

ARTICLE XXI

CHEMICAL BULK STORAGE

PART A

RELEASE OF HAZARDOUS SUBSTANCES

Part A of this Article shall consist of Sections 21.1.0 through 21.7.0.

21.1.0 - Declaration Of Policy

The purpose of this Part is to set forth requirements for the reporting of releases.

21.2.0 - Applicability

This Part applies to the release of hazardous substances listed in Tables 1 and 2 of 6 NYCRR Part 597. This Part does not apply to releases of petroleum or hazardous wastes.

21.3.0 - Definitions

The following terms and definitions shall apply to this Part:

21.3.1 Ancillary Equipment

The term "**ancillary equipment**" means any device including, but not limited to, piping, fittings, fixtures, gauges, alarms, rupture disks, pressure release valves, flanges, or valves and pumps that are used to distribute, meter or control the flow of hazardous substances to or from a storage tank.

21.3.2 Authorization

The term "**authorization**" means the possession, where required, of a valid license, permit or certificate issued by the Rockland County Department of Health or an agency of the state of New York or the federal government or an order issued by the commissioner or the administrator of the federal environmental protection agency under applicable statutes, rules or regulations regarding the possession or release of hazardous substances or otherwise engaging in conduct which is exempt under applicable statutes, rules or regulations from the requirements of possessing such a license, permit, certificate or order.

21.3.3 Continuous

The term "**continuous**" when referring to a release means a release which occurs without interruption or abatement or that is routine, anticipated, and intermittent and incidental to normal operations.

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21.3.4 **Department**

The term "**department**" means the Rockland County Department of Health (DOH).

21.3.5 **Environment**

The term "**environment**" means any water, water vapor, any land including land surface or subsurface, air, fish, wildlife, biota and all other natural resources.

21.3.6 **Hazardous Substance**

The term "**hazardous substance**" means any substance listed as a hazardous substance in 6 NYCRR Part 597 or a mixture thereof. Petroleum as defined in Subsection 21.20.7 of this Article and hazardous wastes as identified or listed in 6 NYCRR Part 371 are not hazardous substances for the purposes of this Part.

21.3.7 **Mixture**

The term "**mixture**" means a heterogeneous association of substances where the various individual substances retain their essential original properties. The term "mixture" includes solutions (but does not include alloys or amalgams) where one or more active ingredients are hazardous substances. Mixtures regulated under this Part are mixtures which contain a hazardous substance, or combination thereof, in quantities of one percent or more by volume or weight.

21.3.8 **Operator**

The term "**operator**" means any person who is responsible for the overall daily operation of a storage facility.

21.3.9 **Overfill**

The term "**overfill**" means a release or spill that occurs when a storage tank is filled beyond its capacity.

21.3.10 **Owner**

The term "**owner**" means any person who owns a storage tank system.

21.3.11 **Person**

The term "**person**" means any individual, public or private corporation, political subdivision, state or federal government agency, municipality, copartnership, association, firm, trust, estate or other legal entity.

21.3.12 Release

The term "**release**" means any unauthorized pumping, pouring, emitting, emptying, overfilling, spilling, leaking, leaching or disposing, directly or indirectly, of a hazardous substance or any other substance which results in the formation of a hazardous substance upon release so that the substance or any related constituent thereof, or any degradation product of such a substance or of a related constituent thereof, may enter the environment.

21.3.13 Reportable Quantity

The term "**reportable quantity**" means the amount of a hazardous substance that must be reported to the department in the event of a release, spill or overfill. The reportable quantity for mixtures is the amount of the hazardous substance components of a mixture. Reportable quantities are listed in 6 NYCRR Part 597.

21.3.14 Secondary Containment

The term "**secondary containment**" means containment which prevents any material released from reaching the land or water outside the containment area before clean-up occurs.

21.3.15 Site or Single Contiguous Site

The term "**site**" or "**single contiguous site**" means an unbroken tract or abutting tracts of land upon which is located one or more storage tank systems. Land under one ownership which is divided only by a highway or right-of-way corridor is considered to be a single contiguous site.

21.3.16 Spill or Spillage

The term "**spill**" or "**spillage**" means any escape of a substance from the containers employed in the normal course of storage, transfer, processing or use.

21.3.17 Stable In Quantity And Rate

The term "**stable in quantity and rate**" means a release which is predictable and regular in the amount and rate of emission.

21.3.18 Storage Facility or Facility

The term "**storage facility**" or "**facility**" means a site which has one or more storage tank systems.

21.3.19 Storage Tank System or Storage Tank

The term "**storage tank system**" or "**storage tank**" means an aboveground tank, an underground tank or a non-stationary tank, and any associated piping, lines, dikes, curbs, transfer stations, and ancillary equipment.

21.3.20 **Tank**

The term "**tank**" means a container or other holding vessel designed to store a hazardous substance which is constructed of non-earthen materials (e.g., concrete, steel, plastic) which provide structural support.

21.3.21 **Unavoidable Accident**

The term "**unavoidable accident**" means an accident that occurs notwithstanding the exercise of due care and reasonable diligence, and which could not have been prevented by the due exercise of such care and diligence.

21.3.22 **Waters or Waters Of The County**

the term "**waters**" or "**waters of the county**" shall include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, within the territorial limits of the County of Rockland and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the County or within its jurisdiction.

21.4.0 - Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of the Part and the application of that provision to other persons or circumstances shall not be affected.

21.5.0 - References

The citation used in this part refers to Title 40 of the Code of Federal Regulations, Section 302.8 of Part 302 entitled "Designation, Reportable Quantities And Notification", July 1, 1991. This publication is available for inspection at the Department of Environmental Conservation, 50 Wolf Road, Albany, New York 12233-3520.

21.6.0 - Prohibition Of Releases

21.6.1 The release of a hazardous substance which is required to be reported pursuant to Subsection 21.7.1 of this Article is prohibited unless such release is pursuant to a valid state or federal permit or authorization.

21.6.2 This section shall not apply to releases that were the result of an unavoidable accident or to releases to the air that are continuous and stable and which have been reported pursuant to Subsection 21.7.1.7 of this Article.

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- 21.6.3 In any enforcement proceeding brought pursuant to this section, the respondent shall have the burden of establishing that a release was the result of an unavoidable accident.
- 21.6.4 Any person who violates the provisions of Section 21.6.0 shall be liable for the civil and administrative penalties set forth in ECL § 71-3703 and the criminal penalties set forth in ECL § 71-4001 and Article 71, Title 27.

21.7.0 - Release Reporting

21.7.1 Reporting Of Releases

- 21.7.1.1 The reporting requirements of this section apply to the following persons:
 - 21.7.1.1.1 An owner or operator;
 - 21.7.1.1.2 Any person in a contractual relationship with an owner or operator who inspects, tests or repairs any portion of a storage facility which is or was used for the storage of hazardous substances;
 - 21.7.1.1.3 Any person in actual or constructive control or possession of a hazardous substance prior to its release; and
 - 21.7.1.1.4 Any employee, agent or representative of Subsections 21.7.1.1.1 through 21.7.1.1.3 above who has knowledge of a release.
- 21.7.1.2 The persons listed in Subsection 21.7.1.1 must report the release of a reportable quantity of a hazardous substance, or, if any of the following conditions exist, the release of a lesser quantity of a hazardous substance:
 - 21.7.1.2.1 Such release results, or may reasonably be expected to result, in a fire with potential off-site impacts;
 - 21.7.1.2.2 Such release causes, or may reasonably be expected to cause, an explosion;
 - 21.7.1.2.3 Such release causes, or may reasonably be expected to cause, a contravention of air quality standards;
 - 21.7.1.2.4 Such release results, or may reasonably be expected to result, in vapors, dust and/or gases that may cause illness or injury to persons, not including persons in a building at the facility where a release originates; or

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- 21.7.1.2.5 Runoff from fire control or dilution waters may cause or contribute to a contravention of water quality standards.
- 21.7.1.2.6 All reports of releases must be made to the DEC spills hotline (800-457-7362); outside New York State: (518-457-7362) and the DOH (845-364-2580) within two hours of the release.
- 21.7.1.3 Notwithstanding the provisions of Subsections 21.7.1.1 and 21.7.1.2, employees of storage facilities may report releases pursuant to a facility-specific centralized reporting protocol, provided that such reporting protocol is in writing and has been incorporated into the facility's spill prevention report prepared pursuant to Subsection 21.23.11 of this Article. Independent consultants and contractors are not considered to be employees of the facility for the purposes of this section.
- 21.7.1.4 Notwithstanding the provisions of Subsection 21.7.1.1, a spill or overflow of a reportable quantity of a hazardous substance to a secondary containment system does not have to be reported within 2 hours if all the following conditions are met:
 - 21.7.1.4.1 The secondary containment system meets the requirements of Sections 21.40.0 and 21.48.0 of this Article;
 - 21.7.1.4.2 There is control over the spill or overflow, and it is completely contained within 24 hours; and
 - 21.7.1.4.3 The total volume of the spill or overflow is recovered or accounted for.
- 21.7.1.5 In the event that the spill or overflow is not completely contained within 24 hours, or its total volume is not accounted for within that time, such spill or overflow must be reported within 24 hours of its occurrence. If the secondary containment system does not prevent a reportable quantity of the hazardous substance from reaching the environment, the spill or overflow must be reported at the time the substance reaches the environment, but in no event later than 24 hours from the time of the spill or overflow.
- 21.7.1.6 Spills or overflows to a secondary containment system that result in any of the conditions listed in Subsection 21.7.1.2 must be reported within 2 hours as provided in Subsection 21.7.1.2.
- 21.7.1.7 Reporting is not required for a release that is continuous and stable in quantity and rate, provided that written notification which meets the requirements of 40 CFR Section 302.8 has been provided to the department. (See Subsection 21.23.11 of this Article.)

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21.7.2 Reporting Of Suspected Or Probable Spills

21.7.2.1 The owner or operator of a storage facility shall notify the Department of a suspected or probable release of a hazardous substance unless an investigation shows that a release has not occurred or does not need to be reported under Section 21.7.1. Reports must be made to the DEC hotline and the DOH within 24 hours of discovery of any of the following conditions:

21.7.2.1.1 Test, sampling, or monitoring results from a release detection method that indicates a release may have occurred;

21.7.2.1.2 Unusual operating conditions such as the erratic behavior of product dispensing equipment, the sudden loss of product from a storage tank, an unexpected presence of water in a tank, or the physical presence of a hazardous substance or an unusual level of vapors on a site that are of unknown origin;

21.7.2.1.3 Impacts in the surrounding area, such as evidence of hazardous substances or resulting vapors in soils, basements, sewer and utility lines, and nearby surface waters; or

21.7.2.1.4 Any other conditions or indications of a suspected release.

21.7.3 If within 24 hours of the discovery of a suspected release it is confirmed that a release has not occurred, then such release does not have to be reported.

21.7.4 The provisions of Section 21.7.1 above do not apply to carriers and transporters as that term is defined in 17 NYCRR Section 507.4. Carriers and transporters must report incidents required to be reported under 17 NYCRR Section 507.4 to the Department as well within the timeframes set forth in 17 NYCRR Section 507.4.

21.7.5 Enforcement Of Section 21.7.0

21.7.5.1 For facilities regulated pursuant to Part B of this Article, failure to report a release of a reportable quantity of a hazardous substance is punishable by the civil, administrative and criminal penalties set forth in ECL § 71-4303. Failure to report a release of less than a reportable quantity is punishable by the civil and administrative penalties set forth in ECL § 71-3703 and by the criminal penalties set forth in ECL §§ 71-1943 and 71-4001.

21.7.5.2 For all other facilities and persons, failure to report a release is punishable by the civil and administrative penalties set forth in ECL § 71-3703 and the criminal penalties set forth in ECL §§ 71-1943 and 71-4001.

PART B
HAZARDOUS SUBSTANCES BULK STORAGE REGULATIONS

Part B of this Article shall consist of Sections 21.8.0 through 21.19.0.

21.8.0 - Declaration Of Policy

The purpose of this Part is to regulate hazardous substances in order to protect the public health, safety and welfare, and the lands, waters, air and environment of the County. This Part sets forth requirements for registration of storage tanks which contain hazardous substances and requirements for the sale and delivery of hazardous substances.

21.9.0 - Applicability

- 21.9.1 This part applies to a storage facility which has one or more of the following:
- 21.9.1.1 An aboveground tank storing a hazardous substance, or mixture thereof, with a capacity of one-hundred and eighty-five (185) gallons or greater;
 - 21.9.1.2 An underground tank storing a hazardous substance or mixture thereof of any capacity; or
 - 21.9.1.3 A non-stationary tank used to store one thousand (1,000) kilograms (2,200 lbs.) or more of a hazardous substance or mixture thereof for a period of ninety (90) consecutive days or more.
- 21.9.2 Any tank identified in sections 21.9.1.1 though 21.9.1.3 above which has not been permanently closed is regulated by this Part.
- 21.9.3 This Part does not apply to:
- 21.9.3.1 Process tanks;
 - 21.9.3.2 Assembly line tanks and accessory equipment the volume of which is more than ninety (90) percent above the surface of the ground;
 - 21.9.3.3 A non-stationary tank, barrel, drum, or other holding vessel unless used to store one thousand (1000) kilograms (2200 lbs) or more for a period of ninety (90) consecutive days or more;
 - 21.9.3.4 A septic tank, storm water or wastewater collection system;
 - 21.9.3.5 Capacitors or transformers;
 - 21.9.3.6 Any aboveground storage tank on an operating farm used solely to store or contain a hazardous substance which will be used for agricultural purposes on such farm;

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- 21.9.3.7 Storage tanks related to liquid petroleum pipeline corporations (Public Service Law, Article 3-C);
- 21.9.3.8 Storage tanks regulated under Article 23, Title 17 of the Environmental Conservation Law (ECL), (Liquefied Natural and Petroleum Gas Act);
- 21.9.3.9 Storage tanks regulated under Article 27, Title 7 of the ECL (Solid Waste Management and Resource Recovery Facilities);
- 21.9.3.10 Storage tanks regulated under Article 27, Title 9 of the ECL (Industrial Hazardous Waste Management);
- 21.9.3.11 Storage tanks regulated under Article 27, Title 11 of the ECL (Industrial Siting Hazardous Waste Facilities);
- 21.9.3.12 Storage tanks regulated under the Natural Gas Pipeline Safety Act of 1968 as set forth in ECL section 40-0103.2;
- 21.9.3.13 Storage tanks regulated under the Hazardous Liquid Pipeline Safety Act of 1979 as set forth in ECL section 40-0103.3;
- 21.9.3.14 Storage tanks regulated under the Natural Gas Act as set forth in ECL section 40-0103.4;
- 21.9.3.15 Storage tanks regulated under the Atomic Energy Act of 1954 as set forth in ECL section 40-0103.7; and
- 21.9.3.16 Storage tanks regulated under Article 12 of the Navigation Law or ECL Article 17, Title 10 (Petroleum Bulk Storage Act).

21.10.0 - Definitions

The following is a list of terms and definitions which will be used in this Part:

21.10.1 Aboveground Tank

The term "**aboveground tank**" means any stationary tank with a capacity of 185 gallons or more which is not entirely covered with earth or other backfill material, or any stationary tank with a capacity of 185 gallons or more which can be inspected in a subterranean vault.

21.10.2 Ancillary Equipment

The term "**ancillary equipment**" means any device including, but not limited to, hoses, piping, fittings, fixtures, gages, alarms, rupture disks, pressure release valves, flanges, or valves and pumps that are used to distribute, meter or control the flow of a hazardous substance to and from a storage tank.

21.10.3 **Assembly Line Tanks**

The term "**assembly line tanks**" are tanks used for the production of a manufactured product. Examples of such tanks include dispensing vats, weigh tanks or volumetric measuring devices, metal cleaning dip tanks, electroplating tanks and cutting fluid reservoirs.

21.10.4 **Authorization**

The term "**authorization**" means the possession, where required, of a valid license, permit or certificate issued by the County of Rockland, an agency of the State of New York, or the federal government or an order issued by the commissioner or the administrator of the Federal Environmental Protection Agency under applicable statutes, rules or regulations regarding the possession or release of hazardous substances or engagement in conduct which is exempt under applicable statutes, rules or regulations from the requirements of possessing such a license, permit, certificate or order.

21.10.5 **Best Management Practice Plans or BMPs**

The terms "**best management practice plans**", or "**BMP's**", are plans designed to prevent or minimize the release of hazardous substances into the environment. BMP's can include, but are not limited to, spill reporting procedures, risk identification and assessment, employee training, inspections and records, preventive maintenance, good housekeeping, materials compatibility, structural measures and security.

21.10.6 **Capacity**

The term "**capacity**" refers to the total volume of the tank measured in U.S. gallons, unless otherwise specified.

21.10.7 **Carrier**

The term "**carrier**" means a person who transports and transfers hazardous substances from one pipe or tank to another.

21.10.8 **Cathodic Protection**

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

21.10.9 **Change-In-Service**

The term "**change-in-service**" means the material stored within a tank is switched from a hazardous substance to a non-hazardous substance, a non-hazardous substance to a hazardous substance or from one hazardous substance to another.

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21.10.10 **Compatible**

The term "**compatible**" means the ability of two or more materials to maintain their respective physical and chemical properties upon contact with one another under conditions likely to be encountered for the design life of the tank system.

21.10.11 **Continuous**

The term "**continuous**" when referring to a release means a release that occurs without interruption or abatement or that is routine, anticipated, and intermittent and incidental to normal operations.

21.10.12 **Department**

The term "**department**" means the Rockland County Department of Health (DOH).

21.10.13 **Design Pressure**

The term "**design pressure**" means the internal pressure at which the weakest element of the vessel is loaded to the ultimate permissible point. Also, the pressure used in the design of the vessel.

21.10.14 **Dielectric Material**

The term "**dielectric material**" means a material that is a nonconductor of direct electrical current.

21.10.15 **Environment**

The term "**environment**" means any water, water vapor, land including land surface or subsurface, air, fish, wildlife, biota and all other natural resources.

21.10.16 **Existing Storage Tank**

The term "**existing storage tank**" means a storage tank which has been constructed and is capable of being operated as of the effective date of these regulations.

21.10.17 **Flammable**

The term "**flammable**" means a substance having a flash point below 100°F (37.8°C) and having a vapor pressure not exceeding 40 pounds per square inch (absolute) (2,068 mm Hg) at 100°F (37.8°C).

21.10.18 **Flash Point**

The term "**flash point**" means the temperature at which a liquid or volatile solid gives off vapor sufficient to form an ignitable mixture with air near the surface of the liquid or solid.

21.10.19 **Hazardous Substance**

The term "**hazardous substance**" means any substance listed as hazardous or acutely hazardous in 6 NYCRR Part 597, or a mixture thereof. Petroleum as defined in Subsection 21.20.7 of this Article and hazardous wastes as identified or listed in 6 NYCRR Part 371 are not hazardous substances under this definition.

21.10.20 **Incompatible**

The term "**incompatible**" means those substances or materials which if allowed to come in contact, may pose an adverse environmental impact such as releasing a toxic gas or vapor, causing or intensifying a fire, creating an explosion, or causing any other adverse reaction which may threaten human health, safety, welfare or the environment.

21.10.21 **Lining**

The term "**lining**" means a coating of a non-corrodible material resistant to the product stored and bonded firmly to the interior surface of the tank.

21.10.22 **Liquid**

The term "**liquid**" means a fluid which is in a state of matter intermediate between gaseous and solid. Such fluids flow immediately when stressed, the rate of flow being directly proportional to the stress.

21.10.23 **Mixture**

The term "**mixture**" means a heterogeneous association of substances where the various individual substances retain their essential original properties. The term "mixture" includes solutions (but does not include alloys or amalgams) where one or more active ingredients are hazardous substances. Mixtures are regulated if they contain one (1) percent or more by volume or weight of at least one hazardous substance.

21.10.24 **New Storage Tank**

The term "**new storage tank**" means a tank which is not an existing storage tank.

21.10.25 **Non-Stationary Tank**

The term "**non-stationary tank**" means any tank, barrel, drum or other holding vessel which is mobile in design or practice and which is used to store 1,000 kilograms (2,200 lbs) or more of a hazardous substance, or mixture thereof, for a period of 90 consecutive days or more. This includes tanks on wheels, trolleys, skids, pallets and rollers.

21.10.26 **Operating Pressure**

The term "**operating pressure**" means the pressure at which the vessel is normally operated.

21.10.27 **Operator**

The term "**operator**" means any person who is responsible for the overall daily operation of a storage facility.

21.10.28 **Out-Of-Service**

The term "**out-of-service**" means a storage tank which was used for the storage of hazardous substances or mixtures thereof but is no longer used for that purpose. Tanks which are used for seasonal storage, for surcharge storage, or for standby storage are not considered out-of-service.

21.10.29 **Overfill**

The term "**overfill**" means a release or spill that occurs when a storage tank is filled beyond its capacity.

21.10.30 **Owner**

The term "**owner**" means any person who owns a storage tank system. When reference is made to owner and operator, and the owner and operator are separate persons, only one person is required to comply with the applicable provision; however, both parties are liable in the event of non-compliance.

21.10.31 **Permanently Closed**

The term "**permanently closed**" means an out-of-service tank which has been emptied of all product and residual materials, cleaned, rendered free of any hazardous or flammable vapors, disconnected from any process or dispensing units and closed or converted to another purpose consistent with department standards for closure as outlined in Section 21.32.0 of this Article.

21.10.32 **Person**

The term "**person**" means any individual, public or private corporation, political subdivision, government agency, municipality, industry, co-partnership, association, firm, trust, estate or any other legal entity.

21.10.33 **Piping or Piping System**

The terms "**piping**" or "**piping system**" means a fixed or permanent pipe including attached equipment and components used to convey, distribute, mix, separate, discharge, meter, control, or stop the flow of a hazardous substance to or from a storage tank.

21.10.34 **Pressure Relief Valve**

The term "**pressure relief valve**" means a device which is designed to prevent excessive internal pressure or vacuum, and is characterized by rapid opening (pop action) or by opening in proportion to the increase in pressure over the opening pressure, depending on application.

21.10.35 **Process Tank**

The term "**process tank**" is a vessel or other equipment used to mix or physically, chemically or biologically change a hazardous substance. The term process tank does not include tanks used to store hazardous substances prior to their introduction into the process, or tanks used to store substances as intermediates, by-products or finished products of the process. Examples of process tanks include, but are not limited to, flow-through chemical reactor tanks, batch tanks and mixing hoppers. Feed tanks upstream of the process are considered storage tanks for the purposes of these regulations.

21.10.36 **PSIG and PSIA**

The term "**PSIG**" and "**PSIA**" refer to pounds per square inch gage and pounds per square inch absolute, respectively.

21.10.37 **Qualified, Qualified Engineer, Qualified Technician or Qualified Inspector**

The term "**qualified**", "**qualified engineer**", "**qualified technician**" or "**qualified inspector**" means a person who has knowledge of the physical sciences, technology or the principles of engineering and mathematics acquired by education and/or related practical experience, and is competent to engage in the practice so required. Engineers engaged in the practice of engineering must be licensed or otherwise permitted to practice engineering pursuant to Article 145 of the State Education Law.

21.10.38 **Release**

The term "**release**" means any unauthorized pumping, pouring, emitting, emptying, overfilling, spilling, leaking, leaching or disposing, directly or indirectly, of a hazardous substance, or any other substance which results in the formation of a hazardous substance upon release so that the substance or any related constituent thereof, or any degradation product of such a substance or of a related constituent thereof, may enter the environment.

21.10.39 **Repair**

The term "**repair**" means the work necessary to restore a storage tank or component to a safe and satisfactory operating condition provided that in all cases the storage tank or component design must continue to comply with the requirements herein, that special service requirements do not restrict such work, and the basic design concept is not altered.

21.10.40 **Reportable Quantity**

The term "**reportable quantity**" means the amount of a hazardous substance that must be reported to the department in the event of a release, spill or overflow. The reportable quantity for mixtures is the amount of the hazardous substance components of a mixture. Reportable quantities are listed in 6 NYCRR Part 597.

21.10.41 **Secondary Containment**

The term "**secondary containment**" means a dike, remote impoundment, or any other containment area which protects a tank, pipe or transfer station from damage due to vehicle traffic, fire exposure, spills from nearby tanks and which prevents any material spilled or released from reaching the land or water outside the containment area before clean-up occurs.

21.10.42 **Site or Single Contiguous Site**

The terms "**site**" or "**single contiguous site**" means an unbroken tract or abutting tracts of land upon which is located one or more storage tank systems. Land under one ownership or control which is divided only by a highway or right-of-way corridor is considered to be a single contiguous site.

21.10.43 **Spill or Spillage**

The term "**spill**" or "**spillage**" means any escape of a substance from the containers employed in the normal course of storage, transfer, processing or use.

21.10.44 **Spill Prevention Report or SPR**

The terms "**spill prevention report**" or "**SPR**" means a report which is prepared pursuant to the requirements of Subsection 21.23.11 of this Article.

21.10.45 **Stable In Quantity And Rate**

The term "**stable in quantity and rate**" means a release that is predictable and regular in amount and rate of emission.

21.10.46 **Stationary Tank**

The term "**stationary tank**" means any underground tank and any aboveground tank which is stationary in either practice or design. Examples of stationary aboveground tanks include tanks which may rest on the ground or may be in permanent operation or fixed permanently in place on foundations, racks, cradles, or stilts. A stationary tank includes any aboveground container, barrel, tank car, drum or other holding vessel with a capacity of 185 gallons or more that is connected to piping for a period of ninety (90) days or more.

21.10.47 **Storage Facility, Bulk Storage Facility, or Facility**

The terms "**storage facility**", "**bulk storage facility**", or "**facility**" means a site which has one or more storage tank systems.

21.10.48 **Storage Tank System or Storage Tank**

The terms "**storage tank system**" or "**storage tank**" means an aboveground tank, an underground tank or a non-stationary tank, and any associated piping, lines, dikes, curbs, transfer stations and ancillary equipment.

21.10.49 **Substantially Modified**

The term "**substantially modified**" means an existing storage facility that is modified in one or more of the following ways:

21.10.49.1 A new stationary tank is added to the site;

21.10.49.2 An existing stationary tank is replaced, reconditioned or permanently closed; or

21.10.49.3 A leaking tank is replaced, repaired, or permanently closed.

The repair, replacement or installation of the piping system or ancillary equipment is not considered a substantial modification unless such repair, replacement or installation is due to a release reportable under Section 21.6.0 of this Article.

21.10.50 **Tank**

The term "**tank**" means a container or other holding vessel designed to store a hazardous substance which is constructed of non-earthen materials (e.g., concrete, steel, plastic) which provide structural support.

21.10.51 **Tightness Test**

The term "**tightness test**" means a test on any underground or aboveground tank, piping system or ancillary equipment which is performed in a manner consistent with the criteria set forth in Subsection 21.28.5 of this Article.

21.10.52 **Transfer**

The term "**transfer**" means the movement of a hazardous substance between a storage tank and another tank or container, as contrasted to feeding to a use or application device.

21.10.53 **Transfer Station**

The term "**transfer station**" refers to an area where pipes or hoses are connected and disconnected for the purpose of emptying and filling a storage tank. This includes, but is not limited to, railways, roads, containment basins,

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curbs, collection sumps, and impervious pads, where a vehicle or container is located to off-load or receive a hazardous substance, where a coupling to a transfer line is made for the purpose of hazardous substance transfer, or where a system to collect and contain spills resulting from transfer operations is located.

21.10.54 Underground Storage Tank

The term "**underground storage tank**" means any tank or other vessel used for the storage of a hazardous substance which is completely covered with earth or other backfill material. Tanks in subterranean vaults accessible for visual inspection are considered aboveground tanks for the purposes of these regulations.

21.10.55 Unstable Liquid

The term "**unstable liquid**" means a liquid which will vigorously polymerize, decompose, undergo condensation reaction or become self-reactive under conditions of shock, changes in pressure or changes in temperature.

21.10.56 Waters or Waters Of The County

The term "**waters**" or "**waters of the county**" shall include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals within the territorial limits of the County of Rockland, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the County or within its jurisdiction.

21.10.57 Working Capacity

The term "**working capacity**" means the total capacity of a storage tank less an allowance for expansion and freeboard.

21.11.0 - Severability

If any provisions of this Part or its application to any person or circumstances is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances shall not be affected.

21.12.0 - Access To Records And Storage Tanks

21.12.1 Any designated officer or employee of the department may:

21.12.1.1 Have the right of entry to, upon, or through any site containing a storage tank system in which a hazardous substance is stored or on which records are required to be maintained during normal business hours or at any other time during which regulated activity

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is reasonably believed to be occurring. Such entry shall be accomplished with the minimum disruption to business operations occurring at such site;

- 21.12.1.2 Have access to and copy any records required to be maintained;
 - 21.12.1.3 Inspect any equipment, practice or method which is required by the provisions of this Part; and
 - 21.12.1.4 Have access to and inspect any monitoring stations or conduct tests or take samples to identify any actual or suspected release of a hazardous substance resulting from the operation of the storage facility, including the right to take split samples.
- 21.12.2 Except as provided in Subsection 21.12.3 below, inspections shall be limited to a neutral regulatory scheme which shall consider the following factors:
- 21.12.2.1 Potential environmental harm of the regulated activity;
 - 21.12.2.2 Complexity of the regulated activity and the time needed to determine compliance;
 - 21.12.2.3 Specific federal, state or county inspection requirements;
 - 21.12.2.4 Noncompliance history of the facility or operator involved;
 - 21.12.2.5 Existence of or the need for permits or other authorizations;
 - 21.12.2.6 Information received of noncompliance; and
 - 21.12.2.7 Self-reporting violations or releases that warrant a response by the department.
- 21.12.3 In addition to the provisions of Subsection 21.12.2 above, the department may conduct inspections when:
- 21.12.3.1 A permit, license or order authorizes more frequent access;
 - 21.12.3.2 The department has a reasonable basis to determine access is warranted in order to make a compliance determination;
 - 21.12.3.3 Prior inspections indicate a history of or potential for noncompliance at the individual site.
- 21.12.4 Any person storing a hazardous substance may be required to furnish the department with information on the storage facility, repairs or replacements, hazardous substances stored, storage and handling practices, results of tests, monitoring and inspections, and the nature and extent of research concerning the effects of such substance on human health and the environment.

21.13.0 - Confidentiality

Any person submitting information to the department pursuant to this Part may, at the time of submission, request that the department exempt such information from disclosure under paragraph (2)(d) of section 87 of the Public Officers Law. All requests under this section must be made in accordance with the provisions of section 616.7 of 6 NYCRR and all determinations will be made pursuant to that section.

21.14.0 - Enforcement

Any person who violates any of the provisions of this Part, or any order issued by the commissioner, shall be liable for the civil, administrative and criminal penalties set forth in Article 71 of the Environmental Conservation Law.

21.15.0 - Registration Of Stationary Storage Tanks

21.15.1 Existing Storage Tanks

21.15.1.1 By July 15, 1989, the owner of any stationary storage tank regulated by this Part must register each storage tank with the department. Registration is required for any tank storing a hazardous substance which has the following total capacity:

<i>Type of Storage Tank</i>	<i>Total Capacity of Storage Tank</i>
Aboveground stationary storage tank	185 gallons or greater
Underground storage tank	Any size

21.15.1.2 Registration is required for out-of-service storage tanks which have not been permanently closed.

21.15.1.3 Registration must be renewed every two (2) years from the date of the last valid registration until the Department receives written notice that the storage tank has been permanently closed or that ownership of the storage tank has been transferred.

21.15.2 Application Forms

21.15.2.1 All storage tanks at a facility must be registered together on an application form provided by the Department unless an alternative means of registration is approved by the Department. Forms are available at the Department office, or by writing the Rockland County Department of Health, Division of Environmental Health, 50 Sanatorium Road, Pomona, New York, 10970.

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21.15.2.2 An application submitted by a corporation must be signed by a principal executive officer of at least the level of vice-president or a duly authorized representative. An application submitted by a partnership or a sole proprietorship must be signed by a general partner or the proprietor. An application submitted by a municipal, state or other public facility must be signed by either a principal executive officer, ranking elected official or other duly authorized employee.

21.15.3 Transfer Of Ownership

If ownership of the storage tank changes, the new owner must re-register the storage tank with the Department at least thirty (30) days prior to the transfer of ownership.

21.15.4 Registration Of New Facilities

Stationary tanks at new sites must be registered with the Department three (3) business days prior to installation unless the new storage tank or tanks are installed on an emergency basis to protect public health, safety or the environment. When an emergency installation occurs, the Department must be notified no later than two (2) hours after the decision is made by the owner or operator to install the new tank.

21.15.5 Change Of Substance

The owner or operator must keep accurate records of any changes in the type of hazardous substances stored in the tank and must provide the Department this information when registration is renewed every two (2) years.

21.15.6 Substantially Modified Storage Facilities

Prior to substantially modifying a storage facility, the owner must notify the Department of such modification. Notification should be made on forms supplied by the Department. Notification must include the dates substantial modification will begin and end and must be given to the Department three (3) business days prior to modification unless immediate action is required to protect public health, safety or the environment or immediate equipment replacement, reconditioning or repair is necessary to keep the facility operating. When such circumstances exist, the Department must be notified no later than two (2) hours after the decision is made by the owner or operator to substantially modify the storage facility.

21.15.7 Registration Certificate

Upon submittal of a complete registration application and payment of the registration fee, the Department shall issue a validated registration certificate. The operator must at all times conspicuously display a current and valid temporary or permanent certificate either at the tank, at the entrance to the site or at the main office at the site where the storage tanks are located.

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21.15.8 Identification Numbers On Stationary Storage Tanks

Within thirty (30) days following receipt of a validated registration certificate, or whenever there is a change in the hazardous substance contained in the storage tank, the owner must clearly mark or label each storage tank or fill port (where the tank is underground), with the following information:

- 21.15.8.1 Tank identification number as shown on the registration certificate;
- 21.15.8.2 Chemical name or common name if the chemical name is not appropriate for the substance stored;
- 21.15.8.3 Total capacity and working capacity of tank; and
- 21.15.8.4 Warning signs required by 9 NYCRR Section 1174.1(h) of the New York State Uniform Fire Prevention and Building Code shall be posted.

21.16.0 - Registration Of Non-Stationary Storage Tanks

(Reserved)

21.17.0 - Registration Fees For Stationary Tanks

21.17.1 For the first two hundred and fifty (250) stationary storage tanks at the site, the owner must submit with each application for registration, re-registration or renewal, a two-year fee as follows:

<i>Total Capacity Per Tank</i>	<i>2 Year Fee</i>
Less than or equal to 550 gallons	\$ 50 per storage tank
551 - 1,100 gallon	\$100 per storage tank
Greater than 1,100 gallons	\$125 per storage tank

21.17.1.1 The above fee schedule shall apply to the largest 250 tanks at the site. For each additional stationary tank over two hundred and fifty (250) tanks at the site, the fee is as follows:

<i>Total Capacity Per Tank</i>	<i>2 Year Fee</i>
Less than or equal to 550 gallons	\$ 50 per storage tank
551 - 1,100 gallon	\$ 75 per storage tank
Greater than 1,100 gallons	\$ 75 per storage tank

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21.17.1.2 In no case shall the registration fee charged for all storage tanks located at a single continuous site exceed fifty thousand dollars (\$50,000).

21.17.2 Fee For Substantial Modification

No fee is required for notifications of substantial modifications provided to the Department as required in Section 21.15.6 of this Part, or for updating the information contained in the Department's tank registry.

21.18.0 - Sale Of Hazardous Substances

21.18.1 Requirements For Distribution

21.18.1.1 Commencing one (1) year after the effective date of these regulations, the manufacturer or distributor of a hazardous substance must provide the owner or operator of a storage tank who purchases such substance with technical guidance and recommended practices for the storage and handling of such substance. Guidance and recommended practices shall be kept on file by the owner or operator at the site where the storage tank(s) is located.

21.18.1.2 The manufacturer or distributor of a hazardous substance shall insure that the owner or operator of a storage tank who purchases such substance receives technical guidance and recommended practices for storage and handling with the initial shipment and with the first shipment after the technical guidance and recommended practices for storage and handling has been updated or revised. Recommended practices and technical guidance shall also be provided when a new hazardous substance is shipped to a site.

21.18.1.3 Sales of hazardous substances which do not satisfy the requirements of this section are prohibited.

21.18.2 Contents Of Technical Guidance And Recommended Practices

Technical guidance and recommended practices for the proper handling and storage of a hazardous substance does not need to be a site-specific engineering design nor is it intended to be a site-specific engineering assessment of the need for proper storage and handling. However, it must identify or reference industry standards and include recommended practices, procedures, precautions and advice. Technical guidance must consist of the following minimum information relating to the substance to be stored:

21.18.2.1 Chemical Abstract Service (CAS) number, chemical name, common name, hazardous substance mixture components, physical and chemical characteristics (such as vapor pressure and flash point) and toxic and hazardous properties of the substance

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and mixture components including the potential for fire, explosion and reactivity;

- 21.18.2.2 Compatibility of substance with respect to materials which may be used to construct a storage tank, recommended materials which may be used for construction, prohibited materials for construction, and standards for storage tank design;
- 21.18.2.3 Conditions for the safe and proper storage of the substance, including temperatures, pressures, relative humidity and light conditions for storage;
- 21.18.2.4 Recommended storage equipment, which could include tanks, pumps, gauges, piping, valves, gasket materials, overfill alarms, rupture discs, vents, automatic shut-off devices, monitors, transfer stations, labeling or color coding, leak detectors, secondary containment, curbs, liners, hoses, cathodic protection systems and safety equipment;
- 21.18.2.5 Recommended inspection and maintenance procedures and intervals of time recommended for internal inspection of tanks and testing of equipment;
- 21.18.2.6 Safety precautions, warnings and procedures for handling and unloading bulk deliveries; and
- 21.18.2.7 Spill and emergency response procedures.

21.18.3 Filing Requirements

Commencing one year after the effective date of these regulations, the manufacturer or distributor of a hazardous substance must file an up-to-date copy of its technical guidance and recommended practices with the Department. The copy should be sent to the Rockland County Department of Health, Division of Environmental Health, 50 Sanatorium Road, Pomona, New York, 10970. Any subsequent revisions or additions to the guidance and recommended practices shall be filed with the Department at the time of such revision or addition.

21.18.4 Prohibition On Delivery To Unregistered Storage Tanks

Commencing one (1) year after the effective date of these regulations, no person shall deliver hazardous substances to a regulated tank that has not been properly registered pursuant to this Part.

21.19.0 - Spill Response, Investigation And Corrective Action

21.19.1 Emergency Response

- 21.19.1.1 In addition to the requirements of Subsection 21.19.1.2, the owner or operator must take immediate action upon discovery of a release to protect human health, safety and the environment. Immediate actions which may be necessary include, but are not limited to, signaling alarms, mitigation of fire and safety hazards, contacting emergency response officials, evacuation of personnel from the site, isolation of the impact zone, preventing the migration of the release and stopping, plugging or containing the release. Corrective action as specified in Subsection 21.19.3 must also be undertaken to clean up and remove the released material and restore the site to protect public health, safety or the environment.
- 21.19.1.2 It is unlawful to continue operation of a tank where a continuing release is occurring. If the owner or operator cannot expeditiously and permanently stop the release or further releases cannot be prevented while repairs are being made, the tank must be emptied and the contents promptly removed to a secure storage tank.

21.19.2 Release Or Spill Investigation And Confirmation

- 21.19.2.1 All actual, probable or suspected releases or spills requiring reporting must be immediately investigated to determine the quantity of release or spill, extent of contamination and threat to public health, safety and the environment. The investigation shall be performed at a sufficient level of detail to determine immediate and long-term steps needed for corrective action and emergency response. The owner or operator must investigate the release by one or more of the following procedures:
- 21.19.2.1.1 A visual inspection to initiate immediate response;
- 21.19.2.1.2 A physical investigation which may include sampling of the soil, air or water to determine on-site and off-site impacts, hydrogeologic and atmospheric investigations, mapping of contamination, and evaluation of potential impacts on plant life, wildlife, nearby water supplies and surrounding population;
- 21.19.2.1.3 Monitoring of the interstitial area between the tank and secondary containment system;
- 21.19.2.1.4 An inspection to determine if the tank is tight. This may include an internal inspection, testing for structural soundness, nondestructive testing, inspection/testing of ancillary equipment or tightness testing of the tank or piping system;

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- 21.19.2.1.5 A check of inventory records to detect discrepancies;
 - 21.19.2.1.6 Monitoring of observation wells; or
 - 21.19.2.1.7 Any other additional and further investigation which may be required by the department in order to adequately determine the cause of the release and to assess the impact of the release or spill on the environment.
- 21.19.2.2 The results of the investigation must be submitted to the department within 14 days unless an alternative schedule is established by the department. Upon review of this information the department may require the collection, evaluation and submission of additional information and preparation of a response and corrective action plan.
- 21.19.2.3 Where a release of any hazardous substance has occurred, is suspected or appears probable, the department may order the owner to inspect any storage tank, location and/or associated equipment which might be the source of the actual, suspected or probable release and to test for tightness and structural soundness. If the owner fails to conduct such tests within ten days of notification of such an order, the department may do so. The reasonable expenses of conducting such tests incurred by the department shall be paid by the owner.

21.19.3 Corrective Action

- 21.19.3.1 Upon completion of an investigation of an actual, probable or suspected release, the owner or operator must initiate corrective action and take other spill response actions as may be required by the department. This may include one or more of the following:
 - 21.19.3.1.1 Removal and proper disposal of contaminated soil;
 - 21.19.3.1.2 Removal and recovery of free floating and dissolved hazardous substances in ground and surface waters;
 - 21.19.3.1.3 Removal, venting, dispersing or recovery of vapors from the soil or air;
 - 21.19.3.1.4 Repair or replacement of leaking equipment and improvement of storage and handling practices, including improvements to secondary containment systems;
 - 21.19.3.1.5 Installation of temporary or permanent water supply systems;

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21.19.3.1.6 Relocation of residents; and

21.19.3.1.7 Other actions which the department may require to remediate the site in order to protect the public health, safety or environment.

21.19.3.2 The owner or operator must report to the department progress on implementing the response and corrective action plan in accordance with a schedule for reporting established by the department.

21.19.3.3 The requirements of this subdivision do not apply to releases from underground storage tanks:

21.19.3.3.1 Identified as solid waste management units at facilities subject to corrective action pursuant to ECL Article 27, Title 9; or

21.19.3.3.2 Constituting hazardous waste at a site subject to a remedial program pursuant to ECL Article 27, Title 13.

21.19.4 Best Management Practices (BMPs)

The department may require that the owner or operator of a facility prepare, submit for approval, and implement a BMP plan in the event of the following:

21.19.4.1 A release which results in significant environmental impacts, including but not limited to, a violation of ambient air or water quality standards, fish kills, or damage to sensitive environmental areas; or

21.19.4.2 A series of releases which indicate that a facility is not employing generally accepted engineering practices that would prevent the recurrence of such releases.

PART C
LIST OF HAZARDOUS SUBSTANCES

Part C of this Article shall consist of Sections 21.20.0 through 21.22.0.

21.20.0 - Hazardous Substances Definitions

The following definitions apply to this Part:

21.20.1 Acutely Hazardous Substance

The term "**acutely hazardous substance**" means a hazardous substance which:

- 21.20.1.1 Has an oral LD₅₀ (rat) toxicity of less than 50 milligrams per kilogram
- 21.20.1.2 Has an inhalation LC₅₀ (rat) toxicity of less than 2 milligrams per liter;
- 21.20.1.3 Has a dermal LD₅₀ (rabbit) toxicity of less than 200 milligrams per kilogram; or
- 21.20.1.4 Causes or is capable of causing death, serious illness or serious physical injury to any person or persons as a consequence of release into the environment.

21.20.2 Chemical Abstract Service Number or CAS Number

The term "**chemical abstract service number**" or "**cas number**" is the unique address for a chemical substance assigned by the CAS division of the American Chemical Society.

21.20.3 Hazardous Substance

The term "**hazardous substance**" means any substance which:

- 21.20.3.1 Because of its quantity, concentration, or physical, chemical or infectious characteristics causes physical injury or illness to humans when improperly treated, stored, transported, disposed of, or otherwise managed;
- 21.20.3.2 Poses a present or potential hazard to the environment when improperly treated, stored, transported, disposed of, or otherwise managed;
- 21.20.3.3 Because of its toxicity or concentration within biological chains, presents a demonstrated threat to biological life cycles when released into the environment;
- 21.20.3.4 Is a substance whose manufacture, processing, contribution in commerce, use, possession or disposal is banned, prohibited or

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limited pursuant to the federal Toxic Substances Control Act (15 U.S.C., Section 2601 et seq) as of June 1, 1985;

21.20.3.5 Is a pesticide whose use or possession is prohibited pursuant to the federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 135 et seq) as of June 1, 1985;

21.20.3.6 Is a substance defined as a hazardous substance pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. 9601 et seq) as of June 1, 1985;

21.20.3.7 Is an acutely hazardous substance;

21.20.3.8 Is a hazardous waste as identified or listed in 6 NYCRR Part 371; or

21.20.3.9 Is petroleum as defined in this Part.

21.20.4 Oral LD₅₀ (rat) Toxicity

The term "**oral LD₅₀ (rat) toxicity**" means a calculated dose of a substance which is expected to cause the death of 50 percent of an experimental rat population when administered orally.

21.20.5 Inhalation LC₅₀ (rat) Toxicity

The term "**inhalation LC₅₀ (rat) toxicity**" means a calculated concentration of a substance in air, exposure to which is expected to cause the death of 50 percent of an experimental rat population when inhaled.

21.20.6 Dermal LD₅₀ (rabbit) Toxicity

The term "**dermal LD₅₀ (rabbit) toxicity**" means a calculated dose of a substance which is expected to cause the death of 50 percent of an experimental rabbit population when applied to the skin.

21.20.7 Petroleum

The term "**petroleum**" means oil or petroleum of any kind and in any form including but not limited to oil, petroleum fuel oil, oil sludge, oil refuse, oil mixed with other waste, crude oil, gasoline and kerosene.

21.20.8 RQ

The term "**RQ**" means reportable quantity as defined in Subsection 21.3.13 of this Article.

21.20.9 Release

The term "**release**" means any unauthorized pumping, pouring, emitting, emptying, overfilling, spilling, leaking, leaching or disposing, directly or

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indirectly, of a hazardous substance so that the substance or any related constituent thereof, or any degradation product of such a substance or of a related constituent thereof, may enter the environment.

21.21.0 - Hazardous Substances Severability

If any provisions of this Part or its application to any person or circumstance is held to be invalid, the remainder of the Part and the application of that provision to other persons or circumstances shall not be affected.

21.22.0 - Hazardous Substance List

21.22.1 See 6 NYCRR 371 for the identification and listing of hazardous wastes included in the definition of hazardous substances.

21.22.2 Except for petroleum, Table 1 is a list of all other hazardous substances in alphabetical order. Table 2 is a list of the same hazardous substances in chemical abstract service (CAS) number order. Substances noted with an "A" are acutely hazardous substance.

21.22.3 Notification of the release of an RQ (Reportable Quantity) of solid particles of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium or zinc is not required if the mean diameter of the particles released is larger than 100 micrometers (0.004 inches).

PART D
HANDLING AND STORAGE OF HAZARDOUS SUBSTANCES
Part D of this Article shall consist of Sections 21.23.0 through 21.33.0.

21.23.0 - General

21.23.1 Purpose

This Part sets forth regulations for the handling and storage of hazardous substances to protect the public health, safety, welfare, and the environment of the state.

21.23.2 Applicability

This Part applies to hazardous substances bulk storage facilities regulated under Part B of this Article.

21.23.3 Definitions

The definitions found in Section 21.10.0 of this Article apply to this Part.

21.23.4 Severability

If any provision of this Part or its application to any person or circumstance is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances shall not be affected.

21.23.5 Variances

21.23.5.1 The Department may, upon written request from any person subject to this Part, grant a variance from one or more specific provisions of this Part. An application for a variance must:

21.23.5.1.1 Identify the specific provisions of this Part from which a variance is sought;

21.23.5.1.2 Demonstrate that compliance with the identified provisions would, on the basis of conditions unique to the person's particular situation, tend to impose a substantial economic, technological or safety burden on the person; and

21.23.5.1.3 Demonstrate that the proposed activity will have no significant adverse impact on the public health, safety, welfare or the environment and will be consistent with the provisions of the ECL and the performance expected from application of this Part.

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21.23.5.2 The department may not grant any variance which would result in regulatory controls less stringent than those set forth in 40 CFR Parts 280 and 281 (see Subsection 21.23.10).

21.23.5.3 In granting any variance, the department may impose specific conditions necessary to assure that the activity will have no significant adverse impact on the public health, safety, welfare or the environment.

21.23.6 Confidentiality

Any person submitting information to the department pursuant to this Part may, at the time of submission, request that the department exempt such information from disclosure under paragraph (d) of subdivision (2) of section 87 of the Public Officers Law. All requests under this section must be made in accordance with the provisions of 6 NYCRR section 616.7 and all determinations will be made pursuant to that section.

21.23.7 Enforcement

21.23.7.1 Any person who violates any of the provisions of this Part, any directive by the department, or any order issued by the department, shall be liable for the civil, administrative and criminal penalties set forth in Article 71 of the Environmental Conservation Law.

21.23.7.2 Where a release of any hazardous substance has occurred, is suspected or appears probable, the department may direct the owner or operator to inspect any storage tank or associated equipment which might be the source of such release and to test for tightness and structural soundness. If the owner or operator fails to conduct such inspections and tests within ten (10) days of notification of such an order, the department may do so. The reasonable expenses of conducting such inspections and tests incurred by the department shall be paid by the owner or operator.

21.23.7.3 If the owner or operator fails to comply with these regulations, the owner or operator must when directed by the department, conduct a site assessment to determine if there is evidence of a release due to such non-compliance. This assessment must be conducted in accordance with the requirements of Subsection 21.32.5 of this Part and the results submitted to the department within time frames to be determined by the department.

21.23.8 Tanks Subject To These Regulations In The Future

Any existing storage tank which becomes subject to these regulations in the future must comply with the requirements of this Part within the timeframe specified or within two (2) years of becoming subject to regulation, whichever is later. This might occur if a substance is added to the list of hazardous

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substances in 6 NYCRR Part 597. Any new equipment must comply with this Part and Part E of this Article when installed.

21.23.9 Access To Records And Storage Tanks

Any designated officer or employee of the department shall have the right of access as provided in Section 21.12.0 of this Article.

21.23.10 References

Citations used in this Part refer to the publications listed below. These publications are available for inspection at the Department of Environmental Conservation, 50 Wolf Road, Albany, New York, 12233-3520. Copies may be purchased directly from the publisher at the address shown.

(1) "API 620" means American Petroleum Institute Specification 620, "Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks", June 1990, American Petroleum Institute Publishers, 1220 L Street, NW, Washington, DC 20005.

(2) "API 650" means American Petroleum Institute Specification 650, "Welded Steel Tanks for Oil Storage" 9th Edition, 1993, American Petroleum Institute Publishers, 1220 L Street, NW, Washington, DC 20005.

(3) "API 651" means American Petroleum Institute Specification 651 "Cathodic Protection of Above-ground Petroleum Storage Tanks", 1991, American Petroleum Institute Publishers, 1220 L Street, NW, Washington, DC 20005.

(4) "API 652" means American Petroleum Institute Specification 652, "Lining of Aboveground Petroleum Storage Tank Bottoms", 1991, American Petroleum Institute Publishers, 1220 L Street, NW, Washington, DC 20005.

(5) "API 1615" means American Petroleum Institute Specification 1615, "Installation of Underground Petroleum Storage Systems", 1987, with 1989 supplement, American Petroleum Institute Publishers, 1220 L Street, NW, Washington, DC 20005.

(6) "API 1632" means American Petroleum Institute Specification 1632", Cathodic Protection of Underground Petroleum Storage Tanks and Piping System", 1987, American Petroleum Institute Publishers, 1220 L Street, NW, Washington, DC 20005.

(7) "ASTM D2996-88" means American Society for Testing and Materials Designation D2996-88, "Specification for Filament-Wound Reinforced Thermosetting Resin Pipe", 1988, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

(8) "ASTM D3299-88" means American Society for Testing and Materials Designation D3299-88, "Filament-Wound Glass-Fiber-Reinforced Thermoset

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Resin Chemical-Resistant Tanks", 1988, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

(9) "ASTM D4021-92" means American Society for Testing and Materials Designation D4021-92, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks", 1992, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

(10) "ASTM D4097-88" means American Society for Testing and Materials Designation D4097-88, "Contact-Molded Glass-Fiber-Reinforced Thermoset Resin Chemical-Resistant Tanks", 1988, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

(11) "CAN4-S601-M84" means Underwriters' Laboratories of Canada, No. CAN4-S601-M84, "Standard for Shop Fabricated Steel Aboveground Horizontal Tanks for Flammable and Combustible Liquids", 1984, Underwriters' Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R3A9.

(12) "CAN4-S630-M84" means Underwriters' Laboratories of Canada, No. CAN4-S630-M84, "Standard for Shop Fabricated Steel Aboveground Vertical Tanks for Flammable and Combustible Liquids", 1984, Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R3A9.

(13) "NACE Standard RP-01-69" means National Association of Corrosion Engineers, "Recommended Practice - Control of External Corrosion on Underground or Submerged Metallic Piping Systems, RP-01-69", April 1992 Revision, National Association of Corrosion Engineers, Box 218340, Houston, Texas 77218.

(14) "NACE Standard RP-02-85" means National Association of Corrosion Engineers, "Recommended Practice - Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems", 1985, National Association of Corrosion Engineers, Box 218340, Houston, Texas 77218.

(15) "NFPA No. 30" means National Fire Protection Association, "Flammable and Combustible Liquids Code, No. 30", 1993, NFPA, Batterymarch Park, Quincy, MA 02269.

(16) "NLPA 631" means National Leak Prevention Association, "Spill Prevention, Minimum 10-Year Life Extension of Existing Steel Underground Storage Tanks by Lining Without the Addition of Cathodic Protection", 1991, NLPA P.O. Box 1643, Boise, ID 83701.

(17) "SSPC-SP #6" means Steel Structures Painting Council, "Steel Structures Painting Manual, Chapter 2 - Surface Preparation Specifications, Commercial Blast Cleaning", June 1991, Steel Structures Painting Council, 4400 Fifth Avenue, Pittsburgh, PA 15213.

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(18) "ULC-C107.7-1993" means Underwriters' Laboratories of Canada, No. ULC-C107, "Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids", 1993, Underwriters' Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R3A9.

(19) "ULC Standard S603" means Underwriters' Laboratories of Canada, No. ULC-S603-92, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids", 1992, Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R3A9.

(20) "ULC-S603.1" means Underwriters' Laboratories of Canada, No. ULC-S603.1-M1982, "Standard for Galvanic Corrosion Protection Systems for Steel Underground Tanks for Flammable and Combustible Liquids", 1992, Underwriters Laboratories of Canada, 7 Crouse Road, Scarborough, Ontario, Canada M1R3A9.

(21) "40 CFR 280" means Part 280 of Title 40 of the Code of Federal Regulations, "Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)", July 1, 1993, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

(22) "40 CFR 281" means Part 281 of Title 40 of the Code of Federal Regulations, "Approval of State Underground Storage Tank Programs", July 1, 1993, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

(23) "40 CFR 302.8" means Section 8, Part 302 of Title 40 of the Code of Federal Regulations, "Continuous Releases", July 1, 1990, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

21.23.11 Spill Prevention Report

21.23.11.1 Within two (2) years of the effective date of these regulations or at an earlier date if requested by the Department, the owner or operator of any facility must prepare and maintain a spill prevention report for preventing and responding to spills, releases and accidents at the facility. The report must be properly indexed, logically organized, and filed on the premises of the facility at all times. The report must be updated at least annually or whenever a significant release occurs or a substantial modification is made. If requested, the owner or operator must supply a copy of the report to the department. The comprehensiveness of the spill prevention report will be a function of the risks at the facility. At facilities with good operating histories, small quantities of low hazard substances in areas of minimal environmental risk, reports will contain basic information and assessments. Where facilities or risks are larger, the report will assess such risks and will be proportionately more complex.

21.23.11.2 The spill prevention report must include the following:

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- 21.23.11.2.1 A copy of the registration application and certificate issued under Section 21.15.0 of this Article;
- 21.23.11.2.2 Management approval of the report evidenced by the signature of the principal executive officer or authorized representative;
- 21.23.11.2.3 An up-to-date facility site map of sufficient detail to locate and identify tanks, transfer stations and connecting pipes;
- 21.23.11.2.4 The name, signature, and license number of the Professional Engineer licensed in New York State or other qualified person who prepared the plan;
- 21.23.11.2.5 A listing and summary description, for the past five years, of releases: (1) required to be reported under state or federal law, or (2) which the facility can ascertain have occurred through an examination of existing books, records or other documentation. This must address the magnitude and impact of such releases and be updated to incorporate reports required under Section 21.7.0 of this Article;
- 21.23.11.2.6 Identification and assessment of causes of spills, leaks and releases at the facility;
- 21.23.11.2.7 Status report on compliance with this Part and Parts B and E of this Article;
- 21.23.11.2.8 An appendage of those records (or index of records) which must be kept and made available to the department pursuant to requirements of this Part and Parts B and E of this Article;
- 21.23.11.2.9 Evidence of financial responsibility if required by Section 21.33.0 of this Part; and
- 21.23.11.2.10 A plan for spill response, including; a prediction of the direction of flow or dispersion of a spill; a map showing areas impacted by a spill including sewers, drainage ditches, water supplies, wells, streams and populated areas; a list of equipment and materials to contain a spill; name and phone number for emergency contacts, coordinators, and clean-up contractors; spill reporting procedures; plans for annual drills and other information consistent with generally accepted spill prevention control and countermeasure practices.

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21.23.11.3 The spill prevention report must contain a discussion and assessment of any equivalent equipment, method or practice where allowed under this Part or Part E of this Article. The assessment must demonstrate through engineering, monitoring, data, tests or past experience that measures or practices are in-place at the facility which are equivalent or superior to the standards for protecting the environment set forth in this Part and Part E.

21.23.11.4 Where the owner or operator is required to perform a site assessment pursuant to Subsection 21.23.7 or 21.32.5 of this Part, the spill prevention report must contain the site assessment and findings.

21.23.12 Use Of Equivalent Technology

Where specified in this Part, the department may approve the use of an equivalent technology, method or practice by any person subject to this Part. A request to use equivalent technology must:

21.23.12.1 Identify the applicable provision of this Part; and.

21.23.12.2 Include documentation, including but not limited to data, plans, specifications and test results that demonstrate that the technology, method or practice desired to be used will protect the public health, safety and welfare and the environment in a manner which equals or exceeds the requirements of the applicable provision of this Part.

21.24.0 - Approval Of Local Laws Or Ordinances

21.24.1 Preemption

Except where the department has approved a local law or ordinance as provided below, any local law or ordinance which is inconsistent with any provision of this Part or of Parts A, B, C or E of this Article is preempted.

21.24.2 Approval Of Local Laws Or Ordinances

21.24.2.1 The department may approve a local law or ordinance for a city with a population over one (1) million or a county, when such city or county law or ordinance provides environmental protection equal to or greater than provisions of the Environmental Conservation Law, Article 40, and the requirements of this Part and Parts A, B, C and E of this Article.

21.24.2.2 The city or county through its chief executive officer, must seek approval from the department in writing. The request must:

21.24.2.2.1 Include a copy of the local law or ordinance;

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- 21.24.2.2.2 Explain differences and inconsistencies between the local law and provisions of this Part, and Parts A, B, C and E of this Article;
 - 21.24.2.2.3 Identify proposed enforcement procedures, penalties and resources available to implement the local law or ordinance;
 - 21.24.2.2.4 Identify local fees which would be levied;
 - 21.24.2.2.5 Contain a declaration of intent to administer and enforce the local law or ordinance; and
 - 21.24.2.2.6 Contain a statement from the city or county attorney that the city or county has adequate legal authority to carry out the proposed local program. This statement should identify any sources of statutory authority other than the local bulk storage law relied upon.
- 21.24.2.3 The department will review all requests and supporting documents and will prepare written findings and terms of approval, conditional approval, or disapproval.

21.24.3 Rescission Of Approved Local Laws Or Ordinances

If the department determines that an approved city or county law or ordinance is not being properly administered or enforced, it will advise the chief executive officer of the county or city of its determination in writing. If appropriate actions are not taken to effectively administer and enforce the local law or ordinance in accordance with the department's determination, the department reserves the right to rescind approval and administer and enforce the program as part of the department's overall responsibility under this Part, and Parts A, B, C and E of this Article.

21.25.0 - Bulk Storage In Flood Plains

Any storage tank system susceptible to inundation by water from any source must be adequately anchored to prevent flotation, collapse, or lateral movement that might be caused by hydrodynamic and hydrostatic loads, including the effect of buoyancy. Tanks must be designed, installed and maintained in accordance with operating standards set forth in NFPA No. 30, section 2-6.6 (see Subsection 21.23.10 of this Part) and in accordance with state, county and local flood plain regulations. Dikes in flood plains must be designed and installed to withstand structural damage and overtopping by a one-hundred (100) year flood. If tanks are ballasted with water during flood warning periods, tank valves and other openings must be closed and secured in a locked position in advance of the flood. Ballast water removed from the tank after the flood must not be discharged to the waters of the County without first obtaining a discharge permit pursuant to 6 NYCRR Parts 750 to 758.

21.26.0 - Hazardous Substance Transfers

21.26.1 Responsibility For Transfers

The operator, when on the premises or when in control of a hazardous substance transfer, is responsible for transfer activities. If the operator is not on the premises or is not in control of a hazardous substance transfer, the carrier is responsible for transfer activities. The operator or carrier must employ practices for preventing transfer spills, overfills and releases.

21.26.2 Operating Requirements

21.26.2.1 Prior to the transfer and during the delivery, the operator or carrier must determine that the hazardous substance will be transferred to the proper tank, that the receiving tank has available capacity to receive the amount to be transferred and all tank valving and flow control devices are in the appropriate position to accept delivery. Throughout the entire period of transfer and while the tank is connected to the loading or unloading device, the operator or carrier must at all times supervise, monitor and control the transfer to prevent overfilling and spilling. The operator or carrier must be trained in the proper transfer procedures, must monitor and control the delivery and must take immediate action to stop the flow when the working capacity of the tank has been reached or should an equipment failure or emergency occur. If a leak is discovered during the transfer, measures must be taken immediately to stop the leak and clean up the material which has been leaked.

21.26.2.2 All couplings and other connections must be leak free, undamaged and fully functional prior to the transfer and must be checked for leakage after the transfer has been initiated.

21.26.2.3 Brakes must be set and wheels chocked on all tank cars being loaded or unloaded.

21.26.2.4 When a truck, rail car, or container is connected to a transfer line, caution signs must be in place to give warning to persons approaching from any anticipated direction. Signs must remain in place until operations are completed, all connections are removed, and outlets properly closed.

21.26.2.5 During the transfer of a hazardous substance with a flash point below 100 degrees Fahrenheit (37.8 degrees Centigrade) or wherever flammable vapors may be present, all potential ignition sources must be controlled. Sources of ignition include, but are not limited to, open flames, lightning, smoking, cutting and welding, hot surfaces, friction, heat, sparks from static, electrical or mechanical sources, spontaneous ignition, chemical and physical-chemical reactions and radiant heat.

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- 21.26.2.6 Connections to a non-stationary tank at a transfer station must be sufficiently flexible so that any movement will not damage the connection or cause a leak. Examples of flexible connections include hoses and swing arms.
- 21.26.2.7 Within two (2) years of the effective date of this Part, equipment or practices must be in-place which prevent the mixing of incompatible substances. This must include either mating of couplings to prevent mixing, written site procedures which prevent delivery of a substance to the wrong tank and which prohibit transfer of incompatible substances at the same time within the same transfer station, or equivalent practices. Any written procedures developed, pursuant to this Subsection must be specified in the spill prevention report required by Subsection 21.23.11 of this Part.
- 21.26.2.8 Within two (2) years of the effective date of these regulations, all fill and dispensing ports for aboveground tanks which are remote to the tank must be labeled with the chemical name or common name or category of substance and must display legible and clearly visible hazard warnings. In addition, fill ports must contain information on the point of delivery. For a registered tank, this would be the tank identification number. Valves and controllers which govern the filling and emptying of a storage tank must contain information on closed and open positions.

21.27.0 - Upgrading Storage Systems

21.27.1 Upgrading Underground Tanks And Pipes

By December 22, 1998, all existing underground tanks and on-ground and underground pipes must meet the standards for new construction found in Sections 21.36.0 through 21.38.0, inclusive and 21.45.0 through 21.51.0, inclusive, of this Article or be closed in accordance with Subsection 21.32.2 of this Part.

21.27.2 Upgrading Aboveground Tanks And Pipes

21.27.2.1 By December 22, 1999, all aboveground tanks must be upgraded to comply with Subsections 21.41.1 through 21.41.5 and 21.41.8, Subsection 21.50.1, Subsections 21.50.2.1.1 and 21.50.2.1.3, 21.50.2.2 and Section 21.51.0 of this Article.

21.27.2.2 By December 22, 1999, all aboveground piping systems must be upgraded in accordance with piping standards set forth in Subsection 21.46.1 and 21.46.2 and Section 21.49.0 of this Article.

21.27.2.3 By December 22, 1998, all existing aboveground tanks the volume of which is ten (10) percent or more below the surface of the

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ground must meet the standards for new construction found in Section 21.41.0 of this Article or be closed in accordance with Subsection 21.32.2 of this Part.

21.27.3 Secondary Containment Systems For Aboveground Tanks

21.27.3.1 By December 22, 1999, all aboveground tanks which are used to store a hazardous substance, must be equipped with a secondary containment system in accordance with Section 21.42.0. This requirement does not apply to pipes except as required in Subsection 21.27.1 above. If the stored substance is a liquid at storage conditions and a gas at ambient conditions, then secondary containment must be provided to contain the liquid component of any spill until the phase change from liquid to gas occurs or the spill is cleaned up, whichever comes first.

21.27.3.2 Where an alternative practice or structure provides equivalent protection, such practice or structure may be followed if it is no less protective of public health, safety and environment than Section 21.42.0 and has been inspected by a qualified engineer and certified to be in conformance with Section 21.42.0. The owner or operator must describe how the alternative differs from Section 21.42.0, how it is equivalent or superior and how it meets the performance standards set forth therein. The use of equivalent technology must be approved pursuant to Subsection 21.23.12.

21.27.4 Secondary Containment For Transfer Stations

21.27.4.1 By December 22, 1999, all transfers of hazardous substances must occur at a transfer station equipped with spill containment in accordance with Subsection 21.50.3 of this Article. If the stored substance is a liquid at storage conditions and a gas at ambient conditions, then secondary containment must be provided to contain the liquid component of any spill until the phase change from liquid to gas occurs or the spill is cleaned up, whichever comes first.

21.27.4.2 Where an alternative practice or structure provides equivalent protection, such practice or structure may be followed if it is no less protective of public health, safety and the environment than Subsection 21.50.3 and has been inspected by a qualified engineer and certified to be in conformance with Subsection 21.50.3. The owner or operator must describe how the system differs from Subsection 21.50.3, how the alternative is equivalent or superior and how it meets the performance standards set forth therein. The use of equivalent technology must be approved pursuant to Subsection 21.23.12.

21.27.5 Spill Prevention At Pumps and Valves

By December 22, 1999, the owner or operator must prevent spills and leaks at all pumps and valves which control a liquid hazardous substance by using one or more of the following methods:

- 21.27.5.1 Installation of sealless pumps and valves, fail-safe double seal pumps and valves or equivalent technology;
- 21.27.5.2 Implementation of a pump and valve maintenance and repair program. The frequency of inspection and scope of maintenance and repair must be based on a minimum of five (5) years of actual operating and service records, manufacturer's recommendation or records for similar operations. The basis for the program, frequency of inspection, and scope of maintenance and repair must be identified in the spill prevention report; or
- 21.27.5.3 Installation of pumps and valves within a catchment basin such as a drip pan, pad or secondary containment system; The catchment basin must be designed and constructed with a permeability rate to the substance stored of 1×10^{-6} cm/sec or less and be compatible with the hazardous substance stored. If a catchment basin is used, it must be inspected each day of operation for accumulation of liquid and have capacity adequate to contain all spills likely to accumulate in the basin.

21.27.6 Upgrading Existing Storage Of Solids

By December 22, 1999, hazardous substances which are water soluble solids at ambient temperature must be stored in non-stationary tanks which prevent entry of stormwater or in an area protected from entry of stormwater by a building or similar enclosure. The tank including the floor, must be designed and constructed with a permeability rate to the substance stored of 1×10^{-6} cm/sec or less.

21.27.7 Upgrading Non-stationary Tank Storage Areas

21.27.7.1 By December 22, 1999, non-stationary tanks must meet the following requirements:

- 21.27.7.1.1 Incompatible substances stored in non-stationary tanks must not be stored in close proximity to each other. At minimum, they must be separated by either thirty (30) feet; a fire wall with a fire resistant rating of not less than two (2) hours; separate independent dikes; or other equivalent system which prevents inadvertent mixing and reduces the likelihood of an accident, release or spill;

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- 21.27.7.1.2 An enclosure such as a warehouse or storm shelter must be provided for those non-stationary tanks which contain materials which could react with water to generate heat, cause pressure build-up in the container, cause fire, explosion or other adverse reaction. The enclosure must protect the tanks from exposure to water, be designed to withstand storms and be anchored into the ground;
- 21.27.7.1.3 Non-stationary tanks must be located in an area which has an impervious floor and a perimeter curb or ramp of sufficient height to contain one-hundred and ten percent (110%) of the contents of the largest tank or the total volume which can be spilled from interconnected tanks within the containment area, whichever is greater. The floor must be designed and constructed with a permeability rate to the substance stored of 1×10^{-6} cm/sec or less; and
- 21.27.7.1.4 Non-stationary tanks must be designed and manufactured in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory and be suitable for the substance stored and the conditions of storage. This provision does not apply to non-stationary tanks which are represented, marked, certified or sold as qualified for use in the transportation of hazardous substances and which meet applicable federal requirements.
- 21.27.7.1.5 Non-stationary tanks must be stored in a stable position. If such tanks are stacked, they must be stacked on a stable platform or pallet.
- 21.27.7.2 Non-stationary tanks which are being transported or which are located at a staging area for a period of less than five (5) days, and railcars and truck trailers at the site for 180 days or less are exempt from the storage requirements of Subsection 21.27.7.1 above.
- 21.27.7.3 Beginning two (2) years from the effective date of these regulations, non-stationary tanks must meet the following requirements:
 - 21.27.7.3.1 Each non-stationary tank must be labeled to identify its contents; and
 - 21.27.7.3.2 Inventory records must be kept for all containers stored within a non-stationary tank storage area.

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Such records must include the number of tanks and the contents of each.

21.28.0 - Underground Storage Systems - Testing And Inspection

21.28.1 Testing And Inspections Of Ancillary Equipment

Beginning one (1) year from the effective date of these regulations, the owner and operator must inspect ancillary equipment as follows:

21.28.1.1 Monthly inspection must be made of vents, pressure relief devices, gauges, alarms, overfill prevention equipment, cathodic protection monitoring equipment, other monitoring equipment, warning alarms and safety systems. Equipment must be visually inspected for cleanliness, leakage, corrosion, and operability; and

21.28.1.2 Annual testing of automatic line leak detectors and cathodic systems, providing protection to tanks or pipes subject to corrosion, must be performed to ensure the equipment is operating properly. Cathodic protection systems must be checked by a qualified technician to ensure that adequate structure to electrolyte potential exists for corrosion protection. If any line leak detector or cathodic protection system fails to provide the necessary protection, action must be taken in accordance with Subsection 21.31.1.2 of this Article.

21.28.2 Leak Detection For Underground Tanks

Beginning one (1) year from the effective date of these regulations, the owner and operator must check underground tanks for leakage using one or more of the following:

21.28.2.1 Inventory monitoring may be used if it detects a leak of one (1) percent of flow-through plus one-hundred and thirty (130) gallons on a monthly basis and is coupled with an annual tightness test. Inventory monitoring must be done in accordance with the standards set forth in 40 CFR section 280.43(a) (see Subsection 21.23.10 of this Part);

21.28.2.2 Weekly monitoring of the interstitial space of a double-walled tank may be practiced using pressure monitoring, vacuum monitoring, electronic monitoring or manual sampling;

21.28.2.3 Vapor wells for monitoring soils in the excavation zone may be used. Vapor monitoring systems must be designed and installed by a qualified engineer or technician in accordance with generally accepted practices. Wells must be protected from traffic, permanently labeled as a "monitoring well" or "test well-no fill" and equipped with a locking cap, which must be locked when not in

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use so as to prevent unauthorized access and tampering. Vapor monitoring may be used only under the following conditions:

- 21.28.2.3.1 Soils in the excavation zone must be sufficiently porous to allow for the movement of the vapors from the tank to the vapor sensor. Gravel, coarse sand and crushed rock are examples of porous soils;
 - 21.28.2.3.2 The stored substance or a tracer compound placed in the tank must be sufficiently volatile so as to be detectable by the vapor sensor;
 - 21.28.2.3.3 Vapor monitoring must not be hindered by groundwater, rainfall or soil moisture such that a leak could go undetected for more than thirty (30) days;
 - 21.28.2.3.4 Background contamination must not mask or interfere with the detection of a release;
 - 21.28.2.3.5 The system must be designed and operated to detect increases in vapors above background levels. Monitoring must be done at least once per week; and
 - 21.28.2.3.6 The number and positioning of vapor monitoring wells must be sufficient to ensure detection of releases from any portion of the tank and must be based on a scientific study. Wells must be at least four (4) inches in diameter.
- 21.28.2.4 Groundwater monitoring wells designed and installed by a qualified engineer or technician may be used. Wells must be protected from traffic, permanently labeled as a "monitoring well" or "test well no fill" and equipped with a locking cap which must be locked when not in use to prevent unauthorized access and tampering. Groundwater monitoring may be used only under the following conditions:
- 21.28.2.4.1 The substance stored must be immiscible in water and have a specific gravity of less than one (1);
 - 21.28.2.4.2 The groundwater table must be less than twenty (20) feet from the ground surface. The hydraulic conductivity of the soil between the tank and well must not be less than one-hundredth (0.01) cm/sec. Gravel and coarse to medium sand are examples of such soil.

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- 21.28.2.4.3 The slotted portion of the well casing must be designed to prevent migration of soils into the well and must allow entry of the hazardous substances into the well under both high and low groundwater conditions;
 - 21.28.2.4.4 Wells must be at least four (4) inches in diameter and be sealed from the ground surface to the top of the filter pack to prevent surface water from entering the well;
 - 21.28.2.4.5 Wells must be located within the excavation zone or as close to it as technically feasible;
 - 21.28.2.4.6 The method of monitoring must be able to detect at least one-eighth (1/8) of an inch of free product on top of the groundwater. Monitoring must be done once per week; and
 - 21.28.2.4.7 The number and positioning of the groundwater monitoring well(s) must be sufficient to ensure detection of releases from any portion of the tank and must be based on a scientific study.
- 21.28.2.5 Automatic tank gauging equipment may be used if it can detect a leak of two-tenths (0.2) of a gallon per hour or larger with a probability of detection of 95 percent and probability of false alarm of 5 percent or less with a maximum threshold for declaring a leak of one tenth (0.1) of a gallon in one hour. Monitoring must be done once per week; or
- 21.28.2.6 Other equivalent methods as approved by the department if the method can detect a leak of two-tenths (0.2) of a gallon per hour with a ninety-five (95) percent probability of detection and probability of false alarm of five (5) percent.

21.28.3 Leak Detection In Underground And On-ground Pipes

- 21.28.3.1 Beginning one (1) year from the effective date of these regulations, the owner and operator must check underground and on-ground piping for leakage. The method to be used must be designed to detect a leak from any portion of the piping that routinely contains a hazardous substance and may include any method accepted for tanks under Subsection 21.28.2 above, except for Subsection 21.28.2.5. Note exception for suction piping in Subsection 21.28.3.3 below.
- 21.28.3.2 If the underground piping is pressurized, then an automatic line leak detector which alerts the owner or operator to the presence of a leak must also be installed. The detector must be capable of restricting or shutting off flow or triggering an alarm. The line leak

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detector must also be capable of detecting a leak of three (3) gallons per hour at ten (10) pounds per square inch line pressure within one (1) hour with a probability of detection of 95 percent and probability of false alarm of 5 percent or less. An annual test of the operation of the leak detector must be conducted using procedures established by the manufacturer.

21.28.3.3 Leak detection is not necessary for suction piping which meets all of the following conditions:

21.28.3.3.1 Operates at less than atmospheric pressure;

21.28.3.3.2 Is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;

21.28.3.3.3 Has only one check valve in each line; and

21.28.3.3.4 Where the check valve is located directly below and as close as practical to the suction pump.

21.28.4 Inspection Of Reconditioned Tanks

Within ten (10) years of reconditioning an underground tank with an internal liner, the lined tank must be internally inspected and found to be structurally sound with the lining still performing in accordance with original design specifications. Reinspection must be performed every five (5) years thereafter.

21.28.5 Criteria For Tightness Tests

21.28.5.1 A tightness test is a test acceptable to the Department which will determine if a tank and piping system is tight or not tight. This shall include:

21.28.5.1.1 A test capable of detecting a tank or pipe leak of one tenth (0.1) gallons per hour (gph) with a probability of detection of ninety-five percent (95%) and probability of false alarm of five percent (5%) or less with a maximum threshold for declaring a leak of five hundredths (0.05) of a gallon in one (1) hour accounting for variables such as vapor pockets, thermal expansion and contraction of product, temperature stratification, groundwater level, evaporation, pressure and tank deformation; or

21.28.5.1.2 A structural inspection performed in accordance with the requirements of Subsection 21.29.4 of this Part.

21.28.5.2 If it is technically impossible to perform a meaningful tightness test, then an alternative test or inspection which is acceptable to the department must be performed.

21.28.6 **Qualification Of Technicians**

All tightness tests must be performed by a qualified technician who has an understanding of the variables which affect the test and is trained by the manufacturer or his representative in the performance of the test.

21.28.7 **Uninspected Facilities**

If, for any reason, testing or inspection is not performed as required in this section, the owner and operator must take the uninspected portion of the storage tank system out-of-service pursuant to the requirements of Section 21.32.0 of this Part.

21.29.0 - Aboveground Storage Tank Systems – Inspection

21.29.1 **Daily Inspections**

Beginning one (1) year from the effective date of these regulations, the owner or operator must visually inspect the aboveground storage tank system for spills and leaks each operating day. In addition, the owner or operator must check to ensure that drain valves are closed if not in use and there are no unpermitted discharges of contaminated water or hazardous substances.

21.29.2 **Monthly Inspections**

Beginning one (1) year from the effective date of these regulations, the owner or operator of any aboveground tank or combination of aboveground tanks (including underground pipes connected thereto), the volume of which is ten (10) percent or more beneath the surface of the ground, must also perform monthly release detection which meets the performance standards of Subsections 21.28.2 and 21.28.3 of this Part. Cathodic protection systems must also be checked by a qualified technician to ensure that adequate structure to electrolyte potential exists for corrosion protection. If any cathodic protection system fails to provide the necessary protection, action must be taken in accordance with Subsection 21.31.1.2 of this Article.

21.29.3 **Annual Inspections**

21.29.3.1 Beginning one (1) year from the effective date of these regulations, the structure-to-electrolyte potential of cathodic protection systems used to protect aboveground tank bottoms and connecting underground pipes which are subject to corrosion must be inspected annually by a qualified technician. If the system fails to provide the necessary protection, action must be taken in accordance with Subsection 21.31.1.2 of this Article.

21.29.3.2 Beginning one (1) year from the effective date of these regulations, the owner or operator must conduct comprehensive

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annual inspections of the aboveground storage tank system. This inspection includes:

- 21.29.3.2.1 Visually inspecting for cracks, areas of wear, corrosion, poor maintenance and operating practices, excessive settlement of structures, separation or swelling of tank insulation, malfunctioning equipment, safety interlocks, safety trips, automatic shutoffs, leak detection, and monitoring, warning or gauging equipment which may not be operating properly;
- 21.29.3.2.2 Visually inspecting dikes and other secondary containment systems for erosion, cracks, evidence of releases, excessive settlement and structural weaknesses;
- 21.29.3.2.3 Checking on the adequacy of exterior coatings, corrosion protection systems, exterior welds and rivets, foundations, spill control equipment, emergency response equipment and fire extinguishing equipment;
- 21.29.3.2.4 Visual checking of equipment, structures and foundations for excessive wear or damage; and
- 21.29.3.2.5 Reviewing compliance with this Part and Part E of this Article.

21.29.4 Five-Year Inspections

- 21.29.4.1 By December 22, 1999, the owner or operator must inspect aboveground piping systems and all aboveground tanks. The inspection must be consistent with a consensus code, standard or practice and be developed by a nationally recognized association or independent testing laboratory and meet the specifications of this subdivision. Based on the inspection, an assessment and evaluation must be made of system tightness, structural soundness, corrosion, wear, foundation weakness and operability. Reinspection is required no later than every five (5) years from the date of the initial inspection or regulatory deadline whichever occurs first, except as follows. If thinning of one (1) millimeter per year or greater occurs on the pipe or tank walls, or the expected remaining useful life as determined by the above inspections is less than ten (10) years, then reinspection must be performed on the tank or pipe at one-half of the remaining useful life.
- 21.29.4.2 For aboveground piping systems and ancillary equipment, the inspection must consist of the following:

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- 21.29.4.2.1 Examination of exposed piping, joints, welds and connections for misalignment and tightness. Insulated piping systems must have the covering removed if there is evidence of a leak such as damage or discoloration of the insulating material or the presence of free liquid. Representative flanged connections must be examined for gasket deterioration and misalignment;
 - 21.29.4.2.2 Structural inspection of representative sections of pipes for thinning, galvanic corrosion, intergranular corrosion, stress corrosion cracking, crevice corrosion, pitting, and for evidence of coating failure and material incompatibility. Galvanic cells, such as may be created by the joining of dissimilar metals, and other sources of corrosion must be identified;
 - 21.29.4.2.3 A tightness test of any connecting underground pipes;
 - 21.29.4.2.4 Inspection and assessment of all ancillary equipment such as gauges, pressure/vacuum safety valves, safety interlocks, flow valves and pumps for adequacy, operability, leakage, fouling, corrosion, scaling and wear. Relief valves must be tested for capacity or opening and reseating pressure and inspected to see if corrosion, fouling or scaling has occurred; and
 - 21.29.4.2.5 An identification of system deficiencies which may result in a leak due to vibration, expansion, contraction, frost, settlement, shock or other causes.
- 21.29.4.3 For aboveground tanks with a capacity of ten thousand (10,000) gallons or more, the inspection must be conducted under the direction of a qualified engineer. The engineer must certify that the tank is structurally sound and is not subject to external or internal corrosion that may result in a release before the next inspection and re-certification. Where necessary, the inspection must be made of all accessible tank surfaces and include the following:
- 21.29.4.3.1 Cleaning the tank and difficult to reach areas within the tank in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory;

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- 21.29.4.3.2 Removal, transportation and disposal of solid precipitates or accumulated sludge in compliance with all applicable state, federal and local laws;
- 21.29.4.3.3 Inspecting the tank, both internally and externally, for structural soundness and testing of the welds and seams on the tank bottom for porosity and tightness. The inspector may use one or more of the following non-destructive testing methods: hydrostatic or vacuum test; a dye penetrant test; an ultrasonic test; a radiographic or X-ray test; a magnetic particle inspection; or any other equivalent test which determines whether the tank is structurally sound. This must include measurements of erosion and corrosion wear and assessments of galvanic corrosion, intergranular corrosion, stress corrosion cracking, device corrosion, pitting, cellular corrosion and inspection for material incompatibility;
- 21.29.4.3.4 Visual inspection of the internal surfaces of the tank and difficult to reach areas for corrosion or failure; and
- 21.29.4.3.5 Inspection of internal and external liners, cladding and coatings for any signs of failure such as cracks, bubbles, blisters, peeling, curling or separation.

21.29.4.4 Uninspected Facilities

If any portion of a storage tank system is not inspected as required, the owner or operator must take the uninspected portion of the system out-of-service pursuant to the requirements of Section 21.32.0 of this Part.

21.30.0 - Recordkeeping

21.30.1 Recordkeeping

Reports for each monthly, annual or five-year test or inspection required by Sections 21.28.0 and 21.29.0 of this Part must be kept with the spill prevention report and must be maintained and made available to the department upon request. Records of annual inspections must be kept for five (5) years. Reports of other inspections or tests must be kept for ten (10) years. No records are required for daily inspections.

21.30.2 Reports

All reports must include the following information:

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- 21.30.2.1 Facility registration number;
- 21.30.2.2 Identification number for tank, piping or equipment tested or inspected;
- 21.30.2.3 Date of test or inspection;
- 21.30.2.4 Results of tests and inspections, including a report on the condition of piping, tank and ancillary equipment, expected life of service and need for repair;
- 21.30.2.5 Test and inspection methods used;
- 21.30.2.6 Certification by the engineer or technician that the test or inspection has been performed in a manner consistent with the requirements of this Part;
- 21.30.2.7 Statement of engineer or technician's qualifications;
- 21.30.2.8 Name of engineer or technician;
- 21.30.2.9 Business address of engineer or technician; and
- 21.30.2.10 Signature of engineer or technician.

21.31.0 - Maintenance And Repair Of Facilities

21.31.1 Correcting Deficiencies

- 21.31.1.1 Prompt action must be taken to prevent an imminent release. If any inspection shows that continuation of an operation or practice will result in a release or that the storage tank system, or any portion thereof, is inadequate or not tight, then the operation or practice must be modified or discontinued. The storage tank system, or any portion thereof, must be promptly replaced, repaired or taken out-of-service. Examples which may indicate that a release is imminent include, but are not limited to, leaking valves, pumps and pipe joints, malfunctioning pressure or vacuum relief devices, inadequate gauges, tightness test failures, excessive thinning of the tank shell which would indicate structural weakness when the tank is filled, and malfunctioning pressure or temperature gauges.
- 21.31.1.2 If the storage tank system, or any portion thereof, or operation or practice is not in imminent danger of causing a release but an inspection shows that it is malfunctioning, or is in disrepair and that a leak or release is likely or probable unless action is taken, then the operation or practice must be modified or discontinued, or the equipment must be repaired or replaced within ninety (90) days, removed from service or temporarily closed. Examples of such equipment disrepair include, but are not limited to, secondary

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containment dikes with erosion or rodent damage, transfer station pads with cracks, deficiencies in coatings for preventing corrosion caused by exposure to the environment, malfunctioning leak monitoring equipment, and cathodic protection systems which fail to provide the necessary electric current to prevent corrosion.

21.31.2 Permanent Repairs

Within ninety (90) days, repairs must be made permanent and equal or exceed the standard of original construction. Welds and patches must be permanently bonded, be of the same material or material superior in performance as the original construction and must be installed in accordance with generally accepted engineering practices. Upon receipt of a written request before the expiration of the 90-day period, the period for temporary repairs shall be extended to 180 days.

21.31.3 Repair Of Fiberglass-Reinforced-Plastic Tanks

All fiberglass-reinforced-plastic tanks must be repaired in accordance with the manufacturer's instructions or a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory.

21.31.4 Internal Coatings

21.31.4.1 Internal coatings must be compatible with the substance stored.

21.31.4.2 Tanks may be reconditioned by installing an interior coating in accordance with API 652, NLPA 631 (see Subsection 21.23.10 of this Part) or in accordance with an equivalent consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory. Interior coatings of carbon steel tanks must be applied no later than eight (8) hours after abrasive blasting and cleaning of the internal surface or in accordance with a consensus code, practice or standard developed by a nationally recognized association or independent testing laboratory. Visible rust, moisture or foreign matter must not be present.

21.31.4.3 All coatings must be of sufficient thickness, density and strength to form an impermeable shell which will not crack, soften, flake or separate from interior surfaces. The coating must maintain a permanent bond to the equipment.

21.31.4.4 The coating's coefficient of thermal expansion must be compatible with the equipment to which it is applied so that stress due to temperature changes will not be detrimental to the soundness of the coating.

21.31.4.5 The coating material must be applied and cured in strict accordance with the manufacturer's specifications.

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- 21.31.4.6 The coating must be checked for blisters and air pockets and electrically tested for pinholes. The coating thickness must be checked with an Elcometer Thickness Gauge or equivalent method and the hardness checked with a Barcol Hardness Tester or equivalent method to assure compliance with manufacturer's specifications. Any defects must be repaired.
- 21.31.4.7 The date of installation of the coating material, condition of the tank, installation methods and other pertinent information must be kept in the spill prevention report for the lifetime of the tank or equipment.

21.31.5 Corrosion Protection Of Equipment

By December 22, 1999, the exposed exterior surfaces of all aboveground tanks, piping and ancillary equipment must be protected from corrosion. Protection must be provided by using one or a combination of the following methods:

- 21.31.5.1 Corrosion resistant equipment materials such as stainless steel or Monel;
- 21.31.5.2 Non-metallic cladding, coal tar based epoxy coating or similar coating with a minimum finish thickness of ten (10) mils (0.01 inches);
- 21.31.5.3 Paints, consisting of an inhibitive primer coat, intermediate inhibitive and two or more final coats applied to a properly prepared surface or an equivalent or better surface coating as further specified in Subsection 21.41.6 and 21.46.3 of this Article; or
- 21.31.5.4 An equivalent or better surface coating or corrosion protection system designed and installed in accordance with a consensus code, standard or practice of a nationally recognized association or independent testing laboratory.

21.31.6 Replacement Of Rupture Disks

All rupture disks must be replaced with new ones at least every three (3) years, or in accordance with any other frequency recommended by the disk manufacturer, or justified on the basis of operating experience in the spill prevention report.

21.31.7 Vegetation

No vegetation except grass shall be allowed to grow within secondary containment systems. Any grass within the secondary containment system must be trimmed to no longer than six (6) inches. No accumulation of dead

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vegetation which could endanger the tank, if ignited, is allowed within the secondary containment system.

21.31.8 Inspection Of Repaired Equipment

All repaired equipment must be inspected for tightness and soundness before it is returned to service.

21.32.0 - Closure And Change-In-Service

21.32.1 Change-In-Service

21.32.1.1 If the substance stored within an existing tank is switched to a hazardous substance or from one hazardous substance to another, then the storage system must be evaluated by a qualified engineer to determine that materials are compatible, pressure and vacuum relief systems are adequate and that the storage tank and related system is properly designed and suitable for the change-in-service.

21.32.1.2 Before any underground tank or aboveground tank having a volume of ten (10) percent or more beneath the surface of the ground is converted from storing a hazardous to a non-hazardous substance, a site assessment must be performed pursuant to Subsection 21.32.5 of this Part.

21.32.2 Closure Of Tanks Temporarily Out-Of-Service

21.32.2.1 Aboveground and underground storage tanks which are temporarily out-of-service for thirty (30) or more days must be closed as follows:

21.32.2.1.1 All product must be removed from the tank and piping system to the lowest drawoff point. Any waste product removed from the tank must be disposed of in accordance with all applicable state, local and federal requirements. Tanks must be protected from floatation in accordance with generally accepted engineering practices; and

21.32.2.1.2 All manways must be locked or bolted securely and fill lines, gauge openings or pump lines must be capped, locked out or plugged to prevent unauthorized use or practices.

21.32.2.2 Storage tanks or facilities which are temporarily out-of-service are subject to registration, leak detection and reporting requirements of Parts A, B and D of this Article. Tanks out-of-service for more than one (1) year must be inspected or tested and determined to be structurally sound and tight before being returned to service.

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21.32.2.3 Underground tanks and aboveground tanks with a volume which is ten (10) percent or more beneath the surface of the ground which are temporarily out-of-service for more than one (1) year must be permanently closed if the tank has not been protected from corrosion as required in Subsections 21.36.4 and 21.41.4 of this Article. The department may grant a time extension based on the findings of a site assessment performed by the owner or operator.

21.32.3 Closure Of Tanks Permanently Out-Of-Service

21.32.3.1 Any aboveground or underground tank which is permanently out-of-service may be used to store a substance which is not a hazardous substance as defined in Part C of this Article or must be closed as follows:

21.32.3.1.1 Liquid and sludge must be removed from the tank and connecting lines. Any waste products removed must be transported and disposed of in accordance with all applicable state, local and federal requirements;

21.32.3.1.2 The tank must be cleaned and rendered free of hazardous vapors. Provisions must be made for natural breathing of the tank to ensure that the tank remains free of hazardous vapors;

21.32.3.1.3 All connecting lines must be disconnected and removed or securely capped, or locked out or plugged. Manways must be securely fastened in place;

21.32.3.1.4 Aboveground tanks must be stenciled with the date of permanent closure;

21.32.3.1.5 Underground tanks must be removed unless it will be detrimental to a building foundation or other structure. Underground tanks that are abandoned in-place must be filled with a solid inert material (such as sand, concrete slurry, synthetic filler or cellular concrete). If an inert material is used, all voids within the tank must be filled;

21.32.3.1.6 All tanks must be protected from floatation caused by flooding or high ground water level in accordance with generally accepted engineering practices; and

21.32.3.1.7 Secondary containment systems of permanently closed aboveground storage tanks must have drainage for accumulated water or precipitation.

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- 21.32.3.2 If the tank is to be used to store a substance not defined as a hazardous substance, the owner or operator must empty and clean the tank prior to storing the new substance.
- 21.32.3.3 Storage tanks or facilities which have not been closed pursuant to Subsection 21.32.3.1 or 21.32.3.2 above, are subject to all requirements of this Part, Part A and Part B of this Article including, but not limited to, upgrading, periodic tightness testing, inspection, registration and reporting requirements.
- 21.32.3.4 If a tank is to be disposed of as junk, it must be retested for hazardous vapors, rendered vapor free if necessary, cleaned of any residuals or sludge and punched with holes or otherwise made unfit for storage.

21.32.4 Closure Of Tanks Abandoned Prior To Regulations

All tanks taken out-of-service, but still in or on the ground, prior to the effective date of these regulations must be closed in accordance with the requirements of Subsection 21.32.2 or 21.32.3 above.

21.32.5 Site Assessment For Permanent Closure

- 21.32.5.1 The owner or operator must perform a site assessment at the time of permanent closure of any underground tank or aboveground tank ten (10) percent or more in-ground. A site assessment may be required of any such tank permanently closed prior to the effective date of these regulations if in the judgment of the department, the tank poses a current or potential threat to human health or the environment. The site assessment must include soil, vapor, or ground-water monitoring in sufficient depth to determine if environmental contamination exists in the vicinity of the tank site.
- 21.32.5.2 The type of monitoring and number and location of samples must be based on geology, water table contours, aquifer thickness, porosity, background water quality and the substance known or suspected to have been stored at the facility.
- 21.32.5.3 If contaminated soil, vapor, groundwater or free product is discovered, the owner and operator must comply with the corrective action requirements of Section 21.19.0 of this Article.
- 21.32.5.4 The site assessment report must be prepared by a qualified engineer or technician. Records of the date of closure and the report must be incorporated or referenced in the spill prevention report and maintained for the life of the facility.

21.32.6 Reporting Of Out-Of-Service Tanks

The owner of a storage tank system which is to be permanently closed must notify the department pursuant to the requirements of Subsection 21.15.6 of this Article.

21.33.0 - Financial Responsibility

Upon request by the department, an owner and operator must provide evidence of financial responsibility for corrective action and for operating, maintaining or closing storage tanks pursuant to this Part and Parts A, B and E of this Article. Financial responsibility may be evidenced by one or a combination of insurance, guarantee, surety bond, letter of credit, qualification as a self-insurer or other evidence acceptable to the department.

PART E
STANDARDS FOR NEW OR SUBSTANTIALLY MODIFIED
HAZARDOUS SUBSTANCE STORAGE FACILITIES

Part E of this Article shall consist of Sections 21.34.0 through 21.51.0.

21.34.0 - General

21.34.1 Purpose

This Part sets forth standards for all new storage tank systems and additions or replacements to existing storage tank systems.

21.34.2 Applicability

21.34.2.1 This Part applies to hazardous substance bulk storage facilities regulated under Part B of this Article.

21.34.2.2 Beginning six (6) months from the effective date of these regulations, all new storage tank systems or any addition or replacement to part of an existing storage tank system must be constructed, designed and installed pursuant to the provisions of this Part.

21.34.3 Definitions

The definitions found in Section 21.10.0 of this Article shall apply to this Part.

21.34.4 Severability

If any provisions of this Part or its application to any person or circumstances is held to be invalid, the remainder of this Part and the application of that provision to other persons or circumstances shall not be affected.

21.34.5 Variances

21.34.5.1 The department may, upon written request from any person subject to this Part, grant a variance from one or more specific provisions of this Part. An application for a variance must:

21.34.5.1.1 Identify the specific provisions of this Part from which a variance is sought;

21.34.5.1.2 Demonstrate that compliance with the identified provisions would, on the basis of conditions unique to the person's particular situation, tend to impose a substantial economic, technological or safety burden on the person; and

21.34.5.1.3 Demonstrate that the proposed activity will have no significant adverse impact on the public health, safety, welfare or the environment and will be consistent with the

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provisions of the ECL and the performance expected from application of this Part.

21.34.5.2 The department may not grant any variance which would result in regulatory controls less stringent than those in 40 CFR Parts 280 and 281 (see Subsection 21.23.10 of this Article).

21.34.5.3 In granting any variance, the department may impose specific conditions necessary to assure that the subject activity will have no significant adverse impact on the public health, safety, welfare or the environment.

21.34.6 Confidentiality

Any person submitting information to the department pursuant to this Part may, at the time of submission, request that the department exempt such information from disclosure under paragraph (d) of subdivision (2) of section 87 of the Public Officers Law. All requests under this section must be made in accordance with the provisions of 6 NYCRR section 616.7 and all determinations will be made pursuant to that section.

21.34.7 Enforcement

Any person who violates any of the provisions of this Part, or any order issued by the department, shall be liable for the civil, administrative and criminal penalties set forth in Article 71 of the Environmental Conservation Law.

21.34.8 References

Citations used in this Part refer to the publications listed in Subsection 21.23.10 of this Article. These publications are available for inspection at the Department of Environmental Conservation, 50 Wolf Road, Albany, New York, 12233-3520.

21.34.9 Access To Records And Storage Tanks

Any designated officer or employee of the department shall have the right of access as provided in Section 21.12.0 of this Article.

21.34.10 Use Of Equivalent Technology

Where specified in this Part, the Department may approve the use of an equivalent technology method or practice by any person subject to this Part. A request to use equivalent technology must:

21.34.10.1 Identify the applicable provision of this Part;

21.34.10.2 Include evidence, including but not limited to data, plans, specifications and test results that demonstrate that the technology, method or practice desired to be used will protect the public health, safety and welfare and the environment in a manner

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which equals or exceeds the requirements of the applicable provision of this Part.

21.35.0 - General Requirements For Underground Storage

21.35.1 New Underground Tanks - Summary Of Requirements

Beginning six (6) months from the effective date of these regulations, owners and operators of new underground storage tanks must meet the following requirements:

- 21.35.1.1 Tanks must be designed in accordance with Section 21.36.0 of this Part.
- 21.35.1.2 Secondary containment must be designed, constructed and installed as specified in Section 21.37.0 of this Part.
- 21.35.1.3 A leak monitoring system must be installed as specified in Sections 21.38.0 and 21.48.0 of this Part.
- 21.35.1.4 Tank systems must be installed as specified in Section 21.39.0 of this Part.
- 21.35.1.5 New pipes being connected to the tank must be designed, constructed and installed as specified in Sections 21.45.0 through 21.49.0 of this Part.
- 21.35.1.6 Spill/overflow prevention equipment must be installed as specified in Section 21.50.0 of this Part.
- 21.35.1.7 Vents, gauges and alarms must be installed as specified in Section 21.51.0 of this Part.

21.35.2 Compliance With Part D

New storage tank systems must meet all of the requirements of this Part and of Part D of this Article before being placed in service.

21.36.0 - New Underground Tanks

21.36.1 Label Requirements

- 21.36.1.1 All new underground tanks used in Rockland County must bear a permanent stencil, label or plate with the following information:
 - 21.36.1.1.1 A manufacturer's or qualified engineer's statement that, "This tank conforms with Rockland County Sanitary Code - Article 21";

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- 21.36.1.1.2 The standard of design by which the tank was manufactured;
- 21.36.1.1.3 The hazardous substances which may be stored permanently and compatibly within the tank, or reference to a list available from the manufacturer which identifies products compatible with all tank materials;
- 21.36.1.1.4 The year in which the tank was manufactured;
- 21.36.1.1.5 The dimensions, design and working capacity and model number of the tank; and
- 21.36.1.1.6 The name of the manufacturer.

21.36.1.2 A label which shows the information required in Subsection 21.36.1 above, and in Subsection 21.15.8 of this Article, and the date of installation must be conspicuously displayed and permanently affixed at the fill port. It must be readily visible to the carrier and may be imbedded in concrete, welded to the fill port, or otherwise permanently affixed.

21.36.2 Tanks Subject To Scouring

All new underground tanks subject to scouring by the inflow of hazardous materials or subject to wear from manual gauging must be equipped with wear plates, diffusers or alternate means to prevent localized wear or corrosion. If wear plates are used, they must cover an area of at least one hundred and forty-four (144) square inches and be installed in a manner which avoids crevice corrosion.

21.36.3 Tank Designs

21.36.3.1 Underground tanks must be of sufficient structural strength to withstand normal handling and use. They must be chemically compatible with the hazardous substance to be stored and be protected or resistant to all forms of internal and external wear, vibration, shock and corrosion. They must have a stable foundation under all operating conditions and be protected from fire, heat, vacuum and pressure which might cause tank failure. If fiberglass-reinforced-plastic material is used, the material must be of sufficient density and strength to form a hard, impermeable shell which will not crack, wick, wear, soften or separate under normal service conditions. Tanks must be designed with a minimum of thirty (30) years of useful life unless a shorter life expectancy is defined in the spill prevention report.

21.36.3.2 All new underground tanks, their welds, seams and connecting fittings must be factory tested for tightness using generally accepted engineering practices. All tanks sold in New York State

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and Rockland County must be guaranteed by the manufacturer to be tight.

21.36.3.3 All new underground tanks must meet the criteria of this subdivision and must be designed, constructed and installed or certified by a qualified engineer or technician in accordance with one of the following:

21.36.3.3.1 ULC Standard S603;

21.36.3.3.2 ASTM D4021-92 (see Subsection 21.23.10 of this Article); or

21.36.3.3.3 Any other consensus code, practice or standard developed by a nationally recognized association or independent testing laboratory which meet the specifications of this subdivision.

21.36.4 Corrosion Protection

21.36.4.1 All new underground tanks which are in contact with soil and subject to corrosion must be protected from external corrosion by one of the following:

21.36.4.1.1 Corrosion resistant materials; or

21.36.4.1.2 A cathodic protection system.

21.36.4.2 Cathodic protection must consist of one or a combination of the following:

21.36.4.2.1 Sacrificial anodes, and coating as outlined in Subsection 21.36.4.8 below;

21.36.4.2.2 Impressed current; or

21.36.4.2.3 Other method that is designed and installed in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory such as the following: API Publication No. 1632; ULC-S603.1, or NACE Standard RP-02-85 (see Subsection 21.23.10 of this Article).

21.36.4.3 The corrosion protection system must be designed and constructed by a qualified engineer or corrosion specialist and must provide a minimum of thirty (30) years of protection against external corrosion. The engineer or specialist must supervise the installation of all field fabricated corrosion protection systems and pre-fabricated systems where necessary to assure that the system has been installed as designed.

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- 21.36.4.4 Tanks which are protected with sacrificial anodes must be electrically insulated from the piping system if the piping system is constructed of a conductive material unless the cathodic protection system has been designed to protect both the tank and piping system. Electrical insulation must be provided by dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to the stored products and corrosive soils.
- 21.36.4.5 The cathodic protection system must be installed with a monitor that allows for annual review of the adequacy of protection.
- 21.36.4.6 The tank must be isolated from or protected against stray electric currents which include underground cables, electric machinery, railroad systems and electrical grounding rods.
- 21.36.4.7 Tank and piping connections of two dissimilar metals which create a corrosion inducing galvanic cell are prohibited.
- 21.36.4.8 External coatings must be fiberglass-reinforced-plastic, epoxy, or other suitable dielectric material with a minimum thickness of ten (10) mils after curing. The coating must be factory applied or equivalent, have a coefficient of thermal expansion compatible with that of steel and be firmly bonded to the steel. It must be of sufficient strength and density to form a hard, impermeable shell that will not crack, wick, wear, soften, flake or separate and must be non-corrodible under adverse underground electrolytic conditions. The application of the coating must be in strict accordance with the instructions of the supplier of the coating material.
- 21.36.4.9 Coatings must be inspected for air pockets, cracks, blisters, and pinholes, and must be electrically tested for coating faults. Any defects must be repaired in accordance with the manufacturer's instructions prior to installation.

21.37.0 - Secondary Containment For Underground Storage Tanks

21.37.1 General Requirements

- 21.37.1.1 All new underground storage tanks must have a secondary containment system. This must consist of one of the following:
 - 21.37.1.1.1 A double-walled tank;
 - 21.37.1.1.2 A vault;
 - 21.37.1.1.3 A synthetic liner; or
 - 21.37.1.1.4 Any other comparable system designed and

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installed in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory that meets the criteria of this section.

- 21.37.1.2 The secondary containment system must:
- 21.37.1.2.1 Be designed and constructed with a permeability rate to the substance stored of 1×10^{-6} cm/sec or less;
 - 21.37.1.2.2 Be designed, installed and operated to prevent any migration of hazardous substances, or components of hazardous substances, out of the system to the soil, groundwater, or surface water at any time during the use of the tank system;
 - 21.37.1.2.3 Allow for detection and collection of releases, spills and accumulated liquids until the collected material is removed;
 - 21.37.1.2.4 Be constructed of, or lined with materials that are compatible with the hazardous substances to be placed in the storage tank system. It must have sufficient strength and thickness to prevent failure owing to pressure gradients, physical contact with the materials to which it is exposed, climatic conditions, and the normal stress of operation;
 - 21.37.1.2.5 Be placed on a foundation or base capable of providing support to the secondary containment system, and preventing failure due to settlement, compression or uplift; and
 - 21.37.1.2.6 Be provided with a leak detection system that is designed and operated in accordance with Section 21.38.0 of this Part.

21.37.2 Standards For Double-Walled Tanks

Double-walled tanks must be designed, constructed and installed in accordance with the following:

- 21.37.2.1 The outer wall must contain a release from any portion of the inner wall and must enclose the entire primary tank;
- 21.37.2.2 The tank must be designed so that monitoring of the interstitial space for tightness can be readily performed;
- 21.37.2.3 There must be no penetrations of any kind through the outer wall into the tank, except top entry manholes and fittings required for

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filling the tank, venting the tank, or monitoring the tank;

21.37.2.4 The outer wall must be resistant to punctures and protected from corrosion in a manner consistent with Subsection 21.36.4 of this Part; and

21.37.2.5 The outer wall must be designed to contain an inert gas or liquid at a pressure greater than the maximum internal pressure of the inner wall.

21.37.3 Standards For Vaults

Vaults must be water tight, impervious to leakage of hazardous substances, compatible with the substance in storage, and able to withstand chemical deterioration and structural stresses from internal and external causes. The vault must be a continuous structure with a chemical resistant water stop used at all joints. There must be no drain connections or other entries through the vault except that there may be top entry manholes and other top openings for filling and emptying the tank, venting and for monitoring and pumping of hazardous substances which may leak into the vault. The tank or tanks within the vault must be supported, backfilled or bedded in a manner consistent with generally acceptable engineering practices.

21.37.4 Standards For Synthetic Liners

Synthetic liners must be compatible with the substance in storage, be at least sixty (60) mils in thickness and not deteriorate in an underground environment. The life expectancy of the liner must be specified in the spill prevention report. All punctures, tears or inadequate seams in the liner must be repaired prior to backfilling. The liner must be installed with a slope to the sump of at least one-quarter (1/4) of an inch per foot. Since some chemicals will readily diffuse through a synthetic liner, the liner used must have been tested and found resistant to diffusion of the substance stored.

21.38.0 - Monitoring At New Underground Storage Tanks

All new underground tanks must be equipped with leak detection equipment capable of detecting leakage between the tank and secondary containment system and monitored as specified in Subsection 21.28.2.2 of this Article.

21.39.0 - Installation Of Underground Tanks

21.39.1 Application Of New York State Uniform Fire Prevention And Building Code

New underground tanks and ancillary equipment must be installed in a manner consistent with the following sections of the New York State Uniform Fire Prevention and Building Code and NFPA No. 30:

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21.39.1.1 New York State Uniform Fire Prevention and Building Code, 9 NYCRR sections 1002.2 and 1002.5; and

21.39.1.2 NFPA No. 30, sections 2-4.1, 2-4.2, 2-6.6.1, 2-6.6.3, 2-6.6.4, 2-6.6.5 and 2-8 (see Subsection 21.23.10 of this Article).

21.39.2 Backfill

Backfill material must be a non-corrosive, porous, homogeneous substance placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

21.39.3 Burial Depth

Underground tanks must be installed at a depth consistent with NFPA 30, section 2-4.2.

21.39.4 Avoiding Floatation

When subject to the buoyancy effect of water, underground tanks must be anchored to prevent floatation.

21.39.5 Reinstallation Of Used Tanks

21.39.5.1 Used tanks which do not meet standards for new tanks set forth in Section 21.36.0 of this Part cannot be reinstalled for the purpose of hazardous substance storage.

21.39.5.2 If a used tank meets the standards for new tanks, it may be reinstalled if after thorough cleaning and inspection, internally and externally, it is found to be structurally sound and free of pin holes, cracks, structural damage or excessive corrosion or wear. Coatings on such tanks must be in good condition.

21.39.6 Connections

21.39.6.1 All connections to new underground tanks must be located within a containment chamber constructed of a compatible material and capable of containing hazardous substance leaks from the connections. Such chambers must be fitted with a manhole or other means of access so that connections can be inspected.

21.37.6.2 Valves and other ancillary equipment must be protected against physical damage by freezing or vehicular traffic.

21.39.7 Inspection Of Tanks

21.39.7.1 Prior to covering, enclosing, or placing a tank and ancillary equipment in use, the storage tank system must be inspected by a qualified inspector for the following:

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- 21.39.7.1.1 Weld breaks;
- 21.39.7.1.2 Punctures;
- 21.39.7.1.3 Scrapes of protective coatings;
- 21.39.7.1.4 Cracks;
- 21.39.7.1.5 Corrosion;
- 21.39.7.1.6 Other structural damage; and
- 21.39.7.1.7 Improper installation.

21.39.7.2 Before being placed in service, tanks and ancillary equipment must be inspected for tightness in accordance with generally accepted practices.

21.39.7.3 If a storage tank system is found to be leaking or the tank or installation is deficient such that a leak is possible, the owner or operator must remedy such deficiencies prior to the system being placed in use.

21.39.7.4 Upon completion of the test and inspection, the inspector must sign and date a statement certifying that the system meets the standards of this Part.

21.39.7.5 The inspector's statement, records of the test and any repairs necessary to correct deficiencies must be kept for five (5) years following the date of installation and made part of the spill prevention report.

21.39.8 Qualifications Of Tank Installers

Installation of an underground tank must be performed by a qualified installer who is trained in the engineering methods for installing underground tank systems.

21.39.9 Installation Instructions

In addition to the above requirements, all tanks must be installed in strict accordance with the manufacturer's instructions or a consensus code, standard or practice of a nationally recognized association or independent testing laboratory such as API 1615 (see Subsection 21.23.10 of this Article). This includes repair of any damage to tank coatings prior to backfilling.

21.39.10 Notification Of Code Enforcement Official

21.39.10.1 Prior to installing an underground tank, the owner or operator must obtain a building permit, if required, from the authority responsible

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for enforcement of the State Uniform Fire Prevention and Building Code.

21.39.10.2 In addition, any person installing an underground tank must give at least twenty-four (24) hours notice to the local building or fire code enforcement official prior to the commencement of installation. The local code enforcement official must also be given a copy of the tank registration certificate issued by the department pursuant to Section 21.15.0 of this Article.

21.40.0 - General Requirements For Aboveground Storage Tanks

21.40.1 New Aboveground Tanks - Summary Of Requirements

Beginning six (6) months from the effective date of these regulations, owners and operators of new aboveground storage tank systems must meet the following requirements:

- 21.40.1.1 Tanks must be designed as specified in Section 21.41.0 of this Part;
- 21.40.1.2 Secondary containment must be designed, constructed and installed as specified in Section 21.42.0 of this Part;
- 21.40.1.3 A leak monitoring system must be installed as specified in Section 21.43.0 of this Part;
- 21.40.1.4 Tank systems must be installed in accordance with Section 21.44.0 of this Part;
- 21.40.1.5 New pipes being connected to the tank must be designed, constructed and installed as specified in Section 21.45.0 of this Part;
- 21.40.1.6 Spill/overflow prevention equipment must be installed as specified in Section 21.50.0 of this Part; and
- 21.40.1.7 Vents and pressure, vacuum and thermal monitoring systems must be installed as specified in Section 21.51.0 of this Part.

21.40.2 Compliance With Part D

New aboveground storage tanks must meet the requirements of this Part and Part D of this Article before being placed in service.

21.41.0 - New Aboveground Tanks

21.41.1 Tanks Subject To Scouring

All new aboveground storage tanks subject to scouring by the inflow of hazardous materials or subject to wear from manual gauging must be equipped with wear plates, diffusers or alternate means to prevent localized wear or corrosion. If wear plates are used, they must cover an area of at least one hundred and forty-four (144) square inches and be installed in a manner which avoids crevice corrosion.

21.41.2 Tank Designs

21.41.2.1 Aboveground storage tanks must be of sufficient structural strength to withstand normal handling and use. They must be chemically compatible with the hazardous substance being stored and with corrosive soils. They must be protected from, or resistant to, all forms of internal and external wear, vibration, shock and corrosion. They must have a stable foundation under all operating conditions and be protected from fire, heat, vacuum and pressure which might cause tank failure. Tanks must be protected from physical damage by moving machinery such as fork lifts and trucks. If fiberglass-reinforced-plastic material is used, the material must be of sufficient density and strength to form a hard, impermeable shell which will not crack, wick, wear, soften or separate under normal service conditions. All tanks must be designed with a minimum of thirty (30) years of useful life unless a shorter life expectancy is defined in the spill prevention report.

21.41.2.2 All new aboveground storage tanks must be designed, constructed and installed or certified by a qualified engineer or technician in accordance with one of the following:

21.41.3 Tanks Subject To Melting

All aboveground storage tanks constructed of plastic, cross-linked polyolefin, high density polyethylene, fiberglass-reinforced-plastic or any other material subject to melting when exposed to fire must be suitably protected against fire and located so that any spill or release resulting from the failure of these materials could not unduly expose persons, buildings, structures or the environment.

21.41.4 Corrosion Protection For Tank Bottoms

21.41.4.1 Bottoms of new tanks which rest on or in the soil and are subject to corrosion must be protected from external corrosion by one of the following:

21.41.4.1.1 Corrosion resistant materials; or

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- 21.41.4.1.2 A cathodic protection system.
- 21.41.4.2 Cathodic protection must consist of one or a combination of the following:
 - 21.41.4.2.1 Sacrificial anodes and coating as outlined in Subsection 21.41.4.8 below;
 - 21.41.4.2.2 Impressed current; or
 - 21.41.4.2.3 Other method specified in a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory such as API 651 (see Subsection 21.23.10 of this Article).
- 21.41.4.3 The cathodic protection system must be designed and constructed by a qualified engineer or corrosion specialist and must provide a minimum of thirty (30) years of protection against external corrosion. The engineer or specialist must supervise the installation of all field fabricated systems and pre-fabricated systems where necessary to assure that the system has been installed as designed.
- 21.41.4.4 Tanks which are protected with sacrificial anodes must be electrically insulated from the piping system if the piping system is constructed of a conductive material, unless the cathodic protection system has been designed to protect the entire system. Electrical insulation must be provided by dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to the stored products and corrosive soils.
- 21.41.4.5 The cathodic protection system must be installed with a monitor that allows for annual review of the adequacy of protection.
- 21.41.4.6 The tank must be isolated from or protected against stray electric currents which include underground cables, electric machinery, railroad systems and electrical grounding rods.
- 21.41.4.7 Tank and piping connections of two dissimilar metals which create a corrosion inducing galvanic cell are prohibited.
- 21.41.4.8 External coatings must be fiberglass-reinforced-plastic, epoxy, or other suitable dielectric material with a minimum thickness of ten (10) mils after curing. The coating must have a coefficient of thermal expansion compatible with that of steel and be firmly bonded to the steel. It must be of sufficient strength and density to form a hard, impermeable shell that will not crack, wick, wear, soften, flake or separate and must be non-corrodible under adverse underground electrolytic conditions. The application of

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the coating must be in strict accordance with the instructions of the supplier of the coating material.

21.41.4.9 Coatings must be inspected for air pockets, cracks, blisters, and pinholes, and must be electrically tested for coating short circuits or coating faults. Any defects must be repaired in accordance with the manufacturer's instructions prior to installation.

21.41.5 Manways

All new aboveground tanks with a storage capacity of five-thousand (5000) gallons or more must be provided with an access lid or manhole.

21.41.6 Painting Of Exterior Tank Surfaces

Unless constructed of a corrosion-resistant material, the exterior surfaces of new aboveground storage tanks must be protected from corrosion. The surface should be prepared to a SSPC SP #6 blast (see Subsection 21.23.10 of this Article), or equivalent method, and protected by an inhibitive primer coat, intermediate inhibitive and two or more final coats of paint, or have an equivalent or better surface coating or protective system designed to prevent corrosion and deterioration.

21.41.7 Impermeable Barriers Under Tank Bottoms

Any new aboveground tank which is designed to rest on the ground must be constructed with a double bottom or underlain by an impervious barrier such as a concrete pad or a cutoff barrier. The permeability rate of the barrier relative to the substance stored must be equal to or less than 1×10^{-6} cm/sec. The barrier must not deteriorate in an underground environment or in the presence of the hazardous substance being stored.

21.41.8 Explosion Protection

Tanks must be protected from explosion in accordance with generally accepted engineering practices. Protection must be provided by fail-safe cooling systems, fire-proofing, depressurizing valves, foundation sloping to prevent burning liquids from accumulating under the tank, or other equally effective means determined by a qualified engineer and acceptable to the department.

21.42.0 - Secondary Containment For Aboveground Storage Tanks

21.42.1 General Requirements

21.42.1.1 All new aboveground storage tanks used to store a hazardous substance must have a secondary containment system which collects and contains a leak or spill. The secondary containment system must prevent spills from entering the land or waters of the State that might result from tank rupture, failure of pumps, valves

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and other ancillary equipment and overfilling. In addition, the system must isolate and protect the tank from vehicular traffic, fire, and spills of incompatible substances which might occur in adjacent storage or work areas. Secondary containment is not required for aboveground piping systems. If the stored substance is a liquid at storage conditions and a gas at ambient conditions, then secondary containment must be provided to contain the liquid component of any spill until the phase change from liquid to gas occurs or the spill is cleaned up, whichever comes first. Secondary containment systems must consist of one of the following:

- 21.42.1.1.1 A surrounding dike and impoundment system;
- 21.42.1.1.2 A remote catch tank or impoundment area; or
- 21.24.1.1.3 Another system or practice which meets the requirements of Subsection 21.42.1.1 above and which is designed and installed in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory.

21.42.1.2 The secondary containment system must:

- 21.42.1.2.1 Be designed and constructed with a permeability rate to the substance stored of 1×10^{-6} cm/sec or less;
- 21.42.1.2.2 Be designed, installed, and operated to prevent any migration of hazardous substances, components of hazardous substances or degraded products, out of the system to the soil, groundwater or surface waters before cleanup occurs;
- 21.42.1.2.3 Be designed so that overfills from connections, vents and pressure relief devices occur within the secondary containment system or are directed to another appropriate collection device;
- 21.42.1.2.4 Be constructed, coated or lined with materials that are chemically compatible with the substance stored and the environment. All joints must be tight and leak-free using one or a combination of stops, grouts, coatings, gaskets or welds. The secondary containment system must have sufficient structural strength and thickness to withstand equipment and pedestrian traffic, hydrostatic forces, frost heaving and weathering;

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- 21.42.1.2.5 Be placed on a foundation which prevents settlement, compression or uplift;
- 21.42.1.2.6 Be equipped with a sump and manually controlled pump or siphon, manually controlled dike valve, or any other manually controlled drainage system to permit the drainage of liquids resulting from leaks, spills or precipitation. Control of the pump, siphon or valve must be possible from outside of the diked area. All valves for gravity drainage systems must be locked in a closed position except when the operator is draining accumulated liquids from the containment area. Spilled or leaked substances must be removed from the secondary containment system within twenty-four (24) hours; and
- 21.42.1.2.7 Be capable of containing at least one hundred and ten (110) percent of the capacity of the largest tank or manifolded tanks that are connected in such a way as to permit the combined contents to spill, whichever is greater.

21.42.1.3 Stormwater discharges from a secondary containment system must be uncontaminated. Stormwater which is contaminated must be discharged and treated in accordance with department requirements imposed under 6 NYCRR Parts 750-758 for protection of the county's waters.

21.42.1.4 If clay soil is used for the secondary containment system it must be installed in accordance with generally accepted engineering practices and must be of such character that any spill will be readily recoverable and will result in a minimal amount of soil contamination.

21.42.1.5 If a pre-engineered manufactured clay liner is used, it must be installed in accordance with the manufacturer's instructions.

21.42.1.6 If a synthetic liner is used, it must be compatible with the substance in storage, be at least sixty (60) mils in thickness, not deteriorate in an underground environment and have a life expectancy defined in the spill prevention report based on manufacturer's specifications or warranty and operator use. All punctures, tears or inadequate seams in the liner must be repaired prior to placing in use. Since some chemicals will readily diffuse through a synthetic liner, the synthetic liner used must have been tested and found resistant to diffusion of the substance stored.

21.42.2 Standards For Dike And Impoundment Systems

21.42.2.1 In addition to the requirements of Subsection 21.42.1 above, a dike system used for secondary containment must be constructed

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in accordance with NFPA No. 30, section 2-3.4.3 (see Subsection 21.23.10 of this Article), unless specified otherwise in these regulations.

- 21.42.2.2 All dikes and impoundment floors subject to hydraulic pressure must be designed to prevent migration of moisture into the dike system.
- 21.42.2.3 If constructed within a floodplain, the dike must be designed and installed to withstand structural damage and overtopping by a one-hundred (100) year flood.
- 21.42.2.4 A slope of not less than one (1) percent away from the tank must be provided for at least fifty (50) feet or to the dike base, whichever is less.
- 21.42.2.5 To permit access, the outside base of the dike at ground level must be no closer than ten (10) feet to any property line that is or can be built upon.
- 21.42.2.6 The walls of the diked area must not exceed an average height of six (6) feet above interior grade, unless provisions are made for safe access and egress to tanks, valves and other equipment.
- 21.42.2.7 Each diked area with two or more tanks containing a flammable, combustible or unstable hazardous liquid must be subdivided pursuant to NFPA No. 30, section 2-3.4.3(g) (see Subsection 21.23.10 of this Article). The subdivision may be by intermediate dikes, drainage channels or curbs, and must prevent spills from endangering adjacent tanks within the diked area.

21.42.3 Standards For Remote Impounding

Remote catch tanks and surface impounding areas used for secondary containment must comply with the following:

- 21.42.3.1 All of the general requirements of Subsection 21.42.1 above must be followed;
- 21.42.3.2 A slope of not less than one (1) percent away from the tank must be provided so that accumulated liquid drains away from the tank to the sump;
- 21.42.3.3 The route of the drainage system must be located so that if liquids in the drainage system are ignited, the fire will not seriously expose tanks or adjoining property; and
- 21.42.3.4 The confines of the surface impounding area must be located so that when filled to capacity, the liquid level will be no closer than fifty (50) feet from any property line that is or can be built upon, or from any tank.

21.43.0 - Monitoring Systems For New Aboveground Storage

- 21.43.1 All new aboveground tanks must have a system for monitoring leakage between the tank bottom and the secondary containment system. This may include perforated gravity collection pipes or channels in a concrete foundation or other equivalent method acceptable to the department. Monitoring may be accomplished by visual, mechanical, electronic or other means acceptable to the department. Tanks which are entirely aboveground, such as tanks on racks, cradles or stilts, may be visually monitored for leakage to meet this requirement.
- 21.43.2 Observation wells or other systems which monitor the soil or groundwater external to the secondary containment system do not satisfy the leak detection requirements of this section.

21.44.0 - Installation Of Aboveground Tanks

21.44.1 Application Of New York State Uniform Fire Prevention And Building Code

Above ground storage tanks and ancillary equipment must be installed in a manner consistent with the New York State Uniform Fire Prevention and Building Code, 9 NYCRR sections 1002 and 1171.2.

21.44.2 Foundation Design

- 21.44.2.1 New aboveground storage tanks must have a stable and well drained foundation, footing and structural support which are capable of supporting the total weight of the tank when full. Supports, foundations and anchorage of all tanks must be in accordance with NFPA No. 30, sections 2-6.1, 2-6.2, 2-6.3, 2-6.4 and 2-6.5 (see Subsection 21.23.10 of this Article).
- 21.44.2.2 Horizontal aboveground tanks must be supported in such a manner as to permit expansion and contraction and to prevent the concentration of excessive loads on the supporting portion of the shell. The bearing afforded by the saddles must extend over at least one-third (1/3) of the circumference of the shell. If bearing of less than one-third (1/3) is used, the design must be approved by a qualified engineer and be documented or referenced in the spill prevention report. Suitable means for preventing corrosion must be provided on that portion of the tank in contact with the foundations or saddles.
- 21.44.2.3 Tanks, piping and ancillary equipment that are exposed to temperatures of less than thirty-two (32) degrees Fahrenheit must be supported in such a way, or supplied with heat, to prevent the effects of freezing and frost heaving of the foundation.

21.44.3 Avoiding Traffic Hazards

New aboveground tanks, piping and ancillary equipment must be protected from physical damage that may result from moving machinery or vehicles, such as fork lifts, automobiles or trucks.

21.44.4 Separation Of Incompatible Substances

All new aboveground tanks must be separated from incompatible hazardous substances. One means of accomplishing this separation is by installing separate independent secondary containment systems capable of preventing the inadvertent mixing of the incompatible substances in the event of a leak, spill or overflow.

21.44.5 Emergency Response Equipment

All new aboveground tanks and dikes must be accessible by fire fighting and other emergency response equipment.

21.44.6 Inspection Of Tanks

21.44.6.1 Prior to placing a tank and ancillary equipment in use, the storage tank system must be inspected by a qualified inspector for the presence of any of the following items:

21.44.6.1.1 Weld breaks;

21.44.6.1.2 Punctures;

21.44.6.1.3 Scrapes of protective coatings;

21.44.6.1.4 Cracks;

21.44.6.1.5 Corrosion;

21.44.6.1.6 Structural damage; and

21.44.6.1.7 Improper installation.

21.44.6.2 In addition to the above, tanks and ancillary equipment must be tested for tightness and inspected in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory which meets the standards of this section such as API 650 or API 620. (See Subsection 21.23.10 of this Article). If a pneumatic test is used, all fittings, welds and joints must be coated with a soap solution and inspected for air leaks.

21.44.6.3 If a storage tank system is found to be leaking or the tank or installation is deficient such that a leak is possible, the owner or

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operator must remedy such deficiencies prior to the storage tank system being placed in use.

21.44.6.4 Upon completion of the test and inspection, the inspector must sign and date a statement certifying that the system meets the standards of this Part.

21.44.6.5 The inspector's statement and record of the test and repairs necessary to correct deficiencies must be kept for five (5) years following the date of installation and made part of the spill prevention report.

21.44.7 Qualifications Of Tank Installers

Installation of an aboveground tank must be performed by a qualified installer or technician who is trained in the methods of installing aboveground tanks.

21.44.8 Manufacturer's Instructions

In addition to the above requirements, all tanks must be installed in strict accordance with manufacturer's instructions.

21.44.9 Reinstallation Of Used Tanks

21.44.9.1 Used tanks which do not meet the standards for new tanks set forth in Section 21.41.0 of this Part cannot be reinstalled for the purpose of hazardous substance storage.

21.44.9.2 If a tank meets the standards for new tanks, it may be reinstalled if after thorough cleaning and inspection, internally and externally, it is found to be structurally sound and free of pin holes, cracks, structural damage or excessive corrosion or wear. Coatings on such tanks must be in good condition.

21.44.10 Notification Of Code Enforcement Official

21.44.10.1 Prior to installing an aboveground tank, the owner or operator must obtain a building permit, if required, from the authority responsible for enforcement of the State Uniform Fire Prevention and Building Code.

21.44.10.2 In addition, any person installing an aboveground tank must give at least twenty-four (24) hour notice to the local building or fire code enforcement official prior to the commencement of installation. The local code enforcement official must also be given a copy of the tank registration certificate as issued by the department pursuant to Section 21.15.0 of this Article.

21.45.0 - General Requirements For Piping Systems

21.45.1 New Piping - Summary Of Requirements

Beginning six (6) months from the effective date of these regulations, all new piping must meet the following requirements:

- 21.45.1.1 Piping must be designed, labeled, protected and otherwise constructed in accordance with Section 21.46.0 of this Part;
- 21.45.1.2 On-ground and underground piping systems must be installed with secondary containment as specified in Section 21.47.0 of this Part;
- 21.45.1.3 On-ground and underground piping systems must be provided with leak monitoring as specified in Section 21.48.0 of this Part;
- 21.45.1.4 Piping systems must be installed as specified in Section 21.49.0 of this Part; and
- 21.45.1.5 All new piping must pass an inspection as specified in Subsection 21.49.5 of this Part before being placed in service.

21.45.2 Compliance With Part D

New piping systems must meet the requirements of this Part and Part D of this Article before being placed in service.

21.46.0 - New Piping Systems

21.46.1 General Requirements

21.46.1.1 New piping systems must be compatible with the substance(s) stored and be protected or resistant to all forms of internal and external wear, vibration, shock and corrosion. They must be free of leakage, structurally sound, properly supported under all operating conditions and be protected from fire, heat, vacuum and pressure which would cause the system to fail. Pipes must be designed to prevent damage from expansion, jarring, vibration, contraction and frost. The life expectancy of the piping system must be specified in the spill prevention report.

21.46.1.2 New piping systems must be designed and installed in accordance with one or more of the following:

21.46.1.2.1 ULC-C107.7;

21.46.1.2.2 ASTM D2996-88; (see Subsection 21.23.10 of this Article); or

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- 21.46.1.2.3 A comparable consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory which meet the standards of this Section.
- 21.46.1.3 Adequate provisions must be made to protect all exposed piping from physical damage that might result from moving machinery such as fork lifts, automobiles and trucks.
- 21.46.1.4 Joint compounds and gaskets must be compatible with the substance(s) in storage.
- 21.46.1.5 Piping must contain shut-off valves located adjacent to pump or compressor connections.
- 21.46.1.6 Flexible connectors, elbows, loops, expansion chambers or other measures must be installed singularly, or in combination, to allow for movement and prevent damage from water hammer.
- 21.46.1.7 All piping systems that carry liquid hazardous substances which expand upon freezing must be protected from freezing or must have provisions to prevent rupture due to freezing of the hazardous substance.
- 21.46.1.8 Refrigerated piping systems must be constructed of materials suitable for extreme temperatures and pressures in the storage system.
- 21.46.1.9 All piping systems which employ screw-type fittings must be provided with means to prevent leakage from these fittings.

21.46.2 Corrosion Protection For Piping Systems

- 21.46.2.1 All new piping systems in contact with the soil and subject to corrosion must be protected from external corrosion by one of the following:
 - 21.46.2.1.1 Corrosion resistant materials; or
 - 21.46.2.1.2 A cathodic protection system.
- 21.46.2.2 Cathodic protection must consist of one or a combination of the following:
 - 21.46.2.2.1 Sacrificial anodes, and coating as outlined in Subsection 21.46.2.8 below;
 - 21.46.2.2.2 Impressed current; or
 - 21.46.2.2.3 other method specified in a consensus code, standard or practice developed by a nationally

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recognized association or independent testing laboratory which meet the standards of this Section, such as the following: API 1632; or NACE Standard RP-01-69 (see Subsection 21.23.10 of this Article).

- 21.46.2.3 The corrosion protection system must be designed and constructed by a qualified engineer or corrosion specialist and must be designed to provide a minimum of thirty (30) years of protection against external corrosion. The engineer or specialist must supervise the installation of all field fabricated protection systems and pre-fabricated systems where it is necessary to assure that the system has been installed as designed.
- 21.46.2.4 Piping which is protected by cathodic protection other than impressed current must be electrically insulated from the tank unless the cathodic protection has been designed to protect the tank and piping. This insulation must be provided by dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to the stored products or corrosive soils.
- 21.46.2.5 Each cathodic protection system must have a monitor that allows the adequacy of the cathodic protection system to be checked on an annual basis.
- 21.46.2.6 The piping system must be isolated from, or protected against, sources of stray electric current which include underground cables, electric machinery, railroad systems and electrical grounding rods.
- 21.46.2.7 Tank and piping connections of two dissimilar metals which create a corrosion inducing galvanic cell are prohibited.
- 21.46.2.8 External coatings must be fiberglass reinforced plastic, epoxy, or any other suitable dielectric material with a minimum thickness of ten (10) mils after curing. The coating must be factory applied, or equivalent, and have a coefficient of thermal expansion compatible with that of steel and be firmly bonded to the steel. It must be of sufficient strength and density to form a hard, impermeable shell that will not crack, wick, wear, soften, flake or separate and must be non-corrodible under adverse underground electrolytic conditions. The application of the coating must be in strict accordance with the instructions of the supplier of the coating material.
- 21.46.2.9 Coatings must be inspected for air pockets, cracks, blisters, and pinholes, and must be electrically tested for coating short circuits or coating faults. Any defects must be repaired in accordance with the manufacturer's instructions prior to installation.

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21.46.3 Aboveground Piping

- 21.46.3.1 Unless constructed of a corrosion resistant material, the exterior surfaces of aboveground piping must be protected from corrosion. The surface must be prepared to a SSPC SP #6 blast, (see Subsection 21.23.10 of this Article), or equivalent, and be protected by an inhibitive primer coat, intermediate inhibitive and two or more final coats of paint, or have an equivalent or better surface coating or protective system designed to prevent corrosion and deterioration.
- 21.46.3.2 All new permanent aboveground piping greater than two (2) inches in diameter must have welded or flanged connections or be plastic lined metal pipes with flared end connections. Screwed connections are not acceptable where the threads are exposed to hazardous substances flowing within the piping. This does not apply to piping components such as gauges and instruments not normally available in flange connections.
- 21.46.3.3 Piping passing through dike walls must be designed to prevent excessive stresses as a result of settlement or fire exposure.
- 21.46.3.4 All new aboveground piping systems must bear a stencil, label or plate which contains the chemical name or common name if the chemical name is not appropriate, for the substance stored. The stencil, label or plate must be located at all valves, pumps, switches and on each side of any wall where piping enters or exits. At least one (1) conspicuously visible label must be provided at each end of the piping.

21.47.0 - Secondary Containment For On-Ground And Underground Piping Systems

21.47.1 General Requirements

- 21.47.1.1 All new on-ground and underground piping systems must be installed with secondary containment or other acceptable means of detecting leakage and preventing it from entering the environment. This must consist of one of the following:
 - 21.47.1.1.1 Double-walled piping;
 - 21.47.1.1.2 A synthetic trench liner; or
 - 21.47.1.1.3 Other method that meets the requirements of this section and is designed and constructed in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory which meet the standards of this Section.

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- 21.47.1.2 The secondary containment system must:
- 21.47.1.2.1 Be designed and constructed with a permeability rate to the substance stored of 1×10^{-6} cm/sec or less;
 - 21.47.1.2.2 Be designed, installed, and operated to prevent any migration of hazardous substances, components of hazardous substances or degraded products, out of the system to the environment at any time during the use of the piping system;
 - 21.47.1.2.3 Allow for detection and collection of releases, spills and accumulated liquids until the collected material is removed;
 - 21.47.1.2.4 Be constructed of, or lined with materials that are compatible with the hazardous substances to be placed in the piping system, and have sufficient strength and thickness to prevent failure due to physical contact with the materials to which it is exposed, climatic conditions, and the stress of daily operation;
 - 21.47.1.2.5 Be placed on a suitable foundation which prevents failure due to settlement, compression or uplift;
 - 21.47.1.2.6 Be sloped or otherwise designed and operated to drain and remove liquids resulting from leaks, spills and precipitation. Spilled or leaked substances must be removed from the secondary containment system within twenty-four (24) hours. If the owner or operator can demonstrate that removal of the spilled or leaked substance, or accumulated precipitation can not be accomplished within twenty-four (24) hours, then it must be removed in as timely a manner as possible to prevent harm to human health and the environment; and
 - 21.47.1.2.7 Be provided with a leak detection system that is designed and operated so that it will either detect the failure of the primary containment structure or the presence of any spill, leak, or release of hazardous substance or accumulated liquid in the secondary containment system within two (2) hours. If the owner or operator can demonstrate that existing detection technologies or site conditions will not allow detection of a spill, leak or release within two (2) hours, then the leak detection system must detect failure of the primary containment structure at the earliest time practical.

21.47.2 Standards For Secondary Containment

- 21.47.2.1 Double-walled piping. If the secondary containment system consists of double-walled piping, the piping must be constructed in accordance with the following:
- 21.47.2.1.1 Outer walls of double-walled piping must be protected from corrosion as prescribed in Subsection 21.46.2 of this Part;
 - 21.47.2.1.2 The outer jacket must enclose the entire primary piping system;
 - 21.47.2.1.3 The jacket must be designed to allow for monitoring of leaks as specified in Subsection 21.48.2 of this Part; and
 - 21.47.2.1.4 The jacket must allow for safe venting of vapors.
- 21.47.2.2 Synthetic trench liners. If a synthetic liner is used for secondary containment, it must be constructed and installed in accordance with Subsection 21.37.4 of this Part. In addition, the liner must entirely enclose and encapsulate the piping system; all punctures, tears or inadequate seams in the liner must be repaired prior to backfilling; and the liner must be installed with a slope of at least one-quarter (1/4) of an inch per foot which channels any leaked product to a sump or other suitable receiver.

21.48.0 - Monitoring Of New On-Ground And Underground Piping Systems

21.48.1 Line Leak Detectors

All on-ground or underground piping that conveys hazardous substances under pressure must be equipped with an automatic line leak detector which alert the operator to the presence of a leak by restricting or shutting off the flow of hazardous substances through the piping or by triggering an audible or visual alarm. These devices must detect leaks equivalent to three (3) gallons per hour at ten (10) pounds per square inch gauge (psig) line pressure within one hour with a probability of detection of ninety-five (95) percent and a probability of false alarm of five (5) percent or less.

21.48.2 Interstitial Monitoring

All new on-ground and underground piping must be equipped with leak detection equipment capable of detecting leakage between the piping and the secondary containment system.

21.49.0 - Installation Of Piping Systems

21.49.1 General Requirements

All piping systems must be installed in accordance with generally accepted engineering practices. All joints must be liquid and air tight.

21.49.2 Backfill

All new piping systems that are placed underground and are backfilled must be provided with a backfill material that is a non-corrosive, porous, homogeneous substance, which is installed so that the backfill is placed completely around the piping and compacted to ensure that the piping is uniformly supported. Backfill of at least six (6) inches in depth must be placed underneath the piping.

21.49.3 Burial Depth

All new piping systems buried underground must be placed so that the top of the piping is at least eighteen (18) inches below the surface of the ground. Should conditions make compliance with this requirement impracticable, precautions must be taken to prevent physical damage to the piping. It is not necessary to cover the portion of the piping to which an access port is affixed.

21.49.4 Corrosion Protection

The installation of a corrosion protection system that is field fabricated must be supervised by a corrosion expert to ensure proper installation.

21.49.5 Inspection Of New Piping

21.49.5.1 Prior to covering, enclosing, or placing a new piping system in use, the system must be inspected by a qualified inspector in accordance with a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory which meets the standards of this section. This must include an inspection for the presence of any of the following items:

- 21.49.5.1.1 Weld breaks;
- 21.49.5.1.2 Punctures;
- 21.49.5.1.3 Scrapes of protective coatings;
- 21.49.5.1.4 Cracks;
- 21.49.5.1.5 Corrosion;
- 21.49.5.1.6 Structural damage; and

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21.49.5.1.7 Improper installation.

21.49.5.2 If a piping system is found not to be tight or to be defective in any way, all repairs necessary to remedy the leaks or deficiencies in the system must be performed prior to the system being placed in use.

21.49.5.3 Upon completion of the test and inspection, the inspector must sign and date a certification statement verifying that to the best of his or her knowledge, the installation was properly conducted on the date(s) shown.

21.49.5.4 Record of the examination, procedures, inspection personnel and personnel qualifications must be kept for five (5) years following the date of inspection and made part of the spill prevention report.

21.49.6 Installation Instructions

In addition to the above requirements, all piping must be installed in strict accordance with the manufacturer's instructions and a consensus code, standard or practice developed by a nationally recognized association or independent testing laboratory consistent with the standards of this Section such as API 1615. (See Subsection 21.23.10 of this Article). This includes repair of any damaged coatings prior to backfilling.

21.50.0 - Spill And Overfill Prevention

21.50.1 General Requirement

The owner or operator must use overfill and spill prevention equipment and practices on all new hazardous substance storage tank fill systems. Responsibility and operating requirements set forth in Subsections 21.26.1 and 21.26.2, respectively, of this Article must also be followed for all transfers of hazardous substances.

21.50.2 Standards For Spill And Overfill Prevention

21.50.2.1 Overfill prevention equipment and practices must consist of the following:

21.50.2.1.1 New aboveground and underground tanks must be equipped with one of the following: a device which will alert the operator or carrier by triggering either a high-level warning alarm when the product reaches ninety-five percent (95%) of the working capacity of the tank; a device such as a high-level trip (delivery cut-off system) which will automatically shut off or restrict flow when the product level reaches the working capacity of the tank; an automatic by-pass to an overflow tank if the overflow tank is equipped

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with overflow protection or other equivalent systems for preventing overfills;

21.50.2.1.2 Monitoring wells and fill ports must be labeled in accordance with Subsections 21.28.2.4 and 21.26.2.8 of this Article; and

21.50.2.1.3 New aboveground tanks must be equipped with a gauge or other monitoring device which accurately determines the level or quantity of the substance in the tank. The gauge must be accessible to the operator or carrier and be installed so that it can be conveniently read. The design capacity, working capacity, and identification number of the tank must be clearly marked at the gauge. Where filling or emptying is remotely operated, all gauges, gauge labeling and alarms required above must be located at the remote operating station. In addition, remote flow controls shall be provided.

21.50.2.2 Valves and couplings must meet the following standards:

21.50.2.2.1 Any coupling or open-ended valve used for making a transfer must be located within the secondary containment system of the transfer station;

21.50.2.2.2 Where a product transfer line or fill line is not drained of liquid upon completion of a transfer operation, it must be equipped with a valve such as a dry disconnect shutoff valve which prevents discharges from the line;

21.50.2.2.3 Where siphoning or back flow is possible, fill pipes must be equipped with a properly functioning check valve, siphon break or equivalent device or system which provides automatic protection against backflow; and

21.50.2.2.4 Each tank connection through which a hazardous substance can normally flow must be equipped with an operating valve or other appropriate means to control such flow. Valves must have the proper capacity and control characteristics. The valve must have a proper mechanical balance for the application so that it is capable of shutting off flow against the operating pressure and must be capable of being manually controlled or have fail-safe features which operate in the event of a power loss.

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21.50.3 Secondary Containment For Transfers

21.50.3.1 Transfer of hazardous substances must take place within a transfer station which is equipped with a permanently installed secondary containment system.

21.50.3.2 This containment system must:

21.50.3.2.1 Be capable of collecting leaks and spills which are likely to occur during the transfer including leaks or spills from connections, couplings, vents, pumps and valves, hose failure or overturning of a container. Open-ended fill lines must be located with the secondary containment system;

21.50.3.2.2 Be designed and constructed with a permeability rate to the substance(s) transferred of less than 1×10^{-6} cm/sec. Properly designed concrete which has water stops on all seams and is compatible with the substance(s) stored or other equivalent or superior material satisfies this requirement;

21.50.3.2.3 Be designed, installed, and operated to prevent any migration of hazardous substances, components of hazardous substances or degraded products, out of the system to the soil, groundwater, or surface waters before cleanup occurs. The system does not have to be designed to contain the gaseous component of a spill;

21.50.3.2.4 Be constructed, coated, or lined with materials that are compatible with the substances to be transferred and the environment. The system must have sufficient strength and thickness to withstand wear, hydrostatic forces, frost heaving and weathering. It must support without failure, any vehicle brought into the transfer station, and must have a foundation which prevents failure due to settlement, compression, or uplift;

21.50.3.2.5 Be equipped with a sump and either a manually controlled pump or siphon, manually controlled dike valve, or any other manually controlled drainage system to permit the drainage of liquids resulting from leaks, spills, and precipitation. Control of the pump, siphon or valve must be possible from outside of the diked area. All drainage systems must be locked in a closed position when a transfer of a hazardous substance is in progress. Spilled or leaked substances must be removed from the

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containment system within twenty-four (24) hours;
and

21.50.3.2.6 Contain the volume of any leak or spill likely to occur at the transfer station.

21.50.3.3 Stormwater must be pumped from slop tanks and catch tanks to allow for the containment of the volume required by Subsection 21.50.3.2.6 above.

21.51.0 – Venting And Pressure/Vacuum/Thermal Monitoring

21.51.1 General Venting Requirements

21.51.1.1 All tanks must be protected from over-pressurization and excessive vacuums such as may be caused by operator error, filling, emptying, atmospheric temperature changes, pumping, refrigeration, heating and fire exposure. Protection must be provided by one or a combination of vents, rupture discs, pressure/vacuum relief devices, controllers, fail-safe vessel designs or other means determined by a qualified engineer.

21.51.1.2 If a pilot-operated relief valve is used, it must be designed so that the main valve will open automatically and will protect the tank in the event of failure of the pilot valve or another essential functioning device.

21.51.1.3 Open vents must be provided with a flame-arresting device, if used on a tank containing a flammable hazardous substance or if used on tanks containing a hazardous substance that is heated above its flash point.

21.51.1.4 All vent discharge openings must be designed and constructed to prevent interference of operation due to precipitation.

21.51.1.4 Discharge from vents must not terminate in or underneath any building if the discharge could pose a fire, health or safety problem.

21.51.1.6 All vents must have provisions for draining any condensate which may accumulate.

21.51.1.7 Vents must be so arranged that the possibility of tampering will be minimized.

21.51.1.8 Vents must have direct contact with the vapor space of the tank.

21.51.1.9 The capacity of the vent must not be restricted below design.

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21.51.1.10 Tanks fitted with relief valves must not be equipped with an isolation valve below it unless two (2) or more relief valves are provided and isolation valves are interlocked.

21.51.1.11 All cooled tanks with sealed double-wall construction must have a pressure relief valve on the outer wall in addition to a pressure relief valve or safety disk on the inner tank.

21.51.2 Normal Vents

21.51.2.1 All closed-roof atmospheric tanks and all low-pressure tanks must be equipped with normal vents designed to accommodate:

21.51.2.1.1 Inbreathing resulting from maximum outflow of hazardous substances from the tank;

21.51.2.1.2 Inbreathing resulting from contraction of vapors caused by maximum decrease in atmospheric temperature;

21.51.2.1.3 Outbreathing resulting from maximum inflow of hazardous substances into the tank and maximum evaporation caused by such inflow; and

21.51.2.1.4 Outbreathing resulting from expansion and evaporation that result from maximum increase in atmospheric temperature (thermal breathing).

21.51.2.2 Normal vents may consist of a pilot-operated relief valve, a pressure relief valve, a pressure-vacuum valve, a conservation vent, an open vent or an equivalent device or combination of devices.

21.51.3 Emergency Vents

All atmospheric, low-pressure and high-pressure aboveground tanks must have emergency vents to insure that the safe pressure for that tank is not exceeded. Emergency vents must be designed by a qualified engineer in accordance with generally accepted engineering practices. This may include: larger or additional open vents, pressure-vacuum valves, pressure relief valves, a gauge hatch that permits the cover to lift under abnormal internal pressure, a manhole cover that lifts when exposed to abnormal internal pressure; or other practice for pressure and vacuum relief.

21.51.4 Labeling Of Pressure/Vacuum Relief Valves

Where safety, pressure relief or vacuum relief valves are used, each must be permanently labeled with the information listed below. The labeling may be provided on the valve itself, or on a plate or plates securely fastened to the valve. Labels may be stamped, etched, impressed or cast in the valve or nameplate. The label must include the following information:

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- 21.51.4.1 The name or identifying trademark of the manufacturer;
- 21.51.4.2 The manufacturer's design or type number;
- 21.51.4.3 The pipe size of the inlet;
- 21.51.4.4 The set pressure or vacuum, in pounds per square inch gauge (PSIG);
- 21.51.4.5 The full open pressure or vacuum, in pounds per square inch gauge (PSIG); and
- 21.51.4.6 The capacity at the indicated pressure or full open vacuum in either cubic feet of gas per minute or cubic feet of gas per hour, and be so designated.

21.51.5 Pressure, Vacuum and Thermal monitoring

- 21.51.5.1 All tanks subject to failure due to pressure or vacuum, must be provided with pressure/vacuum gauges and pressure/vacuum controllers.
- 21.51.5.2 Thermal monitors, pressure/vacuum indicators, and their corresponding alarms must be provided for all storage tanks where a reaction may cause damage to the storage system or endanger human health or the environment.
- 21.51.5.3 All heated or cooled tanks must be equipped with a temperature and pressure gauge and appropriate thermal controls.
- 21.51.5.4 Special precaution against overheating or overcooling must be provided for heated or cooled tanks in accordance with generally accepted engineering practices. Protection must be provided by one or a combination of, temperature controllers, insulation, alarms, fail-safe cooling systems, material selection, or other means determined by a qualified engineer.

21.52.0 – Effective Date

The effective date of this Article is July 21, 2004