Pollution Control Agency

Adopted Permanent Rules Relating to Underground Storage Tanks

Rules as Adopted

PROGRAM SCOPE AND INTERIM STANDARDS

7150.0010 APPLICABILITY.

Subpart 1. **Scope.** The requirements of this chapter apply to all owners and operators of an underground storage tank system as defined in part 7150.0030, except as otherwise provided in this subpart and subparts 2 and 3. Any underground storage tank system listed in subpart 3 must meet the requirements of part 7150.0020.

Subp. 2. **Exclusions.** The following underground storage tank systems are excluded from the requirements of this chapter:

A. an underground storage tank system holding hazardous wastes listed or identified under chapter 7045 or Code of Federal Regulations, title 40, part 261, or a mixture of such hazardous waste and other regulated substances;

B. a wastewater treatment tank system that is part of a wastewater treatment facility regulated under United States Code, title 33, section 1317 or 1342;

C. equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment tanks;

D. an underground storage tank system with a capacity of 110 gallons or less;

E. an underground storage tank system that contains a de minimus concentration of regulated substances;

F. an emergency spill or overflow containment underground storage tank system that is expeditiously emptied after use;

G. a farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;

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H. a tank of 1,100 gallons or less capacity used exclusively for storing heating oil for consumptive use on the premises where stored;

I. a septic tank;

J. a pipeline facility, including gathering lines, regulated under United States Code, title 49, chapter 24 or 29;

K. a surface impoundment, pit, pond, or lagoon;

L. a storm water or wastewater collection system;

M. a flow-through process tank; and

N. a storage tank situated in an underground area such as a basement, cellar, mineworking, drift, shaft, or tunnel if the storage tank is located upon or above the surface of the floor.

Subp. 3. **Deferrals.** Parts 7150.0100 to 7150.0440 do not apply to any of the following types of underground storage tank systems:

A. wastewater treatment tank systems;

B. underground storage tank systems containing radioactive material that are regulated under the Atomic Energy Act of 1954, United States Code, title 42, sections 2011 to 2296;

C. an underground storage tank system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under Code of Federal Regulations, title 10, part 50, Appendix A;

D. airport hydrant fuel distribution systems; and

E. underground storage tank systems with field-constructed tanks.

Subp. 4. **Release detection deferrals.** Parts 7150.0300 to 7150.0350 do not apply to an underground storage tank system that stores fuel solely for use by emergency power generators.

Subp. 5. **Heating oil underground storage tank deferrals.** Parts 7150.0100 to 7150.0440, except 7150.0120, subparts 2 and 6, do not apply to an underground storage tank system of over 1,100 gallons capacity used exclusively for storing heating oil for consumptive use on the premises where stored.

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7150.0020 INTERIM STANDARDS FOR DEFERRED UNDERGROUND STORAGE TANK SYSTEMS.

Subpart 1. **Interim standards.** No person may install an underground storage tank system listed in part 7150.0010, subparts 3 to 5, for the purpose of storing regulated substances unless the underground storage tank system, whether of single- or double-wall construction:

A. is installed according to requirements of the American Petroleum Institute Bulletin 1615 to the extent applicable, and all manufacturer's recommendations;

B. will prevent releases due to corrosion or structural failure for the operational life of the underground storage tank system;

C. is cathodically protected against corrosion, constructed of noncorrodible material, steel clad with a noncorrodible material, or designed in a manner to prevent the release or threatened release of any stored substance; and

D. is constructed or lined with material that is compatible with the stored substance.

Subp. 2. **Systems without corrosion protection.** Notwithstanding subpart 1, an underground storage tank system without corrosion protection may be installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life. Owners and operators must maintain records that demonstrate compliance with the requirements of this subpart for the remaining life of the tank. The determination required by this subpart must be in accordance with the National Association of Corrosion Engineers, Standard RP-02-85.

7150.0030 DEFINITIONS.

Subpart 1. **Scope.** For the purposes of this chapter, the following terms and abbreviations have the meanings given them. Terms that are not specifically defined have the meanings given them in Minnesota Statutes, sections 115.01, 115C.02, and 116.46.

~~Subp. 2. **Aboveground release.** "Aboveground release" means~~

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~~a release to the surface of the land or to surface water, including, but not limited to, releases from the aboveground part of an underground storage tank system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank system.~~

Subp. ~~3.~~ 2. **Agency.** "Agency" means the Minnesota Pollution Control Agency.

Subp. ~~4.~~ 3. **Appurtenances.** "Appurtenances" means devices such as piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to or from an underground storage tank.

~~Subp. 5. Belowground release. "Belowground release" means a release to the subsurface of the land and to groundwater, including, but not limited to, releases from the belowground parts of an underground storage tank system and belowground releases associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank.~~

Subp. ~~6.~~ 4. **Beneath the surface of the ground.** "Beneath the surface of the ground" means beneath the ground surface or otherwise covered with earthen materials.

Subp. ~~7.~~ 5. **Cathodic protection.** "Cathodic protection" means using a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current.

Subp. ~~8.~~ 6. **Cathodic protection tester.** "Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems.

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Subp. ~~9.~~ 7. **Change in service.** "Change in service" means a permanent removal from service or a change in the reported uses, contents, or ownership of an underground storage tank under Minnesota Statutes, section 116.48, subdivision 3, or an upgrade under this chapter.

Subp. ~~10.~~ 8. **Closure or removal.** "Closure" or "removal" means permanently taking an underground storage tank out of service by either closing it in place, removing it from the ground, or converting it to store a nonregulated substance as required by this chapter.

Subp. ~~11.~~ 9. **Commissioner.** "Commissioner" means the commissioner of the Minnesota Pollution Control Agency.

Subp. ~~12.~~ 10. **Compatible.** "Compatible" means the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the underground storage tank.

Subp. ~~13.~~ 11. **Connected piping.** "Connected piping" means underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which regulated substances flow. For the purpose of determining how much piping is connected to an individual underground storage tank system, the piping that joins two underground storage tank systems should be allocated equally between them.

Subp. ~~14.~~ 12. **Consumptive use.** "Consumptive use," with respect to heating oil, means consumed on the premises.

Subp. ~~15.~~ 13. **Corrosion expert.** "Corrosion expert" means a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. The person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion

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control of buried or submerged metal piping systems and metal tanks.

Subp. ~~16.~~ 14. **Dielectric material.** "Dielectric material" means a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate underground storage tank systems from the surrounding soils. Dielectric bushings are used to electrically isolate parts of the underground storage tank system, for example, tank from piping.

Subp. ~~17.~~ 15. **Electrical equipment.** "Electrical equipment" means underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electrical cable.

Subp. ~~18.~~ 16. **Excavation zone.** "Excavation zone" means the volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the underground storage tank system is placed at the time of installation.

Subp. ~~19.~~ 17. **Existing tank system.** "Existing tank system" means a tank system used to contain an accumulation of regulated substances or for which installation began on or before December 22, 1988. However, a tank system containing hazardous materials that is not regulated under Code of Federal Regulations, title 40, part 280, is considered an existing tank system if installation began on or before (insert 90 days after date of adoption). Installation is considered to have begun if:

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

B. either a continuous on-site physical construction or installation program has begun, or the owner or operator has entered into contractual obligations, that cannot be canceled or modified without substantial loss, for physical construction at the site or installation of the tank system to be completed within a reasonable time.

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Subp. ~~20.~~ 18. **Farm tank.** "Farm tank" means a tank located on a tract of land devoted to the production of crops, raising animals, including fish, range land, nurseries with growing operations, and associated residences and improvements. A farm tank must be located on the farm property.

Subp. ~~21.~~ 19. **Flow-through process tank.** "Flow-through process tank" means a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process or for the storage of finished products or by-products from the production process.

Subp. ~~22.~~ 20. **Free product.** "Free product" means a regulated substance that is present as a nonaqueous phase liquid, for example, liquid not dissolved in water.

Subp. ~~23.~~ 21. **Gathering lines.** "Gathering lines" means a pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production or gathering operations.

Subp. ~~24.~~ 22. **Hazardous material.** "Hazardous material" means:

A. a substance listed in Code of Federal Regulations, title 49, section 172.101, including petroleum under subpart ~~38~~ 36, item C, but not including:

(1) a hazardous waste listed or identified under chapter 7045 or Code of Federal Regulations, title 40, part 261;

(2) petroleum under subpart ~~38~~ 36, item A, B, or D; or

(3) a substance that is not liquid at a temperature of 60 degrees Fahrenheit and pressure of 14.7 pounds per square inch absolute; or

B. any mixture of substances identified in item A and petroleum, unless the amount of the substance identified in item A is de minimus.

Substances identified in items A and B which also meet the

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definition of petroleum are considered hazardous materials.

Subp. ~~25.~~ 23. **Hazardous material underground storage tank system.** "Hazardous material underground storage tank system" means an underground storage tank system that is used to contain a hazardous material.

Subp. ~~26.~~ 24. **Heating oil.** "Heating oil" means petroleum that is Nos. 1, 2, and 4 light, No. 4 heavy, No. 5 light, No. 5 heavy, and No. 6 technical grades of fuel oil; other residual fuel oils, including Navy Special Fuel Oil and Bunker C; and other fuels when used as substitutes for one of these fuel oils. Heating oil is typically used in the operation of heating equipment, boilers, or furnaces.

Subp. ~~27.~~ 25. **Hydraulic lift tank.** "Hydraulic lift tank" means a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.

Subp. ~~28.~~ 26. **Maintenance.** "Maintenance" means the normal operational upkeep to prevent an underground storage tank system from releasing a regulated substance.

Subp. ~~29.~~ 27. **Motor fuel.** "Motor fuel" means petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No. 1 or 2 diesel fuel, or any grade of gasohol, and is typically used in the operation of a motor engine.

Subp. ~~30.~~ 28. **New tank system.** "New tank system" means a tank system that is or will be used to contain an accumulation of regulated substances and which is not an existing tank system as defined in subpart ~~19~~ 17.

Subp. ~~31.~~ 29. **Noncommercial purposes.** "Noncommercial purposes," with respect to motor fuel, means not for resale.

Subp. ~~32.~~ 30. **On the premises where stored.** "On the premises where stored," with respect to heating oil, means underground storage tank systems located on the same property where the stored heating oil is used.

Subp. ~~33.~~ 31. **Operational life.** "Operational life" means the period beginning when installation of the tank system has begun until the time the tank system is properly closed under

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parts 7150.0400 to 7150.0440.

Subp. ~~34.~~ 32. **Operator.** "Operator" means a person in control of or having responsibility for the daily operation of the underground storage tank system or a person who was in control of or had responsibility for the daily operation of the tank immediately before discontinuation of its use.

Operator also means a person who is responsible under Minnesota Statutes, section 115C.021, for a release from an underground storage tank containing petroleum, or a person who is responsible under Minnesota Statutes, section 115B.03, for a release from an underground storage tank containing a hazardous material. Operator does not include a person who operates a tank if the tank is not regulated by this chapter.

Subp. ~~35.~~ 33. **Overfill release.** "Overfill release" means a release occurring when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment.

Subp. ~~36.~~ 34. **Owner.** "Owner" means a person who holds title to, controls or possesses an interest in an underground storage tank, and a person who held title to, controlled, or possessed an interest in the tank immediately before discontinuation of its use.

Owner also means a person who is responsible under Minnesota Statutes, section 115C.021, for a release from an underground storage tank containing petroleum, or a person who is responsible under Minnesota Statutes, section 115B.03, for a release from an underground storage tank containing a hazardous material.

Owner does not include a person who owns a tank if the tank is not regulated by this chapter and does not include a person who holds an interest in a tank solely for financial security, unless through foreclosure or other related actions the holder of a security interest has taken possession of the tank.

Subp. ~~37.~~ 35. **Person.** "Person" means an individual, partnership, association, public or private corporation, or other legal entity, including the United States government, an

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interstate commission or other body, the state, or any agency, board, bureau, office, department, or political subdivision of the state, but does not include the Minnesota Pollution Control Agency.

Subp. ~~38.~~ 36. **Petroleum.** "Petroleum" means one of the following substances:

A. gasoline and fuel oil as defined in Minnesota Statutes, section 296.01, subdivisions 3 and 4;

B. crude oil or a fraction of crude oil that is liquid at a temperature of 60 degrees Fahrenheit and pressure of 14.7 pounds per square inch absolute;

C. constituents of gasoline and fuel oil under item A and constituents of crude oil under item B; or

D. petroleum-based substances that are comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, and used oils.

Subp. ~~39.~~ 37. **Petroleum underground storage tank system.** "Petroleum underground storage tank system" means an underground storage tank system that is used to contain petroleum or a mixture of petroleum with de minimus quantities of hazardous materials.

Subp. ~~40.~~ 38. **Pipe or piping.** "Pipe" or "piping" means a hollow cylinder or tubular conduit for conveying a regulated substance from one point to another within an underground storage tank system.

Subp. ~~41.~~ 39. **Pipeline facilities.** "Pipeline facilities," including gathering lines, means new and existing pipe rights-of-way and any associated equipment, facilities, or buildings.

Subp. ~~42.~~ 40. **Regulated substance.** "Regulated substance" means a hazardous material or petroleum.

Subp. ~~43.~~ 41. **Release.** "Release" means a spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an underground storage tank into the environment including

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spills associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank system. "Release" does not include discharges or designed venting allowed under agency rules.

Subp. ~~44.~~ 42. **Release detection.** "Release detection" means determining whether a release of a regulated substance has occurred from the underground storage tank system into the environment or into the interstitial space between the underground storage tank system and its secondary barrier or secondary containment around it.

Subp. ~~45.~~ 43. **Repair.** "Repair" means the correction, restoration, modification, or upgrading of a tank system, including, but not limited to, the addition of cathodic protection systems, the replacement of piping, valves, fill pipes or vents, the lining of a tank through the application of materials such as epoxy resins, or any other similar activities that may affect the integrity of the tank system.

Subp. ~~46.~~ 44. **Residential tank.** "Residential tank" means a tank located on property used primarily for dwelling purposes.

Subp. ~~47.~~ 45. **Septic tank.** "Septic tank" means a watertight, covered receptacle designed to receive or process through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from the receptacle is distributed for disposal through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility.

Subp. ~~48.~~ 46. **Storm water or wastewater collection system.** "Storm water or wastewater collection system" means piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water run-off resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or areas where treatment is designated to occur. The collection of storm water and wastewater does not include treatment, except where incidental to conveyance.

Subp. ~~49.~~ 47. **Surface impoundment.** "Surface impoundment"

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means a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials, although it may be lined with man-made materials, that is not an injection well.

Subp. ~~50.~~ 48. **Tank.** "Tank" is a stationary device designed to contain an accumulation of regulated substances and constructed of nonearthen materials, such as concrete, steel, and plastic, that provide structural support.

Subp. ~~51.~~ 49. **Tank system.** "Tank system" has the same meaning as underground storage tank and underground storage tank system.

Subp. ~~52.~~ 50. **Underground area.** "Underground area" means an underground room such as a basement, cellar, shaft, or vault providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor.

~~Subp. 53. Underground release. "Underground release" means a belowground release.~~

Subp. ~~54.~~ 51. **Underground storage tank or underground storage tank system.** "Underground storage tank" or "underground storage tank system" means any one or combination of containers including tanks, vessels, enclosures, or structures and underground appurtenances connected to them that is used to contain or dispense an accumulation of regulated substances, and the volume of which, including the volume of underground pipes connected to them, is ten percent or more beneath the surface of the ground. This term does not include any tank or pipes connected to a tank described in part 7150.0010, subpart 2.

Subp. ~~55.~~ 52. **Upgrade.** "Upgrade" means the addition or retrofit of systems such as cathodic protection, lining, piping, or spill and overfill controls to improve the ability of an underground storage tank system to prevent the release of a regulated substance.

Subp. ~~56.~~ 53. **Wastewater treatment tank.** "Wastewater treatment tank" means a tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods.

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UNDERGROUND STORAGE TANK SYSTEMS

DESIGN, CONSTRUCTION, INSTALLATION, AND NOTIFICATION

7150.0100 PERFORMANCE STANDARDS FOR NEW UNDERGROUND STORAGE TANK SYSTEMS.

Subpart 1. **Purpose.** To prevent releases due to structural failure, corrosion, or spills and overfills for as long as the underground storage tank system is used to store regulated substances, all owners and operators of new underground storage tank systems must meet the requirements in subparts 2 to 8.

Subp. 2. **Tanks.** Each tank must be properly designed and constructed, and any part underground that routinely contains product must be protected from corrosion using one of the methods specified in items A to E. The corrosion protection methods in items A to D must be in accordance with one of the codes of practice in subpart 3 developed by a nationally recognized association or independent testing laboratory:

A. The tank is constructed of fiberglass-reinforced plastic.

B. The tank is constructed of steel and cathodically protected in the following manner:

(1) the tank is coated with a suitable dielectric material;

(2) field-installed cathodic protection systems are designed by a corrosion expert;

(3) impressed current systems are designed to allow determination of current operating status as required in part 7150.0210, subpart 4; and

(4) cathodic protection systems are operated and maintained according to part 7150.0210.

C. The tank is constructed of a steel- and fiberglass-reinforced plastic composite.

D. The tank is constructed of metal without additional corrosion protection measures provided that:

(1) the tank is installed at a site that is determined by a corrosion expert not to be corrosive enough to

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cause it to have a release due to corrosion during its operating life; and

(2) owners and operators maintain records that demonstrate compliance with the requirements of subitem (1) for the remaining life of the tank.

E. The tank construction and corrosion protection are determined by the commissioner to be designed to prevent the release or threatened release of a stored regulated substance in a manner that is no less protective of human health and the environment than items A to D. The commissioner's determination under this item must be obtained in writing and owners and operators must keep the determination for the life of the tank.

Subp. 3. **Codes of practice for tanks.** Codes of practice for subpart 2 are described in items A to C.

A. The following codes of practice apply to subpart 2, item A:

(1) Underwriters Laboratories UL 1316, Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products;

(2) Underwriters Laboratories of Canada CAN4-S615-M83, Standard for Reinforced Plastic Underground Tanks for Petroleum Products; or

(3) American Society of Testing and Materials D4021-86, Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks.

B. The following codes of practice apply to subpart 2, item B:

(1) Steel Tank Institute Specifications for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks;

(2) Underwriters Laboratories UL 1746, Corrosion Protection Systems for Underground Storage Tanks;

(3) Underwriters Laboratories of Canada CAN4-S603.1-M85, Standard for Galvanic Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids;

(4) Underwriters Laboratories of Canada CAN4-S603-M85, Standard for Steel Underground Tanks for Flammable and Combustible Liquids;

(5) Underwriters Laboratories of Canada CAN4-S631-M84, Standard for Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic Systems;

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

(7) Underwriters Laboratories UL 58, Steel Underground Tanks for Flammable and Combustible Liquids.

C. The following codes of practice apply to subpart 2, item C:

(1) Underwriters Laboratories UL 1746, Corrosion Protection Systems for Underground Storage Tanks;

(2) Association of Composite Tanks ACT-100, Specification for the Fabrication of FRP Clad Underground Storage Tanks; or

(3) Steel Tank Institute STI F894-89, Specification for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks.

Subp. 4. **Piping.** The piping that routinely contains regulated substances and is in contact with the ground must be properly designed, constructed, and protected from corrosion using one of the methods specified in items A to D. The corrosion protection methods in items A to C must be in accordance with one of the codes of practice in subpart 5 developed by a nationally recognized association or independent testing laboratory:

A. The piping is constructed of fiberglass-reinforced plastic.

B. The piping is constructed of steel and cathodically protected in the following manner:

(1) the piping is coated with a suitable dielectric material;

(2) field-installed cathodic protection systems

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are designed by a corrosion expert;

(3) impressed current systems are designed to allow determination of current operating status as required in part 7150.0210, subpart 4; and

(4) cathodic protection systems are operated and maintained according to part 7150.0210.

C. The piping is constructed of metal without additional corrosion protection measures, provided that:

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

(2) owners and operators maintain records that demonstrate compliance with subitem (1) for the remaining life of the piping.

D. The piping construction and corrosion protection are determined by the commissioner to be designed to prevent the release or threatened release of a stored regulated substance in a manner that is no less protective of human health and the environment than the requirements of items A to C. The commissioner's determination under this item must be obtained in writing and the tank owners and operators must keep the determination for the life of the tank.

Subp. 5. **Codes of practice for piping.** Codes of practice for subpart 4 are described in items A to C.

A. The following codes of practice apply to subpart 4, item A:

(1) Underwriters Laboratories UL 567, Pipe Connectors for Flammable and Combustible Liquids and LP-Gas;

(2) Underwriters Laboratories of Canada CAN4-S633-M84, Flexible Underground Hose Connectors for Flammable and Combustible Liquids; or

(3) Underwriters Laboratories of Canada ULC Subject C107C-M1984, Guide for Glass Fibre Reinforced Plastic Pipe and Fittings for Flammable Liquids.

B. The following codes of practice apply to subpart

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4, item B:

(1) National Fire Protection Association 30, Flammable and Combustible Liquids Code;

(2) American Petroleum Institute 1615, Installation of Underground Petroleum Storage Systems;

(3) American Petroleum Institute 1632, Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems; or

(4) National Association of Corrosion Engineers RP-01-69, Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

C. The following codes of practice apply to subpart 4, item C:

(1) National Fire Protection Association 30, Flammable and Combustible Liquids Code; or

(2) National Association of Corrosion Engineers RP-01-69, Control of External Corrosion on Underground or Submerged Metallic Piping Systems.

Subp. 6. **Spill and overfill prevention equipment.**

A. Except as provided in item B, to prevent spilling and overfilling associated with product transfer to the underground storage tank system, owners and operators must use the following spill and overfill prevention equipment:

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

(2) overfill prevention equipment that will:

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

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

B. Owners and operators are not required to use the spill and overfill prevention equipment specified in item A if:

(1) alternative equipment is used that is

determined by the commissioner to be no less protective of human health and the environment than the equipment specified in item A; or

(2) the underground storage tank system is filled by transfers of no more than 25 gallons at one time.

The commissioner's determination under subitem (1) must be obtained in writing and the tank owners and operators must keep the determination for the life of the tank.

Subp. 7. **Installation.** All tanks and piping must be properly installed according to the manufacturer's instructions and one of the following codes of practice developed by a nationally recognized association or independent testing laboratory:

A. American Petroleum Institute 1615, Installation of Underground Petroleum Storage Systems;

B. Petroleum Equipment Institute RP 100, Recommended Practices for Installation of Underground Liquid Storage Systems;

C. American National Standards Institute B31.3, Chemical Plant and Petroleum Refinery Piping; or

D. American National Standards Institute B31.4, Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia and Alcohols.

Subp. 8. **Certification of installation.** Owners and operators must demonstrate compliance with subpart 7 by certifying on the underground storage tank notification form required in part 7150.0120 that:

A. the installer is in compliance with certification requirements imposed by the agency under chapter 7105; and

B. all work listed in the manufacturer's installation checklists has been completed.

7150.0110 UPGRADING OF EXISTING UNDERGROUND STORAGE TANK SYSTEMS.

Subpart 1. **Alternatives allowed.** Not later than December 22, 1998, all existing underground storage tank systems must comply with one of the following requirements:

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A. new underground storage tank system performance standards under part 7150.0100;

B. the upgrading requirements in subparts 2 to 4; or

C. closure requirements under parts 7150.0400 to 7150.0440, including applicable requirements for corrective action under Minnesota Statutes, section 115.061.

Subp. 2. **Tank upgrading requirements.** Steel tanks must be protected from corrosion using the corrosion protection methods in items A to C.

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

(1) the lining is installed according to the requirements of part 7150.0230; and

(2) within ten years after lining, and every five years after that, the lined tank is internally inspected and found to be structurally sound with the lining still performing according to original design specifications.

B. A tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of part 7150.0100, subpart 2, item B, subitems (2) to (4), and the integrity of the tank is ensured using one of the methods in subitems (1) to (4).

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

(2) The tank has been installed for less than ten years and is monitored monthly for releases according to part 7150.0330, items E to I.

(3) The tank has been installed for less than ten years and is assessed for corrosion holes by conducting two tightness tests that meet the requirements of part 7150.0330, item D. The first tightness test must be conducted before installing the cathodic protection system. The second tightness test must be conducted between three and six months following the first operation of the cathodic protection system.

(4) The tank is assessed for corrosion holes by a

method that is determined by the commissioner to prevent releases in a manner that is no less protective of human health and the environment than subitems (1) to (3).

C. A tank may be upgraded by both internal lining and cathodic protection if:

(1) the lining is installed according to part 7150.0230; and

(2) the cathodic protection system meets the requirements of part 7150.0100, subpart 2, item B, subitems (2) to (4).

D. The corrosion protection methods in items A to C must be in accordance with one or more of the following codes of practice developed by a nationally recognized association or independent testing laboratory:

(1) American Petroleum Institute 1631, Interior Lining of Underground Storage Tanks;

(2) National Leak Prevention Association 631, Spill Prevention, Minimum 10-Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection;

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

(4) American Petroleum Institute 1632, Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems.

Subp. 3. **Piping upgrading requirements.** Metal piping that routinely contains regulated substances and is in contact with the ground must meet the requirements of part 7150.0100, subpart 4, item B, subitems (2) to (4).

Subp. 4. **Spill and overfill prevention equipment.** To prevent spilling and overfilling associated with product transfer to the underground storage tank system, all existing underground storage tank systems must comply with new underground storage tank system spill and overfill prevention equipment requirements in part 7150.0100, subpart 6.

7150.0120 NOTIFICATION REQUIREMENTS.

Subpart 1. **Notice of underground storage tank system installation.** At least 30 days before beginning installation of an underground storage tank system under part 7150.0100, owners and operators must notify the commissioner of their intent to install the underground storage tank system.

Subp. 2. **Notification of new tanks and changes in service.** An owner who brings an underground storage tank system into use or makes a change in service to an existing tank system after June 1, 1986, must, within 30 days of bringing such tank into use or making a change in service, submit to the agency, in the form prescribed by the commissioner, a notice of the existence of such tank system or type of change in service, including the information required by Minnesota Statutes, section 116.48, subdivisions 1 and 3.

Subp. 3. **Owner and operator tank system certification.** Owners and operators of new underground storage tank systems must certify in the notification form compliance with the following requirements:

A. installation of tanks and piping under part 7150.0100, subpart 8;

B. cathodic protection of steel tanks and piping under part 7150.0100, subparts 2 and 4;

C. financial responsibility under Code of Federal Regulations, title 40, part 280, subpart H; and

D. release detection under parts 7150.0310 and 7150.0320.

Subp. 4. **Installer tank system certification.** Owners and operators of new underground storage tank systems must ensure that the installer certifies in the notification form that the methods used to install the tanks and piping comply with part 7150.0100, subpart 7, and that the installer is in compliance with certification requirements imposed by chapter 7105.

Subp. 5. **Repairer tank system certification.** Owners and operators of underground storage tank systems must ensure that

the repairer certifies in the notification form that the methods used to repair the tanks and piping comply with parts 7150.0110 and 7150.0230 and that the repairer is in compliance with certification requirements imposed by chapter 7105.

Subp. 6. **Tank seller notification.** A person who sells a tank intended to be used as an underground storage tank or property that the seller knows contains an underground storage tank must notify the purchaser of the tank in writing of the owner's notification obligations under subpart ~~1~~ 2 and under Minnesota Statutes, section 116.48.

GENERAL OPERATING REQUIREMENTS

7150.0200 SPILL AND OVERFILL CONTROL.

Subpart 1. **Spill and overfill release prevention.** Owners and operators must ensure that releases due to spilling or overfilling do not occur. The owner or operator must ensure that the volume available in the tank is greater than the volume of product to be transferred to the tank before the transfer is made and that the transfer operation is monitored constantly to prevent overfilling and spilling. One of the following codes of practice developed by a nationally recognized association or independent testing laboratory must be used to comply with this subpart:

A. National Fire Protection Association 30, Flammable and Combustible Liquids Code;

B. National Fire Protection Association 385, Standard for Tank Vehicles for Flammable and Combustible Liquids; or

C. American Petroleum Institute 1621, Bulk Liquid Stock Control at Retail Outlets.

Subp. 2. **Reporting and cleanup.** The owner and operator must report, investigate, and cleanup any spills and overfills according to Minnesota Statutes, section 115.061.

7150.0210 OPERATION AND MAINTENANCE OF CORROSION PROTECTION.

Subpart 1. **Owner and operator compliance.** Owners and operators of underground storage tank systems with corrosion protection must comply with the requirements in subparts 2 to 5

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to ensure that releases due to corrosion are prevented for as long as the underground storage tank system is used to store regulated substances, or is temporarily closed in accordance with part 7150.0400.

Subp. 2. **Corrosion protection system maintenance.** All corrosion protection systems must be operated and maintained to continuously provide corrosion protection to the metal components of the part of the tank and piping that routinely contains regulated substances and is in contact with the ground.

Subp. 3. **Cathodic protection system maintenance.** All underground storage tank systems equipped with cathodic protection systems must be inspected for proper operation by a qualified cathodic protection tester according to the following requirements:

A. all cathodic protection systems must be tested within six months of installation and at least every three years after that; and

B. the criteria that are used to determine that cathodic protection is adequate as required by this subpart must be according to the code of practice in National Association of Corrosion Engineers RP-02-85, Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems.

Subp. 4. **Impressed current system maintenance.** Underground storage tank systems with impressed current cathodic protection systems must also be inspected every 60 days to ensure the equipment is running properly.

Subp. 5. **Recordkeeping.** For underground storage tank systems using cathodic protection, records of the operation of the cathodic protection must be maintained according to part 7150.0240 to demonstrate compliance with the performance standards in this part. These records must provide:

A. the results of the last three inspections required in subpart 4; and

B. the results of testing from the last two inspections required in subpart 3.

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7150.0220 COMPATIBILITY.

Owners and operators must use an underground storage tank system made of or lined with materials that are compatible with the substance stored in the underground storage tank system. Owners and operators storing alcohol blends may use the following guidance to comply with the requirements of this part:

A. American Petroleum Institute 1626, Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations; or

B. American Petroleum Institute 1627, Storing and Handling of Gasoline-Methanol/Cosolvent Blends at Distribution Terminals and Service Stations.

7150.0230 REPAIRS ALLOWED.

Owners and operators of underground storage tank systems must ensure that repairs will prevent releases due to structural failure or corrosion as long as the underground storage tank system is used to store regulated substances. The owner and operator of the tank shall ensure that the person performing the repairs has been certified under chapter 7105. The repairs must meet the requirements in items A to F:

A. Repairs to underground storage tank systems must be properly conducted according to one of the following codes of practice developed by a nationally recognized association or independent testing laboratory:

(1) National Fire Protection Association 30, Flammable and Combustible Liquids Code;

(2) American Petroleum Institute 2200, Repairing Crude Oil, Liquefied Petroleum Gas and Product Pipelines;

(3) American Petroleum Institute 1631, Interior Lining of Underground Storage Tanks; or

(4) National Leak Prevention Association 631, Spill Prevention, Minimum 10-Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection.

B. Repairs to fiberglass-reinforced plastic tanks

must be made according to the codes of practice required in item A.

C. Metal pipe sections and fittings that have released product as a result of corrosion or other damage must be replaced. Fiberglass pipes and fittings must be repaired in accordance with the manufacturer's specifications.

D. Repaired tanks and piping must be tightness tested according to parts 7150.0330, item D; and 7150.0340, item B, within 30 days after the date of the completion of the repair except as provided in subitems (1) to (3):

(1) the repaired tank is internally inspected according to the codes of practice required in item A;

(2) the repaired part of the underground storage tank system is monitored monthly for releases according to a method specified in part 7150.0330, items E to I; or

(3) another test method is used that is determined by the commissioner to be no less protective of human health and the environment than the tests in subitems (1) and (2).

E. Within six months after the repair of a cathodically protected underground storage tank system, the cathodic protection system must be tested according to part 7150.0210, subparts 3 and 4, to ensure that it is operating properly.

F. Owners and operators must maintain records of each repair, and of a commissioner's determination under item D, subitem (3), for the remaining operating life of the underground storage tank system that demonstrate compliance with the requirements of this part.

7150.0240 REPORTING AND RECORDKEEPING.

Owners and operators of underground storage tank systems must cooperate fully with inspections, monitoring, and testing conducted by the agency, as well as requests for document submission, testing, and monitoring by the owner or operator under United States Code, title 42, section 6991d.

A. Owners and operators must submit the following information to the commissioner:

(1) notification of all underground storage tank systems under part 7150.0120, including certification of installation for new underground storage tank systems under part 7150.0100, subpart 8;

(2) notification of the discovery of an abandoned tank or of a change in the uses, contents, or ownership of a tank under Minnesota Statutes, section 116.48, subdivisions 2 and 3;

(3) reports of all releases under Minnesota Statutes, section 115.061, including suspected releases, spills and overfills, and confirmed releases;

(4) information generated in the course of taking corrective action as defined in Minnesota Statutes, section 115C.02, subdivision 4; and

(5) a notification before permanent closure or change in service under part 7150.0410.

B. Owners and operators must maintain the following information:

(1) a corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used under part 7150.0100, subparts 2, item D, and 4, item C;

(2) the commissioner's determination that alternative corrosion protection or spill and overfill equipment means may be used under part 7150.0100, subpart 2, item E; 4, item D; or 6, item B;

(3) documentation of operation of corrosion protection equipment under part 7150.0210, subpart 5;

(4) documentation of underground storage tank system repairs under part 7150.0230, item F;

(5) documentation of compliance with release detection requirements under part 7150.0350; and

(6) results of the site investigation conducted at permanent closure under part 7150.0440.

C. Owners and operators must keep the records

required either:

(1) at the underground storage tank site where they are immediately available for inspection by the commissioner; or

(2) at a readily available alternative site where they can be provided for inspection to the commissioner upon request.

In the case of permanent closure records required under part 7150.0440, owners and operators are also provided with the additional alternative of mailing closure records to the commissioner if they cannot be kept at the site or an alternative site as required in this item.

RELEASE DETECTION

7150.0300 GENERAL REQUIREMENTS FOR ALL UNDERGROUND STORAGE TANK SYSTEMS.

Subpart 1. **Methods.** Owners and operators of new and existing underground storage tank systems must provide a method, or combination of methods, of release detection that:

A. can detect a release from any part of the tank and the connected underground piping that routinely contains product;

B. is installed, calibrated, operated, and maintained according to the manufacturer's instructions, including routine maintenance and service checks for operability or running condition; and

C. ~~meets the performance requirements in part 7150.0330 or 7150.0340, with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer. In addition, all methods must be capable of detecting the leak rate or quantity specified for that method in part 7150.0330, items B to E, or 7150.0340, items A and B, with a probability of detection of 0.95 and a probability of false alarm of 0.05.~~ meets the performance standards in part 7150.0330 or 7150.0340. The performance of release detection equipment must be documented with written

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specifications supplied by the equipment manufacturer or installer. In addition, methods used after the date shown in the following table, except for methods permanently installed prior to that date, must be capable of detecting the leak rate or quantity specified for that method in the part of the rules listed in the table with a probability of detection of 0.95 and a probability of false alarm of 0.05:

Method	Part	Date
Manual tank gauging	7150.0330, items B & C	December 22, 1990
Tank tightness testing	7150.0330, item D	December 22, 1990
Automatic tank gauging	7150.0330, item E	December 22, 1990
Automatic line leak detection	7150.0340, item A	September 22, 1991
Line tightness testing	7150.0340, item B	December 22, 1990

Subp. 2. **Release notification.** When a release detection method operated according to the performance standards in parts 7150.0330 and 7150.0340 indicates a release may have occurred, owners and operators must notify the agency according to Minnesota Statutes, section 115.061.

Subp. 3. **Release detection schedule.** Owners and operators of all underground storage tank systems must comply with the release detection requirements of parts 7150.0300 to 7150.0350 by December 22 of the year listed in the following table. Hazardous material tanks which are not regulated by Code of Federal Regulations, title 40, part 280, must comply with these requirements by the date indicated or by (insert date 180 days after date of adoption), whichever is later:

Schedule for Phase-in of Release Detection

Year System Was Installed	Year When Release Detection is Required (by December 22 of the year indicated)				
	1989	1990	1991	1992	1993
Before 1965 or date unknown	RD	P			
1965-1969		P/RD			
1970-1974		P	RD		
1975-1979		P		RD	
1980-1988		P			RD
New tanks (after December 22, 1988)	Immediately upon installation				

P=must begin release detection for all pressurized piping according to part 7150.0310.

RD=must begin release detection for tanks and suction

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piping according to parts 7150.0310, items A and B, subitem (2); and 7150.0320.

Subp. 4. **Closure.** Owners and operators of existing underground storage tank systems that cannot apply a method of release detection that complies with the requirements of parts 7150.0300 to 7150.0350 must complete the closure procedures in parts 7150.0400 to 7150.0440 by the date on which release detection is required for the underground storage tank system under subpart 3.

7150.0310 REQUIREMENTS FOR PETROLEUM UNDERGROUND STORAGE TANK SYSTEMS.

Owners and operators of petroleum underground storage tank systems must provide release detection for tanks and piping as required in items A and B.

A. Tanks must be monitored at least every 30 days for releases using one of the methods in part 7150.0330, items E to I, except that:

(1) underground storage tank systems that meet the performance standards in part 7150.0100 or 7150.0110, and the monthly inventory control requirements in part 7150.0330, item A or B, may use tank tightness testing, conducted according to part 7150.0330, item D, at least every five years until December 22, 1998, or until ten years after the tank is installed or upgraded under part 7150.0110, item B, whichever is later;

(2) underground storage tank systems that do not meet the performance standards in part 7150.0100 or 7150.0110 may use monthly inventory controls conducted according to part 7150.0330, item A or B, and annual tank tightness testing conducted according to part 7150.0330, item D, until December 22, 1998, when the tank must be upgraded under part 7150.0110 or permanently closed under part 7150.0410; and

(3) tanks with capacities of ~~550~~ 1,000 gallons or less may use weekly manual tank gauging conducted according to part 7150.0330, item B, as the sole method of release detection.

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B. Underground piping that routinely contains regulated substances must be monitored for releases in a manner that meets one of the requirements in subitem (1) or (2).

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

(a) be equipped with an automatic line leak detector conducted according to part 7150.0340, item A; and

(b) have an annual line tightness test conducted according to part 7150.0340, item B, or have monthly monitoring conducted according to part 7150.0340, item C.

(2) Underground piping that conveys regulated substances under suction must either have a line tightness test conducted at least every three years and according to part 7150.0340, item B, or use a monthly monitoring method conducted according to part 7150.0340, item C. No release detection is required for suction piping that is designed and constructed to meet the following standards:

(a) the below-grade piping operates at less than atmospheric pressure;

(b) the below-grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;

(c) only one check valve is included in each suction line;

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

(e) a method is provided that allows compliance with units (b) to (d) to be readily determined.

7150.0320 REQUIREMENTS FOR HAZARDOUS MATERIAL UNDERGROUND STORAGE TANK SYSTEMS.

Owners and operators of hazardous material underground storage tank systems must provide release detection that meets the requirements in items A and B.

A. Release detection at existing hazardous material underground storage tank systems must meet the requirements for

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petroleum underground storage tank systems in part 7150.0310 by the dates set forth in part 7150.0300. By December 22, 1998, all existing hazardous material underground storage tank systems must meet the release detection requirements for new systems in item B.

B. Release detection at new hazardous material underground storage tank systems must meet the requirements in subitems (1) to (5):

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

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

(b) prevent the release of regulated substances to the environment at any time during the operational life of the underground storage tank system; and

(c) be checked for evidence of a release at least every 30 days.

The provisions of part 7045.0528 may be used to comply with this subitem.

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

(a) contain a release from any part of the inner tank within the outer wall; and

(b) detect the failure of the inner wall.

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

(a) contain 100 percent of the capacity of the largest tank within its boundary;

(b) prevent the interference of precipitation or groundwater intrusion with the ability to contain or detect a release of regulated substances; and

(c) surround the tank completely, for example, it is capable of preventing lateral as well as vertical migration of regulated substances.

(4) Underground piping must be equipped with secondary containment that satisfies the requirements of subitem

(1), for example, trench liners and jacketing of double-walled pipe. In addition, underground piping that conveys regulated substances under pressure must be equipped with an automatic line leak detector according to part 7150.0340, item A.

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

(a) demonstrate to the commissioner that an alternate method can detect a release of the stored substance as effectively as any of the methods allowed in part 7150.0330, items B to I, can detect a release of petroleum;

(b) provide information to the commissioner on effective corrective action technologies, health risks, and chemical and physical properties of the stored substance, and the characteristics of the underground storage tank site; and

(c) obtain approval from the commissioner to use the alternate release detection method before the installation and operation of the new underground storage tank system.

7150.0330 METHODS OF RELEASE DETECTION FOR TANKS.

Each method of release detection for tanks used to meet the requirements of part 7150.0310 must be conducted according to items A to I.

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

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

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

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

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

(5) product dispensing is metered and recorded within the local standards for meter calibration incorporated by reference at part 7600.6800; and

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

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

B. Manual tank gauging may be used as described in this item to meet the requirements of part 7150.0310, item A.

(1) For tanks with capacities of 1,000 gallons or less, weekly manual tank gauging may be used as the sole method of release detection.

(2) For tanks with capacities of 1,001 to 2,000 gallons, manual tank gauging may be used in place of product inventory control in item A.

For tanks not described in subitems (1) and (2), manual tank gauging may not be used to satisfy the provisions of part 7150.0310, item A.

C. Manual tank gauging must meet the following requirements:

(1) tank liquid level measurements are taken at the beginning and ending of a period of at least 36 hours during which no liquid is added to or removed from the tank;

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

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

A leak is suspected and subject to the requirements of Minnesota Statutes, section 115.061, if the variation between

beginning and ending measurements exceeds the weekly or monthly standards in the following table:

Tank Capacity	Weekly Standard (one test)	Monthly Standard (four-test avg.)	Minimum Duration of Test
If manual tank gauging is the ONLY leak detection method used:			
up to 550 gallons	10 gallons	5 gallons	36 hours
551-1,000 gallons (when largest tank is 64" x 73")	9 gallons	4 gallons	44 hours
1,000 gallons (if tank is 48" x 128")	12 gallons	6 gallons	58 hours
If manual tank gauging is combined with Tank Tightness Testing:			
1,001-2,000 gallons	26 gallons	13 gallons	36 hours

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

E. Equipment for automatic tank gauging that tests for the loss of product and conducts inventory control must meet the following requirements:

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

(2) inventory control or another test of equivalent performance is conducted according to the requirements of item A.

F. Testing or monitoring for vapors within the soil gas of the excavation zone must meet the following requirements:

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

(2) the stored regulated substance, or a tracer

compound placed in the tank system, is sufficiently volatile, such as gasoline, to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank;

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

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

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

(6) in the underground storage tank excavation zone, the site is assessed to ensure compliance with the requirements in subitems (1) to (4) and to establish the number and positioning of vapor monitoring points that will detect releases within the excavation zone from any part of the tank that routinely contains product; and

(7) vapor monitoring points are clearly marked and secured to avoid unauthorized access and tampering.

G. Testing or monitoring for liquids in the groundwater must meet the provisions of chapter 4725, must comply with local approvals or permits when located within a local public right-of-way, as well as meet the following requirements:

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

(2) groundwater is never more than 20 feet from the ground surface and the hydraulic conductivity of the soil between the underground storage tank system and the monitoring wells or devices is not less than 0.01 centimeters per second, for example, the soil should consist of gravels, coarse to

medium sands, coarse silts, or other permeable materials;

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

(4) monitoring wells are sealed from the ground surface to the top of the filter pack;

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

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

(7) within and immediately below the underground storage tank system excavation zone, the site is assessed to ensure compliance with the requirements in subitems (1) to (5), and to establish the number and positioning of monitoring wells or devices that will detect releases from any part of the tank that routinely contains product; and

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

H. Interstitial monitoring between the underground storage tank 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 part of the tank that routinely contains product and also meets one of the requirements of subitems (1) to (3).

(1) For double-walled underground storage tank systems, the sampling or testing method can detect a release through the inner wall in any part of the tank that routinely contains product. The provisions outlined in the Steel Tank Institute's Standard for Dual Wall Underground Storage Tanks may be used as guidance for aspects of the design and construction of underground steel double-walled tanks.

(2) For underground storage tank systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a release between the underground storage tank system and the secondary barrier according to the following requirements:

(a) the secondary barrier around or beneath the underground storage tank system consists of artificially constructed material that is sufficiently thick and impermeable, being at least 10^{-6} centimeters per second for the regulated substance stored, to direct a release to the monitoring point and permit its detection;

(b) the barrier is compatible with the regulated substance stored so that a release from the underground storage tank system will not cause a deterioration of the barrier allowing a release to pass through undetected;

(c) for cathodically protected tanks, the secondary barrier must be installed so that it does not interfere with the proper operation of the cathodic protection system;

(d) the groundwater, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days;

(e) the site is assessed to ensure that the secondary barrier is always above the groundwater and not in a 25-year flood plain, unless the barrier and monitoring designs are for use under such conditions; and

(f) monitoring wells and vapor monitoring points are clearly marked and secured to avoid unauthorized access and tampering.

(3) For tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner, and the liner is compatible with the substance stored.

I. Any other type of release detection method, or combination of methods, can be used if:

(1) it can detect a 0.2 gallon per hour leak rate or a release of 150 gallons within a month with a probability of detection of 0.95 and a probability of false alarm of 0.05; and

(2) the owner and operator can demonstrate to the commissioner that the method can detect a release as effectively as any of the methods allowed in items D to H and obtain the commissioner's prior approval of the method. In comparing methods, the commissioner shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected. If the method is approved by the commissioner, the owner and operator must comply with any conditions imposed by the commissioner on its use to ensure the protection of human health and the environment.

7150.0340 METHODS OF RELEASE DETECTION FOR PIPING.

Each method of release detection for piping used to meet the requirements of part 7150.0300 must be conducted according to items A to C.

A. Methods which alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping or triggering an audible or visual alarm may be used only if they detect leaks of three gallons per hour at ten pounds per square inch line pressure within one hour. An annual test of the operation of the leak detector must be conducted according to the manufacturer's requirements.

B. A periodic test of piping may be conducted only if it can detect a 0.1 gallon per hour leak rate at one and one-half times the operating pressure.

C. Any of the methods in part 7150.0330, items F to I, may be used if they are designed to detect a release from any part of the underground piping that routinely contains regulated substances.

7150.0350 RELEASE DETECTION RECORDKEEPING.

Owners and operators shall maintain records according to part 7150.0240 demonstrating compliance with applicable requirements of parts 7150.0300 to 7150.0350. These records

must include the requirements of items A to C.

A. All written performance claims pertaining to any release detection system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or installer, must be maintained for as long as the system is being used to comply with the requirements of this chapter.

B. The results of any sampling, testing, or monitoring must be maintained for at least ten years.

C. Written documentation of all calibration, maintenance, and repair of release detection equipment permanently located on-site must be maintained for at least ten years after the servicing work is completed. Any schedules of required calibration and maintenance provided by the release detection equipment manufacturer must be retained as long as the system is being used to comply with the requirements of this chapter.

D. Documentation of the commissioner's approval of alternate release detection methods under part 7150.0330, item I, must be maintained for as long as the methods are being used to comply with the requirements of this chapter.

OUT-OF-SERVICE UNDERGROUND STORAGE TANK SYSTEMS AND CLOSURE

7150.0400 TEMPORARY CLOSURE.

Subpart 1. **Requirements.** In addition to the requirements of chapter 7510, the Minnesota Uniform Fire Code, owners and operators must comply with the provisions in subparts 2 to 4 relating to temporary closure.

Subp. 2. **Operation and maintenance during temporary closure.** When an underground storage tank system is temporarily closed, owners and operators must continue operation and maintenance of corrosion protection according to part 7150.0210, and any release detection according to parts 7150.0300 to 7150.0350. Release detection is not required as long as the underground storage tank system is empty. The underground storage tank system is empty when all materials have been

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removed using commonly employed practices so that no more than 2.5 centimeters, or one inch, of residue, or 0.3 percent by weight of the total capacity of the underground storage tank system, remain in the system.

Subp. 3. **Tanks out of service 90 days.** When an underground storage tank system is temporarily closed for 90 days or more, owners and operators must also comply with the following requirements:

A. leave vent lines open and functioning; and

B. cap and secure all other lines, pumps, passageways, and appurtenances.

Subp. 4. **Tanks out of service one year.** When an underground storage tank system is temporarily closed for more than 12 months, owners and operators must permanently close the underground storage tank system if it does not meet either performance standards in part 7150.0100 for new underground storage tank systems or the upgrading requirements in part 7150.0110, except that the spill and overfill equipment requirements do not have to be met. Owners and operators must permanently close the substandard underground storage tank systems at the end of this 12-month period according to parts 7150.0410 to 7150.0440, unless the commissioner provides an extension of the 12-month temporary closure period. Owners and operators must complete a site assessment according to part 7150.0420 before such an extension can be applied for.

7150.0410 PERMANENT CLOSURE AND CHANGES-IN-SERVICE TO STORAGE OF NONREGULATED SUBSTANCES.

Subpart 1. **Requirements.** In addition to the requirements of chapter 7510, the Minnesota Uniform Fire Code, owners and operators must comply with the provisions in subparts 2 to 7 relating to permanent closure and changes-in-service.

Subp. 2. **Notice of closure or change in service.** At least ten days before beginning either permanent closure or a change-in-service under subparts 3 and 4, owners and operators must notify the commissioner of their intent to permanently

close or make the change-in-service, unless such action is in response to corrective action. The required assessment of the excavation zone under part 7150.0420 must be performed after notifying the commissioner but before completion of the permanent closure or a change-in-service.

Subp. 3. **Permanent closure.** To permanently close a tank, owners and operators must empty and clean it by removing all liquids and accumulated sludges. All tanks taken out of service permanently must also be either removed from the ground or filled in with an inert solid material.

Subp. 4. **Storage of nonregulated substances.** Continued use of an underground storage tank system to store a nonregulated substance is considered a change in service. Before a change in service to storage of a nonregulated substance, owners and operators must empty and clean the tank by removing all liquid and accumulated sludge and conduct a site assessment according to part 7150.0420.

Subp. 5. **Certified removers.** Owners and operators must ensure that persons performing permanent closures under subpart 3 or changes-in-service under subpart 4 are in compliance with certification requirements imposed by chapter 7105. Certified removers must furnish copies of current certificates issued by the agency to the owner and operator before beginning a permanent closure under subpart 3 or a change-in-service under subpart 4.

Subp. 6. **Tank system closure certification.** Owners and operators must ensure that the person who removes or otherwise closes an underground storage tank system certifies in the notification form that the methods used to remove or otherwise close the tanks and piping comply with part 7150.0410, subparts 3 to 5.

Subp. 7. **Cleaning and closure procedures.** The cleaning and closure procedures listed in one of the following documents must be used as guidance for complying with this part:

A. American Petroleum Institute 1604, Removal and Disposal of Used Underground Petroleum Storage Tanks;

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B. American Petroleum Institute 1631, Interior Lining of Underground Storage Tanks; or

C. American Petroleum Institute 2015, Cleaning Petroleum Storage Tanks.

7150.0420 ASSESSING THE SITE AT CLOSURE OR CHANGE IN SERVICE.

When removing or closing a tank or making a change in service to storage of a nonregulated substance, owners and operators must measure through laboratory analysis for the presence of a release where contamination is most likely to be present at the underground storage tank site. If contaminated soils, contaminated groundwater, or free product as a liquid or vapor is discovered by this measurement or by any other manner, owners and operators must notify the agency immediately and begin corrective action according to Minnesota Statutes, section 115.061. In selecting sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release. The requirements of this part are satisfied if one of the external release detection methods allowed in part 7150.0330, items F and G, is operating according to the requirements of part 7150.0330 at the time of removal, closure, or making a change in service to storage of a nonregulated substance, and indicates no release has occurred.

7150.0430 APPLICABILITY TO PREVIOUSLY CLOSED UNDERGROUND STORAGE TANK SYSTEMS.

When directed by the commissioner, the owner and operator of an underground storage tank system permanently closed before December 22, 1988, must assess the excavation zone and close the underground storage tank system according to parts 7150.0400 to 7150.0440 if releases from the underground storage tank may, in the judgment of the commissioner, pose a current or potential threat to human health and the environment.

7150.0440 CLOSURE RECORDS.

Owners and operators must maintain records according to part 7150.0240 that are capable of demonstrating compliance with closure requirements under parts 7150.0400 to 7150.0440. The results of the excavation zone assessment required in part 7150.0420 must be maintained for at least three years after completion of permanent closure or change in service in one of the following ways:

A. by the owners and operators who took the underground storage tank system out of service;

B. by the current owners and operators of the underground storage tank system site; or

C. by mailing these records to the commissioner if they cannot be maintained at the closed facility.

7150.0500 INCORPORATION BY REFERENCE.

Subpart 1. **Scope.** For purposes of chapter 7150, the documents in subpart 2 are incorporated by reference. They can be found at the Minnesota State Law Library, Ford Building, 117 University Avenue, Saint Paul, Minnesota 55155 or at the addresses indicated. If any of the documents are amended, and if the amendments are incorporated by reference or otherwise made a part of federal technical rules at Code of Federal Regulations, title 40, part 280, then the amendments to documents are also incorporated by reference in this chapter.

Subp. 2. **Referenced standards.** The documents incorporated by reference in this chapter are listed in items A to K:

A. American Societies of Mechanical Engineers, 345 East 47th Street, New York, New York 10017.

(1) B31.3, Chemical Plant and Petroleum Refinery Piping (1987); and

(2) B31.4, Liquid Transportation Systems for Hydrocarbons, Liquid Petroleum Gas, Anhydrous Ammonia and Alcohols (1986).

B. American Petroleum Institute, 1220 L Street Northwest, Washington, D.C. 20005.

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(1) 1604, Removal and Disposal of Used Underground Petroleum Storage Tanks (1987);

(2) 1615, Installation of Underground Petroleum Storage Systems (1987);

(3) 1621, Bulk Liquid Stock Control at Retail Outlets (1987);

(4) 1626, Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations (1985);

(5) 1627, Storing and Handling of Gasoline-Methanol/Cosolvent Blends at Distribution Terminals and Service Stations (1986);

(6) 1631, Interior Lining of Underground Storage Tanks (1987);

(7) 1632, Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems (1987);

(8) 2015, Cleaning Petroleum Storage Tanks (1985); and

(9) 2200, Repairing Crude Oil, Liquefied Petroleum Gas and Product Pipelines (1983).

C. American Society of Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

D4021-86, Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks (1986).

D. Association of Composite Tanks, 108 North State Street, Suite 720, Chicago, Illinois 60602.

ACT-100, Specification for the Fabrication of FRP Clad/Composite Underground Storage Tanks (1989).

E. National Association of Corrosion Engineers, Publications Department, P.O. Box 218340, Houston, Texas 77218.

(1) RP-01-69, Control of External Corrosion on Underground or Submerged Metallic Piping Systems (1983); and

(2) RP-02-85, Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems (1985).

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F. National Fire Protection Association, Batterymarch Park, Quincy, Massachusetts 02269.

(1) 30, Flammable and Combustible Liquids Code (1987); and

(2) 385, Standard for Tank Vehicle for Flammable and Combustible Liquids (1985).

G. National Leak Prevention Association, 4090 Rosehill Avenue, Cincinnati, Ohio 45229.

631, Spill Prevention, Minimum 10-Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection (1988).

H. Petroleum Equipment Institute, P.O. Box 2380, Tulsa, Oklahoma 74101.

RP100, Recommended Practices for Installation of Underground Liquid Storage Systems (1990).

I. Steel Tank Institute, ~~728 Anthony Trail, Northbrook~~ 570 Oakwood Road, Lake Zurich, Illinois ~~60062~~ 60047.

(1) Specifications for STI-P_3 System of External Corrosion Protection of Underground Steel Storage Tanks (1987);

(2) Steel Tank Institute Standard for Dual Wall Underground Steel Storage Tanks (undated); and

(3) STI F894-89, Steel Tank Institute Specification for External Corrosion Protection of FRP Composite Steel Underground Storage Tanks (1989).

J. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, Illinois 60062.

(1) UL 58, Steel Underground Tanks for Flammable and Combustible Liquids (1986);

(2) UL 567, Pipe Connectors for Flammable and Combustible Liquids and LP-Gas (1989);

(3) UL 1316, Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products (1983); and

(4) UL 1746, Corrosion Protection Systems for Underground Storage Tanks (1989).

K. Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R 3A9.

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(1) CAN4-S603.1-M85, Standard for Galvanic Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids (1985);

(2) CAN4-S603-M85, Standard for Steel Underground Tanks for Flammable and Combustible Liquids (1985);

(3) CAN4-S615-M83, Standard for Reinforced Plastic Underground Tanks for Petroleum Products (1983);

(4) CAN4-S631-M84, Standard for Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic Systems (1984);

(5) CAN4-S633-M84, Flexible Underground Hose Connectors for Flammable and Combustible Liquids (1984); and

(6) ULC Subject C107C-M1984, Guide for Glass Fibre Reinforced Plastic Pipe and Fittings for Flammable Liquids (1984).

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