels, coarse to medium sands, coarse silts or other permeable materials); and

2.9.7.5.3 The continuous monitoring devices or manual methods used can detect the presence of at least one eighth of an inch of Free Product on the top of the ground water in the monitoring wells; and

2.9.7.5.4 The level of background contamination will not interfere with the method used to detect Releases from the tank system.

2.9.7.6 Owner and Operators shall test all Monitor Wells for evidence of a Release from the UST System by:

2.9.7.6.1 Monitoring with a continuously functioning Release Detection device; or

2.9.7.6.2 Tested at a minimum of once every thirty (30) calendar days with a portable device inserted into the Monitor Well; or

2.9.7.6.3 Sampled at least once every thirty (30) calendar days with the removal of at least eight (8) ounces of fluid from the well, using a bailer or a sampler of similar design. The fluid shall be taken from the surface of the water table unless otherwise directed by the Department. The fluid shall:

2.9.7.6.3.1 be tested on site for the presence of Heating Fuel using portable devices; or

2.9.7.6.3.2 be sent to an independent certified laboratory and analyzed for the presence of the Heating Fuel(s) stored at the Facility.

2.9.7.7 Owners and Operators shall record the results of the testing required in §2.9.7.6. monthly and the records shall be maintained for the life of the UST System.

2.9.7.8 Monitor Wells shall not be used to comply with the Release Detection requirements of §2.9 of this Part after January 1, 2013.

2.9.8 Alternative Release Detection Methods for Heating Fuel Tanks

2.9.8.1 The Department may approve other types of Release Detection method, or a combination of methods or devices not specified in this Section if:

2.9.8.1.1 It can detect a 0.2 gallon per hour leak rate or a Release of one hundred fifty (150) gallons within a month with a probability of detection of 0.95 or greater and a probability of false alarm of 0.05 or less; or

2.9.8.1.2 The Department may approve another method or a combination of methods or devices if Owners and Operators can demonstrate that the method or a combination of methods or devices can detect a Release as effectively as any of the methods allowed in §2.9 of this part. In comparing methods of Release Detection allowed the Department shall consider the size of Release that the method or a combination of methods or devices can detect and the frequency and reliability with which it can be detected. If the method or a combination of methods or devices is approved, Owners and Operators shall comply with any conditions imposed by the Department on its use to ensure the protection of human health, safety or the environment.

2.10 Anchoring of UST Systems Storing Heating Fuel

2.10.1 Support and anchorage shall be provided for all new installations to avoid flotation. Any of the following anchoring methods can be used to meet this requirement and shall be completed in accordance with the PEI RP100, Recommended Practices for Installation of Underground Liquid Storage Systems:

2.10.1.1 Reinforced concrete deadmen anchors; or

2.10.1.2 Bottom hold-down pad which consists of eight inches of reinforced concrete that extends eighteen (18) inches beyond Tank sides and twelve (12) inches beyond each end; or

2.10.1.3 Reinforced concrete slab over Tank.

2.10.2 All exposed metallic components of hold down systems shall be Electrically Isolated and cathodically protected when the hold down system is required by the Department; adequate bed of backfill shall be provided between the Tank and concrete.

2.11 Backfill Requirements for UST Systems Storing Heating Fuel

2.11.1 Backfill material shall consist of sand, crushed rock or pea gravel. The material shall be clean, washed, inert, free flowing, homogeneous, well granulated, non corrosive, and free of debris, rock, ice, snow or organic material. Particle length of crushed rock or pea gravel shall be no more than one-eighth (1/8") to three-fourths (3/4") in size. Backfill material shall comply with the manufacturer's specifications. Mixing of backfill with native soil or foreign objects is prohibited.

2.12 Installation of New UST Systems Storing Heating Fuel In An Existing UST Field Requirements

2.12.1 If an UST System shall be installed in or near a previous UST Facility, Owners and Operators shall provide a means of Release Detection that will, at a minimum, detect any future Release from the UST System. An Observation Tube or Monitor Well may not be permitted as a Release Detection option if the soil is already contaminated.

2.13 Tank and Piping Installation Inspection and Testing Requirements for UST Systems Storing Heating Fuel

2.13.1 Once on site all UST Systems materials and equipment shall be inspected for flaws, surface cracks, holes, large scrapes, blisters, indentations and other indications of damage. All defects and Repairs to the UST System shall be recorded and submitted together with a site completion report to the Department.

2.13.2 All Tank(s) shall be air pressure tested according to the manufacturer's specifications prior to installation of the Tank(s) into the excavation. For single walled Tank(s), the installer shall remove, dope and re install all factory plugs. The installer shall soap the exterior, particularly its seams and fittings and pressure test the Tank(s) using the manufacturer's specifications to watch for bubbles. For double walled Tanks testing shall be conducted according to the manufacturer's recommendations and accepted engineering practices.

2.13.3 After installation of the Tank and integral Piping is completed, the entire UST System shall be tested in accordance with current industry standards and practices and in the following manner to prove tightness prior to the initial use of the UST System:

2.13.3.1 All testing of UST Systems shall be accomplished by the Precision Test method described in NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases or other test approved by the Department which is of equivalent or superior accuracy.

2.13.3.2 All testing of UST Systems shall be able to account for the effects of thermal expansion or contraction of the Heating Fuels, vapor pockets, Tank deformation, evaporation or condensation, and the location of the water table.

2.13.3.3 These tests shall be conducted by a person trained and certified in the correct use of the necessary equipment, and shall be performed in accordance with the testing procedures and requirements established by the test system manufacturer and with current industry standards and practices.

2.14 General Piping Installation Requirements for UST Systems Storing Heating Fuel

2.14.1 The Piping layout shall be designed to minimize crossed lines and interference with conduit and other UST System components. If crossing of lines is unavoidable, adequate clearance shall be provided to prevent contact.

2.14.2 Double elbow swing joints or flexible connectors shall be installed at all locations where a pipeline changes direction from horizontal to vertical, or from vertical to horizontal. Double elbow swing joints shall be replaced by flexible connectors by January 1, 2011.

2.14.3 All Heating Fuel, vent and return Piping shall slope back to the Tank with a minimum slope of 1/8 inch per foot.

2.14.4 The pipe joints shall be cut accurately and deburred to provide liquid tight seals.

2.14.5 All underground metal pipe, fittings, flexible connectors, joints, and pipes shall be coated or wrapped and shall have Cathodic Protection.

2.15 UST Piping Design Requirements for UST Systems Storing Heating Fuel

2.15.1 Underground Piping shall be protected from corrosion in accordance with accepted corrosion engineering practices and shall be designed, constructed, installed and tested in accordance with the following industry standards, as applicable:

2.15.1.1 NFPA 30, Flammable and Combustible Liquids Code; and

2.15.1.2 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages; and

2.15.1.3 NFPA 329, Recommended Practices for Handling Releases of Flammable and Combustible Liquids and Gases.

2.15.1.4 API RP 1632, Cathodic Protection of Underground Petroleum Storage Tanks.

2.15.1.5 NACE RP 0169, Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

2.15.1.6 UL 971, Standard for Nonmetallic Underground Piping for Flammable Liquids.

2.15.1.7 UL 567, Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas.

2.15.1.8 PEI RP 100, Recommended Practices for Installation of Underground Liquid Storage Systems.

2.15.2 All integral Piping systems shall be designed, constructed, and installed in a manner which will permit periodic tightness testing of the entire Piping system without the need for extensive excavation.

2.15.3 Acceptable designs for Underground Piping construction include metallic, fiberglass reinforced plastic and flexible plastic Piping.

2.15.4 Use of metal Piping without either Sacrificial Anodes or impressed current Cathodic Protection is prohibited.

2.16 Metal Piping Design Requirements for UST Systems Storing Heating Fuel

2.16.1 All metal Piping shall be coated or wrapped, and cathodically protected in the following manner:

2.16.1.1 The Piping is coated with a suitable Dielectric Material;

2.16.1.2 Field installed Cathodic Protection systems are designed and installed in accordance with accepted engineering practice and standards established under this Section;

2.16.1.3 Cathodically protected Piping systems of the Sacrificial Anode type shall be designed and installed to permit measurement of structure to soil potential six (6) months after installation and at least once every twelve (12) months thereafter. If inadequate Cathodic Protection is indicated, the cause shall be determined, and necessary Repairs made in accordance with accepted engineering practices and one of the Standards contained in this Section within ~~thirty (30)~~ sixty (60) days of the test.

2.16.1.4 Impressed current systems shall be designed to allow determination of current operating status. The impressed current source cannot be de energized at any time including periods when the Facility is closed, except during power failures or during service work on the storage systems or the impressed current Cathodic Protection system, and it shall be equipped with a continuously operating meter to show that the system is working.

2.16.1.5 Where a Sacrificial Anode or impressed current system is used, a monitor station to check on the adequacy of the cathodic protection system shall be installed and kept in proper working condition. If at any time the monitor station shows that the electrical current necessary to prevent corrosion is not being maintained the ~~cathodic protection system shall be restored,~~ cause shall be determined, and necessary Repairs shall be made in accordance with accepted engineering practices and one of the Standards contained in this Section within sixty (60) days of the failure, and the Piping shall be tested for tightness in accordance with NFPA 329, Recommended Practices for Handling Releases of Flammable and Combustible Liquids and Gases.

2.16.1.6 Except where Cathodic Protection is provided by impressed current, underground Piping systems shall have dielectric bushings, washers, sleeves or gaskets installed to electrically isolate the Piping system from the Tank and the dispenser. These dielectric connectors shall be chemically compatible with Heating Fuel, additives, corrosive soils and groundwater.

2.16.1.7 Cathodic Protection systems shall be maintained, operated, tested and Repaired in accordance with the requirements of §2.25 of this Part.

2.17 Fiberglass Reinforced Plastic and Flexible Plastic Piping Design Requirements for UST Systems Storing Heating Fuel

2.17.1 Fiberglass reinforced plastic and flexible plastic Piping shall be designed, constructed, installed and tested in accordance with the manufacturer's specifications and the following industry standards, as applicable:

2.17.1.1 UL 971, Standard for Nonmetallic Underground Piping for Flammable Liquids.

2.17.1.2 UL 567, Standard for Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas.

2.17.1.3 NFPA 30, Flammable and Combustible Liquids Code.

2.17.1.4 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages.

2.17.1.5 NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases.

2.17.1.6 PEI RP 100, Recommended Practices for Installation of Underground Liquid Storage Systems.

2.17.2 The construction materials, joints, and joint adhesives of all fiberglass reinforced plastic and flexible plastic pipes shall be Compatible with the Heating Fuel any additives stored, soil, and groundwater.

2.17.3 Pipes, fittings, and adhesives shall be designed, fabricated, and factory tested in accordance with generally accepted structural, material, and performance standards for underground Piping systems.

2.18 Suction Piping Design Requirements for UST Systems Storing Heating Fuel

2.18.1 Suction Piping shall be designed, constructed, and installed to meet the requirements of §2.18.1.1 or §2.18.1.2 of this part:

2.18.1.1 Safe suction Piping systems shall be designed and constructed in accordance with the following requirements:

2.18.1.1.1 The below grade Piping shall be constructed so that if suction is released the contents of the pipe will drain back into the Tank; and

2.18.1.1.2 Only one (1) check valve shall be included in each suction ~~line~~ Pipe; and

2.18.1.1.3 The check valve shall be located directly below and as close as practical to the suction pump; or

2.18.1.2 Suction Piping systems with a foot valve (U.S. Suction) shall be designed and constructed in accordance with the following requirements:

2.18.1.2.1 The below grade Piping shall be constructed so that the Piping slopes back to the Tank; and

2.18.1.2.2 A foot valve is installed at the Tank.

2.19 General Release Detection Requirements for UST Piping for UST Systems Storing Heating Fuel

2.19.1 Owners and Operators shall equip all underground Piping that routinely contains Heating Fuels with a method, or combination of methods of Release Detection that can detect a Release from any portion of the underground Piping that routinely contains Heating Fuel.

2.19.2 UST Piping interstitial or sump monitoring systems shall be designed, constructed installed and maintained to detect a leak from any portion of the Piping that routinely contains Heating Fuel.

2.19.3 Release Detection methods not specified in this Section will be considered an alternative by the Department. A written request detailing the method or combination of methods proposed shall be submitted to the Department prior to installation for approval. Alternative methods shall meet the following requirements:

2.19.3.1 The method can detect a 0.1 gallon per hour leak rate or a Release of seventy-five (75) gallons within a month with a probability of detection of 0.95 or greater and a probability of false alarm of 0.05 or less; or

2.19.3.2 The method or a combination of methods or devices can detect a Release as effectively as any of the Release Detection methods allowed in §2.20 of this part. If the method or a combination of methods or devices is approved, the Owner and Operator shall comply with any conditions imposed by the Department on its use to ensure the protection of human health, safety or the environment.

2.19.4 Owners and Operators shall implement the Indicated Release investigation procedure in Part E of these Regulations if the Piping Release Detection equipment or method shows indication of a Release.

2.20 Pressurized Piping Release Detection Requirements for UST Systems Storing Heating Fuel

2.20.1 Line Leak Detector Requirements

2.20.1.1 Underground Piping that conveys Heating Fuels under pressure shall be equipped with an automatic ~~l~~Line leak detector.

2.20.1.2 The automatic ~~l~~Line leak detector shall alert Owners and Operators to the presence of a Release by restricting or shutting off the flow of the Heating Fuel through the Piping or triggering an audible or visual alarm.

2.20.1.3 Mechanical and Electronic automatic lLine leak detectors shall be capable of reacting to leaks of three (3) gallons per hour at ten (10) pounds per square inch line pressure within one (1) hour.

2.20.1.4 Owners and Operators shall conduct an annual test of the operation of the automatic ~~l~~Line leak detector ~~in accordance with the manufacturer's test protocol~~ while installed in the UST System and under normal operating conditions. All Mechanical and Electronic automatic ~~l~~Line leak detectors shall once every twelve (12) months pass a function test at three (3) gallons per hour (gph) at ten (10) pounds per square inch line pressure within one (1) hour.

2.20.2 Tightness Test Requirements

2.20.2.1 Owners and Operators of underground pressurized Piping systems shall conduct an annual tightness test of the entire pressurized underground Piping system, including primary and secondary Piping, in accordance with NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases.

2.20.2.2 Owners and Operators of UST Systems that have underground pressurized Piping systems shall use a ~~l~~Line tightness test method designed to detect a Release from any portion of the underground Piping system that routinely contains Heating Fuels.

2.20.2.3 Owners and Operators of UST Systems with underground pressurized Piping systems constructed of double wall design may utilize interstitial monitoring systems to comply with the ~~p~~Piping tightness test requirements in §2.20.2.1 of this Part if the following requirements are met:

2.20.2.3.1 All interstitial monitoring devices shall be designed, constructed, installed and maintained to continuously detect a Release from any portion of the Piping that routinely contains Heating Fuel; and

2.20.2.3.2 At a minimum of once every thirty (30) calendar days, Owners and Operators shall provide proof via the automatic tank gauge record that the interstitial monitoring device is functioning in accordance with the manufacturer's specifications; and

2.20.2.3.3 Owners and Operators shall maintain records of the monthly interstitial Release Detection ATG records for the life of the UST System; and

2.20.2.3.4 All sump and interstitial sensors shall comply with the testing and monitoring requirements of §2.27 of this part; and

2.20.2.3.5 All Containment Sumps shall comply with the testing and monitoring requirements of §2.26 of this Part.

2.21 Suction Piping Release Detection Requirements for UST Systems Storing Heating Fuel

2.21.1 Release Detection is not required for suction Piping that is designed and constructed to meet the requirements of §2.18.1.1.of this Part.

2.21.2 Owners and Operators of Suction Piping that is designed and constructed in accordance with §2.18.1.2. shall conduct a ~~l~~Line tightness test a minimum of once every three (3) years in accordance with NFPA 329, Recommended Practice for Handling Releases of Flammable and Combustible Liquids and Gases.

2.21.3 Owners and Operators of UST Systems with underground suction Piping systems constructed of double wall design may utilize interstitial monitoring systems to comply with the Release Detection requirements of §2.19 this Part if the following requirements are met:

2.21.3.1.1 All interstitial monitoring devices shall be designed, constructed, installed and maintained to continuously detect a Release from any portion of the Piping that routinely contains Regulated Substance; and

2.21.3.1.2 At a minimum of once every thirty (30) calendar days, Owners and Operators shall provide proof via the interstitial monitoring record that the interstitial monitoring device is functioning in accordance with the manufacturer's specifications; and

2.21.3.1.3 Owners and Operators shall maintain records of the monthly interstitial Release records for the life of the UST System; and

2.21.3.1.4 All sump and interstitial sensors shall comply with the testing and monitoring requirements of §2.27 of this part; and

2.21.3.1.5 All Containment Sumps shall comply with the testing and monitoring requirements of §2.26 of this part.

2.22 Spill Protection Requirements for UST Systems Storing Heating Fuel

2.22.1 No Person shall construct, install, use or maintain any UST System without providing a reliable means of ensuring that Releases due to spilling do not occur.

2.22.2 To prevent spilling associated with Heating Fuel transfer to the UST System, Owners and Operators shall comply with the requirements of one of the following industry standards:

2.22.2.1 NFPA 30, Flammable and Combustible Liquids Code; or

2.22.2.2 NFPA 385, Standard for Tank Vehicles for Flammable and Combustible Liquids; or

2.22.2.3 API RP 1621, Bulk Liquid Stock Control at Retail Outlets.

2.22.3 Owners and Operators shall equip Heating Fuel UST Systems with an impervious spill containment device that forms a liquid tight seal around the fill pipe. The spill containment device shall consist of one of the following:

2.22.3.1 Impervious Materials which form a seal around the UST fill pipe with an optional drain leading to an overfill collection device; or

2.22.3.2 An impervious container surrounding the fill pipe which will collect any overfill or spill and will allow the Heating Fuel to drain back into the UST when there is sufficient ullage space.

2.22.4 Owners and Operators shall immediately remove water, Heating Fuel or debris that accumulates in the spill containment. Owners and Operators shall maintain spill containment devices to be capable of containing a spill of the containment design capacity at all times.

2.22.5 All reasonable precautions shall be taken to prevent UST overfilling, spilling or dripping.

2.22.6 Owners and Operators shall test spill containment devices once every twelve (12) months for tightness, or in accordance with the manufacturer's specifications, or when deemed necessary by the Department to determine if a threat to human health, safety or the environment exists.

2.22.7 Spill containment devices of double wall design with continuous monitoring of the interstitial space are exempt from the testing requirements of §2.22.6 of this Part if the following requirements are met: ~~.~~

2.22.7.1 Owners and Operators shall check the interstitial monitoring at a minimum of once every thirty (30) calendar days for evidence of a Release; and

2.22.7.2 Owners and Operators shall maintain written records of the ~~continuous interstitial monitoring of the spill containment device~~ required monitoring in §1.21.8.1 of this Part for the life of the UST System.

2.22.8 Owners and Operators shall report, investigate and clean up any spills in accordance with Part E of these Regulations.

2.23 Overfill Protection Requirements for UST Systems Storing Heating Fuel

2.23.1 No Person shall construct, install, use, or maintain any UST System without providing a reliable means of detecting and preventing an overfill.

2.23.2 The Person In Charge of the transfer of Heating Fuel to the Tank shall adhere to proper safety precautions and procedures for transfer such as those found in NFPA 385, Standard for Tank Vehicles for Flammable and Combustible Liquids or API RP 1621, Bulk Liquid Stock Control at Retail Outlets and shall comply with the following:

2.23.2.1 The Person In Charge of transfer operations shall first check the UST to ensure that the volume available in the UST is greater than the volume of Heating Fuel to be transferred to the UST before the transfer is made; and

2.23.2.2 During the transfer, the Person In Charge shall continuously monitor the entire transfer operation to prevent an Overfill Release; and

2.23.2.3 At the conclusion of the transfer, the Person in Charge shall collect any Heating Fuel which remains in the transfer hose and shall ensure it is properly managed and does not reach the environment; and

2.23.2.4 The Person in Charge shall take all precautions to prevent spilling and dripping.

2.23.3 Owners and Operators shall install and maintain overfill protection equipment that complies with one of the following:

2.23.3.1 For UST Systems with a two inch (2") fill overfill protection may consist of a delivery truck that is equipped with a deep fill nozzle that incorporates a whistle. The whistle shall be set deep enough in the deep fill such that when the whistling stops the level of Heating Fuel in the UST is no more than 90% of the capacity of the UST; or

2.23.3.2 Automatically shuts off the flow into the UST when the UST is no more than ninety-five percent (95%) full; or

2.23.3.3 Alerts the transfer operator when the UST is no more than ninety percent (90%) full by restricting the flow into the UST or triggering a high level alarm; or

2.23.3.4 Restricts flow thirty (30) minutes prior to overfilling, alerting the Person in Charge of the transfer operation with a high level alarm one minute before overfilling, or automatically shuts off flow into the UST so that none of the fittings on top of the ~~t~~Tank are exposed to Heating Fuel due to overfilling; or

2.23.3.5 An automatic partial flow shut off float vent or vapor valve is installed inside the UST set to restrict flow when the UST is no more than ninety percent (90%) full. Vent or vapor restriction devices shall not be installed in storage systems that are equipped with suction pumps, remote fill ~~l~~Lines, remote vapor ~~l~~Lines or receive pressurized deliveries; or

2.23.3.6 UST Systems that receive pressurized deliveries require a high level alarm that is triggered at no more than ninety (90%) percent full for overfill protection or an automatic flow shut-off valve designed for pressurized deliveries.

2.23.4 Owners and Operators shall report, investigate, and clean up any spills and overfills in accordance with Part E of these Regulations.

2.23.5 Owners and Operators and Persons In Charge of transfer operations shall comply with the following for Heating Fuel UST Systems receiving gravity deliveries:

2.23.5.1 The Person In Charge of the transfer operation shall first check the UST to ensure that the volume available in the UST is greater than the volume of Heating Fuel to be transferred to the UST before the transfer is made. During the transfer, the Person In Charge shall constantly monitor the entire transfer operation to prevent overfilling and shall stand by the shut-off valve during the entire transfer operation. In the case of remote fills the ~~t~~Tank volume shall be checked through a gauging port.

2.23.5.2 At the conclusion of the transfer, The Person in Charge shall collect any Heating Fuel which remains in the transfer hose and shall ensure it is properly managed and does not reach the environment.

2.23.5.3 Overfill protection shall consist of overfill protection equipment that will automatically shut off the flow into the UST when the UST is no more than ninety-five percent (95%) full, or alert the transfer operator when the UST is no more than ninety percent (90%) full by restricting the flow into the UST, or triggering a high level alarm.

2.23.6 Owners and Operators shall report, investigate, and clean up any spills and overfills in accordance with Part E of these Regulations.

2.24 Fill Line Protection Requirements for UST Systems Storing Heating Fuel

2.24.1 Owners and Operators shall clearly mark all fill ~~l~~Lines for UST Systems to indicate the size of the Tank and the type of Heating Fuel stored. These markings shall be as follows:

2.24.1.1 A label or permanent tag at the fill connection which states the size of the UST System and the specific type of Heating Fuel stored; and

2.24.1.2 A color symbol system shall be implemented according to the following requirements:

2.24.1.2.1 All fill covers shall be marked consistent with API RP 1637, Using the API Color-Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals.

2.24.1.2.2 A different color symbol shall be used for each type of Heating Fuel or grade of Heating Fuel being stored at the Facility.

2.24.2 Pipes and other openings not used for transfer of Heating Fuel at the UST Facility shall not be painted any color which would be associated with the color symbol designated for marking the Heating Fuel stored at the Facility. It is particularly important that openings with access to soil and ground water, such as Monitor Wells, Release Detection tubes, vadose zone vapor detection tubes and U tubes, not be confused with Regulated Substance fill ~~l~~Lines.

2.25. Sacrificial Anode and Impressed Current Cathodic Corrosion Protection Requirements for UST Systems Storing Heating Fuel

2.25.1 General Requirements

2.25.1.1 Owners and Operators of steel UST Systems with corrosion protection systems shall install, operate and maintain the system in accordance with the following industry standards:

2.25.1.1.1 NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection.

2.25.1.1.2 NACE TM0101, Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Tank Systems.

2.25.1.1.3 NFPA 30, Flammable and Combustible Liquids Code.

2.25.1.1.4 NFPA 30A, Motor Fuel Dispensing Facilities and Repair Garages.

2.25.1.2 Owners and Operators of steel UST Systems with corrosion protection systems shall maintain and operate the corrosion protection system to continuously provide corrosion protection to the metal components of the UST System that routinely contain Heating Fuel and are in contact with the ground to ensure that Releases due to corrosion are prevented for the life of the UST System.

2.25.1.3 Owners and Operators shall ensure the integrity of the UST System utilizing one of the following methods prior to the addition of a Cathodic Protection system to an existing UST System:

2.25.1.3.1 The Tank shall be internally inspected to ensure that the Tank is structurally sound and free of corrosion holes prior to installing the Cathodic Protection system; or

2.25.1.3.2 The Tank has been installed for less than ten (10) years and is monitored monthly for Releases in accordance with §2.9 of this Part; or

2.25.1.3.3 The ~~t~~Tank has been installed for less than ten (10) years and is assessed for corrosion holes by conducting two (2) ~~p~~Precision ~~Tank t~~Tests that meet the requirements of §2.9.6 of this part. The first Precision Test shall be conducted prior to installing the Cathodic Protection system. The second Precision Test shall be conducted between three (3) and six (6) months following the first operation of the Cathodic Protection system; or

2.25.1.3.4 A third party approved integrity assessment method approved by the Department.

2.25.2 Sacrificial Anode Cathodic Protection System Operation and Maintenance Requirements

2.25.2.1 Owners and Operators shall test all UST Systems equipped with Sacrificial Anode Cathodic Protection systems for proper operation using standard corrosion engineering practices and in accordance with the following requirements:

2.25.2.1.1 Testing procedures shall be done in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection and the manufacturer's specifications, and shall include the following:

2.25.2.1.1.1 A minimum of three (3) voltage readings along the center line for UST Systems less than twenty thousand (20,000) gallons and a minimum of five (5) voltage readings along the center line for UST Systems greater than or equal to twenty thousand (20,000) gallons; and

2.25.2.1.1.2 A minimum of one (1) voltage reading for every ten (10) feet of Piping.

2.25.2.2 All Sacrificial Anode Cathodic Protection systems that protect UST System components shall be tested by an individual certified by a nationally recognized industry standard setting organization, and in accordance with Department standards within six (6) months of installation and at least once every twelve (12) months thereafter.

2.25.2.3 The Sacrificial Anode Cathodic Protection system shall be tested by an individual certified by a nationally recognized industry standard setting organization, and in accordance with Department standards within six (6) weeks after underground work is performed at or near a site with a Sacrificial Anode Cathodic Protection system and once every twelve (12) months thereafter.

2.25.2.4 Owners and Operators shall Repair or replace the Sacrificial Anode Cathodic Protection system in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection and the requirements of §1.6 of this Part if the Sacrificial Anode Cathodic Protection system is not operating in accordance with the manufacturer's specifications and the requirements of these Regulations. This includes but is not limited to failure to register a negative voltage of at least 0.85 volts for each UST. An individual certified by a nationally recognized industry standard setting organization shall determine the cause of the failure and make the necessary Repairs within sixty (60) days of the discovery of the failure of the corrosion protection system.

2.25.2.5 UST System Owners and Operators shall notify the Department within forty-eight (48) hours of the discovery of the failure of a Sacrificial Anode Cathodic Protection system.

2.25.2.6 The Department shall approve, either verbally or in writing, all Cathodic Protection repair or replacement plans prior to work commencing.

~~2.25.2.8~~ 2.25.2.7 The Department shall review the Release Detection and Cathodic Protection records of the UST System and based upon this information may require that UST System Owners and Operators determine the current integrity of the UST System if the Cathodic Protection system is not operating in accordance with the manufacturer's specifications and the requirements of these Regulations prior to making Repairs to the corrosion protection system. The use of alternate methods of monitoring shall be those described in NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection, and shall only be used with prior written approval from the Department.

2.25.2.8 The following information shall be submitted to the Department prior to Repairs to the Sacrificial Anode Cathodic Protection system:

2.25.2.8.1 Results of one of the following:

2.25.2.8.1.1 The two (2) most recent Sacrificial Anode Cathodic Protection system tests including the failed test, or

2.25.2.8.1.2 The results of an internal assessment, or

2.25.2.8.1.3 The results of a third party approved integrity assessment; and

2.25.2.8.2 Records of the Tank Release Detection method from the date of the most recent passed Sacrificial Anode Cathodic Protection test; and

2.25.2.8.3 Records of required rectifier readings from the date of the most recent passed impressed current Cathodic Protection test.

2.25.2.9 If the tank has an internal lining, no internal assessment results will be accepted for the purpose of determining the current integrity of the UST System.

~~2.25.2.9~~ 2.25.2.10 Owners and Operators shall maintain a record of the operation of Sacrificial Anode Cathodic Protection systems to demonstrate compliance with the requirements of

this Section. These records shall be retained in a permanent record and shall at a minimum provide the following information:

~~2.25.2.9.1~~ 2.25.2.10.1 The results of all tests and inspections of the Sacrificial Anode Cathodic Protection system.

~~2.25.2.10~~ 2.25.2.11 Impressed current Cathodic Protection systems shall not be utilized as a Repair, Upgrade or Replacement after ~~the Effective Date of these Regulations~~ January 11, 2008.

2.25.3 Impressed Current Cathodic Protection ~~Requirements~~ Operation and Maintenance Requirements

2.25.3.1 Owners and Operators shall test all UST Systems equipped with impressed current Cathodic Protection systems for proper operation using standard corrosion engineering practices in accordance with the following requirements:

2.25.3.1.1 Testing procedures shall be done in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection and the manufacturer's specifications, and shall include the following:

2.25.3.1.1.1 A minimum of three (3) instant off voltage readings along the center line for UST Systems less than twenty thousand (20,000) gallons and a minimum of five (5) instant off voltage readings along the center line for UST Systems greater than or equal to twenty thousand 20,000 gallons; and

2.25.3.1.1.2 A minimum of one (1) instant off voltage reading for every ten (10) feet of Piping.

2.25.3.2 Owners and Operators shall have all impressed current Cathodic Protection systems that protect underground components tested by an individual certified by a nationally recognized industry standard setting organization, and in accordance with Department standards within six (6) months of installation and at least once every twelve (12) months thereafter.

2.25.3.3 Owners and Operators shall have all impressed current Cathodic Protection systems shall be tested by an individual certified by a nationally recognized industry standard setting organization, and in accordance with Department standards within six (6) weeks after underground work is performed at or near a site with an impressed current Cathodic Protection system, and at least once every twelve (12) months thereafter.

2.25.3.4 Owners and Operators shall Repair or replace the impressed current Cathodic Protection system in accordance with NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection if the impressed current Cathodic Protection system is not operating in accordance with the manufacturer's specifications and the requirements of these Regulations. This includes but is not limited to failure to register a negative voltage of at least 0.85 volts for each UST. An individual certified by a nationally recognized industry standard setting organization shall determine the cause of the failure and make the necessary Repairs within sixty (60) days of the discovery of the failure of the impressed current corrosion protection system.

2.25.3.5 Owners and Operators shall notify the Department within forty-eight (48) hours of the discovery of the failure of an impressed current Cathodic Protection system.

2.25.3.6 The Department shall approve, either verbally or in writing, all impressed current Cathodic Protection system Repair or replacement plans prior to work commencing.

2.25.3.7 The Department shall review the Release Detection and impressed current Cathodic Protection records of the UST System and based upon this information may require that Owners and Operators determine the current integrity of the UST system if the impressed current Cathodic Protection system is not operating in accordance with the manufacturer's specifications and the requirements of these Regulations prior to making Repairs to the impressed current corrosion protection system.

2.25.3.8 The following information shall be submitted to the Department prior to Repairs to the impressed current Cathodic Protection system:

2.25.3.8.1 Results of one of the following:

2.25.3.8.1.1 The two (2) most recent impressed current Cathodic Protection system tests including the failed test, or

2.25.3.8.1.2 The results of an internal assessment, or

2.25.3.8.1.3 The results of a third party approved integrity assessment; and

2.25.3.8.2 Records of the Tank Release Detection method from the date of the most recent passed impressed current Cathodic Protection test.

2.25.3.9 If the tank has an internal lining, no internal assessment results will be accepted for the purpose of determining the current integrity of the UST System.

~~2.25.3.8~~ 2.25.3.10 The impressed current source cannot be de energized at any time including periods when the Facility is closed except during power failures or during service work on the UST Systems or the impressed current Cathodic Protection system.

~~2.25.3.9~~ 2.25.3.11 The use of alternate methods of testing shall be those described in NACE RP 0285, Corrosion Control of Underground Storage Tank Systems by Cathodic Protection and shall only be used with prior written approval from the Department.

~~2.25.3.10~~ 2.25.3.12 Owners and Operators shall record all rectifier readings ~~at~~ once every thirty (30) calendar days ~~once every thirty (30) calendar days~~. If the monthly rectifier reading demonstrates the impressed current Cathodic Protection is not operating in accordance with the manufacturer's specifications and the requirements of these Regulations the procedures in §2.25.3.4 shall be followed.

~~2.25.3.11~~ 2.25.3.13 Owners and Operators shall have all impressed current Cathodic Protection systems inspected once every twelve (12) months by an individual certified by a nationally recognized industry standard setting organization and in accordance with Department. Inspection shall at a minimum include a check for electrical shorts, ground connections, meter accuracy, and circuit resistance. The effectiveness of isolating devices, continuity bonds, and insulators shall be evaluated during the annual surveys.

~~2.25.3.12~~ 2.25.3.14 Owners and Operators shall maintain a record of the operation of impressed current Cathodic Protection systems to demonstrate compliance with the performance standards in this Section. These records shall be retained in a permanent record and shall at a minimum provide the following information:

~~2.25.3.12.1~~ 2.25.3.14.1 The results of all tests and inspections of the impressed current Cathodic Protection system; and

~~2.25.3.12.2~~ 2.25.3.14.2 The rectifier readings as required in §2.25.3.10 of this part.

2.26 Containment Sump Requirements for UST Systems Storing Heating Fuel

2.26.1 When a sump sensor is used to comply with the Tank or Piping Release Detection requirements of §2.9; §2.18, §2.19, or §2.20, of this Part, the Containment Sump shall be Product Tight and shall be tested to ensure it is Product Tight once every thirty-six (36) months.

2.26.2 All dispenser, Tank top, transition and any other Containment Sump tightness testing methods utilized shall be in accordance with the manufacturer's specifications or shall be approved in advance by the Department.

2.26.3 Owners and Operators shall immediately remove water, Regulated Substance or debris that accumulates in any Containment Sump.

2.27 Testing and Monitoring Procedures for Sump and Interstitial Sensors for UST Systems Storing Heating Fuel

2.27.1 Owner and Operators shall test and inspect all sump and interstitial sensors used to comply with the Release Detection requirements of §2.9 or §2.19 or §2.20 or §2.21 of this Part, or the requirements of §2.22.7 of this Part, once every twelve (12) months in accordance with the manufacturer's specifications or as directed by the Department to verify proper sensor operation.

2.27.2 All sensors installed in a sump for the purpose of detecting a Release from the UST System shall be installed no more than one inch (1") from the bottom of the sump such that the sensor is capable of detecting any accumulation of Regulated Substance.

2.28 Repair, Retrofit and Upgrade Requirements for UST Systems Storing Heating Fuel

2.28.1 All Repairs, Upgrades, Retrofits and replacements to existing Heating Fuel UST Systems shall meet the applicable design, installation, maintenance and operational standards in Part C, §1 of these Regulations or shall be approved by the Department prior to installation.

~~2.28.2 Documentation of Repair completion shall be submitted to the Department in accordance with Part E, §2.2.2. of these Regulations.~~ Owners and Operators shall report any abnormal operating conditions to the Tank Management Branch in accordance with the requirements of Part E, §1.2 of these Regulations.

2.28.3 All equipment installed after ~~the Effective Date of these Regulations of these Regulations~~ January 11, 2008 shall be installed, operated and maintained such that manufacturer's warranties are not voided.

2.28.4 Owners and Operators shall ensure that Repairs will prevent Releases due to structural failure or corrosion as long as the UST System is used to store Heating Fuel.

2.28.5 Owners and Operators shall test the Cathodic Protection system in accordance with §2.25 of this Part within six (6) weeks and once every twelve (12) months thereafter following the Repair of any Cathodically Protected UST system to ensure it is operating properly.

2.28.6 Owners and Operators shall maintain records for each Repair, Retrofit and Upgrade for the Operational Life of the UST System.

2.28.7 After any Repairs, Retrofit or Upgrade to an UST System Owners and Operators shall have the applicable portions of the UST System tested for tightness in accordance with ~~§2.9.6 of this Part~~ these Regulations before the UST System is placed into service.

2.28.8 Repairs to fiberglass reinforced plastic Tanks may be made only by the manufacturer or by its authorized representatives.

2.28.9 Owners and Operators may not Repair holes in Piping and fittings, but shall replace any piece of such Piping or fittings from which a Release has occurred. Replacement Piping and fittings shall meet all applicable Piping requirements in §1 of this Part. Loose fittings and joints in Piping that have been tightened to eliminate leakage may be put back into service.

2.28.10 At any time during the course of a Repair, Retrofit or Upgrade there is an indication of a Release the requirements of Part E of these Regulations must be followed.

2.28.11 At any time excavation of soil or removal of concrete, asphalt or other cover is required during the course of a Repair, Retrofit or Upgrade, Owners and Operators shall perform a Site Assessment to 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 shall consider the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a Release. The Site Assessment shall be completed within ten (10) days of the Repair, Retrofit or Upgrade of the UST System.

2.28.12 Within sixty (60) days of completion of a Repair, Retrofit or Upgrade of an UST System Owners and Operators and UST Contractors shall submit documentation to the Tank Management Branch including but not limited to the following:

2.28.12.1 Repair, Retrofit or Upgrade completion documentation; and

2.28.12.2 Results of sampling required in Part E of these Regulations or §2.28.10 of this Part; and

2.28.12.3 Results of any UST System tests required by the Department.

2.29 Routine Inspection Requirements for USTs Storing Heating Fuel

2.29.1 Owners and Operators shall conduct an inspection ~~once every thirty (30)~~ at an interval no less frequently than once every twenty-eight (28) to thirty-one (31) calendar days to monitor the condition of the UST System including but not limited to access ports, spill containment devices, sumps, and Containment Sumps. The routine inspection shall ~~include~~ at a minimum include the following:

2.29.1.1 The removal of all Containment Sump and sump covers and visual inspection of the sump for any evidence of a Release of Heating Fuel or intrusion of water; and

2.29.1.2 The inspection of all access ports to make sure that the covers, caps and adaptors are tightly sealed; and

2.29.1.3 The removal of all spill containment device covers and inspection to ensure all spill containment devices are empty and free of debris, water or Heating Fuel.

2.29.2 A record of all routine inspections shall be kept on file by Owners and Operators for a minimum of three (3) years and shall be made available to the Department upon request. The records shall at a minimum include the results of all inspections including any Repairs made.

2.29.3 If at any time during a routine inspection evidence of a Release of Heating Fuel is discovered Owners and Operators shall follow the investigation requirements of Part E of these Regulations.

2.30 Alternative Compliance Requirements for existing Heating Fuel UST Systems with a storage capacity greater than 2,000 gallons and less than or equal to 8,000 gallons

2.30.1 Owners and Operators of Heating Fuel UST Systems installed prior to May 14, 1993 with a storage capacity of greater than two thousand (2,000) gallons and less than or equal to eight thousand (8,000) gallons may submit a written application to the Department requesting a deferral from compliance with the requirements of §2.32 of this Part. The following documentation shall be submitted with the written request:

2.30.1.1 Name and location of the facility for which the exemption is being requested; and

2.30.1.2 Duration of the exemption being requested; and

2.30.1.3 The former capacity of the UST System for which the exemption is being requested; and

2.30.1.4 Documentation of an agreement with the heating fuel distributor not to exceed a two thousand (2,000) gallon capacity in the UST System for which the exemption is being requested.

2.30.1.5 Results of a Site Assessment conducted to measure for the presence of a Release where contamination is most likely to be present at the UST System site. In selecting the sample locations and measurement methods, Owners and Operators shall consider the nature of the Regulated Substance stored, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release.

2.30.2 Manual tank gauging (MTG) shall be performed for Heating Fuel UST Systems granted an exemption by the Department from the requirements of §2.32 of this Part in accordance with the following requirements:

2.30.2.1 The UST System shall be tested at least twice in a twelve (12) month period over a static period of at least one hundred and twenty (120) hours in which no Heating Fuel may be added to or removed from the UST System.

2.30.2.2 At the beginning and at the end of the test period the liquid level in the UST shall be measured to the nearest one-eighth (1/8) inch and the measurements recorded.

2.30.2.3 Owners and Operators shall maintain the MTG records for the lifetime of the UST System.

2.30.2.4 A leak rate of 0.2 gallons per hour (0.2 gph) or more shall be indication of a Release.

2.30.2.5 Owners and Operators shall notify the Department of a suspected Release within twenty-four (24) hours of the end of the test period and the requirements of Part E of these Regulations shall be followed.

2.30.3 The Department shall approve or deny each exemption request in writing to Owners and Operators. Approval documentation shall be posted or displayed at the individual facility for which the exemption was granted.

2.30.4 No Heating Fuel UST System shall be granted an exemption from compliance with the requirements of §2.32 of this Part after December 31, 2010.

2.30.5 Heating Fuel UST Systems located in areas where groundwater depth is above the ~~t~~Tank bottom are prohibited from entering the exemption category.

2.31 Internal Lining Requirements for Heating Fuel USTs

2.31.1 An internal lining may be added to UST Systems to improve the ability of a Heating Fuel UST System to prevent the release of Heating Fuel.

2.31.2 An internal lining ~~may be~~ shall not be added to UST Systems to meet corrosion protection requirements after ~~the Effective Date of these Regulations~~ January 11, 2008.

2.31.3 The internal lining installation, operation and maintenance shall meet the following requirements:

2.31.3.1 The lining shall be installed in accordance with the following industry standards:

2.31.3.1.1 API RP 1631, Interior Lining and Periodic Inspection of Underground Storage Tanks.

2.31.3.1.2 NLPA Standard 631, Chapter A, Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks.

2.31.3.1.3 NLPA Standard 631, Chapter B, Future Internal Inspection Requirements for Lined Tanks.

2.31.3.2 The lined Tank shall be tested for tightness in accordance with §2.9.6 of this Part and found to be tight before the Tank is put back into service; and

2.31.3.3 Within ten (10) years after lining, and every five (5) years thereafter, Owners and Operators shall conduct an internal inspection of the lined Tank in accordance with NLPA Standard 631, Chapter A, Entry, Cleaning, Interior Inspection, Repair, and Lining of Underground Storage Tanks and Chapter B, Future Internal Inspection Requirements for Lined Tanks and API RP 1631, Interior Lining and Periodic Inspection of Underground Storage Tanks. At the time of the inspection, the lined Tank shall be structurally sound and comply with the original design specifications. If any damage is found, Repairs shall be made in accordance with standard engineering practice, industry standards and the requirements of these Regulations or the Tank shall be replaced in accordance with the requirements in §1 of this Part.

2.31.3.4 When an internally lined bare steel Tank is not inspected at a minimum in accordance with the intervals required in §2.31.3.3 of this Part and subsequently fails an internal inspection test the Tank shall be Removed or Closed In Place in accordance with these Regulations.

2.32 Additional Requirements for Heating Fuel UST systems installed prior to May 14, 1993

2.32.1 Not later than January 1, 1999, no Person shall own or operate a Heating Fuel UST System with a capacity of greater than two thousand (2,000) gallons installed prior to May 14, 1993 that is not in compliance with the following:

~~2.32.1.1 The requirements of the following:~~

~~2.32.1.1.1~~ 2.32.1.1 The ~~T~~tank Rrelease Ddetection requirements of §2.9 of this Part; and

~~2.32.1.1.2~~ 2.32.1.2 The ~~p~~Piping ~~r~~Release ~~D~~detection requirements of §2.19, and §2.20 or §2.21 of this Part; and

~~2.32.1.1.3~~ 2.32.1.3 The spill protection requirements of §2.22 of this Part; and

~~2.32.1.1.4~~ 2.32.1.4 The overfill protection requirements of §2.23 of this Part; and

2.32.1.5 The fill ~~l~~Line protection requirements of §2.24 of this Part; and

2.32.1.6 One of the following:

~~2.32.1.2~~ 2.32.1.6.1 UST System design requirements of §2.3 of this part; or

2.32.1.6 2 UST System Cathodic Protection requirements of §2.6. and §2.25 of this part; or

2.32.1.6 3 UST System Internal Lining requirements of §2.31 of this part; or

~~2.32.1.4~~ 2.32.1.6.4 UST System Cathodic Protection requirements of §2.6. and §2.25 of this Part and UST System Internal Lining requirements of §2.31 of this part; or

~~2.32.1.5~~ 2.32.1.6.5 The permanent Removal or Closure In Place of the UST System in accordance with the requirements of Part C, §4 of these Regulations and the applicable hydrogeologic investigation and Remedial Action requirements of Part E of these Regulations.

3.0 Change In Service Requirements for Heating Fuel UST Systems

3.1 Change In Service Notification Requirements for Heating Fuel UST Systems

3.1.1 UST System Owners and Operators shall notify the Department of all Changes In Service in accordance with the requirements of §4.0 of Part A of these Regulations.

3.2 General Requirements for Change in Status from In Service to Out of Service for Heating Fuel UST Systems

3.2.1 Owners and Operators shall continue operation and maintenance of corrosion protection in accordance with the applicable requirements of §1 and §2 of this Part when a Heating Fuel UST System is Out of Service.

3.2.2 Owners and Operators shall continue operation and maintenance of Release Detection in accordance with the applicable Release Detection requirements for Tanks and Piping in §1 and §2 when the Out of Service ~~Tank~~ UST System is not empty. Release Detection is not required if the UST System has been rendered empty.

3.2.3 The UST System is empty when all Heating Fuels have been removed using commonly employed practices so that no more than one inch or 2.5 centimeters of residue, or 0.3 percent by weight of the total capacity of the UST System, remains in the system.

3.2.4 Owners and Operators shall comply with the routine inspection requirements of §1.28 or §2.29 of this Part as applicable, if the Out of Service UST System is not empty and requires Release Detection in accordance with §3.2.2 of this Part.

~~3.2.3~~ 3.2.5 When a Heating Fuel UST System is Out of Service for three (3) months or more, Owners and Operators shall ~~comply with the following requirements~~:

~~3.2.3.1~~ 3.2.5.1 Leave vent ~~l~~Lines open and functioning; and

~~3.2.3.2~~ 3.2.5.2 Cap and secure all other ~~lines~~ Pipes, pumps, manways, and Ancillary Equipment.

~~3.2.4~~ 3.2.6 When a Heating Fuel UST System has been Out Of Service for twelve (12) months, Owners and Operators shall:

~~3.2.4.1~~ 3.2.6.1 Permanently Remove or Close in Place the Heating Fuel UST System in accordance with the applicable requirements of these Regulations; or

~~3.2.4.2~~ 3.2.6.2 Render the Heating Fuel UST System empty in accordance with the definition in §3.2.~~2~~3 of this Part and complete a Site Assessment in accordance with §3.4 of this Part including any required hydrogeologic investigation and Remedial Action in accordance with Part E of these Regulations.

3.3 General Requirements for Change in Status from Out of Service to In Service for Heating Fuel UST Systems

3.3.1 Prior to a change in status of a Heating Fuel UST System from Out of Service, for an UST System that has been Out of Service for three (3) months or more, to In Service, Owners and Operators shall ensure that the Heating Fuel UST System meets the following requirements prior to being placed In Service:

3.3.1.1 The Heating Fuel UST System shall meet the requirements of §1 or §2 of this Part as applicable; and

3.3.1.2 The Heating Fuel UST System shall be tested for tightness ~~in accordance with the requirements of §2.9.6~~ as applicable; and

3.3.1.3 All Cathodically Protected Heating Fuel UST Systems shall be tested and all necessary Repairs made in accordance with the requirements of §2.25 of this part.

3.4 Change In Service Site Assessment Requirements for Heating Fuel UST Systems

3.4.1 Within thirty (30) days of rendering the UST System empty as required in §3.2.~~4~~6.2 of this part, Owners and Operators shall complete a Site Assessment designed to measure for the presence of a Release where contamination is most likely to be present. The Site Assessment is not restricted to the property containing the UST System. In selecting sample types, sample locations and measurement methods, Owners and Operators shall consider the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a Release. A Site Assessment plan shall be approved by the Department prior to implementation.

3.4.2 If contaminated soils, contaminated groundwater, or Free Product as a liquid or a vapor is discovered as a result of the Site Assessment performed in accordance with §3.4.1 of this part, or by any other manner, Owner and Operators shall begin a hydrogeologic investigation and Remedial Action in accordance with the requirements of Part E of these Regulations.

3.5 Change In Service Recordkeeping Requirements for Heating Fuel UST Systems

3.5.1 Owners and Operators shall submit the following documents to the Department within thirty (30) days of the completion of the Site Assessment required in §3.4 of this part:

3.5.1.1 A site plan detailing the UST(s) location and surrounding area; and

3.5.1.2 The approved Site Assessment plan with sampling points clearly marked; and

3.5.1.3 Chain of custody for all samples submitted for laboratory analysis; and

3.5.1.4 Results of any on-site screening performed; and

3.5.1.5 Laboratory test results for all samples submitted for laboratory analysis; and

3.5.1.6 Documentation of proper disposal or recycling of solid or hazardous waste generated as a result of the Change In Service of the Heating Fuel UST System, including manifests and receipts for soil, water, and Heating Fuel.

4.0 Removal or Closure in Place Requirements for Heating Fuel UST Systems

4.1 Removal or Closure in Place Notification Requirements for Heating Fuel UST Systems

4.1.1 Owners and Operators shall notify the Department of all Removals or Closures in Place in accordance with the requirements of §4.0 of Part A of these Regulations.

4.2 Removal or Closure in Place General Requirements for Heating Fuel UST Systems

4.2.1 The Removal and Closure in Place procedures shall comply with the following industry standards:

4.2.1.1 API RP 1604, Closure of Underground Petroleum Storage Tanks.

4.2.1.2 API 2015, Safe Entry and Cleaning of Petroleum Storage Tanks.

4.2.1.3 OSHA, 29 CFR, 1910.146, Permit Required Confined Spaces.

4.3 Removal or Closure in Place Site Assessment Requirements for Heating Fuel UST Systems

4.3.1 At the time of Removal of a Heating Fuel UST System, Owners and Operators shall perform a Site Assessment to 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 shall consider the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a Release. The Site Assessment shall be completed within ten (10) days of the Removal of the Heating Fuel UST System.

4.3.2 At the time of Closure in Place of a Heating Fuel UST System, Owners and Operators shall perform a Site Assessment to 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 shall consider the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a Release. The Site Assessment shall be approved by the Department prior to implementation. The Site Assessment shall be completed within ten (10) days of the Closure in Place of the Heating Fuel UST System.

4.3.3 If contaminated soils, contaminated groundwater, or Free Product as a liquid or a vapor is discovered as a result of the Site Assessment performed in accordance with §4.3.1 and §4.3.2 of this part, or by any other manner, Owner and Operators shall begin a hydrogeologic investigation and Remedial Action in accordance with the requirements of Part E of these Regulations.

4.4 Removal or Closure in Place Recordkeeping Requirements for Heating Fuel USTs

4.4.1 Owners and Operators shall submit the following documents to the Department within sixty (60) days of the Removal or Closure in Place of a Heating Fuel UST System:

4.4.1.1 A site plan detailing the UST(s) location and surrounding area; and

4.4.1.2 A site map with sampling points clearly marked; and

4.4.1.3 Results of any on-site screening performed; and

4.4.1.4 Chain of custody for all samples submitted for laboratory analysis; and

4.4.1.5 Laboratory test results for all samples submitted for laboratory analysis ; and

4.4.1.6 Documentation of proper disposal or recycling of solid or hazardous waste generated as a result of the Removal of the UST System, including manifests and receipts for soil, water, and Regulated Substances and the UST System disposal; and

4.4.1.7 Documentation of Tank cleaning prior to UST System Closure in Place.

4.5 Applicability to Previously Removed or Closed In Place Heating Fuel UST Systems

4.5.1 When a Release is suspected from a previously Removed, Closed In Place or abandoned Heating Fuel UST System, the Owner, Operator and Responsible Party shall comply with the requirements of Part E of these Regulations. If a Release is confirmed the Owner, Operator and Responsible Party shall Remove or Close In Place the Heating Fuel UST System in accordance with all applicable requirements of these Regulations.

5.0 Change In Substance Stored Requirements for Heating Fuel UST Systems

5.1 Change In Substance Stored Notification Requirements for Heating Fuel UST Systems

5.1.1 Owners and Operators shall notify the Department of all Changes in Substance stored in accordance with the requirements of §4.0 of Part A of these Regulations.

5.2 Change In Substance Stored General Requirements for Heating Fuel UST Systems

5.2.1 Before the Change In Substance Stored, Owners and Operators shall empty and clean the Heating Fuel UST System by removing all liquids and accumulated sludge in accordance with the following industry standards:

5.2.1.1 API RP 1604, Closure of Underground Petroleum Storage Tanks.

5.2.1.2 API RP 2015, Safe Entry and Cleaning of Petroleum Storage Tanks.

5.2.1.3 OSHA, 29 CFR, 1910.146, Permit Required Confined Spaces.

5.3 Change In Substance Stored Site Assessment Requirements for Heating Fuel UST Systems

5.3.1 Within thirty (30) days of the completion of the cleaning of the Heating Fuel UST System required in §5.2 of this part, Owners and Operators shall complete a Site Assessment designed to measure for the presence of a Release where contamination is most likely to be present at the Heating Fuel UST site. In selecting sample types, sample locations and measurement methods, Owners and Operators shall consider the nature of the stored substance, the type of backfill, the depth to

groundwater, and other factors appropriate for identifying the presence of a Release. A Site Assessment plan shall be approved by the Department prior to implementation.

5.3.2 If contaminated soils, contaminated groundwater, or Free Product as a liquid or a vapor is discovered as a result of the Site Assessment performed in accordance with §5.3.1 of this Part, or by any other manner, Owner and Operators shall begin a hydrogeologic investigation and Remedial Action in accordance with the requirements of Part E of these Regulations.

5.4 Change In Substance Stored Recordkeeping Requirements for Heating Fuel UST Systems

5.4.1 Owners and Operators shall submit the following documents to the Department within thirty (30) days of the Change In Substance Stored in an UST System:

5.4.1.1 A site plan detailing the UST(s) location and surrounding area; and

5.4.1.2 The approved Site Assessment plan with sampling points clearly marked; and

5.4.1.3 Chain of custody for all samples submitted for laboratory analysis; and

5.4.1.4 Results of any on-site screening performed; and

5.4.1.5 Laboratory test results for all samples submitted for laboratory analysis ; and

5.4.1.6 Documentation of proper disposal or recycling of solid or hazardous waste generated as a result of the Change in Substance Stored of the UST System, including manifests and receipts for soil, water, and Regulated Substances.