

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY

WASTE AND HAZARDOUS MATERIALS DIVISION

STORAGE AND HANDLING OF FLAMMABLE AND COMBUSTIBLE LIQUIDS

(By authority conferred on the Michigan Department of Environmental Quality by Section 3c of 1941 PA 207, MCL 29.3c.)

PART 1. GENERAL PROVISIONS

R 29.5101 Applicability.

Rule 101. These rules apply to the storage and handling of flammable and combustible liquids (FL/CL) as specified in parts 2 to 5 of these rules. Compliance with these rules does not excuse compliance with other applicable state and federal statutes and rules and regulations promulgated thereto.

History: 2003 AACS.

R 29.5102 Flammable and combustible liquids (FL/CL) code; adoption by reference.

Rule 102. The provisions of the National Fire Protection Association (NFPA) pamphlet number 30, 2000 edition, entitled "Flammable and Combustible Liquids (FL/CL) Code," referred to in part 2 of these rules, are adopted by reference as part of these rules. Copies of the adopted NFPA 30 are available for inspection and distribution either at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, 525 West Allegan, Lansing, Michigan 48933, or from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts, 02269-9101. The cost of NFPA 30, as of the time of adoption of these rules, is \$35.25 per copy.

History: 2003 AACS.

R 29.5103 Code for motor fuel dispensing facilities and repair garages; adoption by reference.

Rule 103. The provisions of the National Fire Protection Association (NFPA) pamphlet number 30A, 2000 edition, entitled, "Code for Motor Fuel Dispensing Facilities and Repair Garages," referred to in part 3 of these rules, is adopted by reference in these rules. Copies of the adopted NFPA 30A are available for inspection and distribution either at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, 525 West Allegan, Lansing, Michigan 48933, or from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts, 02269-9101. The cost of NFPA 30A, as of the time of adoption of these rules, is \$26.75 per copy.

History: 2003 AACS.

R 29.5104 Standard for installation of oil-burning equipment; adoption by reference.

Rule 104. The provisions of the National Fire Protection Association (NFPA) pamphlet number 31, 2001 edition, entitled "Standard for the Installation of Oil-Burning Equipment," referred to in part 4 of these rules, are adopted by reference in these rules. Copies of the adopted NFPA 31 are available for inspection and distribution either at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, 525 West Allegan, Lansing, Michigan 48933, or from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts, 02269-9101. The cost of NFPA 31, as of the time of adoption of these rules, is \$26.75 per copy.

History: 2003 AACS.

R 29.5105 Standard for installation and use of stationary combustion engines and gas turbines; adoption by reference.

Rule 105. The provisions of the National Fire Protection Association (NFPA) pamphlet number 37, 1998 edition, entitled "Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines," referred to in part 5 of these rules, are adopted by reference in these rules. Copies of the adopted NFPA 37 are available for inspection and distribution either at the office of the Department of Environmental Quality, Waste and Hazardous Materials Division, 525 West Allegan, Lansing, Michigan 48933, or from the National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, Massachusetts, 02269-9101. The cost of NFPA 37, as of the time of adoption of these rules, is \$26.75 per copy.

History: 2003 AACS.

## PART 2. AMENDMENTS TO FLAMMABLE AND COMBUSTIBLE LIQUIDS (FL/CL) CODE

R 29.5201 Scope.

Rule 201. Sections 1.1.2(7), 1.1.2(8), and 1.1.3(3) are added to the FL/CL code as follows:

1.1.2(7) Flow-through process tanks.

1.1.2(8) Storage and handling of class IIIb liquids.

1.1.3(3) Oil and gas operations utilized for the purpose of exploration, development, operation, and abandonment of hydrocarbon resources regulated under part 615, supervisor of wells, of the natural resources and environmental protection act, 1994 PA 451, MCL 324.61501 et seq. Part 615 does not regulate crude petroleum collection tanks that do not receive crude petroleum directly from a wellhead through a pipeline system.

History: 2003 AACS.

R 29.5202 Applicability.

Rule 202. Section 1.3 of the FL/CL code is adopted with the following changes:

1.3 Chapters 2 and 3 apply to bulk storage of liquids in tanks and similar vessels. Chapter 4 applies to storage of liquids in containers and portable tanks in storage areas and warehouses. Chapter 5 applies to the handling and transfer of liquids and related operations and processing. Chapter 6 applies to electrical systems.

History: 2003 AACS.

R 29.5203 Equivalency.

Rule 203. Section 1.4.1 of the FL/CL code is adopted with the following changes and sections 1.4.2(1), 1.4.2(2), and 1.4.4(10) are added to the FL/CL code as follows:

1.4.1 Nothing in this FL/CL code shall be intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, environmental protection capability, or safety over those prescribed by this FL/CL code, if technical documentation is submitted to the department to demonstrate equivalency and the system, method, or device is approved for the intended purpose.

1.4.2(1) An owner or operator may make an application for a variance of rules by applying to the department with a satisfactory explanation of why compliance is not possible. The department may approve the variance request upon finding that the variance is based upon the best interest of public health, safety, welfare, property, or the environment.

1.4.2(2) A person aggrieved by a final decision of the department on a request for variance may appeal to the circuit court within 21 days of the decision.

1.4.4(10) Underground storage tanks at automotive and marine service stations shall also comply with the provisions of R 29.2101 et seq.

History: 2003 AACS.

R 29.5204 Retroactivity.

Rule 204. Section 1.5 of the FL/CL code is adopted with the following changes:

1.5 The provisions of this FL/CL code shall be considered necessary to provide a reasonable level of protection from loss of life and property from fire and explosion. The provisions shall reflect situations and the state of the art prevalent when the FL/CL code was issued. Unless otherwise noted, it shall not be intended that the provisions of this FL/CL code be applied to facilities, equipment, structures, or installations that were existing or approved for construction or installation before the effective date of this FL/CL code, except in those cases where it is determined by the department that the existing situation involves a distinct hazard to life, adjacent property, or the environment.

History: 2003 AACS.

R 29.5205 Definitions.

Rule 205. Sections 1.6.2, 1.6.3, 1.6.8, 1.6.43.6, and 1.6.43.7 of the FL/CL code are adopted with the following changes and sections 1.6.2(a), 1.6.2(b), 1.6.9(a), 1.6.9(b), 1.6.9(c), 1.6.9(d), 1.6.9(e), 1.6.9(f), 1.6.10(a), 1.6.10(b), 1.6.10(c), 1.6.10.1, 1.6.10(d), 1.6.10(e), 1.6.17(a), 1.6.18(a), 1.6.23(a), 1.6.24(a), 1.6.31(a), 1.6.32(a), 1.6.39(a), 1.6.41(a), 1.6.43.9, 1.6.43.10, and 1.6.52(a) are added to the FL/CL code; and section 1.6.43.3 of the FL/CL code is deleted as follows:

1.6.2 "Approved" means acceptable to the department.

1.6.2(a) "Area subject to flooding" means an area where a 100-year flood or a flood with a magnitude, which has a 1% chance of occurring or being exceeded in any given year as determined by the federal emergency management agency (FEMA).

1.6.2(b) "AST system" means a tank or combination of tanks, including the pipes that are connected to the tank, tanks, or ancillary equipment containment systems, if any, which is, was, or may have been used to contain an accumulation of liquids and which has less than 10% of its volume, including the volume of the underground pipes that are connected to the tank, or tanks, beneath the surface of the ground.

1.6.3 "Authority having jurisdiction" means the department.

1.6.8 "Building" means a structure with walls or a roof, or both.

1.6.9(a) "Bulk container" means a closed container that has a liquid capacity of more than 793 U.S. gallons (3,000 liters).

1.6.9(b) "Cathodic protection" means a technique to prevent the corrosion of a metal surface by making the surface the cathode of an electrochemical cell. This protection renders a metallic tank or piping component negatively charged with respect to its environment. This protection shall be designed by a corrosion expert as defined in these rules.

1.6.9(c) "Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems applicable to metal piping and tank systems and who has education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of metal piping and tank systems. The person shall be certified as being qualified by the national association of corrosion engineers (NACE) international.

1.6.9(d) "FL/CL code" means the storage and handling of flammable and combustible liquids rules as promulgated by the department.

1.6.9(e) "Compatible" means the ability of 2 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 during the operational life of the system.

1.6.9(f) "Composite" means a metallic tank or piping component that has a nonmetallic coating, which is bonded to the metal and which is of adequate thickness to provide complete electrochemical isolation from the environment.

1.6.10(a) "Corrosion expert" means a person who, by reason of thorough knowledge of the physical sciences and the principals of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control of tank systems. The person shall be certificated as being qualified by NACE, as a senior corrosion technologist, a cathodic protection specialist, or a

corrosion specialist or be a registered engineer who has certification and licensing that includes education and experience in corrosion control.

1.6.10(b) "Corrosion protection" means protecting a tank system to prevent the degradation of the metal through oxidation or reactivity with its environment.

1.6.10(c) "Critical assessment zone" means part of the source water protection area that surrounds a public water supply surface water intake and is determined in the Michigan source water assessment program, approved by the United States environmental protection agency under section 1453 of the safe drinking water act.

1.6.10.1 "Crude petroleum collection tank" means a tank located within, or in close proximity to, an oil or gas field utilized for the temporary storage of crude petroleum before transport to a refinery. The tank shall not have a pipeline connection to an oil and gas operation regulated under Part 615, MCL 324.61501 et seq.

1.6.10(d) "Department" means the department of environmental quality.

1.6.10(e) "Director" means the director of the department.

1.6.17(a) "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 and the tank is utilized to carry out or control the heating, cooling, mixing, blending, separating, metering, or chemical action of materials. The processing is done on a regular basis and it is the primary function of the tank. A flow-through process tank does not include a tank that is used for the storage of materials before its introduction into the production process or for the storage of finished products or by-products from the production process or a tank that is only used to recirculate materials.

1.6.18(a) "Galvanic anode cathodic protection" means cathodic protection using a metal anode that provides sacrificial protection to another metal that is more noble when electrically coupled in an electrolyte. The anode is the source of the protective direct current. The protection system shall be designed by a corrosion expert as defined in section 1.6.10(a) and shall provide adequate protection to the structure or any internal lining or external coating.

1.6.23(a) "Impressed current cathodic protection" means cathodic protection using direct current supplied by a device employing a power source that is external to the electrode system, such as a transformer rectifier. The protection system shall be designed by a corrosion expert as defined in section 1.6.10(a) and shall provide adequate protection to the protected structure without causing any damage to the structure or any internal lining or external coating.

1.6.24(a) "Inherent corrosion protection" means protecting against corrosion by selecting a material, which by its nature does not degrade through oxidation or reactivity with its environment.

1.6.31(a) "On-grade" means aboveground storage tanks, which have 1 of the tank surfaces in contact with the surface of the ground. Tanks on concrete slabs that are placed on-grade, though the surface of the slab may be above-grade, are considered on grade, if the tank is not elevated by saddles or supports so that all parts of the tank surface can be visually inspected.

1.6.32(a) "Oil and gas operation" means all activities associated with the drilling, completing, producing, and plugging of oil and gas wells regulated under part 615, MCL 324.61501 et seq.

1.6.39(a) "Release" means as defined in section 20101(1)(bb) of part 201, environmental remediation, of the natural resources and environmental protection act, 1994 PA 451, (NREPA), MCL 324.20101 et seq., includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of a hazardous substance into the environment, or the abandonment or discarding of barrels, containers, and other closed receptacles containing a hazardous substance. "Release" does not include any of the following:

(i) A release that results in exposure to persons solely within a workplace, with respect to a claim that these persons may assert against their employers.

(ii) Emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, or vessel.

(iii) A release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined in the atomic energy act of 1954, chapter 1073, 68 Stat. 919, if the release is subject to requirements with respect to financial protection established by the United States nuclear regulatory commission under section 170 of chapter 14 of title I of the atomic energy act of 1954, chapter 1073, 71 Stat. 576, 42 U.S.C. 2210, or any release of source by-product or special nuclear material from any processing site designated under section 102(a)(1) of title I or 302(a) of title III of the uranium mill tailings radiation control act of 1978, Public Law 95-604 42 U.S.C. 7912 and 7942.

(iv) If applied according to label directions and according to generally accepted agricultural and management practices, the application of a fertilizer, soil conditioner, agronomically applied manure, or pesticide, or fruit, vegetable, or field crop residuals or processing by-products, aquatic plants, or a

combination of these substances. As used in this paragraph, fertilizer and soil conditioner have the meanings given to these terms in part 85, fertilizers, natural resources and environmental protection act, 1994 PA 451, MCL 324.101 et seq., and pesticide has the meaning given to that term in part 83, pesticide control, natural resources and environmental protection act, 1994 PA 451, MCL 324.8301 et seq.

(v) A release does not include fruits, vegetables, field crop processing by-products, or aquatic plants that are applied to the land for an agricultural use or for use as an animal feed, if the use is consistent with generally accepted agricultural and management practices developed under the Michigan right to farm act, 1981 PA 93, MCL 286.471 et seq.

1.6.39(b) "Repair" means to restore a tank system component. Repairs involving the replacement of more than 50% of the length of any underground piping between the tank and the dispenser at any 1 time shall be considered a replacement of the underground piping and shall meet the requirements of the new underground piping in section 3.2.4.

1.6.41(a) "Source water protection area" means the area approved and published by the state of Michigan for a public water supply in accordance with the Michigan source water assessment program as prescribed by the United States environmental protection agency under section 1453 of the safe drinking water act.

1.6.43.3 "Fire resistant tank" is deleted.

1.6.43.6 "Protected aboveground tank" means an aboveground storage tank that is listed in accordance with underwriters laboratories (UL) standard 2085, "Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids," or an equivalent test procedure that consists of a primary tank provided with protection from physical damage and fire-resistive protection from exposure to a high-intensity liquid pool fire. During this equivalent test procedure, the temperature inside the tank shall not exceed an average maximum temperature rise of 260 degrees Fahrenheit (144 degrees Celsius). During the 2-hour fire exposure, both the primary and the secondary containment structural integrity shall stay intact.

1.6.43.7 "Secondary containment tank" means a tank that is enclosed completely within a larger tank of the same or different material. The primary tank shall be constructed and the secondary or outer tank shall meet the requirements of section 2.2.3. The interstitial or annular space between the walls of the 2 tanks shall allow for liquid communication. Both the primary and secondary containment shall be provided with adequate normal and emergency venting in compliance with section 2.2.5.

1.6.43.9 "Tank system" means AST system or UST system.

1.6.43.10 "UST system" means a tank or combination of tanks, including the underground pipes that are connected to the tank or tanks, or underground ancillary equipment containment systems, if any, which is, was, or may have been used to contain an accumulation of liquids and which has 10% or more of its volume, including the volume of the underground pipes that are connected to the tank or tanks, beneath the surface of the ground.

1.6.52(a) "Wellhead protection area" means the area approved and published by the state of Michigan for a public water supply in accordance with the state of Michigan wellhead protection program, as prescribed by the United States environmental protection agency under section 1428 of the safe drinking water act.

History: 2003 AACS.

#### R 29.5206 Definition and classification of liquids.

Rule 206. Sections 1.7.2.1(a) and 1.7.2.2(a) are added to the FL/CL code as follows:

1.7.2.1(a) "Auto ignition temperature" means the minimum temperature required to initiate self-sustained combustion in a substance without any apparent source of ignition. The substance may be liquid, solid, or gaseous.

1.7.2.2(a) "Ignition temperature" means the minimum temperature required to cause self-sustained combustion, independently of the heating or heated element. The substance may be liquid, solid, or gaseous.

History: 2003 AACS.

#### R 29.5207 General requirements.

Rule 207. Section 1.9.1 of the FL/CL code is adopted with the following changes:

1.9.1 Storage. Liquids shall be stored in tanks, portable tanks, and bulk containers in compliance with chapter 2, or in containers, and intermediate bulk containers in compliance with chapter 4. Each tank or bulk container shall be installed in compliance with its design and listing or approval.

History: 2003 AACS.

R 29.5208 Prohibitions.

Rule 208. Sections 1.10.1 to 1.10.5 are added to the FL/CL code as follows:

1.10.1 Upon notification by the department, a person shall not deliver any liquids into a storage tank system under any circumstances that are prohibited by these rules or if a tank does not comply with these rules. Notification may include verbal or written communication or an affixed written notification on the storage tank system.

1.10.2 A person shall not tamper with, remove, or disregard written notification affixed to the storage tank system.

1.10.3 Any storage tank system or practice that does not comply with these rules shall be considered to be in violation of these rules.

1.10.4 An owner or operator shall not continue to use a storage tank system that is causing a release and shall expeditiously empty the system or the component that is causing the release until the system is repaired or replaced.

1.10.5 The department shall order, at the expense of the owner, a tightness test of the storage tank system when there is demonstrated evidence of a release that the storage tank system is leaking.

1.10.6 The department may disapprove a methodology, device, or technology applied to the installation, operation, and maintenance of a storage tank system not specifically set forth in these rules. The department may prohibit any person from using a methodology, device, or technology applied to the installation, operation, and maintenance of a storage tank system if the department determines that such use may create a risk to the public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5209 Installation application submittal requirements.

Rule 209. Sections 1.11.1 to 1.11.5 are added to the FL/CL code as follows:

1.11.1 For installations, where individual storage capacity is more than 1,100 gallons (4,180 liters), an application for plan review shall be submitted to the department not less than 30 days before the installation of an aboveground storage tank system by the owner or owner's designee on behalf of the owner.

1.11.2 The installation application shall include a plot map that shows all of the following information:

(a) The locations of buildings, public roadways, railroad mainlines, and power lines as specified in section 2.3.2.1.

(b) Storm sewers, sanitary sewers, manholes, and catch basins.

(c) The proposed locations of tanks and buildings.

(d) The location of property lines.

(e) The location of existing tanks, aboveground and underground, within 50 feet (15 meters) of the installation.

(f) The material of construction, the dimension, and the capacity of each tank.

(g) The class of liquid stored.

(h) The type of venting and pressure relief.

(i) The locations of surface water and wetlands within 25 feet (7.5 meters) of the installation.

(j) The type of impoundment provided.

(k) The location of single-family drinking water wells within 50 feet (15 meters) of the installation; type IIb and III noncommunity public water wells within 75 feet (22.5 meters) of the installation; and type I community and type IIa noncommunity public water wells within 200 feet (30 meters) of the installation.

(l) Designate whether the installation is within a delineated wellhead protection area.

(m) Designate whether the installation is within an approved critical assessment zone of a delineated source water protection area.

1.11.3 The department shall issue a plan review report within 30 days of the receipt. If the report is not issued within 30 days, the installation may be constructed according to the submitted plans and shall comply with these rules.

1.11.4 Upon completion of the installation, the department shall be notified not less than 7 calendar days before the installation is placed in service. The department shall inspect the installation following the receipt of notification and shall certify the installation if the requirements of these rules have been met. If the inspection is not made within 5 working days of receipt of notification, the installation may be placed in service and a notarized affidavit shall be submitted to the department attesting to the fact that the installation complies with the plans submitted and applicable rules.

1.11.5 Upon request, all plans and specifications that are submitted to the department for review shall be returned after the department has certified the installation or within 30 working days after notification to the authority having jurisdiction of the completion of the installation. Plans and specifications may be marked "confidential - do not copy" when they are submitted.

History: 2003 AACS.

#### R 29.5210 General.

Rule 210. Scope. Section 2.1.1(2) of the FL/CL code is adopted with the following changes:

2.1.1(2) The storage of flammable and combustible liquids in portable containers greater than 660 gallons (2,508 liters) and intermediate bulk containers whose capacity exceeds 793 gallons (3,000 liters).

History: 2003 AACS.

#### R 29.5211 Design and construction of tanks.

Rule 211. Materials of construction. Sections 2.2.2.1 and 2.2.2.2 are added to the FL/CL code and sections 2.2.2(b)(3), 2.2.2(b)(4), and 2.2.2(c) of the FL/CL code are deleted as follows:

2.2.2(b)(3) is deleted.

2.2.2(b)(4) is deleted.

2.2.2(c) is deleted.

2.2.2.1 An open tank shall not be used for the storage of liquid.

2.2.2.2 An aboveground tank shall be repaired with material that is equal to the original material specifications. The use of any other material is subject to approval by the department, which is based upon the best interest of public health, safety, and welfare and the environment.

History: 2003 AACS.

#### R 29.5212 Design standards.

Rule 212. Design standards for atmospheric tanks. Section 2.2.3.1.2, exception 2 of the FL/CL code is adopted with the following changes and sections 2.2.3.1(4) and 2.2.3.1.2, exception 1 of the FL/CL code are deleted as follows:

2.2.3.1.1(4) is deleted.

2.2.3.1.2 Exception 1 is deleted.

2.2.3.1.2 Exception 2, horizontal cylindrical, and rectangular tanks built according to any standards specified in sections 2.2.3.1.1(1) or 2.2.3.1.1(2) shall be permitted to operate at pressures from atmospheric to 1 pound per square inch gauge (gauge pressure of 6.9 kilopascals) and shall be limited to 2.5 pounds per square inch gauge (gauge pressure of 17.2 kilopascals) under emergency venting conditions.

History: 2003 AACS.

#### R 29.5213 Design of tank vents.

Rule 213. Normal venting for tanks. Section 2.2.5.1.6 of the FL/CL code is adopted with the following changes:  
2.2.5.1.6 Tanks and pressure vessels that store class I liquids shall be equipped with venting devices that are normally closed except when venting under pressure or vacuum conditions.

History: 2003 AACS.

R 29.5214 Emergency relief venting for fire exposure for aboveground tanks.

Rule 214. The exception from section 2.2.5.2.1 is deleted from the FL/CL code.

R 29.5215 Design of storage tank system corrosion protection.

Rule 215. Section 2.2.6 of the FL/CL code is adopted with the following changes and sections 2.2.6.1.1(2), 2.2.6.1.3, 2.2.6.1.4, and 2.2.6.1.5 are added to the FL/CL code as follows: 2.2.6 Material used to fabricate the tank system shall be thick enough to compensate for internal corrosion and compatible with the product stored for the design life of the tank system or other approved means of corrosion protection shall be provided. 2.2.6.1.1(2) External corrosion protection for tanks. Approved or listed corrosion-resistant materials or systems shall be in accordance with the following recognized standards of design:

(a) UL 1316, "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures," adopted by reference in section 7.1.2.8.

(b) UL 1746, "Standard for External Corrosion Protection Systems for Steel Underground Storage Tank," adopted by reference in section 7.1.2.8.

(c) STI ACT-100, "Specification for External Corrosion Protection of FRP Composite Steel Underground Tanks, F894," adopted by reference in section 7.1.2.7.

2.2.6.1.3 The exterior of the tank bottom, for either single or double-bottom tanks that are installed on grade, at the same elevation as the bottom of the diked area, shall be protected against corrosion by 1 of the following:

(a) A properly engineered, installed, and maintained cathodic protection system that is in compliance with recognized standards of design, such as the American petroleum institute (API) RP 651, first edition, 1997, "Cathodic Protection of Aboveground Petroleum Storage Tanks," adopted by reference in section 7.1.2.1, or NACE, RP 0193, "External Cathodic Protection of On-Grade Metallic Storage Tank Bottoms," adopted by reference in section 7.1.2.5.

(b) A shop-fabricated tank that has a shop-applied external mastic-coated bottom may be installed on a concrete or asphalt pad under the entire tank bottom, if the pad is above the level of grade or any possible standing water.

(c) When a new bottom is installed in an existing tank, the exterior of the new bottom shall be provided with cathodic protection in compliance with subdivision (a) of this subrule or other corrosion protection methods acceptable to the department based on the best interest of public health, safety, and welfare and the environment, regardless of whether or not the new bottom replaces the old bottom or the old bottom is left in place and the new bottom is placed above the old bottom.

2.2.6.1.4 Cathodic protection systems for all aboveground and underground storage tanks shall be maintained to include all of the following minimum requirements:

(1) An inspection of an impressed current system not less than once every 60 days to make sure that it is operational.

(2) An inspection not less than once every 3 years of the effectiveness of the cathodic protection system by a certified cathodic protection tester as defined in section 1.6.9(c).

(3) An inspection of the effectiveness of the cathodic protection system within 6 months of any construction work that might damage the cathodic protection system.

(4) Repairs or replacement of a cathodic protection system shall be conducted by a NACE certified corrosion expert as defined in section 1.6.10(a). General system maintenance of the cathodic protection system including, but not limited to, replacement of fuses, and splicing of cable would not be required to be designed by a corrosion expert, and shall be approved by the department to not increase the hazard to public health, safety, and welfare and the environment.

2.2.6.1.5. Selection of the type of protection to be employed shall be based upon the corrosion history of the area and the judgment of a qualified engineer.

History: 2003 AACS.

R 29.5216 Vaults for aboveground tanks.

Rule 216. Sections 2.2.7.1, 2.2.7.2(b), 2.2.7.2(i), and 2.2.7.3 of the FL/CL code are adopted with the following changes and sections 2.2.7.2(k), 2.2.7.2(l), 2.2.7.2(m), and 2.2.7.2(n) are added to the FL/CL code as follows:



2.2.7.1 General. Aboveground tanks shall be permitted to be installed in vaults that meet the requirements of section 2.2.7. Except as modified by the provisions of section 2.2.7, vaults shall meet all other applicable provisions of these rules.

2.2.7.2 Vault design and construction. Vaults shall be designed and constructed to meet the following requirements:

2.2.7.2(b) The top of an aboveground vault shall be constructed of noncombustible material and shall be designed to be weaker than the walls of the vault to ensure that the thrust of any explosion occurring inside the vault is directed upward before destructive internal pressure develops within the vault. The top of an at-grade or below-grade vault shall be designed to relieve or contain the force of any explosion occurring inside the vault. The walls of a vault, which are partially below grade, shall extend not less than 4 feet (1.2 meters) above grade.

2.2.7.2(i) Each vault shall be provided with a means for personal entry, which shall only be at the top of the vault to allow for the visual inspection of the tank and piping surfaces. At each entry point, a warning sign that indicates the need for procedures for safe entry into confined spaces shall be posted. Each entry point shall be secured against unauthorized entry and vandalism.

2.2.7.2(k) The vault shall be provided with spill containment around the fill pipe or transfer connection. Under top fill applications, spill containment shall empty by gravity only into the primary tank.

2.2.7.2(l) The loading and unloading transfer connection for above-grade vaults shall terminate outside the vault.

2.2.7.2(m) Provision shall be made for the normal operation of valves without entering the vault.

2.2.7.2(n) A vault shall be located not less than 15 feet (4.5 meters) from buildings and property lines.

2.2.7.3 Tank selection and arrangement. Tanks shall be listed for aboveground use. Each tank shall be in its own vault and shall be completely enclosed by the vault. Sufficient clearance between the tank and the vault shall be provided to allow for visual inspection and maintenance of all the vault surfaces as well as the tank and its appurtenances.

History: 2003 AACS.

R 29.5217 Fire resistant tanks.

Rule 217. Section 2.2.8 of the FL/CL code is deleted.

2.2.8 Fire resistant tanks is deleted.

History: 2003 AACS.

R 29.5218 Installation of aboveground tanks.

Rule 218. Location with respect to property lines, public ways, and important buildings on the same property. Section 2.3.2.1.5 of the FL/CL code is adopted with the following changes and sections 2.3.2.1.8, 2.3.2.1.9, 2.3.2.1.9.1, and 2.3.2.1.10 are added to the FL/CL code as follows: 2.3.2.1.5 If located within the same diked area as or the drainage path of a tank storing a class I or class II liquid, the tank storing class IIIb liquid shall be located in accordance with section 2.3.2.1.1.

2.3.2.1.8 Location restrictions for the installation of aboveground tanks are as follows:

(a) An aboveground storage tank shall not be erected less than 300 feet (92 meters) from any of the following:

- (i) A mineshaft.
- (ii) An air escape shaft for a mine.
- (iii) A school.
- (iv) A church.
- (v) A hospital.
- (vi) A theater.
- (vii) An assembly occupancy for 50 or more persons.

(b) The aboveground storage tank, loading operation, or unloading operation shall not be installed closer than 25 feet (7.6 meters) plus 1 inch (25 millimeters) per 1,000 volts, measured horizontally from the nearest conductor or power lines, except that a service entrance and service line may be closer than 25 feet (7.6 meters), but shall not be over a tank loading or unloading area.

(c) The restrictions in section 2.3.2.1.8(a) or (b) shall not apply to an aboveground storage tank that contains class II or III liquid that is used exclusively for powering stationary engines which are installed in compliance with part 5 of these rules, and shall not apply to an aboveground storage tank that stores fuel oil for consumptive use on the premises.

2.3.2.1.9 An aboveground tank system shall not be installed within the following distances of the following items:

(a) Fifty-feet (15.2 meters) from a single-family drinking water well.

(b) Seventy-five feet (22.5 meters) from a type IIb noncommunity or type III public drinking water well.

(c) Two hundred feet (61 meters) from a type I community or type IIa noncommunity public drinking water well. Aboveground storage tanks that do not have secondary containment shall not be installed within 300 feet (92 meters) from single-family drinking wells, 800 feet (244 meters) from type IIb and type III noncommunity drinking water wells, 2,000 feet (610 meters) from type I community or type IIa noncommunity drinking water wells. Aboveground storage tanks that do not have secondary containment shall not be installed in a delineated wellhead protection area. Aboveground storage tanks that do not have secondary containment shall not be installed in a source water protection area critical assessment zone, or 300 feet (92 meters) from a surface watershed delineated critical assessment zone.

Exception: A person may install an AST system if it is a 1 for 1 replacement at an active aboveground or underground storage tank system location without being subject to the requirements of this section; if the new AST is in compliance with the requirements of these rules for a new installation, and if the new installation is no closer to a well than the existing installation.

2.3.2.1.9.1 A tank of more than 4,000 gallons (15,200 liters) shall not be installed within the critical assessment zone after the effective date of these rules. Tanks that have a 4,000-gallon (15,200 liters) or less capacity installed within the critical assessment zone, after the effective date of these rules, shall have liquid-tight secondary containment and overflow protection in compliance with this part of the rules.

Exception: Tanks may be installed or replaced within a critical assessment zone, if added to an active tank system which is currently in operation and which was operational before the effective date of these rules. The tank may be added, if it has liquid-tight secondary containment and overflow protection that meets the requirements of section 2.3.2.3 and section 2.6.1. In addition, before the installation of any new aboveground storage tank, the facility shall comply with section 2.3.2.7 of the FL/CL code.

2.3.2.1.10 The requirements of subsection 2.3.2.1.9.1 may be modified if a person can demonstrate that the aboveground storage tank installation is, or is not within a source water protection area, wellhead protection area, or wellhead zone of influence and is based on the best interest of public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5219 Control of spills from aboveground tanks.

Rule 219. Sections 2.3.2.3.2 and 2.3.2.3.3 of the FL/CL code are adopted with the following changes and sections 2.3.2.3(a), 2.3.2.3(b), 2.3.2.3(c) and exceptions 2.3.2.3.1(e), 2.3.2.3.2(i), 2.3.2.3.2(j), and 2.3.2.3.2(k) are added to the FL/CL code as follows:

2.3.2.3(a) As soon as practicable after detection of a release, the owner or operator of an AST system that releases or permits to be released any flammable or combustible liquid of more than 55 gallons (209 liters) to the ground or within a secondary containment area during any 24-hour period shall notify the department by contacting the department's pollution emergency alerting system (PEAS) at 800-292-4706.

2.3.2.3(b) Within 10 days after the release, the owner or operator shall file a written report with the department outlining the cause of the release, discovery of the release, and response measures taken or a schedule for completion of measures to be taken, or both, to prevent recurrence of similar releases.

2.3.2.3(c) An owner or operator of an AST system, where a release has occurred and who is liable for the activity that caused the release, is responsible for the necessary response activity at the facility in accordance with the requirements set forth in part 201 of 1994 PA 451, MCL 324.21101 et seq.

Exception: Unless required by the department based on the best interest of public health, safety, and welfare and the environment, a tank which has a capacity of 660 gallons (2,508 liters) or less and which stores combustible liquid does not require secondary containment.

2.3.2.3.1(e) Remote impounding. The walls and floor of the remote impounding area shall be of a liquid-tight, noncombustible construction and be designed to withstand a full hydrostatic head.

2.3.2.3.2 Impounding around tanks by diking. When protection of adjoining property or waterways is by means of impounding by diking around the tanks, the system shall comply with all of the following provisions:

(a) A slope away from the tank of not less than 1% shall be provided for not less than 50 feet (15 meters) or to the dike base, whichever distance is less.

(b) The volumetric capacity of the diked area shall not be less than the greatest amount of liquid that can be released from the largest tank within the diked area, assuming a full tank. To allow for volume occupied by tanks, the capacity of the diked area that encloses more than 1 tank shall be calculated after deducting the volume of the tanks, other than the largest tank, below the height of the dike.

(c) To permit access, the outside base of the dike at ground level shall not be closer than 10 feet (3 meters) to any property line that is or can be built upon.

(d) Walls and floors of the diked area shall be of a liquid-tight, noncombustible construction and be designed to withstand a full hydrostatic head.

(e) Except as provided in subdivision (f) of this rule, the wall of the dike area shall be restricted to an average interior height of 6 feet (1.8 meters) above interior grade.

(f) Dikes, or dike and fencing combined, may be higher than an average of 6 feet (1.8 meters) above interior grade where provision is made for normal access and necessary emergency access to tanks, valves, and other equipment and for safe egress from the diked enclosure and where the following requirements are met:

(i) Where the average height of a dike that contains class I liquids is more than 12 feet (3.6 meters) high, measured from interior grade, or where the distance between any tank and the top inside edge of the dike wall is less than the height of the dike wall, provision shall be made for the normal operation of valves and for access to a tank roof or roofs without entering below the top of the dike. This may be accomplished through the use of remote-operated valves, elevated walkways, or similar arrangements.

(ii) Piping that passes through dike walls shall be designed to prevent excessive stresses as a result of settlement or fire exposure.

(iii) The minimum distance between tanks and the toe of the interior dike walls shall be 5 feet (1.5 meters).

(g) Each diked area that contains 2 or more tanks shall be subdivided, preferably by drainage channels or at least by intermediate dikes, to prevent spills from endangering adjacent tanks within the diked area as follows:

(i) When storing normally stable liquids in vertical cone roof tanks that are constructed with weak roof-to-shell seam or in floating roof tanks, or when storing crude petroleum in producing areas in any type of tank, 1 subdivision for each tank that has a capacity of more than 10,000 barrels (1,590,000 liters) and 1 subdivision for each group of tanks,

where no tank in the group has a capacity of more than 10,000 barrels (1,590,000 liters), and that has an aggregate capacity of not more than 15,000 barrels (2,385,000 liters).

(ii) When storing normally stable liquids in tanks that are not covered by the provisions of paragraph (i) of this subdivision, 1 subsection for each tank that has a capacity of more than 2,380 barrels (378,500 liters) and 1 subdivision for each group of tanks where no tank has a capacity of more than 2,380 barrels (378,500 liters), and that has an aggregate capacity of not more than 3,570 barrels (567,750 liters).

(iii) When storing unstable liquids in any type of tank, 1 subdivision for each tank, except those tanks that are installed in compliance with the drainage requirements of the NFPA pamphlet number 15, 1996 edition, "Standard for Water Spray Fixed Systems for Fire Protection," adopted by reference in section 7.1.1, shall not require additional subdivision. Since unstable liquids will react more rapidly when heated than when at ambient temperatures, subdivision by drainage channels is the preferred method.

(iv) When 2 or more tanks that are used to store class I liquids, any 1 of which is over 150 feet (45 meters) in diameter, are located in a common diked area, intermediate dikes shall be provided between adjacent tanks to hold not less than 10% of the capacity of the tank so enclosed, not including the volume that is displaced by the tank.

(v) The drainage channels or intermediate dikes shall be located between tanks so as to take full advantage of the available space with due regard for the individual tank capacities. Intermediate dikes, where used, shall be not less than 18 inches (45 cubic meters) in height.

(h) Where provision is made for draining water from dike areas or from remote impoundment areas, the drains shall be attended during operation, only manually activated, locked, and closed when not attended, and controlled in a manner that prevents flammable or combustible liquids from entering natural watercourses, public sewers, or public drains. Control of drainage shall be accessible under fire conditions from outside the dike or remote impoundment area. For closed waste stream systems, other control methods that

provide an equivalent level of fire safety and environmental protection acceptable to the department will be permitted if it is in the best interest of public health, safety, and welfare and the environment.

(i) The storage of flammable and combustible materials, empty or full drums, or barrels shall not be permitted within the diked area.

(j) A building shall not be located within a diked area. A noncombustible structure that houses equipment which is necessary for handling, transferring, blending, or controlling the liquid may be located within a dike if the structure has adequate ventilation. Heating and electrical installations for the structure shall be approved for hazardous locations.

(k) All drainage from diked systems shall be performed in full compliance with all applicable local, state, and federal requirements.

2.3.2.3.3 Secondary containment tanks. Where a secondary containment tank is used to provide spill control, the tank shall meet all of the following requirements:

(a) All piping connections to the tank shall be made above normal maximum liquid level.

(b) Means shall be provided to prevent the release of liquid from the tank by siphon flow.

(c) Means shall be provided for determining the level of liquid in the tank. This means shall be accessible to the delivery operator.

(d) Means shall be provided to prevent overfilling by sounding an alarm when the liquid level in the tank reaches 90% capacity and by automatically stopping delivery of liquid to the tank when the liquid level in the tank reaches 95% of capacity. In no case shall these provisions restrict or interfere with the proper functioning of the normal vent or the emergency vent.

(e) Spacing between adjacent tanks shall be not less than 3 feet (.9 meters).

(f) The tank shall be capable of resisting the damage from the impact of a motor vehicle or suitable collision barriers shall be provided.

(g) Where the means of secondary containment is enclosed, it shall be provided with emergency venting in accordance with section 2.2.5.2.

(h) Means shall be provided to establish the integrity of the secondary containment, in accordance with sections 2.4.2.3 and 2.4.2.4. The secondary containment shall be designed to withstand the hydrostatic head resulting from a leak from the primary tank of the maximum amount of liquid that can be stored in the primary tank.

History: 2003 AACS.

R 29.5220 Tank openings other than vents for aboveground tanks.

Rule 220. Sections 2.3.2.5.1 and 2.3.2.5.2 of the FL/CL code are adopted with the following changes:

2.3.2.5.1 For capacity greater than 50,000 gallons, each connection to an aboveground tank through which liquid can normally flow out of the tank above the liquid level shall be provided with a solenoid valve, a remote control valve, an automatically actuated valve, or a mechanical anti-siphoning device as close as possible to the tank.

2.3.2.5.2 Each connection to an aboveground tank, which has a capacity of 50,000 gallons (190,000-liters) or less through which liquid can normally flow shall be provided with an internal or an external valve that is located as close as practical to the shell of the tank and shall be in compliance with all of the following provisions:

(a) Each single wall horizontal tank or single wall vertical tank which has a capacity of 50,000 gallons (190,000 liters) or less and which contains a class I or class II liquid shall have all liquid lines that are attached below liquid level equipped with an approved heat-actuated internal or external quick-closing valve that will automatically prevent the flow of liquid from the tank in the event of a fire. The external quick-closing valve shall be installed at the tank. The heat-actuated quick-closing valve is not required on crude petroleum storage tanks.

(b) Each heat-actuated, quick-closing valve shall be maintained in proper operating condition.

(c) Each water drain valve shall be an approved non-freeze valve and shall be locked or otherwise secured in a closed position when not in use.

History: 2003 AACS.

R 29.5221 Existing aboveground storage tanks.

Rule 221. Sections 2.3.2.7.1, 2.3.2.7.1(a), 2.3.2.7.1(b), 2.3.2.7.2, 2.3.2.7.2(a), 2.3.2.7.2(b), 2.3.2.7.2(c), 2.3.2.7.3, 2.3.2.7.3(a), and 2.3.2.7.3(b) are added to the FL/CL code as follows:

2.3.2.7.1 Field-Erected Tanks. All existing field-erected tanks, which are not in full compliance with the requirements for new tanks under these rules, shall meet 1 of the following provisions:

(a) If an API standard 653, adopted by reference in section 7.1.2.1, internal inspection is performed by an API certified inspector and completed with an established calculated corrosion rate, based on original construction thickness data or deterministic methods in accordance with API standard 653 at the time of inspection, no action needs to be taken until the next recommended internal inspection. The API standard 653-inspection report shall be available to the department documenting the calculated corrosion rate. In addition, within 5 years of the effective date of these rules, each tank shall be provided with overfill protection that meets the applicable requirements of section 2.6.1.1 to section 2.6.1.6.

(b) An API standard 653 internal inspection shall be performed for each tank within 5 years of the effective date of these rules. This internal inspection shall be used to determine whether the tank wall and bottom thickness exceed the minimum allowable thickness under the API standard 653, and establish a baseline for the development of a corrosion rate for each tank. A subsequent API standard 653 internal inspection shall be conducted, for each tank, within 5 years to establish the calculated corrosion rate for each tank. In addition, within 5 years of the effective date of these rules, each tank shall be provided with overfill protection that meets the applicable requirements of section 2.6.1.1 to section 2.6.1.6.

(c) Within 10 years of the effective date of these rules, an existing tank shall have an established calculated corrosion rate in accordance with the API standard 653. Within 5 years of the effective date of these rules, annual tank tightness tests pursuant to section 2.4.3.2 shall be performed. In addition, within 5 years of the effective date of these rules, each tank shall be provided with overfill protection that meets the applicable requirements of section 2.6.1.1 to section 2.6.1.6.

(d) Within 5 years of the effective date of these rules, provide liquid tight secondary containment for the tank by doing any of the following:

(i) Installing a double bottom using an integral secondary containment system that has a monitored interstitial space approved by the department that will not increase the hazard to public health, safety, and welfare and the environment.

(ii) Installing a steel second bottom with a monitored interstitial space.

(iii) Installing an external impermeable liner under the existing bottom and provide an external leak detection system between the tank bottom and the impermeable liner.

(iv) Employing other methods acceptable to the department, which do not increase the hazard to public health, safety, and welfare and the environment. The monitoring system for the interstitial space shall be continuous and sound an alarm if water or the product stored in the tank is detected. A cathodic protection system shall also be installed as required in section 2.2.6.1.3. In addition, overfill and spill protection shall be added in compliance with sections 2.6.1.5 and 2.6.1.6. Corrosion protection shall be installed in compliance with section 2.2.6.

(e) Within 5 years of the effective date of these rules, the existing tank shall be replaced with a new tank that meets all the requirements of these rules.

(f) Five years after the effective date of these rules, an existing noncompliant tank shall be permanently closed under section 2.6.4 of the FL/CL code.

2.3.2.7.1(a) Within 5 years of the effective date of these rules, if the requirements of section 2.3.2.7.1 have not been met or the tank has not been permanently closed under section 2.6.4.1, the tank is subject to the provisions of section 1.10.1 to section 1.10.6.

2.3.2.7.1(b) All persons utilizing API standard 653 to comply with this section shall do all of the following:

(a) Notify the department not less than 15 days in advance of a scheduled API standard 653 internal inspection, unless the department is notified and approves an emergency inspection. Notification of the API standard 653 inspection shall be on form EQP3899 found in appendix "A" provided by the department.

(b) Perform routine in-service inspections under section 4.3.1 of the API standard 653 and maintain records on file for 3 years.

(c) Testing and inspection records, inspector recommendations, and actions undertaken to address structural integrity issues and recommendations shall be retained for the life of the tank and shall be accessible to the department.

(d) Any repairs related to the structural integrity of the tank, which are recommended by the certified API standard 653 inspector, shall be addressed in a manner consistent with the requirements of these rules and in accordance with API standard 653. The operator may utilize alternate repair methods acceptable to the

department if they are equally effective at mitigating the identified defect and based on the best interest of public health, safety, and welfare and the environment. Inspections, reports, and repair records shall be retained for the life of the tank.

(e) All API standard 653 certified inspector reports shall include a complete assessment of the total surface of the tank bottom using the magnetic flux scanning method followed by ultrasonic thickness gauging, where needed, or by another method of thickness measurement acceptable to the department based on the best interest of public health, safety, and welfare and the environment. A complete assessment will not be required in the case of a floor replacement.

(f) Internal tank inspection shall be summarized on form EQP3896 found in appendix "A" provided by the department. The form shall be submitted to the department within 60 days of completion of the inspection.

2.3.2.7.2 Shop-fabricated tanks on-grade. Within 5 years of the effective date of these rules, all existing shop-fabricated tanks on-grade which are 50,000 gallons (190,000 liters) or less in size and which are not in full compliance with the requirements for new tanks under these rules shall be in compliance with 1 of the following provisions:

(a) If an API standard 653 internal inspection performed by an API standard 653 Certified Inspector has been performed and completed with an established calculated corrosion rate based on original construction thickness data or deterministic methods in accordance with API standard 653 at the time of inspection, no action needs to be taken until the next recommended internal inspection. The API standard 653-inspection report shall be available to the department documenting the calculated corrosion rate. In addition, within 5 years of the effective date of these rules, each tank shall be provided with overfill and spill protection that meets the applicable requirements of sections 2.6.1.1 to 2.6.1.6.

(b) An STI SP001-00, adopted by reference in section 7.1.2.7, inspection shall be performed by an STI SP001-00 certified inspector. The inspection shall determine that the tank wall and bottom thickness exceed the minimum allowable thicknesses under the STI SP001-00. A subsequent STI SP001-00 inspection shall be conducted for each tank not less than once every 10 years. In addition, within 5 years of the effective date of these rules, each tank shall be provided with overfill and spill protection that meets the applicable requirements of sections 2.6.1.1 to 2.6.1.6.

(c) An API standard 653 internal inspection shall be performed within 5 years of the effective date of these rules. The inspection shall determine that the tank wall and bottom thickness exceed the minimum allowable thickness under the API standard 653 and establish a baseline for the development of a corrosion rate for each tank. A subsequent API standard 653 internal tank inspection shall be conducted, for each tank, within 5 years to establish the calculated corrosion rate for the tank. In addition, within 5 years of the effective date of these rules, each tank shall be provided with overfill and spill protection shall be added in compliance with applicable requirements of sections 2.6.1.1 to 2.6.1.6.

(d) Within 5 years of the effective date of these rules, provide liquid-tight secondary containment for the tank by doing any of the following:

(i) Installing a double bottom using an integral secondary containment system, which has a monitored interstitial space approved by the department that will not increase the hazard to public health, safety, and welfare and the environment.

(ii) Installing a steel second bottom that has a monitored interstitial space.

(iii) Installing an external impermeable liner under the existing bottom and providing an external leak detection system between the tank bottom and the impermeable liner.

(iv) Employing other methods acceptable to the department based on the best interest of public health, safety, and welfare and the environment. The monitoring system for the interstitial space shall be continuous and sound an alarm if water or the product stored in the tank is detected. A cathodic protection system shall also be installed as required in section 2.2.6.1.3. In addition, overfill and spill protection shall be added in compliance with sections 2.6.1.5 and 2.6.1.6.

(e) Install a secondarily contained tank system which is in compliance with section 2.3.2.3.3 and which has a continuous leak detection system in the interstice. The monitoring system shall sound an alarm if water or the product stored in the tank is detected. A corrosion protection system shall also be installed as required in section 2.2.6.1.3. In addition, overfill and spill protection shall be added in compliance with sections 2.6.1.5 and 2.6.1.6.

(f) Provide liquid-tight secondary containment that meets the requirements of section 2.3.2.3.2. In addition, overfill and spill protection shall be added in compliance with sections 2.6.1.5 and 2.6.1.6.

(g) Employ other methods as approved by the department based on the best interest of public health, safety, and welfare and the environment.

(h) Replace the existing tank with a new tank that meets all the requirements of these rules. 2.3.2.7.2(a) Within 5 years of the effective date of these rules, if the requirements of section 2.3.2.7.2 have not been met or the tank has not been permanently closed under section 2.6.4.1, the tank is subject to the provisions of section 1.10.1 to section 1.10.6.

2.3.2.7.2(b) All persons utilizing STI SP001-00 or API standard 653 to comply with this rule shall do all of the following:

(a) Notify the department not less than 15 days in advance of a scheduled API standard 653 or STI SP001-00 internal inspection, unless the department is notified and approves an emergency inspection. Notification of the inspection shall be on form EQP3899 found in appendix "A" provided by the department.

(b) Perform routine in-service inspections under API standard 653 or STI SP001-00 and maintain records on file for 3 years.

(c) Testing and inspection records, inspector recommendations, and actions undertaken to address structural integrity issues and recommendations shall be retained for the life of the tank and shall be accessible to the department.

(d) Any repairs related to the structural integrity of the tank, which are recommended by the API standard 653 or STI SP001-00 certified inspector shall be addressed in a manner consistent with the requirements of these rules and in accordance with API standard 653 or STI SP001-00. The operator may utilize alternate repair methods acceptable to the department if they are equally effective at mitigating the identified defect based on the best interest of public health, safety, and welfare and the environment. Inspections, reports, and repair records shall be retained for the life of the tank.

(e) All API standard 653 or STI SP001-00 certified inspector reports shall include a complete assessment of the total surface of the tank bottom using a method of thickness measurement or be cited in the API standard 653 or STI SP001-00 standards based on the best interest of public health, safety, and welfare and the environment.

(f) Internal tank inspection shall be summarized on form EQP3896 found in appendix "A" provided by the department. The form shall be submitted to the department within 60 days of completion of the inspection.

2.3.2.7.2(c) For tank systems in which the bottom or walls of the tank have been internally lined before to the effective date of these rules, all of the following provisions shall be complied with:

(a) Within 10 years of the internal lining, and every 5 years thereafter, the lined tank shall be internally inspected and found to be structurally sound with the lining still bonded to the tank and performing in accordance with the original design specifications.

(b) Personnel shall be certified in nondestructive testing, level I competence, in accordance with the guidelines specified by the American society for nondestructive testing entitled "Recommended Practice Number SNT-TC-1A, Personnel Qualification and Certification in Nondestructive Testing," adopted by reference in section 7.1.2.12, including being certified in administering training to, and examining and retesting, personnel for certification of tank entry, surface preparation, inspection, ultrasonic thickness gauging, manway closure, and testing.

(c) Equipment used for ultrasonic thickness gauging shall have a minimum measurement range of 0.50 inches (13 millimeters) to 2 inches (51 millimeters) and a minimum resolution of 0.002 inches (.05 millimeters).

(d) After the tank has been emptied, the internal tank surfaces shall be cleaned as required for the use of ultrasonic thickness gauging.

(e) For gauging measurement control, tank walls and bottom shall be divided into sections. Measurements for tank walls shall be divided into 3 foot (.9 meters) by 3 foot (.9 meters) sections beginning at the bottom of the tank and extending outward along the tank circumference and along the tank length. Any additional area of the tank wall that is less than 3 foot (.9 meters) by 3 foot (.9 meters) shall be measured and treated as an additional section. Measurements for tank bottoms shall divide the tank bottom into 4 equal divisions by establishing horizontal and vertical diameter lines as axes. Each division shall be divided into 3 feet (.9 meters) by 3 feet (.9 meters) sections beginning at the center point and extending outward on each axis line. Any additional area of the tank bottom that is less than 3 feet (.9 meters) by 3 feet (.9 meters) shall be measured and treated as an additional section.

(f) Section gauging. Thickness gauging measurements shall be taken in the center of each section of the tank wall and bottom. Thickness readings of 75% or less than the original wall thickness specified in underwriters laboratories standard 142 (UL 142), adopted by reference in section 7.1.2.8, shall require further gauging prescribed. For readings of more than 75% of the original wall thickness, as specified in UL 142, shall be reported as the average wall thickness for the section.

(g) Gauging section subdivisions. Sections that have a center gauge measurement of 75% or less than the original wall thickness as specified in UL 142 shall be subdivided into 9 equal subdivisions. Thickness gauging for each of the subdivisions shall be taken at the center of each subdivision. The subdivision thickness readings shall then be averaged to get the average wall thickness for the section.

(h) Thin wall target area gauging. Areas that have thickness gauging measurements that are less than 50% of the original wall thickness as specified in UL 142 shall each receive 8 additional readings. Four of the 8 readings shall be equally spaced readings and each of the 4 readings shall be at a 1 ½ inch (38 millimeters) radius from the initial reading. The 4 other readings shall be equally spaced readings each at a 3-inch (76 millimeters) radius from the initial reading. The average of the 8 readings shall be reported as the average reading of the thin wall target areas.

(i) Average tank wall thickness. The average tank wall thickness shall be established by averaging all of the section thicknesses reported. Thickness gauge readings shall be reported on an ultrasonic thickness gauging report form that conforms to the requirements of subdivisions (e) to (i) of this section.

(j) The owner, operator, or designated internal assessment company shall notify the department of all tank liner inspections not less than 15 days before the scheduled inspection on form EQP3899 found in appendix "A" provided by the department.

(k) The lining thickness shall be a minimum of 100-mil dry film thickness or greater. In addition, the lining hardness shall be tested using a barcol hardness tester, GYZJ 935, to determine that the lining has maintained a hardness that meets the manufacturer's specifications for the product stored.

(l) The inspecting company shall provide the owner or operator with a complete report of the lining and tank evaluation, including the items specified in subdivisions (a) to (k) of this section. The certified ultrasonic testing inspector shall sign and date the internal inspection report.

(m) A corrosion protection system shall be installed on the exterior tank bottom as required in section 2.2.6.1.3. In addition, overfill and spill protection shall be added in compliance with sections 2.6.1.5 and 2.6.1.6.

2.3.2.7.3 Shop-fabricated tanks not on-grade. Within 5 years of the effective date of these rules, all aboveground shop-fabricated storage tanks, which are 50,000 gallons (190,000 liters) or less in size and which are not on-grade shall comply with the applicable overfill and spill requirements of sections 2.6.1.1 to 2.6.1.6. In addition, within 10 years of the effective date of these rules, an owner or operator shall be in compliance with 1 of the following provisions:

(a) A STI SP001-00 inspection shall be performed by a STI SP001-00 certified inspector. The inspection shall determine that the tank wall and head thicknesses exceed the minimum allowable thicknesses under the STI SP001-00.

A subsequent STI SP001-00 inspection shall be conducted not less than once every 10 years.

(b) If an API standard 653 internal inspection performed by an API standard 653 certified inspector has been performed and completed with an established calculated corrosion rate based on original construction thickness data or deterministic methods in accordance with API standard 653 at the time of inspection, no action needs to be taken until the next recommended internal inspection. The API standard 653-inspection report shall be available to the department documenting the calculated corrosion rate.

(c) An API standard 653 internal inspection shall be performed. The inspection shall determine that the tank wall and bottom thickness exceed the minimum allowable thickness under the API standard 653 and establish a baseline for the development of a corrosion rate for each tank. A subsequent API standard 653 internal tank inspection shall be conducted, for each tank, within 5 years to establish the calculated corrosion rate.

(d) Liquid-tight secondary containment, which meets the requirements of sections 2.3.2.3.1, 2.3.2.3.2, or 2.3.2.3.3.

(e) Provide other secondary containment methods as acceptable to the department based on the best interests of public health, safety, and welfare and the environment.

(f) Replace the existing tank with a new secondary containment tank that meets all of the requirements of these rules.

2.3.2.7.3(a) Within 10 years of the effective date of these rules, if the requirements of section 2.3.2.7.3 have not been met or the tank has not been permanently closed under section 2.6.4.1, the tank is subject to the provisions of section 1.10.1 to section 1.10.6.

2.3.2.7.3(b) All persons utilizing STI SP001-00 or API standard 653 to comply with this section shall do all the following:



(a) Notify the department, not less than 15 days in advance of a scheduled API standard 653 or STI SP001-00 internal inspection, unless the department is notified and approves an emergency inspection. Notification of the inspection shall be on form EQP3899 found in appendix "A" provided by the department.

(b) Perform routine service inspections under API standard 653 or STI SP001-00 and maintain records on file for not less than 3 years.

(c) Testing and inspection records, inspector recommendations, and actions undertaken to address structural integrity issues and recommendations shall be retained for the life of the tank and shall be accessible to the department.

(d) Any repairs related to the structural integrity of the tank that are recommended by the API standard 653 or STI SP001-00 certified inspector shall be addressed in a manner consistent with the requirements of these rules and in accordance with API standard 653 or STI SP001-00. The owner or operator may utilize alternate repair methods acceptable to the department if they are equally effective at mitigating the identified defect based on the best interests of public health, safety, and welfare and the environment. Inspections, reports, and repair records shall be retained for the life of the tank.

(e) All API standard 653 or STI SP001-00 certified inspector records shall include a complete assessment of the total surface of the tank by a method of thickness measurement cited in the API standard 653 or STI SP001-00 or be acceptable to the department based on the best interests of public health, safety, and welfare and the environment.

(f) Internal tank inspection shall be summarized on form EQP3896 found in appendix "A" provided by the department. The form shall be submitted to the department within 60 days of completion of the inspection.

History: 2003 AACS.

#### R 29.5222 Installation of underground tanks.

Rule 222. Sections 2.3.3.1 and 2.3.3.5.1 of the FL/CL code are adopted with the following changes and sections 2.3.3.1.1, 2.3.3.1.2, 2.3.3.1.3, and 2.3.3.4.5(a) are added to the FL/CL code, and section 2.3.3.5.2 of the FL/CL code is deleted as follows:

2.3.3.1 Excavation for an underground storage tank shall be made with due care to avoid undermining the foundation of existing structures. Tanks shall not be installed at a location where loads from adjacent structures of any kind can be transmitted to the tank. A structure or foundation of a structure shall not be erected or constructed within 10 feet (3 meters) from any point on the tank surface, unless the footings extend to the bottom of the tank. The distance from any part of the tank that stores liquid to the nearest wall of any basement, pit, or property line shall not be less than 10 feet (3 meters).

2.3.3.1.1 An underground storage tank system shall not be installed within the following distances of the following items:

(a) Fifty feet (15.2 meters) from a single-family drinking water well, as defined in the groundwater quality control act, part 127, 1978 PA 368, MCL 333.12701 et seq., and rules promulgated under Part 127 of 1978 PA 368.

(b) Seventy-five feet (22.5 meters) from a type IIb noncommunity or type III public drinking water well, as defined in the Michigan safe drinking water act, 1976 PA 399, MCL 325.1001 et seq., and rules promulgated under 1976 PA 399.

(c) Two-hundred feet (61 meters) from a type I community or type IIa noncommunity public drinking water well, as defined in 1976 PA 399, MCL 325.1001 et seq., and rules promulgated under 1976 PA 399.

2.3.3.1.2 Single-wall USTs shall be kept more than 300 feet (92 meters) from single-family drinking water wells, 800 feet (244 meters) from type IIb and III noncommunity drinking water wells, 2,000 feet (610 meters) from type I community and type IIa noncommunity drinking water wells. Single-walled storage tanks shall not be installed in a delineated wellhead protection area. Secondarily contained USTs may be installed in these areas.

2.3.3.1.3 The requirements of subsections 2.3.3.1.1(d) and 2.3.3.1.2 may be modified if a person can demonstrate that the underground storage tank installation is, or is not, within a source water protection area, wellhead protection area, or wellhead zone of influence based on the best interests of public health, safety, and welfare and the environment.

2.3.3.4.5(a) Spill protection shall be provided around the fill connections to minimize the possibility of releases into the subsurface soils, ground water, and surface water.

2.3.3.5.1 When subject to flooding, high water table, or other buoyant forces, each tank shall be safeguarded from movement by anchoring or other means acceptable to the department based on the best interests of public health, safety, and welfare and the environment.

2.3.3.5.2 is deleted.

History: 2003 AACS.

R 29.5223 Storage tank buildings.

Rule 223. Sections 2.3.4.1, 2.3.4.4.1, 2.3.4.4.4, 2.3.4.5.2, 2.3.4.5.6, and 2.3.4.10.2 of the FL/CL code are adopted with the following changes:

2.3.4.1. Scope. Subsection 2.3.4 shall apply to installation of tanks storing class I, class II, and class IIIa liquids in storage tank buildings. Tanks storing class IIIb liquids shall not be required to comply with the provisions of the subsection. A tank installation that has a canopy or roof shall be constructed of noncombustible materials and have prior approval by the department based on the best interests of public health, safety, and welfare and the environment. This canopy or roof shall not limit the dissipation of heat or dispersion of flammable vapors and cannot restrict firefighting access and control.

2.3.4.4.1 Ventilation of tank buildings. Storage tank buildings storing class I liquids, or class II or class IIIa liquids at temperatures above their flash points shall be ventilated at a rate sufficient to maintain the concentration of vapors within the building at or below 25% of the lower flammable limit. Compliance with sections 2.3.4.4.2 to 2.3.4.4.5 shall be considered as meeting the requirements of section 2.3.4.4.1.

2.3.4.4.4 Provision shall be made for introduction of make-up air in such a manner as to avoid short-circuiting the ventilation. Ventilation shall be arranged to include all floor areas or pits where flammable vapors can collect. Where natural ventilation is inadequate, mechanical ventilation shall be provided and shall be kept in operation while flammable liquids are being handled. Location or spot ventilation, if provided, shall be permitted to be used for up to 75% of the required ventilation.

2.3.4.5.2 Drainage from tank buildings. A facility shall be designed and operated to prevent the discharge of flammable and combustible liquids to public waterways, public sewers, or adjoining property.

2.3.4.5.6 Emergency drainage systems, if connected to public sewers or discharged into surface water, shall be equipped with traps or separators. These properly designed traps, separators, holding tanks, or other approved means shall be maintained according to the manufacturer's operating instructions by the owner or operator and shall be emptied of accumulated product before reaching safe storage capacity.

2.3.4.10.2 Detection and alarm for tanks inside tank buildings. Areas that include buildings where the potential exists for a flammable liquid spill shall be monitored as appropriate. Monitoring methods shall include both of the following:

- (a) Personal observation or patrol.
- (b) Monitoring equipment that indicates a spill or leak has occurred in an unattended area.

History: 2003 AACS.

R 29.5224 Testing requirements for tanks.

Rule 224. Section 2.4.2 of the FL/CL code is deleted and sections 2.4.3.1, 2.4.3.2, 2.4.3.3, and 2.4.3.4 are added to the FL/CL code as follows:

2.4.2 Exception is deleted.

2.4.3.1 The tank tightness testing for USTs shall be capable of detecting a 0.1?gallon (.4 liters) per hour leak rate or another test of equivalent performance for any portion of the tank while accounting for the effects of all of the following:

- (a) Thermal expansion or contraction of the product.
- (b) Vapor pockets.
- (c) Tank deformation.
- (d) Evaporation or condensation.
- (e) The location of the water table.

2.4.3.2 Tank tightness testing for an aboveground storage tank shall be conducted by either of the following:

(A) By a method approved by the department based on the best interests of public health, safety, and welfare and the environment. The method utilized shall account for the effects of all of the following:

(i) Thermal expansion or contraction of the product.

(ii) Vapor pockets.

(iii) Tank deformation.

(iv) Evaporation or condensation.

(v) The location of the water table. A guide to leak detection for aboveground storage tanks can be found in Associated Petroleum Industries, Publication 334, adopted by reference in section 7.1.2.1.

(B) By a visual inspection of all exterior surfaces of the tank and where a tank is installed on-grade, a visual and physical inspection of the interior surface of the tank. The interior surface of the tank installed on or below-grade, shall be cleaned so that any hole through which liquid may flow is capable of being detected.

2.4.3.3 The department has the authority to disapprove any existing or future testing device or procedure used under sections 2.4.3.1 and 2.4.3.2 based on the best interests of public health, safety, and welfare and the environment. The department may prohibit a person from performing tank tightness testing if that person does not conduct testing in accordance with the testing device manufacturer's operating procedures and instructions.

2.4.3.4 If the tightness test or the presence of a release is the reason to suspect tank leakage, the department may require, at the expense of the owner or operator, a site assessment of the area surrounding the suspect tank. In performing the site assessment, the owner or operator shall take into consideration the nature of the stored substance, the sample type, sample locations, soil type, depth to groundwater, and other factors appropriate for identifying the presence, and source of the release.

History: 2003 AACS.

R 29.5225 Fire prevention and controls.

Rule 225. Control of Ignition Sources. Section 2.5.3.2 of the FL/CL code is adopted with the following changes:

2.5.3.2 Smoking shall be permitted only in designated and properly identified areas. "No Smoking" signs shall be conspicuously posted where a hazard from flammable vapors may be present.

History: 2003 AACS.

R 29.5226 Operation and maintenance of tanks.

Rule 226. Section 2.6.1.1 of the FL/CL code is adopted with the following changes and sections 2.6.1.5 and 2.6.1.6 are added to the FL/CL code as follows:

2.6.1.1 Aboveground tanks at terminals that receive and transfer class I liquids from mainline pipelines or marine vessels shall meet the requirements of sections 5j to 5o of 1941 PA 207, MCL 29.5j to MCL 29.5o and shall follow formal written procedures to prevent overfilling of tanks utilizing one of the following methods of protection:

(a) Tanks shall be gauged at frequent intervals by personnel on the premises during product receipt with frequent communication maintained with the supplier so flow can be promptly shut down or diverted.

(b) Tanks shall be equipped with a high-level detection device that is independent of any gauging equipment. The alarm shall be located where personnel, who are on duty throughout product transfer, can promptly arrange for flow stoppage or diversion.

(c) Tanks shall be equipped with an independent high-level detection system that will automatically shut down or divert flow.

(d) Alternative to the instrumentation described in sections 2.6.1.1(b)

and (c) where approved by the department as affording equivalent protection based on the best interests of public health, safety, and welfare and the environment.

2.6.1.5 An aboveground tank, not covered under section 2.6.1.1, shall be equipped with means that are accessible to the delivery operator for determining the liquid level in the tank. Provisions shall be made to either automatically stop the delivery of the liquid to the tank when the liquid level in the tank reaches 95% of the capacity of the tank or sound an audible alarm when the tank reaches 90% of the capacity of the tank. Refer to section 2.3.2.3.3(d) for overfill prevention requirements with secondary containment tanks that provide spill control in accordance with section 2.3.2.3.3.

2.6.1.6 The area that surrounds the fill pipe or the liquid transfer connection of any storage tank shall have spill containment that will prevent release of liquid into the environment when the transfer hose is detached from the fill pipe or the transfer connection.

History: 2003 AACCS.

R 29.5227 Identification and security.

Rule 227. Section 2.6.2.3 is added to the FL/CL code as follows:

2.6.2.3 Each aboveground tank that is used to store liquids shall be labeled according to 1 of the following provisions:

(a) Depending upon the classification of the liquid in the tank, either "Flammable Liquids - Keep Fire Away" or "Combustible Liquids - Keep Fire Away," shall be displayed in letters that are not less than 3-inches (76 millimeters) in height.

(b) NFPA pamphlet number 704, "Standard System for the Identification of Fire Hazards of Materials," 1996 edition, adopted by reference in section 7.1.1.

History: 2003 AACCS.

R 29.5228 Temporary or permanent removal from service of aboveground tanks.

Rule 228. Sections 2.6.4.1, 2.6.4.2, and 2.6.4.3 of the FL/CL code are adopted with the following changes:

2.6.4.1 Closure of aboveground storage tanks. Tanks that are no longer in use for greater than 12 months shall be closed. To permanently close an aboveground storage tank that is no longer needed to store regulated substance, the owner or operator shall notify the department, not less than 30 days before the intended closure, on form EQP3858 found in appendix "A" provided by the department. To permanently close an aboveground storage tank, the owner or operator shall empty and clean the tank of all liquid and sludge, render it vapor-free, and safeguard it against trespassing. Piping that is permanently removed from service shall be emptied of all liquids and sludge, be purged and capped, or be removed from the ground.

2.6.4.2 Each used tank that is to be reused for liquid at the original location or a new location shall be in compliance with all the requirements for the installation of a new tank, and be recertified by the manufacturer or by one of the acceptable standards.

2.6.4.3 Upon permanent closure of an aboveground storage tank, visible or olfactory or analytical evidence of a flammable or combustible liquid beneath or surrounding the tank system constitutes a release as defined in section 20101(1)(bb) of 1994 PA 451, MCL 324.20101 et seq., and is subject to the provisions in section 2.3.2.3.

2.6.4.4 An aboveground storage tank system shall be considered temporarily closed if it is empty for more than 30 continuous days and is intended to be brought back into use within 12 months. The owner shall provide the department with written notification, using the change-in-service form provided by the department, indicating that the AST system will be temporarily closed for not more than 12 months and that the owner intends to bring the AST system back into service within the 12-month period.

(a) If an AST system is temporarily closed, then the owners and operators shall also comply with both of the following requirements:

(i) Leave vent lines open and functioning.

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

(b) If an AST system is temporarily closed for more than 12 months, then the owners and operators shall permanently close the AST system. Immediately before bringing an AST system back into use, the owners and operators shall perform a hydrostatic testing on the system or another method acceptable to the department based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACCS.

R 29.5229 Temporary or permanent removal from service of underground tanks.

Rule 229. Sections 2.6.5.3, 2.6.5.4, 2.6.5.6, 2.6.5.7, 2.6.5.8, and 2.6.5.9 of the FL/CL code are adopted with the following changes and section 2.6.5.4.1 is added to the FL/CL code as follows:

2.6.5.3 Permanent closure of underground storage tanks. Tanks that are no longer used to store liquid shall be permanently closed. To permanently close a tank, the owner or operator shall notify the department, not less than 30 days before the actual closure. The owner or operator shall empty and clean the tank by removing all liquids and accumulated sludge and purge it of all vapors. All tanks that are taken out of service permanently shall

also be either removed from the ground or, when a structure above or near the tanks prevents removal, filled with an inert solid material. Piping that is permanently removed from service shall be emptied of all liquids and sludge, be purged and capped, or be removed from the ground.

2.6.5.4 Removal and disposal. Underground tanks shall be removed in accordance with all of the following requirements:

- (a) The steps described in section 2.6.5.3 shall be followed.
- (b) All exposed piping, gauging and tank fixtures, and other appurtenances, including the vent, shall be disconnected and removed.
- (c) All openings shall be plugged, leaving a ¼ inch (8 millimeters) opening to avoid buildup of pressure in the tank.
- (d) The tank shall be removed from the excavated site and shall be secured against movement.
- (e) Any corrosion holes shall be plugged.
- (f) The tank shall be labeled with its former contents, present vapor state, vapor-freeing method, and a warning against reuse.
- (g) The tank shall be removed from the site promptly, preferably the same day.

2.6.5.4.1 Upon closure of an underground storage tank, a site assessment shall be performed that meets the requirements of R 29.2155.

Exception: This does not apply to farm and residential tanks that have a capacity of 1,100 gallons (4,180 liters) or less.

2.6.5.6 Disposal of tanks. Disposal of tanks shall meet both of the following requirements:

- (a) Before a tank is cut up for scrap or disposal, the atmosphere in the tank shall be tested to ensure that it is safe.
- (b) The tank shall be made unfit for further use by cutting holes in the tank heads and shell.

2.6.5.7 Documentation. All necessary documentation shall be maintained by the owner or operator of the removed tank and shall be prepared and maintained in accordance with all federal and state rules and regulations.

2.6.5.8 Reuse of underground tanks. Each used tank that is to be reused for liquid storage at the original location shall be in compliance with all the requirements for the installation of a new tank and recertified by the manufacturer or by one of the acceptable standards.

2.6.5.9 Change of service for underground tanks. Tanks that undergo any change of stored product shall meet both of the following requirements:

- (a) Tanks that undergo any change of stored product shall meet the requirements of section 2.2 of the FL/CL code.
- (b) Tanks no longer storing flammable or combustible liquids shall have a site assessment performed that meets the requirements of R 29.2155.

Exception: This does not apply to farm or residential tanks that have a capacity of 1,100 gallons (4,180 liters) or less.

History: 2003 AACCS.

R 29.5230 Leak detection for aboveground and underground tanks.

Rule 230. Sections 2.6.6.1, 2.6.6.2, and 2.6.6.2.1 are added to the FL/CL code as follows:

2.6.6.1 Leak detection for underground tanks. A monthly monitoring method of release detection shall be chosen for each underground storage tank, in compliance with R 29.2125.

2.6.6.2 Leak detection for aboveground tanks. Within 5 years of the effective date of these rules, accurate inventory control or an appropriate leak detection method that is acceptable to the department is required for all aboveground storage tank systems that are in contact with the ground or have underground piping systems. This leak detection method shall be based on the best interest of public health, safety, and welfare and the environment.

2.6.6.2.1 Inventory records or a leak detection method is not required where all surfaces, other than support locations, of the tank and piping are available for visual inspection and are inspected on a monthly basis. Inspection shall be documented and reports maintained for not less than 3 years.

History: 2003 AACS.

R 29.5231 Tank maintenance.

Rule 231. Section 2.6.7.5 is added to the FL/CL code as follows:

2.6.7.5 Each tank shall be maintained to ensure that water is removed in accordance with recognized industry standards; however, not more than 2 inches (50 millimeters) of water shall exist in a motor fueling tank at any time.

History: 2003 AACS.

R 29.5232 Protection and care of tank yard.

Rule 232. Sections 2.6.8 and 2.6.9 are added to the FL/CL code as follows: 2.6.8 Protection and care of tank yard. The area that encompasses an aboveground yard, including a dike and all aboveground piping shall be secured by means of locking valves, locking electrical controls for pumping equipment, or metal fencing to discourage trespassing. Fencing shall be industrial chain link fence that is not less than 6 feet (1.8 meters) high. The tank yard is not required to be fenced if the property that surrounds it is properly fenced. 2.6.9 Stairways, attached ladders, and walkways. Stairways, attached ladders, and walkways on top of a tank shall be of metal or concrete construction. For each tank that is not equipped with stairways or attached ladders, the owner shall have other approved means readily available, which are capable of providing safe access to the top of each tank.

History: 2003 AACS.

R 29.5233 General requirements.

Rule 233. Section 3.2.2 of the FL/CL code is adopted with the following changes and sections 3.2.3 and 3.2.4 are added to the FL/CL code as follows:

3.2.2 Tightness of piping. Piping systems shall be maintained liquid-tight. A piping system that has leaks shall be emptied of liquid and repaired in a manner acceptable to the department based on the best interest of public health, safety, and welfare and the environment.

3.2.3 Flexible connectors. Flexible connectors shall be listed and used according to the listing and be provided with corrosion protection when in contact with the ground or soil.

3.2.4 Underground piping. Underground piping connected directly to aboveground storage tanks or pressurized underground piping systems shall be provided with secondary containment, or installed in a liquid-tight pipe trench to contain a release from any portion of the pipe and a monitoring system designed to detect any release.

History: 2003 AACS.

R 29.5234 Materials for piping systems.

Rule 234. Sections 3.3.4 and 3.3.5 of the FL/CL code are adopted with the following changes:

3.3.4 Low-melting materials. Low-melting point materials, such as aluminum, copper, and brass; materials that soften on fire exposure, such as plastics; or nonductile material such as cast iron shall be permitted to be used underground within the pressure and temperature limitations of ASME B31,

"Code for Pressure Piping," adopted by reference in section 7.1.2.2. The materials may be used outdoors aboveground or inside buildings if they are in compliance with all of the following provisions:

(a) Resistant to damage by fire.

(b) Located so that any leakage resulting from failure will not unduly expose persons, important buildings, or structures.

(c) Located where leakage can readily be controlled by operation of 1 or more accessible remotely located valves. The piping materials chosen shall be compatible with the liquids being handled. Piping systems constructed of materials compatible with liquids being handled shall be approved, listed, or labeled.

3.3.5 Lining Materials. Piping, valves, and fittings may have combustible or noncombustible linings, if the lining is compatible with the material stored.

History: 2003 AACS.

R 29.5235 Installation of piping systems.

Rule 235. Sections 3.5.1, 3.5.2, 3.5.3, 3.5.5.2, and 3.5.5.3 of the FL/CL code are adopted with the following changes:

3.5.1 Supports. A piping system shall be substantially supported and protected against physical damage and excessive stresses arising from settlement, vibration, expansion, or contraction. The installation of nonmetallic piping shall be in accordance with the manufacturer's instructions. Supports for aboveground piping shall be constructed of noncombustible material.

3.5.2 Load-bearing supports. Load-bearing supports which are more than 12 inches (300 millimeters) above the ground and which are located in areas that have high fire exposure risk shall be protected by drainage to a safe location to prevent liquid from accumulating under pipe-ways and by any of the following:

(a) Two-hour fire resistant construction.

(b) Two-hour fire resistant protective coatings or systems.

(c) Water spray systems designed and installed in accordance with NFPA 15, "Standard for Water Spray Fixed Systems for Fire Protection," adopted by reference in section 7.1.1.

(d) Other alternate means acceptable to the department based on the best interests of public health, safety, and welfare and the environment.

3.5.3 Pipe penetrations. Piping that routinely contains product and penetrates dike walls shall be properly maintained using good engineering practices. Monthly visual inspections shall be conducted to ensure the integrity of the dike walls. Pipes may penetrate the dike walls as follows:

(a) Above the dike area containment level, or

(b) Below the dike area containment level if sealed on both sides to establish a liquid-tight penetration of the wall and the section of pipe that penetrates the dike wall is coated and wrapped to prevent corrosion. All dike wall penetrations shall be designed, engineered, installed, and maintained to prevent erosion, settling, and damage due to vibration.

3.5.5.2 In areas subject to vehicle traffic, the pipe trench shall be of sufficient depth to permit a cover of not less than 18 inches (450 millimeters) of well-compacted backfill material and pavement.

Exception 1: In paved areas where a minimum of 8 inches (200 millimeters) of asphalt paving is used, the depth of the backfill between the topmost tier of piping and the paving can be reduced to not less than 8 inches (200 millimeters).

Exception 2: In paved areas where a minimum of 6 inches (150 millimeters) of reinforced concrete paving is used, the depth of backfill between the topmost tier of the piping and the paving can be reduced to not less than 4 inches (100 millimeters).

3.5.5.3 In areas not subject to vehicle traffic, the pipe trench shall be of sufficient depth to permit 6 inches (150 millimeters) each of bedding and cover of well-compacted backfill material. A greater burial depth shall be provided when required by the manufacturer's instructions.

Piping within the same trench shall be separated by 2 pipe diameters. Piping need not to be separated by more than 9 inches (225 millimeters).

History: 2003 AACS.

R 29.5236 Piping inside a building.

Rule 236. Sections 3.5.8.1, 3.5.8.2, and 3.5.8.3 are added to the FL/CL code as follows:

3.5.8.1 Each pipe system shall be installed outside a building, aboveground or underground, except where manufacturing processes require product delivery into the building.

3.5.8.2 Each piping system that is located in a building shall be designed so that liquid will not continue to flow by gravity or siphoning from the storage tank if the piping or fittings break.

3.5.8.3 Suitable shutoff valves shall be installed at strategic locations in piping that is used for liquid so that the flow of liquid may be stopped at a time of emergency, such as fire, line leakage, or building collapse. Shutoff valves

shall be installed on the upstream side where fire separation walls are pierced, not less than 50 feet (15 meters) from each liquid dispensing station, and at each entry point into the building. Each valve shall be permanently identified as to the liquid that the valve controls. The operation of a shutoff valve may be automatic or manual, or both, depending upon the severity of the hazard involved. A shutoff valve shall be installed on the suction side of the lines under positive static head pressure.

History: 2003 AACS.

R 29.5237 Anti-siphoning devices.

Rule 237. Section 3.5.9 is added to the FL/CL code as follows:

3.5.9.1 Each liquid withdrawal line that goes through the top of the storage tank shall be equipped with an anti-siphoning device or other means located as close as possible to the top of the tank.

History: 2003 AACS.

R 29.5238 Pump valves.

Rule 238. Sections 3.5.10.1 and 3.5.10.2 are added to the FL/CL code as follows:

3.5.10.1 Each pump delivering liquid to, or withdrawing liquid from, an aboveground storage tank shall be provided with a positive shutoff valve on both sides of the pump.

3.5.10.2 Each piston, rotary, or gear pump shall be provided with a relief valve or a bypass to prevent excessive pressure from being created in the piping.

History: 2003 AACS.

R 29.5239 Pump houses.

Rule 239. Sections 3.5.11.1, 3.5.11.2, 3.5.11.3, 3.5.11.4, and 3.5.11.5 are added to the FL/CL code as follows:

3.5.11.1 A pump that handles flammable or combustible liquids, or both, when they are not installed in the open outside of buildings, shall be located in a separate building which is constructed of noncombustible materials and which is not less than 10 feet (3 meters) from other buildings and property lines.

3.5.11.2 A pump that is installed in a building that is used for a purpose other than liquid handling shall be installed in a separate room that is built in compliance with the provisions of section 4.4.2.

3.5.11.3 Ventilation shall be provided for each room, building, or enclosure in which a liquid is pumped or dispensed. The design of the ventilation system shall take into account the vapor density of the liquid. Ventilation may be provided by adequate openings in outside walls at floor level and shall be unobstructed, except by louvers or coarse screens. Where natural ventilation is impractical or inadequate, approved mechanical ventilation shall be provided.

3.5.11.4 Artificial lighting and heating for buildings and rooms, if provided, shall be approved or listed for use in hazardous locations or installed according to NFPA 70, "National Electric code," 1999 edition, adopted by reference in section 7.1.1.

3.5.11.5 Only materials or equipment that is incidental to the pumping operation of flammable or combustible liquids shall be in the pump house or room where the pumps are installed.

History: 2003 AACS.

R 29.5240 Testing.

Rule 240. Section 3.6.1 of the FL/CL code is adopted with the following changes; sections 3.6.4 and 3.6.5 are added to the FL/CL code as follows:

3.6.1 Initial testing. Unless tested in accordance with the applicable section of ASME B31, "Code for Pressure Piping," all piping shall be tested before being covered, enclosed, or placed in use for the first time or after temporary closure of a tank system. Testing shall be done hydrostatically to 150% of the maximum anticipated pressure of the system or pneumatically to



110% of the maximum anticipated pressure of the system, and the test pressure shall be maintained for a sufficient time to conduct a complete visual inspection of all joints and connections. The test pressure shall not be less than 5 pounds per square inch gauge (gauge pressure of 34.5 kilopascals) measured at the highest point of the system, and the test pressure shall not be maintained for less than 10 minutes.

3.6.4 Underground piping connected to an underground tank. Upon closure of underground piping connected to an underground tank, a site assessment shall be performed that meets the requirements of R 29.2155.

Exception: This does not apply to farm and residential tanks that have a capacity of 1,100 gallons (4,180 liters) or less.

3.6.5 For a tank system that has been temporarily closed for 12 months or more, immediately before bringing a tank system back into use, the owners or operators shall perform tank and piping tightness testing conducted in accordance with the requirements of this part to confirm that the tank system is tight.

History: 2003 AACS.

#### R 29.5241 Identification.

Rule 241. Section 3.9 of the FL/CL code is adopted with the following changes:

3.9 Identification. Loading and unloading risers shall be identified by color code or marking to identify the product for which the tank is used. In addition, a tank that stores class II or class III liquid for sale, and in the same immediate location as a class I liquid, shall be provided with some positive means, such as a different pipe size, fill device, special lock, or other method, that is designed to prevent the erroneous delivery of gasoline or other class I liquid into a tank that is used for class II or class III liquid.

History: 2003 AACS.

#### R 29.5242 Design, construction, and capacity of storage cabinets.

Rule 242. Section 4.3.1 of the FL/CL code is adopted with the following changes:

4.3.1 Not more than 120 gallons (454 liters) of class I, class II, and class IIIa liquids shall be stored in a storage cabinet with not more than 60 gallons (227 liters) being class I or class II liquids.

History: 2003 AACS.

#### R 29.5243 Design and construction requirements.

Rule 243. Section 4.4.2.5 of the FL/CL code is adopted with the following changes:

4.4.2.5 Curbs, scuppers, special drains, or other suitable means shall be provided to prevent the flow of liquids under emergency conditions into adjacent building areas. If a drainage system is used, it shall have sufficient capacity to carry the expected discharge of water from fire protection systems and hose streams to a safe area that is acceptable to the department based on the best interests of public health, safety, and welfare and the environment. The safe area shall be capable of containing any released product as well as fire protection liquid until they are removed and properly disposed of. The secondary containment shall be capable of preventing any release of liquid or contaminated water from reaching surface water, groundwater, and subsurface soils.

History: 2003 AACS.

#### R 29.5244 Office, educational, and institutional occupancies and day care centers.

Rule 244. Sections 4.5.5.3 and 4.5.5.4 of the FL/CL code are adopted with the following changes:

4.5.5.3. Not more than 5 gallons (18.9 liters) of class I and class II liquids combined shall be stored in a single fire area outside of a storage cabinet or an inside liquid storage area unless in safety cans.

4.5.5.4 Not more than 10 gallons (37.8 liters) of class I or class II liquids combined shall be stored in a single fire safety area in safety cans outside of an inside liquid storage area or storage cabinet.

History: 2003 AACS.

R 29.5245 Mercantile occupancies.

Rule 245. Section 4.5.6.2 of the FL/CL code is adopted with the following changes:  
 4.5.6.2 The display arrangement, storage arrangement, and maximum total quantity of liquids allowed shall meet the requirements of this subsection and table 4.5.6.2.

Table 4.5.6.2 Allowable Storage and Display Amounts for Mercantile Occupancies<sup>1</sup>

Level of Protection		Liquid classification		
		IA <sup>2</sup>	IB, IC, II, AND IIIA (Any combination)	IIIB
Unprotected	Maximum quantity allowed <sup>3</sup>	30 gal	1,600 gal per building area; a maximum of two areas permitted per occupancy when separation is provided by a minimum 1-hour-rated fire separation wall	15,000 gal
	Maximum storage density	2 gal/ft <sup>2</sup> in storage or display areas and adjacent aisles		
NFPA 13, ordinary hazard (group 2) sprinkler system <sup>4</sup>	Maximum quantity allowed <sup>3</sup>	60 gal	7,500 gal per building area; a maximum of two areas permitted per occupancy when separation is provided by a minimum 1-hour-rated fire separation wall	Unlimited
	Maximum storage density	4 gal/ft <sup>2</sup> in storage or display areas and adjacent aisles		
NFPA 30, section 4.8	Maximum quantity allowed <sup>3</sup>	60 gal	30,000 gal per occupancy	Unlimited

For SI units, 1 gal = 3.8 L; 1 ft<sup>2</sup> = 0.09m<sup>2</sup>.

<sup>1</sup>Existing unprotected mercantile occupancies in operation before January 1, 1997, are permitted to store or display up to 7,500 gal of class IB, IC, II, and IIIA liquids (any combination) in each area.

<sup>2</sup>Ground level floor only.

<sup>3</sup>Does not include liquids exempted by 4.1.1.

<sup>4</sup>For storage heights that do not exceed 12 ft (3.6m).

History: 2003 AACS.

R 29.5246 Outdoor storage.

Rule 246. Section 4.7.3 of the FL/CL code is adopted with the following changes and section 4.7.6 is added to the FL/CL code as follows:

4.7.3 Any storage area that contains the aggregate capacity of 1,320 gallons (5,000 liters) of flammable and combustible liquid shall have impervious secondary containment that diverts possible spills away from buildings or other exposures or shall be surrounded by a curb not less than 6 inches (150 millimeters) high. Where curbs are used, provisions shall be made for draining of accumulations of groundwater, rainwater, or spills of liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions. The safe location shall be capable of containing any released product as well as any fire protection liquids until they are removed and properly disposed of. The secondary containment shall be capable of preventing any released product or contaminated water from reaching surface water, groundwater, and subsurface soils. 4.7.6 Class I, class II, and class IIIa tanks and containers shall be kept closed when not in continuous or intermediate use.

History: 2003 AACS.

R 29.5247 Scope.

Rule 247. Section 5.1.3 of the FL/CL code is adopted with the following changes:

5.1.3 Provisions of this chapter shall not prohibit the temporary use of up to 12 months for moveable tanks in conjunction with the dispensing of flammable or combustible liquids into fuel tanks of motorized equipment outside on premises not accessible to the public. Such uses shall only be made with the approval of the department. A paved dispensing area and secondary containment are primary requirements for this approval, based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5248 General.

Rule 248. Section 5.2.2 of the FL/CL code is adopted with the following changes:

5.2.2. Requirements for specific operations shall be covered in sections 5.3 to 5.8. Requirements for procedures and practices for fire prevention, fire protection, environmental protection measures, and fire control in these operations shall be covered in sections 5.9 to 5.12 and shall be applied as appropriate.

History: 2003 AACS.

R 29.5249 Facility design.

Rule 249. Section 5.3.3.2 of the FL/CL code is adopted with the following changes:

5.3.3.2 Load-bearing building supports and load-bearing supports of vessels and equipment capable of releasing appreciable quantities of liquids so as to result in a fire of sufficient intensity and duration to cause substantial property damage shall be protected by drainage to a safe location to prevent liquids from accumulating under vessels or equipment and by any of the following:

- (a) Two-hour fire-resistive construction.
- (b) Two-hour fire resistant protective coatings or systems.
- (c) Water spray systems designed and installed in accordance with NFPA 15, "Standard for Water Spray Fixed Systems for Fire Protection."
- (d) Other alternate means acceptable to the department based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5250 Drainage.

Rule 250. Section 5.3.5.2 of the FL/CL code is adopted with the following changes:

5.3.5.2 Emergency drainage systems shall not be connected to public sewers or public waterways unless they are equipped with separators that are provided with an inspection, cleaning and maintenance schedule, and proper documentation. If connected to public sewers or discharged into public waterways, emergency drainage systems shall be equipped with traps or separators. The traps, separators, holding tanks, or other approved means shall be properly designed and maintained according to the manufacturer's operating instructions by the owner or operator and shall be emptied of accumulated product, for which it is intended, before reaching safe storage capacity.

History: 2003 AACS.

R 29.5251 Loading and unloading operations and facilities.

Rule 251. Sections 5.6.3, 5.6.4, and 5.6.5 of the FL/CL code are adopted with the following changes:

5.6.3 Tank vehicle and tank car loading and unloading facilities shall be separate from aboveground tanks, warehouses, other plant buildings, or the nearest line of adjoining property that can be built upon by a distance not less than 25 feet (7.6 meters) for class I liquids and not less than 15 feet

(4.6 meters) for class II and class III liquids, measured from the nearest fill spout or transfer connection. These distances shall be achieved by the use of fixed piping between the tank and the transfer connection. These distances shall be permitted to be reduced by utilizing an automatic fixed fire protection system or fire-rated barrier rated for 2 or more hours. Buildings for pumps or shelters for personnel shall be permitted to be a part of the facility.

Exception 1: A fire-protected tank or a tank in a vault does not have to be in compliance with the separation distance requirements for the loading and unloading risers.

Exception 2: A tank which has a capacity of 3000 gallons (11,340 liters) or less which is located 10 feet (3.1 meter) from any building, which is provided with spill and audible overfill protection or other means acceptable to the department based on the best interests of public health, safety, and welfare and the environment, and which does not have to be in compliance with the separation distance requirements for loading and unloading risers.

5.6.4 Provisions shall be made to prevent liquids that can be spilled at a loading or unloading facility from entering a public sewer, groundwater, surface water, subsurface soils, or the impoundment area for the tanks, other than remote impounding. If adequate spill protection is not provided at the loading and unloading areas, a spill pad shall be provided with a fixed source of spill containment at the stationary dry-break connection. A connection to a public sewer, drain, or surface water shall be provided with a trap or separator. The traps, separators, holding tanks, or other approved means shall be properly designed and maintained according to the manufacturers operating instructions by the owner or operator and shall be emptied of accumulated product, for which it is intended, before reaching safe storage capacity. Existing locations shall be equipped with such provisions within 5 years of the effective date of these rules.

5.6.5 A loading or unloading facility that has a canopy, roof, or otherwise sheltered from the weather shall be constructed of noncombustible materials and have prior approval by the department based on the best interests of public health, safety, and welfare and the environment. The canopy or roof shall not limit the dissipation of heat or dispersion of flammable vapors and cannot restrict firefighting access and control.

History: 2003 AACS.

#### R 29.5252 Wharves.

Rule 252. Section 5.7.2(3) of the FL/CL code is adopted with the following changes:

5.7.2 (3) Wharves that handle liquefied petroleum gases, as covered in NFPA 59A, "Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)," R 29.4001 et seq.

History: 2003 AACS.

#### R 29.5253 Control of ignition sources.

Rule 253. Section 5.9.2 of the FL/CL code is adopted with the following changes:

5.9.2 Smoking. Smoking is permitted only in designated and properly identified areas. "No smoking" signs shall be conspicuously posted where hazard from flammable vapors may be present.

History: 2003 AACS.

#### R 29.5254 Vapor recovery and vapor processing systems.

Rule 254. Section 5.10.1.2(2) of the FL/CL code is adopted with the following changes:

5.10.1.2(2) Marine and automotive service station systems that comply with part 3 of these rules.

History: 2003 AACS.

#### R 29.5255 Referenced publications.

Rule 255. Sections 7.1.2.1, 7.1.2.5, 7.1.2.7, 7.1.2.8, and 7.1.2.12 of the FL/CL code are adopted with the following changes:

7.1.2.1 API publications.

API publication 334, "Guide to Leak Detection for Aboveground Storage Tanks,"

1st edition, March 1996, is added. API specification 651, "Cathodic Protection of Aboveground Storage Tanks," 2nd edition, December 1997, is added.

API specification 653, "Tank Inspection, Repair, Alteration, and Reconstruction," 3rd edition, December 2001, is added.

7.1.2.5 National association of corrosion engineers (NACE) international, publications. NACE standard RP-0193, "External Cathodic Protection of On-Grade Metallic Storage Tank Bottoms," is added.

7.1.2.7 STI publications. STI ACT-100, "Specification for Fabrication of FRP Clad/Composite Underground Storage Tanks, Installation Check List, and Record of Installation," is added.

STI SP001-00, "Standard for Inspection of In-Service Shop Fabricated

Aboveground Tanks for Storage of Combustible and Flammable Liquids," 1st edition, 2000, is added.

7.1.2.8 UL publications.

UL 2080, "Standard for Fire Resistant Tanks for Flammable and Combustible Liquids, 2000," is deleted.

UL 2245, "Standard for Below-Grade Vaults for Flammable Liquid Storage Tanks," 1999, is deleted. 7.1.2.12 American society for nondestructive testing (ASNT) publications.

ASNT SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing," is added.

History: 2003 AACS.

### PART 3. AMENDMENTS TO THE CODE FOR MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES

R 29.5301 Scope.

Rule 301. Section 1.1.3 of the flammable and combustible liquids (FL/CL) code is adopted with the following changes and sections 1.1.4 and 1.1.5 are added to the FL/CL code as follows:

1.1.3 This part does not apply to class IIIb liquids.

1.1.4 All of the provisions of part 2 of these rules apply to this part.

1.1.5 Underground storage tank systems shall also be in compliance with the provisions of part 2 of the rules, and part 211, underground storage tank regulations, of the natural resources and environmental protection act, 1994 PA 451, 1994 MCL 324.21101, et seq.

History: 2003 AACS.

R 29.5302 Equivalency.

Rule 302. Section 1.5 of the FL/CL code is adopted with the following changes:

1.5. Nothing in this FL/CL code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, environmental protection capability, and safety over those prescribed by this FL/CL code. Technical documentation shall be submitted to the department to demonstrate equivalency. The system, method, or device shall be approved for the intended purpose by the department based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5303 Referenced publications.

Rule 303. Section 2.1.1 of the FL/CL code is adopted with the following changes:

NFPA 10, "Standard for Portable Fire Extinguishers," 1998 edition, is added.

NFPA 31, "Standard for the Installation of Oil-Burning Equipment," 1997 edition, is deleted.

NFPA 51, "Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes," 1997 edition, is deleted.

NFPA 51B, "Standard for the Fire Prevention During Welding, Cutting, and Other Hot Work," 1999 edition, is deleted.

NFPA 52, "Compressed Natural Gas (CNG) Vehicular Fuel Systems Code," 1998 edition, is deleted.

NFPA 58, "Liquefied Petroleum Gas Code," 1998 edition, is deleted.

NFPA 82, "Standard on Incinerators and Waste and Linen Handling Systems and Equipment," 1999 edition, is deleted.

NFPA 86, "Standard for Ovens and Furnaces," 1999 edition, is deleted.

NFPA 90A, "Standard for the Installation of Air-Conditioning and Ventilating Systems," 1999 edition, is deleted.

NFPA 211, "Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances," 2000 edition, is deleted.

NFPA 253, "Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source," 2000 edition, is deleted.

History: 2003 AACS.

R 29.5304 UL publications.

Rule 304. Section 2.1.2.3 of the FL/CL code is adopted with the following changes:

UL 142 "Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids," 1993 edition, is adopted.

UL 2080 is deleted.

UL 2245 is deleted.

History: 2003 AACS.

R 29.5305 Definitions.

Rule 305. Sections 3.1.1, 3.1.2, and 3.1.19.4 of the FL/CL code are adopted with the following changes, sections 3.1.1(a), 3.1.3(a), 3.1.4(a),

3.1.7(a), 3.1.7(b), 3.1.15.4, 3.1.16(a), 3.1.19.5, 3.1.19.6, and 3.1.19.7 are added to the FL/CL code, and section 3.1.19.2 is deleted from the FL/CL code as follows:

3.1.1 "Approved" means acceptable to the department.

3.1.1(a) "AST system" mean a tank or combination of tanks, including the pipes that are connected to the tank, tanks, or ancillary equipment containment systems, if any, which is, was, or may have been used to contain an accumulation of liquids and which has less than 10% of its volume, including the volume of the underground pipes that are connected to the tank, or tanks, beneath the surface of the ground.

3.1.2 "Authority having jurisdiction" means the department.

3.1.3(a) "Building" means a structure that has walls or a roof.

3.1.4(a) "FL/CL code" means the storage and handling of flammable and combustible liquids rules as promulgated by the department of environmental quality.

3.1.7(a) "Department" means the department of environmental quality.

3.1.7(b) "Director" means the director of the department of environmental quality.

3.1.15.4 "Public motor fuel dispensing facility" means a motor fuel dispensing facility that is available for use by the public.

3.1.16(a) "Release" means, as defined in section 20101(bb) of 1994 PA 451,

MCL 324.20101(bb), includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of a hazardous substance into the environment or the abandonment or discarding of barrels, containers, and other closed receptacles containing a hazardous substance. Release does not include any of the following:

(a) A release that results in exposure to persons solely within a workplace, with respect to a claim that the persons may assert against their employers.

(b) Emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, or vessel.

(c) A release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined in the atomic energy act of 1954, chapter 1073, 68 Stat. 919, if the release is subject to requirements with respect to financial protection established by the United States nuclear regulatory commission

under section 170 of chapter 14 of title I of the atomic energy act of 1954, chapter 1073, 71 Stat. 576, 42 U.S.C. 2210, or any release of source by-product or special nuclear material from any processing site designated under section 102(a)(1) of title I or 302(a) of title III of the uranium mill tailings radiation control act of 1978, Public Law 95-604 42 U.S.C. 7912 and 7942.

(d) If applied according to label directions and according to generally accepted agricultural and management practices, the application of a fertilizer, soil conditioner, agronomically applied manure, or pesticide, or fruit, vegetable, or field crop residuals or processing by-products, aquatic plants, or a combination of these substances. As used in this subdivision, fertilizer and soil conditioner have the meaning given to these terms part 85 of 1994 PA 451, MCL 324.101 et seq., and pesticide has the meaning given to that term in part 83 of 1994 PA 451, MCL 324.8301 et seq.

(e) A release does not include fruits, vegetables, field crop processing by-products, or aquatic plants, that are applied to the land for an agricultural use or for use as an animal feed, if the use is consistent with generally accepted agricultural and management practices developed pursuant to 1981 PA 93 MCL 286.474 et seq.

3.1.19.2 "Fire resistant tank" is deleted.

3.1.19.4 "Protected aboveground tank" means an aboveground storage tank that is listed in accordance with underwriters laboratories, standard 2085, "Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.2.3, or equivalent test procedure that consists of a primary tank provided with protection from physical damage and fire-resistive protection from exposure to a high-intensity liquid pool fire. During this equivalent test procedure, the temperature inside the tank shall not exceed an average maximum temperature rise of 260 degrees Fahrenheit (144 degrees Celsius) during the 2-hour fire exposure. Both the primary and the secondary containment structural integrity shall stay intact.

3.1.19.5 "Secondary containment tank" means a tank that is enclosed completely within a larger tank of the same or different material. The primary tank shall be constructed and the secondary or outer tank shall meet the requirements of section 2.2.3. The interstitial or annular space between the walls of the 2 tanks shall allow for liquid communication. Both the primary and secondary containment shall be provided with adequate normal and emergency venting in compliance with section 2.2.5 of the FL/CL code.

3.1.19.6 "Tank system" means an AST system or UST system.

3.1.19.7 "UST system" means a tank or combination of tanks including the underground pipes that are connected to the tank or tanks or underground ancillary equipment containment systems, if any, which is, was, or may have been, used to contain an accumulation of liquids and which has 10% or more of its volume, including the volume of the underground pipes that are connected to the tank or tanks, beneath the surface of the ground.

History: 2003 AACS.

R 29.5306 General requirements.

Rule 306. Section 4.2.4 of the FL/CL code is adopted with the following changes:

4.2.4 Where tanks are at an elevation that produces a gravity head on the dispensing device, the tank outlet shall be equipped with a device, such as a normally closed solenoid valve, positioned adjacent to and downstream from the valve specified in section 2.3.2.5.1 of part 2 of these rules, that is installed and adjusted so that liquid cannot flow by gravity from the tank if the piping or hose fails when the dispenser is not in use.

History: 2003 AACS.

R 29.5307 Storage of liquids.

Rule 307. Sections 4.3.1, 4.3.2, 4.3.2.1, 4.3.2.2, table 4.3.2.4, 4.3.2.5, 4.3.2.6, and 4.3.2.8 of the FL/CL code are adopted with the following changes, section 4.3.2.6.1 is added to the FL/CL code, and sections 4.3.2.7 and 4.3.2.8 (exception) of the FL/CL code are deleted as follows:

4.3.1 Underground storage tanks. Underground storage tank systems shall meet all the applicable requirements of part 2 of these rules and shall also comply with all the requirements of part 211 of 1994 PA 451, MCL 324.21101 et seq.

4.3.2 Aboveground storage tanks. Except as modified by provisions of this subsection, aboveground storage tanks shall meet all applicable requirements of part 2 of these rules.

4.3.2.1 The use of aboveground storage tanks at motor fuel dispensing facilities, fleet vehicle motor fuel dispensing facilities, and marine motor fuel dispensing facilities shall be permitted when installed in accordance with the requirements of chapters 2 and 3 of part 2 of these rules, and when the specific installation has been approved by the department under section

2.3.2.1 of part 2 of the rules.

4.3.2.2 Tanks designed and built for underground use shall not be installed for aboveground use and tanks designed and built for aboveground use shall not be installed for underground use.

Table 4.3.2.4 Minimum separation requirements for aboveground tanks. Keep the title and revise the table as follows:

Tank type	Individual tank capacity (gal) (See 4.3.2.3 & 4.3.2.4)	Minimum distance from the nearest important building on the same property (ft)	Minimum distance from nearest fuel dispensing device (ft) (See 4.3.2.6)	Minimum distance from lot line that can be built upon including opposite side of a public way (ft)	Distance from the nearest side of any public way (ft)	Minimum distance between tanks (ft)
Tanks in vaults	0-15,000	10	0	15	10	One tank per vault+
Protected aboveground tanks	6,000 or less	5	0	15	5	3
	6,000–16,000	15	0	25	10	3
Other secondary containment tanks	0-12,000	40	50	100*	25	3

+ The separation distances given for a vault are measured from the outer perimeter of the vault, (not the tank). Adjacent vaults may share one wall.

\* This distance may be reduced to 50 feet for fleet vehicle motor dispensing.

4.3.2.5 The maximum individual capacity of 16,000 gallons (60,480 liters), where indicated in table 4.3.2.4, shall be permitted to be increased to 24,000 gallons (90,720 liters) for class II and class III liquids at a fleet vehicle motor fuel dispensing facility if located in a protected aboveground tank. The maximum aggregate capacity shall not be more than 80,000 gallons (302,400 liters).

4.3.2.6 At fleet vehicle motor fuel dispensing facilities, a minimum separation is not required between the dispensing device and a tank vault or a protected tank. Also, a minimum separation shall not be required for a listed secondary containment tank which is 4,000 gallons (15,120 liters) or less and which has a 64 inch (162.6 centimeters) nominal diameter or smaller.

4.3.2.6.1 Tank vehicle and tank car loading and unloading facilities shall be separate from aboveground tanks, warehouses, other plant buildings, or the nearest line of adjoining property that can be built upon by a distance not less than 25 feet (7.6 meters) for class I liquids and not less than 15 feet

(4.6 meters) for class II and class III liquids, measured from the nearest fill spout or transfer connection. These distances shall be achieved by the use of fixed piping between the tank and the transfer connection. These distances shall be permitted to be reduced by utilizing an automatic fixed fire protection system or fire-rated barrier rated for 2 or more hours. Buildings for pumps or shelters for personnel shall be permitted to be a part of the facility.

Exception 1: A fire protected tank or a tank in a vault does not have to be in compliance with the separation distance requirements for the loading and unloading risers.

Exception 2: A tank which has a capacity of 3,000 gallons (11,340 liters) or less which is located 10 feet (3 meters) from any building, and which is provided with spill and audible overfill protection or other means acceptable to the department based on the best interests of public health, safety, and welfare and the environment, does not have to be in compliance with the separation distance requirements for loading and unloading risers.



4.3.2.7 is deleted.

4.3.2.8 Aboveground tanks shall be provided with spill control that meets the requirements of section 2.3.2.3 of part 2 of these rules. Tank fill connections shall be provided with a noncombustible spill containment device. Exception is deleted.

History: 2003 AACS.

#### R 29.5308 Vaults

Rule 308. Sections 4.3.3.1, 4.3.3.2(b), 4.3.3.2(i), and 4.3.3.3 of the FL/CL code are adopted with the following changes, and sections 4.3.3.2(k), 4.3.3.2(l), 4.3.3.2(m), and 4.3.3.2(n) are added to the FL/CL code as follows:

##### 4.3.3 Vaults.

4.3.3.1 General. Aboveground tanks shall be permitted to be installed in vaults that meet the requirements of this subsection. Except as modified by the provisions of this subsection, aboveground storage tanks in vaults shall meet all applicable requirements of part 2 of these rules. Vaults shall be permitted to be either above or below grade. Partially below grade vaults shall be not less than 4 feet above adjacent ground level.

4.3.3.2 Vault design and construction. Vaults shall be designed and constructed to meet the following requirements:

(b) The top of an aboveground vault shall be constructed of noncombustible material and shall be designed to be weaker than the walls of the vault to ensure that the thrust of any explosion occurring inside the vault is directed upward before destructive internal pressure develops within the vault. The top of an at-grade or below-grade vault shall be designed to relieve or contain the force of any explosion occurring inside the vault. The walls of a vault, which are partially below grade, shall extend not less than 4 feet (1.2 meters) above the grade.

(i) Each vault shall be provided with a means for personal entry, is only be at the top of the vault to allow for the visual inspection of the tank and piping surfaces. At each entry point, a warning sign that indicates the need for procedures for safe entry into confined spaces shall be posted. Each entry point shall be secured against unauthorized entry and vandalism.

(k) The vault shall be provided with spill containment around the fill pipe or transfer connection. Under top fill applications, spill-containment shall empty by gravity only into the primary tank.

(l) The loading and unloading transfer connection for above-grade vaults shall terminate outside the vault.

(m) Provisions shall be made for the normal operation of valves without entering the vault.

(n) A vault shall be located not less than 15 feet (4.6 meters) from buildings and the property lines.

4.3.3.3 Tank selection and arrangement. Tanks shall be listed for aboveground use. Each tank shall be in its own vault and shall be completely enclosed by the vault. Sufficient clearance between the tank and the vault shall be provided to allow for visual inspection and maintenance of all the vault surfaces as well as the tank and its appurtenances.

History: 2003 AACS.

#### R 29.5309 Fire resistant tanks.

Rule 309. Sections 4.3.4, 4.3.4.1 and 4.3.4.2 of the FL/CL code are deleted:

4.3.4 Fire resistant tank is deleted.

4.3.4.1 is deleted.

4.3.4.2 is deleted.

History: 2003 AACS.

#### R 29.5310 Additional requirements.

Rule 310. Section 4.3.6.5 of the FL/CL code is adopted with the following changes:

4.3.6.5 Where a tank is at an elevation that produces a gravity head on the dispensing device, the tank outlet shall be equipped with a device, such as a normally closed solenoid valve, that will prevent gravity flow from the tank to the dispenser. This device shall be located adjacent to and downstream of the outlet valve specified by section

2.3.2.5.1. The device shall be installed and adjusted so that liquid cannot flow by gravity from the tank to the dispenser in the event of failure of the piping or hose when the dispenser is not in use.

History: 2003 AACS.

R 29.5311 Physical protection for all outside aboveground tanks.

Rule 311. Sections 4.3.7.1 and 4.3.7.2 of the FL/CL code are adopted with the following changes:

4.3.7.1 Tanks shall be enclosed with a chain link fence which is not less than 6 feet (1.8 meters) high and which has a means of ingress and egress. The fence shall be separated from the tanks by not less than 10 feet (3 meters) and shall have a gate that is properly secured against unauthorized entry. Aboveground tanks, other than tanks in vaults, shall be protected against vehicular collision by suitable barriers.

Exception: A tank is not required to be enclosed within a fence if the property on which the tank is located already has a perimeter security fence or if the tank is located within a vault that is in compliance with the requirements of section 4.3.3 of this part.

4.3.7.2 Guard posts or other approved means shall be provided to protect tanks that are subject to vehicular damage. When guard posts are installed, the following design is acceptable:

(a) Guard posts shall be constructed of steel not less than 4 inches (100 millimeters) in diameter and shall be filled with concrete.

(b) Guard posts shall be spaced not more than 4 feet (1.2 meters) on center.

(c) Guard posts shall be set not less than 4 feet (1.2 meters) deep in a concrete footing that is not less than 15 inches (375 millimeters) in diameter.

History: 2003 AACS.

R 29.5312 Corrosion control.

Rule 312. Section 4.3.8 of the FL/CL code is adopted with the following changes:

4.3.8 Any portion of a tank or its piping that is in contact with the soil shall have properly engineered, installed, and maintained corrosion protection that meets the requirements of section 2.2.6.1 of part 2 of these rules.

History: 2003 AACS.

R 29.5313 Temporary storage of liquid fuels.

Rule 313. Section 4.3.10 of the FL/CL code is adopted with the following changes:

4.3.10 Temporary storage of liquid fuels. Aboveground tanks used for dispensing motor fuels shall not be required to be permanently installed when located on premises not normally accessible to the public if all of the following requirements are met:

(a) Approval of the department shall be required before bringing the tank to the site. In reviewing a proposed installation, the condition of the tank, the site where the tank will be located, installation and testing procedures, and operational procedures shall be evaluated before approval.

(b) The approval shall include a definite time limit after which the tank shall be removed from the site and relocated to an approved location.

(c) The tank shall comply with section 4.3 and all other applicable provisions of the FL/CL code and part 2 of these rules.

(d) A tank containing liquid shall not be moved unless it has been specifically investigated and approved for movement while full or partially full.

History: 2003 AACS.

R 29.5314 General requirements for all piping systems

Rule 314. Sections 5.2.1 and 5.2.4 of the FL/CL code are adopted with the following changes and section 5.2.6.1 is added to the FL/CL code as follows:

5.2.1 The design, fabrication, assembly, test, and inspection of the piping system shall meet the requirements of part 2 of the rules, and 1994 PA 451, MCL 61501.

Exception 1: Where dispensing is from a floating structure or pier, oil-resistant flexible hose shall be permitted to be used between shore piping and the piping on the floating structure or pier and between separate sections of the floating structure or pier and between separate sections of the floating structure to accommodate changes in water level or shoreline, if the hose is either resistant to or shielded from damage by fire.

Exception 2: Low melting point rigid or flexible piping shall be permitted to be used under a floating structure or pier if the piping is protected from physical damage and shielded from damage by fire exposure.

5.2.4 All piping inside buildings but outside the motor fuel dispensing area shall be enclosed within a horizontal chase or a vertical shaft used only for the piping. Vertical shafts and horizontal chases shall be constructed of materials that have a rapid temperature-rise hydrocarbon type fire resistance rating of not less than 2 hours.

5.2.6.1 Tanks that are manifolded together by piping or by a siphon bar shall have a positive shutoff valve that is located so that it is readily accessible and is remotely operable.

History: 2003 AACS.

R 29.5315 Installation of piping systems.

Rule 315. Sections 5.3, 5.3.2.2, and 5.3.3 of the FL/CL code are adopted with the following changes:

5.3 Installation of piping systems. Piping shall be installed in accordance with good engineering practices and in accordance with the manufacturers' instructions.

5.3.2 Flexible connections.

5.3.2.2 Acceptable means for providing flexibility in piping systems shall include all of the following:

- (a) Listed flexible connectors that are approved for the purpose.
- (b) Piping that is inherently flexible and is approved for the purpose.
- (c) Any flexible connectors if in contact with ground or soil shall be cathodically protected.
- (d) Other means approved by the department based on the best interests of public health, safety, and welfare and the environment.

5.3.3 Fiberglass reinforced plastic piping. Fiberglass reinforced plastic (FRP) piping shall not be required to have flexible joints where otherwise would be required by section 5.3.2 if both of the following conditions exist:

- (a) The piping does not exceed 4 inches (100 millimeters) in diameter.
- (b) The piping has a straight run of not less than 4 feet (1.2 meters) on either side of the connection when the connection results in a change of direction.

History: 2003 AACS.

R 29.5316 Testing.

Rule 316. Section 5.4.1 of the FL/CL code is adopted with the following changes:

5.4.1 General. All piping and secondary containment piping shall be tested before being covered, enclosed, or placed in service in accordance with the requirements of section 3.6 of part 2 of these rules.

History: 2003 AACS.

R 29.5317 General requirements.

Rule 317. Section 6.2.3 is added to the FL/CL code as follows:

6.2.3 Each dispensing device shall be located not less than 10 feet (3.1 meters) from property lines, openings to buildings, and buildings of combustible wall construction. A dispensing device shall not be less than 20 feet (6.1 meters) from any activity that involves a fixed source of ignition.

History: 2003 AACS.

R 29.5318 Requirements for dispensing devices.

Rule 318. Section 6.3.4.1 is added to the FL/CL code as follows:

6.3.4.1 The area beneath each dispensing device shall be provided with a liquid-tight sump that will prevent any leaks in the dispensing device from reaching groundwater, surface water, or subsurface soils.

History: 2003 AACS.

R 29.5319 Requirements for dispensing hoses.

Rule 319. Section 6.5.3 of the FL/CL code is adopted with the following changes:

6.5.3 Where hoses are attached to a hose-retrieving mechanism, the listed emergency breakaway device shall be installed between the point of attachment of the hose retrieving mechanism to the hose and the hose nozzle valve.

Exception: The devices shall not be required at attended marine motor fuel dispensing facilities.

History: 2003 AACS.

R 29.5320 Requirements for fuel delivery nozzles.

Rule 320. Section 6.6.6 of the FL/CL code is adopted with the following changes:

6.6.6 Each dispensing hose nozzle valve shall be equipped with a device to prevent the splashing of liquid during the dispensing operation.

Exception: Splashguards are not required for class II nozzles that are 1 inch (25 millimeters) or more in size.

History: 2003 AACS.

R 29.5321 Repair garages.

Rule 321. Sections 7.4.2 and 7.4.4.2 of the FL/CL code are adopted with the following changes:

7.4.2 General construction requirements. In major repair garages, where CNG fueled vehicles, LNG fueled vehicles, or LPG fueled vehicles are repaired, all applicable requirements of R 29.4601 et seq., NFPA 57, "Liquefied Natural Gas (LNG) Vehicular Fuel Systems," adopted by reference in section 2.1.1, or R 29.4001 et seq., shall be met.

7.4.4.2 In areas of repair garages where vehicles are serviced, any floor drains shall be properly trapped and shall discharge to a storage tank or through an oil/water separator to the sanitary sewer.

History: 2003 AACS.

R 29.5322 Heat-producing appliances.

Rule 322. Section 7.6.9 of the FL/CL code is adopted with the following changes:

7.6.9 Heat-producing appliances shall be installed to meet the requirements of part 4 of these rules, NFPA 90A, "Standard for the Installation of Air-Conditioning and Ventilating Systems;" NFPA 54, "National Fuel Gas code;" NFPA 211, "Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances;" and NFPA 82, "Standards for Incinerators and Waste and Linen Handling Systems and Equipment;" adopted by reference in section 2.1.1, as applicable, except as hereinafter specifically provided.

History: 2003 AACS.

R 29.5323 Tank filling requirements.

Rule 323. Section 9.2.2.2, of the FL/CL code is adopted with the following changes, and exceptions 1 & 2 of section 9.2.2.2 of the FL/CL code are deleted:

9.2.2.2 Tank loading and unloading area and operation shall comply with sections 5.6.3 and 5.6.4 of part 2 of these rules. A separation distance is not required for the loading and unloading transfer connection of underground storage tanks, vaults, and fire protected tanks.

Exception number 1 is deleted.

Exception number 2 is deleted.

History: 2003 AACS.

R 29.5324 Dispensing into containers.

Rule 324. Section 9.2.3.4 is added to the FL/CL code as follows:

9.2.3 Dispensing into containers.

9.2.3.4 A container shall not be filled with liquid while it is inside a passenger-carrying vehicle. A container shall be removed from the interior of a passenger vehicle, from the back or enclosed portion of any other vehicle, or from the bed of a pickup truck, which has a bed liner during fueling. A person shall not fill or transport a portable container that holds more than 6 gallons (23 liters) of class I or class II liquid inside the passenger compartment of a motor vehicle. A container that is filled with, or sold containing, gasoline, benzene, or naphtha shall be painted vermilion (bright red) and shall be lettered or labeled with the name of the product. Kerosene, fuel oil, or other combustible liquid shall not be put into, or sold in, a container that is painted vermilion or bright red.

History: 2003 AACS.

R 29.5325 Basic fire control.

Rule 325. Sections 9.2.5.1, 9.2.5.2, and 9.2.5.4 of the FL/CL code are adopted with the following changes:

9.2.5 Basic fire control.

9.2.5.1 Sources of ignition. Smoking materials, including matches, lighters, and other sources of ignition including torches, shall not be used within 25 feet (7 meters) of areas used for fueling, servicing fuel systems of internal combustion engines, or receiving or dispensing of class I liquids. The motors of all equipment being fueled shall be shut off during the fueling operation, except for emergency generators, pumps, and the like, where continuing operation is essential.

9.2.5.2 Fire extinguishers. Each motor fuel dispensing facility shall be provided with 1 or more listed fire extinguishers that have a minimum capability of 40?B:C. They shall be located so that an extinguisher will be within 100 feet (30 meters) of each pump, storage tank fill pipe opening, and lubrication or service room. Fire extinguishers shall be inspected and maintained according to NFPA 10, "Standard for Portable Fire Extinguishers," adopted by reference in section 2.1.1.

9.2.5.4 Signs. Warning signs shall be conspicuously posted in the dispensing area and shall incorporate the following or equivalent wording: "WARNING. It is unlawful and dangerous to dispense gasoline into unapproved containers. No smoking. Stop motor. No filling of portable containers in or on a motor vehicle. The person shall remain in attendance outside of the vehicle and in view of the nozzle."

History: 2003 AACS.

R 29.5326 Waste handling.

Rule 326. Sections 9.2.6.3 and 9.2.6.4 are added to the FL/CL code as follows:

9.2.6 Waste handling.

9.2.6.3 Provision shall be made in the area where a liquid is dispensed to prevent a spilled liquid from flowing into the interior of a service station building. The provision may be made by grading driveways, raising doorsills, or other equally effective means.

9.2.6.4 Each area where a liquid is dispensed shall be protected to minimize spills from entering the groundwater, surface water, or subsurface soils. This requirement may be met by providing a paved pad of adequate area.

History: 2003 AACS.

R 29.5327 Operational requirements for full-service motor fuel dispensing operations.

Rule 327. Section 9.3.1 of the FL/CL code is adopted with the following changes:

9.3.1 The provisions of section 4.2.1 of this part shall not prohibit the temporary use of a moveable tank in conjunction with the dispensing of a flammable or combustible liquid into a fuel tank of a motor vehicle or other motorized equipment which is on the premises and which is not accessible to the public. A moveable tank

installation shall only be made with the approval of the department based on the best interests of public health, safety, and welfare and the environment. The approval shall include a definite time limit, which shall be for the period of temporary use.

History: 2003 AACS.

R 29.5328 Operating requirements for attended self-service motor fuel dispensing facilities.

Rule 328. Section 9.4.2 of the FL/CL code is adopted with the following changes and sections 9.4.5 and 9.4.6 are added to the FL/CL code as follows:

9.4.2 There shall be not less than 1 attendant on duty while the self-service facility is open for business. The attendant's primary function shall be to supervise, observe, and control the dispensing of liquids while the liquids are actually being dispensed.

9.4.5 The dispensing area shall at all times be in clear view of the attendant, and the placing or allowing of any obstacle to come between the dispensing area and the attendant control area is prohibited. This may be achieved by cameras or mirrors, or both. The attendant shall at all times be able to communicate with persons in the dispensing area.

9.4.6 Each person who performs the dispensing shall stay outside of his or her vehicle in view of the hose nozzle valve during the dispensing operation.

History: 2003 AACS.

R 29.5329 Operating requirements for unattended self-service motor fuel dispensing facilities.

Rule 329. Sections 9.5.1 and 9.5.6 of the FL/CL code are adopted with the following changes and sections 9.5.1.1 and 9.5.7 are added to the FL/CL code as follows:

9.5.1 Unattended self-service shall be permitted subject to the approval of the department based on the best interests of public health, safety, and welfare and the environment. Users shall be required to use a key, card, or other method which is unique to each user, and which is provided by the facility operator, and shall be properly trained in dispensing operations.

The owner shall verify such training to the department upon request.

9.5.1.1 At least one emergency control disconnect specified in section 6.7 shall be provided, and shall be reset only by the owner or an owner's authorized agent.

9.5.6 Additional fire protection shall be provided where required by the department based on the best interests of public health, safety, and welfare and the environment. Additional fire protection considerations may include fixed fire suppression systems, automatic fire detection, manual fire alarm stations, and transmission of an alarm to off-site locations.

9.5.7 Each person who performs the dispensing shall stay outside his or her vehicle and in view of the hose nozzle valve during the dispensing operation.

History: 2003 AACS.

R 29.5330 Refueling from tank vehicles.

Rule 330. Sections 9.6, 9.6.1, 9.6.3, 9.6.4, 9.6.5, 9.6.6, and 9.6.7 of the FL/CL code are adopted with the following changes, and sections 9.6.8,

9.6.9, 9.6.10, 9.6.11, 9.6.12, 9.6.13, 9.6.14, 9.6.15, and 9.6.16 are added to the FL/CL code as follows:

9.6 Refueling from tank vehicles. The dispensing of class I and class II liquids in the open from a tank vehicle to a motor vehicle located at commercial, industrial, governmental, or manufacturing establishments and intended for fueling vehicles used in connection with their businesses shall be permitted only if all of the requirements of sections 9.6.1 to 9.6.16 have been met.

9.6.1 The department shall be notified before commencing operations under section 9.6.

9.6.3 The dispensing nozzle shall be a listed, automatic-closing type without a latch?open device.

9.6.4 Nighttime deliveries shall only be made in an area considered adequately lighted.

9.6.5 The tank vehicle flasher lights shall be in operation while dispensing operations are in progress.

9.6.6 Expansion space shall be left in each fuel tank to prevent overflow in the event of temperature increase.

9.6.7 Smoking materials, including matches, lighters, and other sources of ignition, including torches, shall not be used within 25 feet (7 meters) of the dispensing of liquids in the open from a tank vehicle to a motor vehicle.

9.6.8 Each area where dispensing of liquids in the open from a tank vehicle to a motor vehicle shall be provided with 1 or more listed fire extinguishers that have a minimum capability of 40-B:C. The fire extinguishers shall be readily accessible to the dispensing operation. Fire extinguishers shall be inspected and maintained under NFPA 10, "Standard for Portable Fire Extinguishers."

9.6.9 Provision shall be made in the area where dispensing of liquids in the open from a tank vehicle to prevent spilled liquid from flowing into the interior of a building. Such provision may be made by grading driveways, raising doorsills, or other equally effective means.

9.6.10 At a minimum, each area where liquids are transferred in the open from the tank vehicle, equipment, or container shall be protected by an impervious surface that is compatible with product transferred to prevent spills from entering the groundwater, surface water, or subsurface soils.

9.6.11 Mobile fueling shall not take place within 15 feet (4.6 meters) of buildings, property lines, or combustible storage.

9.6.12 Tank vehicle brakes shall be set and chock blocks shall be in place.

9.6.13 Absorbent materials, nonwater absorbent pads, or a containment boom and an approved container with lid, and a nonmetallic shovel shall be provided to mitigate a minimum 5-gallon (19 liters) fuel spill.

9.6.14 Tanker vehicles shall be equipped with a preset device to limit the amount of a single fueling operation to a maximum of 500 gallons (1,893 liters).

9.6.15 Persons performing dispensing operations shall be able to deliver and dispense motor fuels. Operators of tank vehicles used for mobile fueling operations shall have access on-site or be in possession of an emergency communications device to notify the proper authorities if there is an emergency.

9.6.16 The tank vehicle shall be positioned with respect to vehicles being fueled to prevent traffic from driving over the delivery hose and between the tank vehicle and motor vehicle being fueled. The dispensing hose shall be properly placed on an approved reel or in an approved compartment before moving the tank vehicle.

History: 2003 AACS.

R 29.5331 Repair areas.

Rule 331. Sections 9.7.6.2, 9.7.7.1, and 9.7.8 of the FL/CL code are adopted with the following changes:

9.7.6 Parts cleaning.

9.7.6.2 Devices used to heat nonflammable solvent shall be in compliance with the requirements of 1 or both of the following:

(a) Part 4 of these rules.

(b) NFPA 54, "National Fuel Gas code," adopted by reference in section 2.1.1. These heating devices shall be installed in accordance with the requirements of section 7.6.

9.7.7 Chassis cleaning.

9.7.7.1 Chassis cleaning shall not be performed with liquids that have flash points below 140 Fahrenheit (60 degrees Celsius) (closed cup). If steam is used, it shall be supplied from a boiler located, installed, and safeguarded in accordance with the applicable requirements for heating equipment in section 7.6 and in the following documents:

(a) Part 4 of these rules.

(b) NFPA 54, "National Fuel Gas code."

(c) NFPA 8501, "Standard for Single Burner Boiler Operation," adopted by reference in section 2.1.1.

(d) NFPA 8502, "Standard for the Prevention of Furnace Explosions/ Implosions in Multiple Burner Boilers," adopted by reference in section 2.1.1.

9.7.8 Storage and handling of flammable liquids and gases. The storage and handling of flammable liquids shall be in accordance with part 2 of these rules. The storage and handling of liquefied petroleum gas shall be in accordance with R 29.4001 et seq. The storage and handling of flammable compressed gas fuels shall be in accordance with NFPA 55, "Standard for the Storage, Use, and Handling of Compressed and Liquefied Gases in Portable Cylinders," adopted by reference in section 2.1.1, and R 29.4601 et seq.

History: 2003 AACS.

R 29.5332 Scope.

Rule 332. Sections 11.1.1 and 11.1.2 of the FL/CL code are adopted with the following changes:

11.1.1 This chapter shall apply to that portion of a property where liquids used as fuels are stored, handled, and dispensed from equipment located on shore or from equipment located on piers, wharves, or floating docks into the fuel tanks of marine craft, including incidental activity, except as covered elsewhere in this FL/CL code.

11.1.2 This chapter shall not apply to any of the following:

- (a) Bulk plant or terminal loading or unloading facilities.
- (b) Transfer of liquids utilizing a flange-to-flange closed transfer piping system.
- (c) Marine motor fuel dispensing facilities where liquids used as fuels are stored and dispensed into the fuel tanks of marine craft of 300 gross tons (272 metric tons) or more. Marine motor fuel bulk dispensing operations shall also comply with the provisions of chapter 5 of part 2 of the FL/CL code.

History: 2003 AACS.

R 29.5333 Storage.

Rule 333. Sections 11.2.2 and 11.2.3 of the FL/CL code are adopted with the following changes and section 11.2.4 is added to the FL/CL code as follows:

11.2.2 Tanks that supply marine motor fuel dispensing facilities shall be located on shore or on a pier of the solid-fill type. Pumps that are not integral with the dispensing device shall also be located on shore or on a pier of the solid-fill type.

Exception: Where shore location would require excessively long supply lines to dispensing devices, tanks shall be permitted to be located on a pier, if the installation meets all applicable requirements of chapters 2 and 3 of part 2 of the FL/CL code, and the quantity stored is not more than 1,100 gallons (4,180 liters) aggregate capacity.

11.2.3 Where a tank is at an elevation that produces a gravity head on the dispensing device, the tank outlet shall be equipped with a device, such as a normally closed solenoid valve, that will prevent gravity flow from the tank to the dispenser. The device shall be located adjacent to and downstream of the outlet valve specified by section 2.3.2.5.1 of part 2 of the FL/CL code. The device shall be installed and adjusted so that liquid cannot flow by gravity from the tank to the dispenser if the piping or hose fails when the dispenser is not in use.

11.2.4 If a submersible pump system is used, a listed emergency shutoff valve shall be installed at each dispensing device as required by section 6.3.9 of this part.

History: 2003 AACS.

R 29.5334 General requirements.

Rule 334. Section 12.2.1 of the FL/CL code is adopted with the following changes:

12.2.1 The installation and use of CNG systems shall meet the requirements of R 29.4601 et seq., except as modified by this chapter. The installation and use of LNG systems shall meet the requirements of NFPA 57, "Liquefied Natural Gas (LNG) Vehicular Fuel Systems code," adopted by reference in section

2.1.1, except as modified by this chapter. The installation and use of LPG systems shall meet the requirements of R 29.4001 et seq., except as modified by this chapter.

History: 2003 AACS.

R 29.5335 Fuel storage.

Rule 335. Sections 12.3.1, 12.3.2, and 12.3.3 of the FL/CL code are adopted with the following changes:

12.3.1 Aboveground tanks storing CNG or LNG shall be separated from any adjacent property line that is or can be built upon, and public way, and the nearest important building on the same property by not less than the distance given in the R 29.4601 et seq.

12.3.2 Aboveground tanks storing LPG shall be separated from any adjacent property line that is or can be built upon, any public way, and the nearest important building on the same property by not less than the distance given in R 29.4001 et seq.



12.3.3 Aboveground tanks storing CNG, LNG, or LPG shall be separated from each other by not less than 20 feet (6 meters) and from dispensing devices that dispense liquid or gaseous motor vehicle fuels by not less than 50 feet (15 meters).

Exception number 1: The required separation shall not apply to tanks storing fuels that have the same chemical composition.

Exception number 2: When both the gaseous fuel storage and dispensing equipment are not less than 50 feet (15 meters) from any other aboveground motor fuel storage or dispensing equipment, the requirements of the R 29.4601 et seq.; NFPA 57, "Liquefied Natural Gas Vehicular Fuel Systems code;" or R 29.4001 et seq., whichever is applicable, shall apply.

History: 2003 AACS.

R 29.5336 Specific requirements for LPG dispensing devices.

Rule 336. Section 12.5.1 of the FL/CL code is adopted with the following changes:

12.5.1 Dispensing devices for LPG shall meet all applicable requirements of R 29.4001 et seq., and shall incorporate a dispensing nozzle that releases not more than 2 centimeters<sup>3</sup> (cm<sup>3</sup>) of liquid LPG upon disconnection.

History: 2003 AACS.

R 29.5337 Scope.

Rule 337. Sections 13.1 and 13.1.1 added to the FL/CL code as follows:

13.1 Scope. This chapter shall apply to the storage of class I, class II, and class IIIa liquids in tanks that have a 1,100-gallon (4,180 liters) capacity or less at outside locations, which present a lower fire risk than compliance with all the requirements of part 2 of these rules and chapters 1 to 12 of this part.

13.1.1 All of the following are restrictions for the application of this chapter:

(a) The tank shall be located more than 40 feet (12 meters) from buildings and property lines of adjacent properties that can be built upon.

(b) The separation distance shall be more than 25 feet (7.6 meters) between the tank and the closer edge of a public way.

(c) A tank shall not be erected less than 300 feet from any of the following:

- (1) A mineshaft.
- (2) An air escape shaft for a mine.
- (3) A school.
- (4) A church.
- (5) A hospital.
- (6) A theater.
- (7) A nursing home.
- (8) A penal institution.
- (9) An adult foster care facility.
- (10) Homes for the aged.

The tank shall be located more than 100 feet (30 meters) from a building used for public assemblage for 50 or more people.

(d) Any source of ignition shall be more than 25 feet (7 meters) from the tank.

(e) The tank shall be more than 50 feet (15 meters) from a single-family drinking well, 75 feet (23 meters) from type II and III noncommunity drinking water wells, and 200 feet (61 meters) from a type I community or type IIa noncommunity drinking water well.

(f) The tank shall be more than 50 feet (15 meters) from a storm drain, surface water, or designated wetland, unless some other engineering control exists so that a release would be controlled or directed in another direction.

(g) The tank will not be used for retail motor vehicle fueling.

History: 2003 AACS.

R 29.5338 Design, construction, and siting of tanks.

Rule 338. Sections 13.2.1, 13.2.2, 13.2.3, 13.2.3.1, 13.2.4, 13.2.5, 13.2.5.1, and 13.2.6 are added to the FL/CL code as follows:

13.2.1 Tanks, whether of single or double wall, shall be of single-compartment design and constructed of steel in accordance with underwriters laboratories standard 142 (UL 142), "Steel Aboveground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.2.3.

13.2.2 Each tank shall be provided with a fill opening that is equipped with a closure that is designed to be locked. The fill opening shall be separate from the vent opening.

13.2.3 Each single-wall tank, each primary tank, and the interstitial space of each double wall tank shall be provided with normal and emergency venting that complies with UL 142, "Steel Aboveground Tanks for Flammable and Combustible Liquids." 13.2.3.1 Vents shall be arranged to discharge so as to prevent localized overheating of or direct flame impingement on any part of the tank if vapors from the vent are ignited.

13.2.4 Tanks shall be located outside and not less than 40 feet (12 meters) from any building. They shall also be located so that any vehicle, equipment, or container that is filled directly from the tank is not less than 40 feet (12 meters) from any building.

13.2.5 Tanks that have top openings only shall be mounted and equipped as follows:

(a) Stationary tanks shall be mounted on solid timber, solid cement blocks, or equivalent, so as to protect the bottom of the tank from corrosion due to contact with the ground and to maintain the tank in a stable condition.

(b) Moveable tanks shall be equipped with attached metal legs that rest on shoes or runners designed so that the tank is supported in a stable position and so that the tank and its supports can be moved as a single unit.

(c) Tanks shall be equipped with a tightly and permanently attached approved pumping device and hose.

(d) The dispenser device shall be made inoperable to prevent tampering when not in use.

(e) The pump discharge shall be equipped with an effective anti-siphoning device or the discharge hose shall be equipped with a self-closing nozzle.

(f) Siphons, manifolds, or internal pressure discharge devices are prohibited.

13.2.5.1 Tanks elevated for gravity discharge shall be mounted and equipped as follows:

(a) Tanks shall be supported on steel or wood supports that have adequate strength and design to provide stability. Alternately, tanks shall be permitted to be placed on an elevated area to provide the necessary elevation, if the tank is supported on solid timbers or cement blocks 6 inches (150 millimeters) in height so as to protect the bottom of the tank from corrosion due to contact with the ground and to maintain the tank in a stable position.

(b) Discharge connectors shall be made to the bottom or to the end of the tank.

(c) The discharge connection shall be equipped with a valve that shall automatically close if there is a fire by means of operation of an effective heat-actuated device. The valve shall be located adjacent to the tank. If the valve cannot be operated manually, an additional valve that can be operated manually shall be provided.

(d) The discharge connection shall be provided with an approved hose of sufficient length for filling vehicles, equipment, and containers to be served by the tank. The hose shall be provided with a self-closing nozzle at the discharge end.

(e) The discharge connection at the tank shall be equipped with a locking valve so that it can be padlocked to prevent tampering.

13.2.6 Each storage site shall not have more than 3 tanks each of 1,100 gallons (4,180 liters) or less. Storage sites on the same property shall be separated by a minimum distance of 100 feet (30 meters). Tanks at each storage site shall be separated by a minimum distance of 3 feet (1 meter).

History: 2003 AACS.

R 29.5339 Containment and spill prevention.

Rule 339. Sections 13.3.1, 13.3.2, 13.3.2.1, 13.3.3, and 13.3.4 are added to the FL/CL code as follows:

13.3.1 At a minimum, each area where liquids are transferred from the tank to a vehicle, equipment, or container shall be protected by an impervious surface, compatible with the product transferred, to prevent spills from entering the groundwater, surface water, or subsurface soils.

13.3.2 Where single-wall tanks are provided with spill control by impounding around the tanks by diking, the tank system and dikes shall be in compliance with section 2.3.2.3.2 of part 2 of the FL/CL code.

13.3.2.1 When prevention of rain or snow accumulation in the diked area is desired, a roof or canopy may be constructed over the diked area if all of the following conditions are met:

(a) The roof, canopy, and their supports are constructed of noncombustible material. The roof and canopy supports cannot be located inside the diked wall.

(b) The lowest elevation of the roof or canopy shall not be less than 6 feet (1.8 meters) from the top of the tank.

(c) The normal tank vent is extended through the roof or canopy.

(d) The roof or canopy is constructed in such a way that it will not allow for vapors to accumulate under the canopy or roof.

13.3.3 A roof or canopy is allowed to be constructed over a single, double-wall, or a protected tank if the construction meets the requirements of section 13.3.2.1.

13.3.4 A roof or a canopy is allowed to be constructed over a liquid transfer area if the construction meets the requirements of section 13.3.2.1.

History: 2003 AACS.

R 29.5340 Marking.

Rule 340. Sections 13.4.1, 13.4.2, and 13.4.3 are added to the FL/CL code as follows:

13.4.1 Tanks shall be conspicuously marked with the name of the product contained and with the following marking: "FLAMMABLE (or COMBUSTIBLE when appropriate) - KEEP FIRE AND FLAME AWAY."

13.4.2 Tanks shall also bear the following marking: "KEEP 40 FEET FROM BUILDINGS."

13.4.3 All lettering on signage shall be 3 inches (75 millimeters) or more.

History: 2003 AACS.

R 29.5341 Fire prevention and control.

Rule 341. Sections 13.5.1 and 13.5.2 are added to the FL/CL code as follows:

13.5.1 Open flames and smoking materials shall not be permitted in the storage area.

13.5.2 The area within 10 feet (3 meters) of the tank shall be kept free of combustible materials.

History: 2003 AACS.

#### PART 4. AMENDMENTS TO THE STANDARD FOR THE INSTALLATION OF OIL-BURNING EQUIPMENT

R 29.5401 Prohibitions.

Rule 401. Sections 1.8.1, 1.8.2, 1.8.3, 1.8.4, and 1.8.5 are added to the FL/CL code as follows:

1.8.1 Upon notification by the department, a person shall not deliver any liquid into a storage tank system under any circumstances that are prohibited by these rules if a tank is not in compliance with these rules. The notification may include verbal or written communication or an affixed written notification on the storage tank system.

1.8.2 A person shall not tamper with, remove, or disregard written notification affixed to the storage tank system.

1.8.3 Any storage tank system or practice that is not in compliance with these rules shall be considered to be in violation of these rules.

1.8.4 An owner or operator shall not continue to use a storage tank system that is causing a release and shall expeditiously empty the system or the component that is causing the release until the system is repaired or replaced.

1.8.5 The department may order, at the expense of the owner, a tightness test of the storage tank system when there is reason to believe that the storage tank system is leaking.

History: 2003 AACS.

R 29.5402 Referenced publications.

Rule 402. Section 2.1.2.5 of the FL/CL code is adopted with the following changes and section 2.1.2.7 is added to the FL/CL code as follows:

2.1.2.5 UL publications. Underwriters Laboratories Inc., 333 Pflingsten Road, Northbrook, IL 60062.

UL 2085, "Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids," 1997 edition.

2.1.2.7 STI publications. Steel Tank Institute, 570 Oakwood Road, Lake Zurich, IL 60047.

STI act 100, "Specification for the Fabrication of FRP Clad/Composite Underground Storage Tanks, Installation Check List, and Record of Installation." STI permatank, "Specification F922 for the Fabrication of a Double Wall UST.

STI STI-P3, Specification for Cathodically Protected Steel Underground Storage Tanks, Installation Instructions, Standards for Dual-Wall Underground Steel Tanks."

History: 2003 AACS.

R 29.5403 Definitions.

Rule 403. Sections 3.2.1 and 3.2.2 of the FL/CL code are adopted with the following changes and sections 3.2.2(a) and 3.2.2(b) are added to the FL/CL code as follows:

3.2.1 "Approved" means acceptable to the department.

3.2.2 "Authority having jurisdiction" means the department.

3.2.2(a) "Department" means the department of environmental quality.

3.2.2(b) "Director" means the director of the department of environmental quality.

History: 2003 AACS.

R 29.5404 General definitions.

Rule 404. Section 3.3.30 of the FL/CL code is adopted with the following changes and sections 3.3.58.6 and 3.3.58.7 are added to the FL/CL code as follows:

3.3.30 "Fuel oil" means any hydrocarbon oil as specified by ASTM D 396, "Standard Specification for Fuel Oils," or the Canadian government specification board, 3-GP-2e, "Heating Fuel Oil," adopted by reference in section 2.1.2.3, and which has a minimum flash point of 100 degrees Fahrenheit (38 degrees Celsius). Liquids that have a flash point of 200 degrees Fahrenheit (93 degrees Celsius) or more and are stored in aboveground tanks are not covered in this part. Used oil unless tested and in compliance with the flash point requirement, shall not be included in this definition.

3.3.58.6 "AST system" means a tank or combination of tanks, including the pipes that are connected to the tank, tanks, or ancillary equipment containment systems, if any, which is, was, or may have been used to contain an accumulation of liquids and which has less than 10% of its volume, including the volume of the underground pipes that are connected to the tank, or tanks, beneath the surface of the ground.

3.3.58.7 "UST system" means a tank or combination of tanks, including the underground pipes that are connected to the tank or tanks or underground ancillary equipment containment systems, if any, which is, was, or may have been, used to contain an accumulation of liquids and which has 10% or more of its volume, including the volume of the underground pipes that are connected to the tank or tanks, beneath the surface of the ground.

History: 2003 AACS.

R 29.5405 Installation of oil-burning appliances and equipment.

Rule 405. Section 4.3.1 of the FL/CL code is adopted with the following changes and sections 4.3.1.1, 4.3.1.2, and 4.3.1.3 are added to the FL/CL code as follows:

4.3.1 An aboveground storage tank system installation application shall meet the requirements of section 1.11 of part 2 of these rules.

4.3.1.1 A heating fuel storage tank system that has a capacity of more than

1,100 gallons (4,180 liters) shall not be installed within the following distances of the following items:

(1) Fifty-feet (15 meters) from a single-family drinking water well.  
(2) Seventy-five feet (22.5 meters) from a type IIb noncommunity or type III public drinking water well.  
(3) Two hundred feet (61 meters) from a type I community or type IIa noncommunity public drinking water well. Aboveground storage tanks that do not have secondary containment shall not be installed within 300 feet (92 meters) from single-family drinking wells, 800 feet (244 meters) from type IIb and III noncommunity drinking water wells, 2,000 feet (610 meters) from type I community or type IIa noncommunity drinking water wells. Aboveground storage tanks that do not have secondary containment shall not be installed in a delineated wellhead protection area. Aboveground storage tanks that do not have secondary containment shall not be installed in a source water protection area critical assessment zone, or 300 feet (92 meters) from a surface watershed delineated critical assessment zone.

Exception: A person may install an AST system if it is a 1-for-1 replacement at an active aboveground or underground storage tank system location without being subject to the requirements of this section if the new AST is in compliance with the requirements of these rules for a new installation and if the new installation is not closer to a well than the existing installation.

4.3.1.2 A tank that has a capacity of more than 4,000 gallons (15,200 liters) shall not be installed within the critical assessment zone after the effective date of these rules. A tank which has a capacity of 4,000 gallons (15,200 liters) or less and which is installed within the critical assessment zone after the effective date of these rules shall have liquid-tight secondary containment and overfill protection in compliance with this part.

Exception: Tanks may be installed or replaced within a critical assessment zone if added to an active tank system, which is currently in operation and was operational before the effective date of these rules. The tank may be added if it has liquid-tight secondary containment and overfill protection that meets the requirements of section 2.3.2.3 and section 2.6.1 of part 2 of these rules. In addition, before the installation of any new aboveground storage tank, the facility shall be in compliance with section 2.3.2.7 of part 2 of these rules.

4.3.1.3 The requirements of subsection 4.3.1.2 may be modified if a person can demonstrate that the aboveground storage tank installation is, or is not, within a source water protection area, wellhead protection area, or wellhead zone of influence based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5406 Basic design and construction of tanks.

Rule 406. Sections 7.2.2, 7.2.8, and 7.2.9 of the FL/CL code are adopted with the following changes and section 7.2.8.4 is added to the FL/CL code as follows:

7.2.2 Tanks meeting the requirements of part 2 of these rules shall be considered as meeting the requirements of section 7.2.

7.2.8 Tanks shall be constructed in accordance with approved standards of design. Atmospheric tanks shall be constructed in accordance with 1 of the following or its equivalent.

(a) API standard 650, "Specifications for Welded Steel Tanks for Oil Storage," adopted by reference in section 2.1.2.1.

(b) ASTM D 4021, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks," adopted by reference in section 2.1.2.3.

(c) UL 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.2.5.

(d) UL 80, Standard for "Steel Inside Tanks for Oil Burner Fuel," adopted by reference in section 2.1.2.5.

(e) UL 142, "Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.2.5.

(f) UL 1316, "Standard for Glass Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products," adopted by reference in section 2.1.2.5.

(g) UL 2258, "Standard for Tanks for Oil Burner Fuel-Nonmetallic," adopted by reference in section 2.1.2.5.

(h) STI act 100, "Specification for the Fabrication of FRP Clad/Composite Underground Storage Tanks, Installation Check List, and Record of Installation," adopted by reference in section 2.1.2.7.

(i) STI STI-P3, "Specification for Cathodically Protected Steel Underground Storage Tanks, Installation Instructions, Standards for Dual-Wall Underground Steel Tanks," adopted by reference in section 2.1.2.7.

(j) UL2085, "Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.2.5.

7.2.8.4 Each tank shall be installed in compliance with its design and its listing.

7.2.9 Where a tank is located in an area subject to flooding, the requirements of sections 2.3.2.6 and 2.3.3.5.1 of part 2 of these rules, whichever is applicable, shall be met.

History: 2003 AACS.

R 29.5407 Installation of underground tanks (including buried tanks under buildings).

Rule 407. Sections 7.4.2, 7.4.3, 7.4.4, 7.4.7, and 7.4.8 of the FL/CL code are adopted with the following changes and section 7.4.41 is added to the FL/CL code as follows:

7.4.2 Tanks installed underground, including tanks installed under buildings, shall meet the requirements of 1 of the following:

(a) UL 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.2.5.

(b) UL 1316, "Standard for Glass Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products," adopted by reference in section 2.1.2.5.

(c) ASTM D 4021, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks," adopted by reference in section 2.1.2.3.

(d) STI act 100, "Specification for the Fabrication of FRP Clad/Composite Underground Storage Tanks, Installation Check List, and Record of Installation," adopted by reference in section 2.1.2.7.

(e) STI STI-P3, "Specification for Cathodically Protected Steel Underground Storage Tanks, Installation Instructions, Standards for Dual-Wall Underground Steel Tanks," adopted by reference in section 2.1.2.7.

(f) The exception to 7.2.7.2 of this standard.

(g) STI permatank, "Specification F922 for the Fabrication of a Double Wall UST," adopted by reference in section 2.1.2.7.

7.4.3 Excavations for underground tanks shall be made with due care to avoid undermining the foundations of existing structures. Underground tanks or tanks under buildings shall be located with respect to existing building foundations and supports so that the loads carried by the latter cannot be transmitted to the tank. The distance from any part of the tank to the nearest basement, pit, or property line shall not be less than 10 feet (3 meters).

7.4.4 Underground tanks shall be installed in accordance with manufacturer's instructions. The installation shall meet all applicable requirements of part 2 of these rules, including those for burial depth and cover and for corrosion control.

7.4.4.1 A tank and its piping shall be protected against corrosion in accordance with section 2.2.6.1 of part 2 of these rules.

7.4.7 An underground tank shall be provided with means for gauging.

7.4.8 Underground storage tanks that are not used to store liquids for more than 12 months shall be permanently closed. Underground tanks that are taken out of service shall be removed or permanently closed in accordance with the requirements of section 2.6.5 of part 2 of these rules.

History: 2003 AACS.

R 29.5408 Installation of tanks inside of buildings.

Rule 408. Section 7.5.7 of the FL/CL code is adopted with the following changes:

7.5.7 Tanks between 10 gallons and 660 gallons (38 liters and 2,500 liters) capacity shall use the opening in the bottom as a burner supply connection and be arranged as follows:

(a) The tank shall be pitched toward the opening with a slope of not less than  $\frac{1}{4}$  inch per foot (20 millimeters/meter) of length.

(b) The tank shall be provided with a shutoff valve installed immediately adjacent to the burner supply connection at the bottom of the tank.

History: 2003 AACS.

R 29.5409 Installation of outside aboveground tanks.

Rule 409. Section 7.6.3 of the FL/CL code is adopted with the following changes:

7.6.3 An aboveground tank that has a capacity of more than 660 gallons (2,500 liters) shall be installed in accordance with all applicable requirements of part 2 of these rules.

History: 2003 AACS.

R 29.5410 Tank heating systems.

Rule 410. Section 7.7.5 is added to the FL/CL code as follows:

7.7.5 The tank and its components shall be operated and maintained within its rated design.

History: 2003 AACS.

R 29.5411 Testing and maintenance.

Rule 411. Section 7.9.4 is added to the FL/CL code as follows:

7.9.4 Each tank shall be maintained to ensure that water is removed in accordance with recognized industry standards.

History: 2003 AACS.

R 29.5412 Abandonment and removal from service of tanks and related equipment.

Rule 412. Section 7.10 of the FL/CL code is adopted with the following changes:

Tanks not used to store liquids for 12 months shall be permanently closed by complying with the requirements of sections 2.6.4 and 2.6.5 of part 2 of these rules.

History: 2003 AACS.

R 29.5413 Control of spills from aboveground tanks.

Rule 413. Sections 7.11.1, 7.11.2, 7.11.3, 7.11.4, and 7.11.5 are added to the FL/CL code as follows:

7.11.1 Control of spills from aboveground tanks shall comply with section 2.3.2.3 of part 2 of these rules.

7.11.2 Remote impounding. Remote impounding shall comply with section 2.3.2.3.1 of part 2 of these rules.

7.11.3 Impounding around tanks by diking. Impounding around tanks by diking shall comply with section 2.3.2.3.2 of part 2 of these rules.

7.11.4 Secondary containment tanks. Secondary containment tanks shall comply with section 2.3.2.3.3 of part 2 of these rules.

7.11.5 Existing storage tanks. All existing tanks which have a capacity of more than 1,100 gallons (4,180 liters) and which are not in full compliance with the requirements for new tanks under these rules shall meet 1 of the requirements in section 2.3.2.7 of part 2 of these rules.

History: 2003 AACS.

R 29.5414 Tank fill piping.

Rule 414. Section 8.3.1 of the FL/CL code is adopted with the following changes and sections 8.3.4.1, 8.3.4.2, 8.3.4.3, and 8.3.5 are added to the FL/CL code as follows:

8.3.1 The fill pipe shall be large enough and so located as to permit ready filling in a manner that prevents spills. The fill pipe shall terminate outside the building at a point not less than 2 feet (0.6 meters) from any building at the same or lower level. The fill pipe shall terminate in a manner that prevents spills when the filling hose is disconnected. The end of the fill pipe shall be equipped with a tight metal cover designed to discourage tampering and shall be identified as a fuel oil fill.

Exception: A crankcase oil or used oil fill pipe for a tank directly serving a used oil fired burner and appliance shall be permitted to terminate indoors in accordance with part 3 of these rules. If the fill pipe has a funnel-type opening, then it shall be provided with a readily accessible manual shutoff valve of the ¼-turn-to-close type, between the funnel-type opening and the tank.

8.3.4.1 Tank vehicle and tank car loading and unloading facilities shall be separate from aboveground tanks, warehouses, other plant buildings, or the nearest line of adjoining property that can be built upon by a distance of not less than 15 feet (4.6 meters) for class II and class III liquids, measured from the nearest fill spout or transfer connection. These distances shall be achieved by the use of fixed piping between the tank and the transfer connection. These distances shall be permitted to be reduced by utilizing an automatic fixed fire protection system or fire-rated barrier rated for 2 or more hours. Buildings for pumps or shelters for personnel shall be permitted to be a part of the facility.

Exception 1: A fire protected tank or a tank in a vault does not have to be in compliance with the separation distance requirements for the loading and unloading risers.

Exception 2: A tank which has a capacity of 3,000 gallons (11,340 liters) or less, which is located 10 feet (3.1 meters) from any building, and which is provided with spill and audible overfill protection or other means acceptable to the department based on the best interests of public health, safety, and welfare and the environment, does not have to be in compliance with the separation distance requirements for loading and unloading risers.

8.3.4.2 Provisions shall be made to prevent liquids that can be spilled at a loading or unloading facility from entering a public sewer, groundwater, surface water, subsurface soils, or the impoundment area for the tanks, other than remote impounding. If adequate spill protection is not provided at the loading and unloading areas, a spill pad shall be provided with a fixed source of spill containment at the stationary dry-break connection. A connection to a public sewer, drain, or surface water shall be provided with a trap or separator. The traps, separators, holding tanks, or other approved means shall be properly designed and maintained according to the manufacturers operating instructions by the owner or operator and shall be emptied of accumulated product, for which it is intended, before reaching safe storage capacity. Existing locations shall be equipped with such provisions within 5 years of the effective date of these rules.

Exception: A tank that has the capacity of 1,100 gallons (4,180 liters) or less does not have to be in compliance with section 8.3.4.2.

8.3.4.3 A loading or unloading facility that has a canopy, roof, or otherwise sheltered from the weather shall be constructed of noncombustible materials and have prior approval by the department based on the best interests of public health, safety, and welfare and the environment. The canopy or roof shall not limit the dissipation of heat or dispersion of flammable vapors and cannot restrict firefighting access and control.

8.3.5 A fill pipe shall be removed or permanently sealed and capped when no longer in use in compliance with section 2.6.5.3 of part 2 of these rules.

History: 2003 AACS.

R 29.5415 Pumps, valves, gauges, and appurtenances.

Rule 415. Section 8.7.3 of the FL/CL code is adopted with the following changes:

8.7.3 Inside tanks provided with fill vent pipes used for fuel oil shall be provided with a device to indicate, at the fill point, either visually or audibly, when the oil in the tank has reached a predetermined safe level.

History: 2003 AACS.

R 29.5416 Testing and maintenance.

Rule 416. Section 8.8.3 is added to the FL/CL code as follows:

8.8.3 Vents shall be properly maintained to ensure that sections 8.6.3 and 8.6.4 are met.

History: 2003 AACS.

R 29.5417 Centralized oil distribution systems.

Rule 417. Section 9.2.7 of the FL/CL code is adopted with the following changes:



9.2.7 Aboveground tanks shall be provided with spill control by means of diking meeting the requirements of section 2.3.2.3 of part 2 of these rules.

History: 2003 AACS.

R 29.5418 Installation clearances.

Rule 418. Section 12.6.2 of the FL/CL code is adopted with the following changes:  
12.6.2 Used oil-burning appliances shall be separated from flammable or combustible liquids in accordance with applicable requirements of part 3 of these rules.

History: 2003 AACS.

R 29.5419 Used oil supply tanks.

Rule 419. Sections 12.9.1, 12.9.2, and 12.9.3 of the FL/CL code are adopted with the following changes:  
12.9.1 Supply tanks for aboveground indoor supply of used oil-burning appliances shall be listed in accordance with UL 80, "Standard for Steel Inside Tanks for Oil Burner Fuel," UL 142, adopted by reference in section 2.1.2.5, "Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids," or UL 2085, adopted by reference in section 2.1.25, "Standard for Protected Aboveground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.25.

Exception: Secondary containment-type tanks which meet the requirements of section 7.2.7.2 and which are listed for use with used oil shall be permitted to be used for aboveground indoor supply.

12.9.2 Supply tanks for aboveground indoor supply of used oil-burning appliances shall be listed in accordance with UL 80, "Standard for Steel Inside Tanks for Oil Burner Fuel," UL 142, "Standard for Steel Aboveground Tanks for Flammable and Combustible Liquids," or UL 2085, "Standards for Protected Aboveground Tanks for Flammable and Combustible Liquids," adopted by reference in section 2.1.2.5.

12.9.3 Supply tanks for underground supply of used oil to a used oil-burning appliance shall be listed in accordance with UL 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," UL 1316, "Standard for Glass-Fiber Reinforced Plastic Underground Storage Tanks for Petroleum Products," UL Standards adopted by reference in section 2.1.2.5. STI ACT-100, "Specification for the Fabrication of FRP Clad/Composite Underground Storage Tanks, Installation CheckList, and Record of Installation," STI STI-P3, "Specification for Cathodically Protected Steel Underground Storage Tanks, Installation Instructions," STI standards, or STI permatank, "Specification F922 for the Fabrication of a Double Wall UST," adopted by reference in section 2.1.2.7.

History: 2003 AACS.

## PART 5. AMENDMENTS TO STANDARD FOR THE INSTALLATION AND USE OF STATIONARY COMBUSTION ENGINES AND GAS TURBINES

R 29.5501 Purpose and scope.

Rule 501. Section 1-1.3 is added to the FL/CL code as follows:  
1-1.3 Provisions of this part shall not prohibit the temporary use, for up to 12 months, of a portable generator unit and tank for supplemental power located outside on the premises, which is not normally accessible to the public. The installation shall only be made with the approval of the department based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5502 Discretionary powers of the department.

Rule 502. Sections 1-2.1, 1-2.2(1), and 1-2.2(2) are added to the FL/CL code as follows:

1-2.1 Nothing in this FL/CL code shall be intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, environmental protection capability, or safety over those prescribed by this FL/CL code, if technical documentation is submitted to the department to demonstrate equivalency and the system, method, or device is approved for the intended purpose.

1-2.2(1) An owner or operator may make an application for a variance to the rules by applying to the department with a satisfactory explanation as to why compliance is not possible. The department may approve a variance upon finding that the variance is based on the best interests of public health, safety, welfare, and property and the environment.

1-2.2(2) A person aggrieved by a final decision of the department on a request for variance may appeal to the circuit court within 21 days of the decision.

History: 2003 AACCS.

R 29.5503 Installation application submittal requirements.

Rule 503. Sections 1-6.1, 1-6.2, 1-6.3, and 1-6.4 are added to the FL/CL code as follows:

1-6.1 An aboveground storage tank system installation application shall meet the requirements of section 1.11 of part 2 of these rules.

1-6.2 A fuel storage tank system that has a capacity of more than 1,100 gallons (4,180 liters) shall not be installed within the following distances of the following items:

(a) Fifty-feet (15 meters) from a single-family drinking water well.

(b) Seventy-five feet (22.5 meters) from a type IIb noncommunity or type III public drinking water well.

(c) Two hundred feet (61 meters) from a type I community or type IIa noncommunity public drinking water well. Aboveground storage tanks that do not have secondary containment shall not be installed within 300 feet (92 meters) from single-family drinking wells, 800 feet (244 meters) from type IIb and III noncommunity drinking water wells, or 2,000 feet (610 meters) from type I community or type IIa noncommunity drinking water wells. Aboveground storage tanks that do not have secondary containment shall not be installed in a delineated wellhead protection area. Aboveground storage tanks that do not have secondary containment shall not be installed in a source water protection area critical assessment zone or 300 feet (92 meters) from a surface watershed delineated critical assessment zone.

Exception: A person may install an AST system if it is a 1 for 1 replacement at an active aboveground or underground storage tank system location without being subject to the requirements of this section; if the new AST is in compliance with the requirements of these rules for a new installation, and if the new installation is not closer to a well than the existing installation.

1-6.3 A tank that has a capacity of more than 4,000 gallons (15,200 liters) shall not be installed within the critical assessment zone after the effective date of these rules. A tank which has a capacity of 4,000 gallons (15,200 liters) or less and which is installed within the critical assessment zone after the effective date of these rules shall have liquid-tight secondary containment and overfill protection in compliance with this part.

Exception: Tanks may be installed or replaced within a critical assessment zone, if added to an active tank system which is currently in operation and which was operational before the effective date of these rules. The tank may be added if it has liquid-tight secondary containment and overfill protection that meets the requirements of sections 2.3.2.3 and 2.6.1 of part 2 of these rules. In addition, before the installation of any new aboveground storage tank, the facility shall be in compliance with section 2.3.2.7 of part 2 of these rules.

1-6.4 The requirements of section 1-6.3 may be modified if a person can demonstrate that the aboveground storage tank installation is, or is not, within a source water protection area, wellhead protection area, or wellhead zone of influence based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACCS.

R 29.5504 Storage.

Rule 504. Section 1-7.1 is added to the FL/CL code as follows:

1-7.1 Liquids shall be stored in tanks, portable tanks, bulk containers, containers, and intermediate bulk containers in compliance with part 2 of these rules. Each tank or bulk container shall be installed in compliance with its design and listing approval.

History: 2003 AACS.

R 29.5505 Definitions.

Rule 505. Section 2-1 of the FL/CL code is adopted with the following changes to the definitions of: "approved," "authority having jurisdiction," and "listed," and by adding the definitions "department" and "director." 2-1.1 "Approved" means acceptable to the department.

2-1.2 "Authority having jurisdiction" mean the department.

2-1.3 "Department" means the department of environmental quality.

2-1.4 "Director" means the director of the department of environmental quality.

2-1.5 "Listed" means equipment, materials, or services included in a list published by an organization which is concerned with evaluation of products or services, which maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and which lists states where the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose. The product listings shall be acceptable to the department based on the best interests of public health, safety, and welfare and the environment.

History: 2003 AACS.

R 29.5506 Prohibitions.

Rule 506. Sections 1-8.1 to 1-8.5 are added to the FL/CL code as follows:

1-8.1 Upon notification by the department a person shall not deliver any liquid into a storage tank system under any circumstances that are prohibited by these rules or if a tank is not in compliance with these rules. The notification may include verbal or written communication or an affixed written notification on the storage tank system.

1-8.2 A person shall not tamper with, remove, or disregard written notification affixed to the storage tank system.

1-8.3 Any storage tank system or practice that is not in compliance with these rules shall be considered to be in violation of these rules.

1-8.4 An owner or operator shall not continue to use a storage tank system that is causing a release and shall expeditiously empty the system or the component that is causing the release until the system is repaired or replaced.

1-8.5 The department may order, at the expense of the owner, a tightness test of the storage tank system when there is reason to believe that the storage tank system is leaking.

History: 2003 AACS.

R 29.5507 Definition of terms used in this standard.

Rule 507. Section 2-2 of the FL/CL code is adopted with the following changes and additions to the definitions of: "AST system," "tank

system," and "UST system." 2-2.1 "AST system" means a tank or combination of tanks, including the pipes that are connected to the tank, tanks, or ancillary equipment containment systems, if any, which is, was, or may have been, used to contain an accumulation of liquids and which has less than 10% of its volume, including the volume of the underground pipes that are connected to the tank, or tanks, beneath the surface of the ground.

2-2.2 "Tank system" means an AST system or UST system.

2-2.3 "UST system" means a tank or combination of tanks including the underground pipes that are connected to the tank or tanks or underground ancillary equipment containment systems, if any, which is, was, or may have been, used to contain an accumulation of liquids and which has 10% or more of its volume, including the volume of the underground pipes that are connected to the tank or tanks, beneath the surface of the ground.

History: 2003 AACS.

R 29.5508 Gas piping.

Rule 508. Section 4-1.1.3 of the FL/CL code is adopted with the following changes:  
4-1.1.3 LP-Gas Systems, whether liquid or vapor phase, shall be installed in accordance with R 29.4001 et seq.

History: 2003 AACS.

R 29.5509 Design and construction of liquid-fueled tanks.

Rule 509. Section 5-1 of the FL/CL code is adopted with the following changes and sections 5 1, exception 1, exception 2, exception 3, exception 4, exception 5, exception 6, and 5-1.1 of the FL/CL code are deleted as follows:

5-1 Design and construction of liquid-fueled tanks. Fuel tanks shall be constructed in accordance with the applicable tank specifications in part 2 of these rules.

Exception number 1 is deleted.

Exception number 2 is deleted.

Exception number 3 is deleted.

Exception number 4 is deleted.

Exception number 5 is deleted.

Exception number 6 is deleted.

5-1.1 is deleted.

History: 2003 AACS.

R 29.5510 Installation criteria for fuel tanks containing class I fuels.

Rule 510. Section 5-2.3 of the FL/CL code is adopted with the following changes:

5-2.3 Other requirements for fuel tanks such as construction, the minimum distance from any line of adjoining property that might be built upon, spacing, dikes, foundations, supports, depth and cover, anchorage, normal and emergency vents, corrosion protection, spill control, existing aboveground tanks, and testing shall be accordance with the applicable provisions of part 2 of these rules.

History: 2003 AACS.

R 29.5511 Installation criteria for fuel tanks containing liquid fuels other than class I fuels.

Rule 511. Sections 5-3.1 and 5-3.3.1 of the FL/CL code are adopted with the following changes and section 5-3.1.1 is added to the FL/CL code as follows:

5-3.1 General. Engine-mounted tanks shall be securely mounted on the engine assembly and protected against vibration, physical damage, engine heat, and the heat of exhaust piping. Not more than 1 engine-mounted tank shall be installed on each engine.

5-3.1.1 A generator base tank shall be designed to support the weight of the generator unit placed on top of the tank. The tank and secondary containment shall be built to a nationally recognized standard of design such as an Underwriters Laboratories standard.

5-3.3.1 Fuel tanks located outside, either aboveground or underground, or beneath a structure shall comply with the applicable provisions of part 2 of these rules, including sections 2.3.2.3 and 2.3.2.7.

History: 2003 AACS.

R 29.5512 Installation criteria for fuel tanks containing liquefied petroleum gases.

Rule 512. Section 5-4.1 of the FL/CL code is adopted with the following changes:

5-4.1 LP-Gas systems in the liquid phase shall be installed in accordance with the provisions of R 29.4001 et seq.

History: 2003 AACS.

R 29.5513 Filling.

Rule 513. Section 5-6.3 of the FL/CL code is adopted with the following changes:  
5-6.3 Piping for fuel tanks shall be in accordance with part 2 of these rules.

History: 2003 AACS.

R 29.5514 Vent piping.

Rule 514. Section 5-7 of the FL/CL code is adopted with the following changes:  
5-7 Piping for fuel tanks shall be in accordance with part 2 of these rules.

History: 2003 AACS.

R 29.5515 Fuel piping, valves, and fittings.

Rule 515. Section 5-8.1 of the FL/CL code is adopted with the following changes and sections 5-8.5, 5-8.6, and 5-8.7 are added to the FL/CL code as follows:

5-8.1 Piping shall be in accordance with chapter 3 of part 2 of the FL/CL code, except that piping shall be steel or other metal and the provisions of section 5-8.2 shall apply.

5-8.5 Tank vehicle and tank car loading and unloading facilities shall be separate from aboveground tanks, warehouses, other plant buildings, or the nearest line of adjoining property that can be built upon by a distance of not less than 25 feet (7.6 meters) for class I liquids and not less than 15 feet (4.6 meters) for class II and class III liquids, measured from the nearest fill spout or transfer connection. These distances shall be achieved by the use of fixed piping between the tank and the transfer connection. These distances shall be permitted to be reduced by utilizing an automatic fixed fire protection system or fire-rated barrier rated for 2 or more hours. Buildings for pumps or shelters for personnel shall be permitted to be a part of the facility.

Exception 1: A fire protected tank or a tank in a vault does not have to be in compliance with the separation distance requirements for the loading and unloading risers.

Exception 2: A tank which has a capacity of 3,000 gallons (11,340 liters) or less, which is located 10 feet (3.1 meters) from any building, and which is provided with spill and audible overfill protection or other means acceptable to the department based on the best interests of public health, safety, and welfare and the environment does not have to be in compliance with the separation distance requirements for loading and unloading risers.

5-8.6 Provisions shall be made to prevent liquids that can be spilled at a loading or unloading facility from entering a public sewer, groundwater, surface water, subsurface soils, or the impoundment area for the tanks, other than remote impounding. If adequate spill protection is not provided at the loading and unloading areas, then a spill pad shall be provided with a fixed source of spill containment at the stationary dry-break connection. A connection to a public sewer, drain, or surface water shall be provided with a trap or separator. The traps, separators, holding tanks, or other approved means shall be properly designed and maintained according to the manufacturers operating instructions by the owner or operator and shall be emptied of accumulated product, for which it is intended, before reaching safe storage capacity. Existing locations shall be equipped with such provisions within 5 years of the effective date of these rules.

5-8.7 A loading or unloading facility that has a canopy, roof, or otherwise sheltered from the weather shall be constructed of noncombustible materials and have prior approval by the department based on the best interests of public health, safety, welfare, and the environment. The canopy or roof shall not limit the dissipation of heat or dispersion of flammable vapors and cannot restrict firefighting access and control.

History: 2003 AACS.

R 29.5516 Permanent closure of storage tanks.

Rule 516. Section 5-10 is added to the FL/CL code as follows:

5-10 Tanks not used to store liquids for 12 months shall be permanently closed by complying with the requirements of sections 2.6.4 and 2.6.5 of part 2 of these rules.

Appendix A

FORMS LIST

- EQP3858—Change of Information Form Aboveground Tanks Only (rev 03/2003)
- EQP3899—Aboveground Storage Tank System Inspection Notification Form (rev 03/2003)
- EQP3896—Internal Tank Inspection Summary (rev 03/2003)



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, WASTE AND HAZARDOUS MATERIALS DIVISION,  
 PO BOX 30241, LANSING, MI 48909-7241, Phone 517-335-4035, Fax 517-335-2245, E-mail [DEQ-STD-TANKS@michigan.gov](mailto:DEQ-STD-TANKS@michigan.gov)

**CHANGE OF INFORMATION FORM ABOVEGROUND TANKS ONLY**

*This information is required under 1941 PA 207, as amended. Any owner who knowingly fails to notify or submits false information shall be subject to a misdemeanor and/or civil penalties not to exceed \$5,000 per day for each tank for which notification is not given or for which false information is submitted.*

OWNER NAME		LOCATION NAME OR SITE IDENTIFIER		FACILITY NUMBER	
OWNER ADDRESS		FACILITY STREET ADDRESS (PO BOX NOT ACCEPTABLE)		AREA CODE & TELEPHONE NUMBER	
CITY		CITY		ZIP CODE	
STATE	ZIP CODE	STATE	ZIP CODE		
AREA CODE & TELEPHONE NUMBER		CONTACT PERSON (AT LOCATION)			
TYPE OF FACILITY <input type="checkbox"/> Flammable or Combustible Liquids Storage <input type="checkbox"/> Liquefied Petroleum Gas Storage <input type="checkbox"/> Compressed Natural Gas			TYPE OF REPORT <input type="checkbox"/> New Owner <input type="checkbox"/> Closure of Facility (All Storage) <input type="checkbox"/> Closure of Tanks <input type="checkbox"/> Tank(s) Returned to Service		

TANKS OUT OF USE OR CHANGE IN SERVICE

TANK IDENTIFICATION NUMBER	TANK #	TANK #	TANK #	TANK #	TANK #
CAPACITY OF TANK					
PRODUCT STORED					
DATE TANK WAS:	INSERT DATE IN ALL BOXES THAT APPLY				
A: REMOVED FROM PREMISES					
B: EMPTIED AND CLEANED					
C: PIPE DISCONNECTED					
D: CHANGED TO NONREGULATED SUBSTANCE					
E: RETURNED TO REGULATED STORAGE					

CERTIFICATION

**(Read and Sign After Completing ALL Sections)**

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS, AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

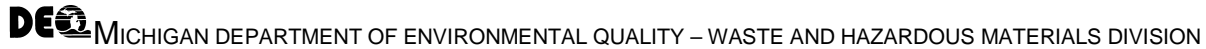
Name and Official Title of Owner or Owner's Authorized Representative (Print)	Signature	Date
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COMMENTS AND/OR CLARIFICATION TO THE STORAGE TANK UNIT STAFF:

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MAIL TO: STORAGE TANK UNIT  
WASTE AND HAZARDOUS MATERIALS DIVISION  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
PO BOX 30241  
LANSING MI 48909-7241



**ABOVEGROUND STORAGE TANK SYSTEM INSPECTION NOTIFICATION FORM**

This information is required under 1941 PA 207, as amended. Any owner who knowingly submits false information shall be subject to misdemeanor and/or civil penalties.

**SECTION I: FACILITY INFORMATION**

FACILITY NAME			FACILITY ID NUMBER
FACILITY STREET ADDRESS (PO BOX NOT ACCEPTABLE)			CONTACT PERSON
CITY	STATE	ZIP CODE	TELEPHONE NUMBER

**SECTION II: INSPECTION COMPANY INFORMATION**

NAME OF FIRM PERFORMING INSPECTION		TELEPHONE NUMBER
INSPECTION COMPANY ADDRESS		CONTACT PERSON
CITY	STATE	ZIP CODE
TYPE OF INSPECTION		TYPE OF TANK
<input type="checkbox"/> API STANDARD 653 INTERNAL INSPECTION		<input type="checkbox"/> API 650
<input type="checkbox"/> STI SP001-00 INTERNAL INSPECTION		<input type="checkbox"/> UL (UNDERWRITERS LABORATORIES LABELED )
<input type="checkbox"/> AST TANK LINER INSPECTION		<input type="checkbox"/> ASME (PRESSURE VESSEL)
		<input type="checkbox"/> OTHER

**SECTION III: TANK INSPECTION INFORMATION**

TANK IDENTIFICATION NUMBER					
CAPACITY OF TANK					
PRODUCT STORED					
INSPECTION START DATE					
INSPECTION COMPLETION DATE					

**CERTIFICATION**  
**(Read and Sign After Completing ALL Sections)**

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS, AND THAT BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Name and Official Title of Owner or Owner's Authorized Representative (Print)	Signature	Date
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COMMENTS AND/OR CLARIFICATION FOR THE STORAGE TANK UNIT STAFF:

MAIL TO: STORAGE TANK UNIT  
 WASTE AND HAZARDOUS MATERIALS DIVISION  
 DEPARTMENT OF ENVIRONMENTAL QUALITY  
 PO BOX 30241  
 LANSING MI 48909-7241

If you have questions regarding this, please contact the Storage Tank Unit,  
 Monday through Friday, between 8:00 a.m. and 5:00 p.m.  
 Phone: 517-335-4035  
 E-mail: [DEQ-STD-TANKS@michigan.gov](mailto:DEQ-STD-TANKS@michigan.gov)  
 Fax: 517-335-2245

Web Site: [www.michigan.gov/deq](http://www.michigan.gov/deq)



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY, WASTE AND HAZARDOUS MATERIALS DIVISION,**

PO BOX 30241, LANSING, MI 48909-7241, Phone 517-335-4035, Fax 517-335-2245, E-mail [DEQ-STD-TANKS@michigan.gov](mailto:DEQ-STD-TANKS@michigan.gov)

**INTERNAL TANK INSPECTION SUMMARY**

**INSTRUCTIONS:** This form is to be used for recording the summary information based on an internal tank inspection pursuant to API Standard 653, 3<sup>rd</sup> edition, and STI SP001-00, 1<sup>st</sup> edition. This is required under Part 2 of the Storage and Handling of Flammable and Combustible Liquids (FL/CL) Rules. Fill in ALL applicable data. A copy of this completed form shall be submitted to the Waste and Hazardous Materials Division within 60 days of completion of the inspection.

OWNER INFORMATION			PROJECT INFORMATION			INSPECTOR INFORMATION		
Name			Facility Name		Facility ID	Inspector Name		API Cert. # or STI Cert. #
Company Name			Site Address			Company Name		
Street Address			CITY	STATE MI	ZIP CODE	Street Address		
CITY	STATE	ZIP CODE	County			CITY	STATE	ZIP CODE
Telephone Number ( )			Tank Number Date		Construction	Telephone Number ( )		
Fax Number ( )						Fax Number ( )		

**GENERAL INSPECTION INFORMATION:**

Inspection Date: \_\_\_\_\_ Type:  External  Ultrasonic  Internal Purpose:  Scheduled  Unscheduled  Other (specify): \_\_\_\_\_

Prior Inspection Date: \_\_\_\_\_ Type:  External  Ultrasonic  Internal

**TANK SPECIFICATIONS:**

Manufacturer:	Contents:	Specific Gravity:
Dimensions:	Capacity:	Fill Height:
Product heated: <input type="checkbox"/> Yes <input type="checkbox"/> No	Maximum Operating Temperature # (F):	

**TANK CONSTRUCTION:**

1.  Bare Steel    2.  Cathodically Protected (Check one: A.  Galvanic or B.  Impressed Current) Date Installed: \_\_\_\_\_  
 3.  Coated Steel    4.  Double Bottom    5.  Double Wall    6.  Lined    7.  Other (specify): \_\_\_\_\_

Bottom: <input type="checkbox"/> Welded <input type="checkbox"/> Riveted Original Thickness: _____	<input type="checkbox"/> Leak Detection Date Installed: _____
Shell: <input type="checkbox"/> Welded <input type="checkbox"/> Riveted No. of Courses: _____	Orig. Course Thickness.: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____

Foundation:  Grade  Concrete Pad  Concrete Ringwall  Stone Ringwall  Other

Bottom Release Prevention/Detection: 1.  Impermeable Dike Liner (Description) \_\_\_\_\_  
 2.  Cathodic Protection (Date of last survey & results): \_\_\_\_\_



3.  Internal Lining (Date installed & type): \_\_\_\_\_

4.  Groundwater monitoring    5.  Vapor monitoring    6.  Interstitial monitoring

Roof: 1.  Open    2.  Fixed:  Cone  Dome  Umbrella  Other: \_\_\_\_\_

3.  Floating:  Internal  External  None

**TANK INSPECTION:**

Nondestructive Test Method: (Check where test applied)	Bottom		Shell		Roof	
	Weld	Plate	Weld	Plate	Weld	Plate
Visual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ultrasonic (Spot)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ultrasonic (Scan)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Liquid Penetrant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Penetrating Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Magnetic Particle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mag Flux Scan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vacuum Box	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tracer Gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holiday (Coatings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (Describe)						

Settlement Evaluation:  Yes  No

**INSPECTION RESULTS:**

	Bottom		Shell		Roof	
	External	Internal	External	Internal	Fixed	Floating
Min. Remaining Thickness						
Min. Required Thickness						
Max. Corrosion Rate						

Release?

Bottom:  Yes  No      Shell:  Yes  No

Settlement Within Tolerance?

Bottom (max.):  Yes  No      Differential:  Yes  No      Edge:  Yes  No      Bulges/Ridges:  Yes  No

Comments:

\_\_\_\_\_

\_\_\_\_\_

**REPAIR SUMMARY:** (Include description, date completed, and date of post-repair inspection)

Foundation:

\_\_\_\_\_

Bottom:

\_\_\_\_\_

Shell:

\_\_\_\_\_

Roof:

\_\_\_\_\_

Appurtenances:

\_\_\_\_\_

Hydrostatic test required?:  Yes  No

Test date: \_\_\_\_\_

Results:

\_\_\_\_\_

**INSPECTION SCHEDULE:** (Supporting calculations shall be available for review upon request)

External (ultrasonic):

Corrosion rate known?:  Yes  No

(Year) #1: \_\_\_\_\_ #2: \_\_\_\_\_ #3: \_\_\_\_\_ #4: \_\_\_\_\_ #5: \_\_\_\_\_

External (visual):

(Year) #1: \_\_\_\_\_ #2: \_\_\_\_\_ #3: \_\_\_\_\_ #4: \_\_\_\_\_ #5: \_\_\_\_\_

Internal: (Year) \_\_\_\_\_

**CERTIFICATION**

**I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS FORM AND ALL ATTACHED DOCUMENTS AND THAT I HAVE VERIFIED THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.**

API 653 INSPECTOR or STI INSPECTOR

SIGNATURE

DATE

If you have questions regarding this form, please contact the Storage Tank Unit, Monday through Friday, between 8:00 a.m. and 5:00 p.m.

Phone: 517-335-4035

Fax: 517-335-2245

E-mail: [DEQ-STD-TANKS@michigan.gov](mailto:DEQ-STD-TANKS@michigan.gov)

Web Site: [www.michigan.gov/deq](http://www.michigan.gov/deq)

History: 2003 AACs.