6 NYCRR Part 596 is repealed.

6 NYCRR Part 598 is repealed.

6 NYCRR Part 599 is repealed.

New 6 NYCRR Part 598 is adopted to read as follows:

6 NYCRR Part 598

Hazardous Substance Bulk Storage

(Statutory authority: Environmental Conservation Law sections 1-0101, 3-0301, 3-0303, 17-0301, 17-0303, 17-0501, 17-1743, 37-0101 through 37-0107, and 40-0101 through 40-0121)

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Subpart 598-1 General Provisions

598-1.1 Purpose

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 State.

598-1.2 Applicability

(a) This Part applies to a storage facility which has one or more of the following:

(1) an aboveground tank system used to store hazardous substances which has a tank with a storage capacity of 185 gallons or greater;

(2) an underground tank system used to store hazardous substances which has a tank of any storage capacity; or

(3) a container used to store 1,000 kilograms (2,200 lbs.) or more of a hazardous substance at the facility for a period of 90 or more consecutive days.

(b) Any facility having a tank system identified in paragraphs (a)(1) or (2) of this section which has not been permanently closed is subject to the provisions of this Part.

(c) When reference is made to both owner and operator of a tank system, 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.

(d) This Part does not apply to:

(1) facilities regulated under provisions related to liquid petroleum pipeline corporations (Public Service Law, article 3-C);

(2) facilities regulated under article 23, title 17 of the Environmental Conservation Law (ECL) (Liquefied Natural and Petroleum Gas Act);

(3) tank systems regulated under article 27, title 7 of the ECL (Solid Waste Management and Resource Recovery Facilities);

(4) tank systems regulated under article 27, title 9 of the ECL (Industrial Hazardous Waste Management);

(5) tank systems regulated under article 27, title 11 of the ECL (Industrial Siting Hazardous Waste Facilities);

(6) facilities regulated under the Natural Gas Pipeline Safety Act of 1968 as set forth in ECL, section 40-0103.2;

(7) facilities regulated under the Hazardous Liquid Pipeline Safety Act of 1979 as set forth in ECL, section 40-0103.3;

(8) facilities regulated under the Natural Gas Act as set forth in ECL, section 40-0103.4;

(9) facilities regulated under the Atomic Energy Act of 1954 as set forth in ECL, section 40-0103.7;

(10) tank systems regulated under article 12 of the Navigation Law or ECL, article 17, title 10 (Petroleum Bulk Storage Act);

(11) any temporary tank system; and

(12) any container used to store less than 1,000 kilograms (2,200 lbs) of a hazardous substance.

598-1.3 Definitions

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

(a) Aboveground piping means piping that rests on or is above the surface of the ground. Depending on the circumstances, aboveground piping may be part of an aboveground tank system or an underground tank system. This term includes piping located in an accessible area.

(b) Aboveground tank system means any tank system that is not an underground tank system.

(c) Accessible area means an area – such as a room, basement, cellar, shaft, or vault – that allows for the physical inspection of the entire exterior of the tank.

(d) Ancillary equipment means fittings, flanges, valves, pumps, and other devices that are used to distribute, meter, or control the flow of petroleum to and from a tank. This term does not include a dispenser system.

(e) Assembly line tanks are tanks used in a manufacturing process. Examples of such tanks include dispensing vats, weigh tanks or volumetric measuring devices, metal cleaning dip tanks, electroplating tanks and cutting fluid reservoirs.

(f) Best management practice plans, or BMP plans are plans designed to prevent or minimize the release of hazardous substances into the environment. BMPs 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.

(g) Carrier means a person who transports a hazardous substance to or from a tank system. Transporting a hazardous substance does not include dispensing a hazardous substance from a tank system.

(h) Category 1 means any tank system component (e.g., tank, piping, ancillary equipment, fill port catch basins, containment sumps, secondary containment, etc.) installed before August 11, 1994.

(i) Category 2 means any tank system component (e.g., tank, piping, ancillary equipment, fill port catch basins, containment sumps, secondary containment, etc.) installed on or after August 11, 1994.

(j) Cathodic protection means the prevention of electrolytic corrosion of a metallic structure by causing it to act as the cathode rather than as the anode of an electrochemical cell.

(k) Change-in-service means switching the material stored within a tank system from a hazardous substance to a non-hazardous substance.

(l) Class A operator means the individual who has primary responsibility to operate and maintain the underground tank system at a facility in accordance with applicable requirements of this Part. The class A operator typically manages resources and personnel to achieve and maintain compliance with the requirements of this Part.

(m) Class B operator means the individual who has day-to-day responsibility for implementing applicable requirements of this Part. The class B operator typically implements field aspects of operation, maintenance, and associated recordkeeping for the underground tank system.

(n) Class C operator means the individual who has primary responsibility for initially addressing emergencies presented by a spill or release from an underground tank system.

(o) Compatible means, in the case of two or more substances, able to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system or container under conditions likely to be encountered in the tank system or container.

(p) Container means any portable device in which a hazardous substance is stored, transported, treated, disposed of, or otherwise handled.

(q) Corrective action plan means a plan to mitigate or remedy environmental damage attributable to a release.

(r) Department means the New York State Department of Environmental Conservation.

(s) Design capacity means the amount of a hazardous substance that a tank is designed to hold. If a certain portion of a tank is unable to store a hazardous substance because of its integral design (for example, electrical equipment or other interior components that take up space), the design capacity of the tank is thereby reduced. Actions taken to physically alter the design capacity of a tank (such as drilling a hole in the side of the tank so that it cannot hold a hazardous substance above that point) will not change the design capacity of the tank.

(t) Dielectric material means a material that does not conduct direct electrical current. For example, dielectric coatings are used to electrically isolate tank systems from the surrounding soils and dielectric bushings are used to electrically isolate portions of the tank system (e.g., tank from piping).”

(u) Environment means any water, water vapor, land including land surface or subsurface, air, fish, wildlife, biota, and all other natural resources.

(v) Facility means a single property or contiguous or adjacent properties used for a common purpose owned or operated by the same person on or in which are located one or more tanks which are used for the storage or containment of hazardous substances.

(w) Farm means a tract of land devoted to the production of crops or raising animals, including fish, and associated residences and improvements. This term includes fish hatcheries, rangeland, and nurseries with growing operations.

(x) 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).

(y) 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.

(z) Hazardous substance has the same meaning as that term is given in subdivision 597.1(b) of this Title.

(aa) In contact with the ground means:

(1) for cathodic protection, on, partially, or fully beneath the surface of the ground, or covered by materials (which induce galvanic corrosion in tank system components); or

(2) for installation and leak detection, on, partially, or fully beneath the surface of the ground, or covered by materials. This definition does not apply to tank system components the exterior of which can be fully physically inspected, or to secondarily contained piping that are located completely aboveground.

(ab) Inaccessible area means an area – such as a room, basement, cellar, shaft, or vault – that does not allow for the physical inspection of the exterior of the tank. This term does not include any room, basement, cellar, shaft, vault, etc. that is backfilled following tank installation.

(ac) Incompatible substances means those substances which if 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 impact or reaction which may threaten human health, safety, welfare or the environment.

(ad) Install or installation means the emplacement of a tank system, or any part thereof, beneath, on, or above the ground. The movement of a tank from one location for use in a different location constitutes the installation of a tank system. Tank retrofits that create a new primary and/or secondary wall constitute a new tank installation.

(ae) Lining means a coating of noncorrodible epoxy-based resins (or an equivalent coating) that is bonded firmly to the interior surface of a tank and which is compatible with the hazardous substance stored, for the primary purpose of isolating the tank wall from the stored hazardous substance to prevent internal corrosion.

(af) 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.

(ag) Manifolded tanks means tanks in a tank system which are connected so that a hazardous substance stored in one tank can be transferred to another tank within the tank system.

(ah) Operating pressure means the pressure at which the tank system is normally operated.

(ai) Operator means any person who leases, operates, controls, or supervises a facility.

(aj) Overfill means filling a tank beyond its design capacity.

(ak) Owner(s), for the purposes of registration in this Part, means any person(s) who has legal title to a facility. For all other purposes, owner means any person who owns a tank system.

(al) Person means any individual, public or private corporation, political subdivision, government agency, municipality, co-partnership, association, firm, consortium, joint venture, interstate body, trust, estate, or any other legal entity whatsoever.

(am) Pipe or Piping means a hollow cylinder or tubular conduit constructed of non-earthen materials that is used for the conveyance of petroleum.

(an) 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.

(ao) 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 tanks for the purposes of these regulations.

(ap) PSIG means a pounds per square inch gage.

(aq) Qualified person, 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.

(ar) Release means any intentional or unintentional action or omission resulting in the releasing, discharging, spilling, leaking, pumping, pouring, emitting, emptying or dumping of hazardous substance into the waters of the State or onto lands from which it might flow or drain into said waters, or into waters outside the jurisdiction of the State when damage may result to lands, waters, or natural resources within the jurisdiction of the State. A leak or spill of hazardous substance into secondary containment that does not reach the environment, does not constitute a release.

(as) Repair means to restore to working order a tank, pipe, fill port catch basin, overfill prevention equipment, corrosion protection equipment, leak detection equipment, or other tank system component that has either caused a leak or a suspected leak of hazardous substance from the tank system, or failed to function properly.

(at) Reportable quantity has the same meaning as that term is given in subdivision 597.1(b) of this Title.

(au) Secondary containment means containment that prevents any spilled or leaked hazardous substances from reaching the land or water outside the containment before cleanup occurs.

(av) Spill, spillage, or leak means any escape of hazardous substance from the ordinary containment employed in the normal course of storage, transfer, processing, or use. Any escape of hazardous substance that enters containment equipment (e.g., catch basin, containment sump) is a spill.

(aw) Stationary device means a device that is not mobile. Examples of stationary devices include tank systems that are fixed or permanently in place on foundations, racks, cradles, or stilts.

(ax) Storage capacity means the total volume capacity of a tank system.

(ay) Tank means a stationary device designed to store hazardous substance that is constructed of non-earthen materials that provide structural support. Each compartment of a compartmented tank is treated as an individual tank that is part of the same tank system.

(az) Tank system means the tank, all associated piping, ancillary equipment, fill port catch basins, containment sumps, secondary containment, and any other containment equipment. This term includes all tank compartments as well as interconnected tanks where hazardous substance can flow between the tanks. This term does not include:

(1) process tank systems;

(2) assembly line tanks and accessory equipment which are parts of an aboveground tank system;

(3) septic tanks, stormwater or wastewater collection systems;

(4) capacitors or transformers containing polychlorinated biphenyls;

(5) aboveground tank systems on an operating farm where the hazardous substances will be used for agricultural purposes on such farm;

(6) tank systems which have been permanently closed; or

(7) containers.

(ba) Temporary tank system means a tank system that is installed for use at a location for no more than 90 days during any 12-month period.

(bb) Transfer means the movement of a hazardous substance between a tank and another tank or container, as contrasted to delivering to a use or application device.

(bc) Transfer station refers to an area where pipes or hoses are connected and disconnected for the purpose of emptying and filling a tank system. This includes, but is not limited to, railways, roads, containment basins, curbs, collection sumps, and impervious pads, where a vehicle or container may be 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.

(bd) Underground storage tank system or UST system means a tank system that has ten percent or more of its volume beneath the surface of the ground or covered by materials (e.g., backfill, concrete encasement). This term does not include a tank system situated in an accessible area. A tank system that is covered by materials does not include a tank system where the tank is completely above the surface of the ground or in an accessible area, and is:

(1) fully enclosed within prefabricated secondary containment; or

(2) insulated in order to store heated hazardous substance.

(be) Unstable hazardous liquid means a hazardous substance in liquid form which will vigorously polymerize, decompose, undergo a condensation reaction, or become self-reactive under conditions of shock, changes in pressure, changes in temperature, or when exposed to other substances (e.g., air or water).

(bf) Waters or waters of the State shall include lakes, bays, sounds, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic Ocean within the territorial limits of the State of New York, 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 State or within its jurisdiction.

(bg) Working capacity means the portion of the design capacity of a tank that may be filled before engaging the overfill prevention device, reduced by an allowance for freeboard and expansion.

598-1.4 Access to records and facilities

(a) Any designated officer or employee of the department may:

(1) have the right of entry to, upon, or through any facility containing a 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 is reasonably believed to be occurring;

(2) have access to and copy any records required to be maintained;

(3) inspect any equipment, practice or method which is required by the provisions of this Part; and

(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 facility, including the right to take split samples.

(b) Any person storing a hazardous substance shall be required, upon request of the department, to furnish the department with information on the 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.

598-1.5 Records

(a) Recordkeeping. Reports for each monthly, annual, three-year, or five-year test or inspection required by sections 2.2, 2.3, 3.2, and 3.3 of this Part must be kept with the spill prevention report and must be maintained and made available to the department upon request.

(b) Reports. All reports must include the following information:

(1) facility registration number;

(2) identification number (as shown on the registration certificate) for tank, piping, or equipment tested or inspected;

(3) date of test or inspection;

(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;

(5) test and inspection methods used;

(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;

(7) statement of engineer or technician's qualifications;

(8) name of engineer or technician;

(9) business address of engineer or technician; and

(10) signature of engineer or technician.

598-1.6 Preemption

Except where the department has approved a local law or ordinance as provided in section 1.7 of this Part, any local law or ordinance which is inconsistent with any provision of this Part or of Part 597 of this Title is preempted.

598-1.7 Local laws and ordinances

(a) Approval of local laws or ordinances.

(1) The department may approve a local law or ordinance for a city with a population over one 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 Part 597 of this Title.

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

(i) include a copy of the local law or ordinance;

(ii) explain differences and inconsistencies between the local law and provisions of this Part and Part 597 of this Title;

(iii) identify proposed enforcement procedures, penalties and resources available to implement the local law or ordinance;

(iv) identify local fees which would be levied;

(v) contain a declaration of intent to administer and enforce the local law or ordinance; and

(vi) 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.

(3) The department will review all requests and supporting documents and will prepare written findings and terms of approval, conditional approval, or disapproval.

(b) 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 Part 597 of this Title.

598-1.8 Variances and Equivalent Technologies

(a) Variances.

(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:

(i) identify the specific provisions of this Part from which a variance is sought;

(ii) 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

(iii) 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.

(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 section 1.16 of this Part).

(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.

(b) 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:

(1) identify the applicable provision of this Part; and

(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.

598-1.9 Spill Prevention Report

(a) 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. 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.

(b) The spill prevention report must include the following:

(1) a copy of the registration application and certificate issued under section 1.14 of this Part;

(2) management approval of the report evidenced by the signature of the principal executive officer or authorized representative;

(3) an up-to-date facility site map of sufficient detail to locate and identify tank systems and transfer stations;

(4) the name, signature, and license number of the professional engineer licensed in New York State or other qualified person who prepared the plan;

(5) a listing and summary description, for the past five years, of spills:

(i) required to be reported under State or Federal law; and

(ii) 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 spills and be updated to incorporate reports required under sections 2.4, 3.4, and 4.4 of this Part;

(6) identification and assessment of causes of spills, leaks and releases at the facility;

(7) status report on compliance with this Part;

(8) an appendix of those records (or index of records) which must be kept and made available to the department pursuant to requirements of this Part;

(9) evidence of financial responsibility if required by section 1.15 of this Part; and

(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.

(c) The spill prevention report must contain a discussion and assessment of any equivalent equipment, method or practice where allowed under this Part. 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.

(d) Where the owner or operator is required to perform a site assessment pursuant to section 1.11 or subdivision 2.6(d) of this Part, the spill prevention report must contain the site assessment and findings.

598-1.10 Sale of hazardous substances

(a) Requirements for distribution.

(1) The manufacturer or distributor of a hazardous substance must provide the owner or operator of a tank system or container 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 facility where the tank system is located.

(2) The manufacturer or distributor of a hazardous substance shall ensure that the owner or operator of a tank system or container 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 facility.

(3) Sales of hazardous substances which do not satisfy the requirements of this section are prohibited.

(b) Contents of technical guidance and recommended practices. Technical guidance and recommended practices for the proper handling and storage of a hazardous substance do not need to be a facility-specific engineering

design nor are they intended to be a facility-specific engineering assessment of the need for proper storage and handling. However, they must identify or reference industry standards and include recommended practices, procedures, precautions and advice. Technical guidance and recommended practices must consist of the following minimum information relating to the substance to be stored:(1) chemical abstract service number, chemical name, common name, hazardous substance components, physical and chemical characteristics (such as vapor pressure and flash point) and toxic and hazardous properties of the substance including the potential for fire, explosion and reactivity;

(2) compatibility of substance with respect to materials which may be used to construct a tank system, recommended materials which may be used for construction, prohibited materials for construction, and standards for tank system design;

(3) conditions for the safe and proper storage of the substance, including temperatures, pressures, relative humidity and light conditions for storage;

(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;

(5) recommended inspection and maintenance procedures and intervals of time recommended for internal inspection of tanks and testing of equipment;

(6) safety precautions, warnings and procedures for handling and unloading bulk deliveries; and

(7) spill and emergency response procedures.

(c) Filing requirements. 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 NYS Department of Environmental Conservation, Division of Environmental Remediation, 625 Broadway, Albany,

NY 12233-7020. Any subsequent revisions or additions to the guidance and recommended practices must be filed with the department at the time of such revision or addition.

(d) Prohibition on delivery to unregistered tank systems. No person may deliver hazardous substances to a tank system at a facility that has not been properly registered pursuant to this Part.

598-1.11 Enforcement(a) 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.

(b) Where a spill of any hazardous substance has occurred or is suspected, the department may order the owner to inspect any tank system, location and/or associated equipment which might be the source of the actual or suspected spill and to test for tightness and structural soundness. If the owner fails to conduct such tests within 10 days of the order, the department may do so. The reasonable expenses of conducting such tests incurred by the department shall be paid by the owner.

(c) 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 noncompliance. This assessment must be conducted in accordance with the requirements of subdivision 2.6(d) of this Part and the results submitted to the department within time frames to be determined by the department.

598-1.12 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 section 616.7 of this Title and all determinations will be made pursuant to that section.

598-1.13 Tank Systems Subject to These Regulations in the Future

Any tank system which becomes subject to these regulations in the future must comply with the requirements of this Part within the time frame specified or within two years of becoming subject to regulation, whichever is later. This might occur if a substance is added to the list of hazardous substances in Part 597 of this Title. Any new equipment must comply with this Part when installed.

598-1.14 Registration

(a) Registration of facilities.

(1) General. The owner must obtain an initial or revised registration certificate from the department prior to the first receipt of a hazardous substance into a tank system. The facility owner must ensure that the registration information identified in paragraph (a)(5) of this subdivision remains current and accurate. In addition, every temporary tank system that is not removed within 90 days after installation must either be included on a new facility registration or be added to an existing facility's registration. The owner may rely on an authorized representative to satisfy any obligation imposed on the owner by the provisions of this section.

(2) Transition from earlier regulation. Unless the registration certificate must be revised or newly issued pursuant to the terms of paragraphs (1) or (4) of this subdivision, a registration certificate held by a facility on EFFECTIVE DATE that was issued pursuant to terms of the former Part 596 of this Title remains valid until the expiration date recorded on the certificate.

(3) Renewal. Registration must be renewed every two years from the date of the last valid registration certificate until the department receives written notice and documentation from the owner that the facility has been permanently closed, or that ownership of the facility has been transferred in accordance with paragraph (4) of this subdivision.

(4) Application procedure for new facilities and transfer of ownership.

(i) If ownership of the real property on which a facility is located is transferred, the new owner must submit an application to initially register the facility with the department within 30 days after the transfer.

(ii) The owner must apply for a registration certificate using forms or electronic means as provided by the department. Forms are available online at www.dec.ny.gov and at all department offices.

(iii) Each application for a new registration or transfer of facility ownership must be accompanied by a copy of the current deed for the property at which the facility is located. If the facility is located on multiple properties, deeds for each property must be submitted with the application. If a deed does not exist for a particular property, the application must be accompanied by other evidence of ownership of the property.

(iv) The application must be signed by the owner or owner's authorized representative.

(v) Every application for a registration certificate must be accompanied by payment of the applicable registration fee established in subdivision (b) of this section.

(5) Application procedure for information correction.

(i) Within 30 days after any of the information identified in subparagraph (iii) of this paragraph changes at the facility, the facility owner must submit an application to the department reflecting the changes to keep the registration current and accurate. The owner must submit information corrections for registered facilities using forms or electronic means as provided by the department. Forms are available online at www.dec.ny.gov and at all department offices.

(ii) The registration application must be signed by the owner.

(iii) Changes in the following registration items are considered information corrections:

('a') contact information;

('b') tank system owner;

('c') facility operator;

('d') Class A or Class B operator;

('e') tank system status (e.g., the tank becoming out-of-service or returning to service);

('f') tank system equipment; or

(‘g’) type of hazardous substance stored.

(iv) No registration fee is required for submitting corrections of information.

(6) Application procedure for permanent closure of tank systems.

(i) When a tank system is going to be permanently closed, the owner must notify the department of this action at least 30 days prior to the permanent closure (unless such action is in response to corrective action in accordance with Subpart 6 of this Part) using forms or electronic means provided by the department. For any tank removed from a registered facility, any change in applicable fees will not be assessed until the registration is due for renewal.

(ii) Within 30 days after permanent closure, the owner must submit an application to the department indicating that the tank system has been permanently closed. The application must be signed by the owner.

(7) Registration certificate. Upon submittal of a complete registration application and payment of the applicable registration fee, the department will issue a registration certificate. The current registration certificate must be displayed at all times in a conspicuous location at the facility.

(8) Advance notification of installation of a tank system.

(i) When a tank is intended for installation, the owner must notify the department of this action at least 30 days prior to installing the tank, using forms or electronic means provided by the department, unless immediate action is required to protect public health, safety, or the environment or immediate action is necessary to keep the facility operating. When immediate action is required, the department must be notified no later than two hours after the decision is made by the owner to act.

(ii) Within 30 days after tank installation, the owner must submit an application to the department indicating that the tank has been installed. The application must be signed by the owner.

(b) Registration fees for facilities.

(1) Registration fees. Registration fees are assessed on the basis of the size and number of tanks in each system. Manifolded tanks are considered to be a single tank within a tank system for registration purposes. For the largest 250 tanks at the facility, the owner must submit with each application for registration, reregistration or renewal, a two-year fee as follows:

Design Capacity of Tank Fee

Less than or equal to 550 gallons: $ 50 per tank

551-1,100 gallons: $100 per tank

Greater than 1,100 gallons: $125 per tank

For each additional tank at the facility, the fee is as follows:

Design Capacity of Tank Fee

Less than or equal to 550 gallons: $ 50 per tank

551-1,100 gallons: $ 75 per tank

Greater than 1,100 gallons: $ 75 per tank

In no case shall the registration fee charged for all tank systems located at a facility exceed $50,000.

(2) Fee increases due to newly installed tank systems. No increased fee is due on account of newly installed tank systems at a facility until the facility's registration is due for renewal.

598-1.15 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 tanks pursuant to this Part. 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.

598-1.16 References

Citations used in this Part refer to the publications listed in this section. These publications are available for inspection at the Department of Environmental Conservation, 625 Broadway, Albany, NY 12233-7020. Copies may be purchased directly from the publisher at the address shown.

(a) 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.

(b) 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.

(c) 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.

(d) 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.

(e) 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.

(f) API RP 1631, June 2010 means American Petroleum Institute Specification 1631, Interior Lining and Periodic Inspection of Underground Storage Tanks, 5th edition, June 2001, American Petroleum Institute Publishers, 1220 L Street NW, Washington, DC 20005.

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

(h) API RP 2200, September 2010 means American Petroleum Institute Specification 2200, Repairing Crude Oil, Liquefied Petroleum Gas, and Product Pipelines, 4th edition, September 2010, American Petroleum Institute Publishers, 1220 L Street NW, Washington, DC 20005.

(i) 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.

(j) ASTM D3299-88 means American Society for Testing and Materials Designation D3299-88, Filament-Wound Glass-Fiber-Reinforced Thermoset Resin Chemical-Resistant Tanks, 1988, American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

(k) 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.

(l) 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.

(m) 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 Grouse Road, Scarborough, Ontario, Canada M1R3A9.

(n) 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 Grouse Road, Scarborough, Ontario, Canada M1R3A9.

(o) FTPI RP T-95-02, January 1995 means Fiberglass Tank and Pipe Institute (FTPI), Remanufacturing of Fiberglass Reinforced Plastic (FRP) Underground Storage Tanks, 2nd edition, January 1995, 11150 South Wilcrest Drive, Suite 101, Houston, TX 77099-4343.

(p) NACE SP0169-2013, 2013 means National Association of Corrosion Engineers, Control of External Corrosion on Underground or Submerged Metallic Piping Systems, 2013 edition, National Association of Corrosion Engineers, Box 218340, Houston, TX 77218.

(q) NACE SP0285-2011, means National Association of Corrosion Engineers, Corrosion Control of Underground Storage Tanks by Cathodic Protection, 2011 edition (formerly RP0285), National Association of Corrosion Engineers, Box 218340, Houston, TX 77218.

(r) 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, TX 77218.

(s) 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, TX 77218.

(t) NACE TM0101-2012, 2012 means National Association of Corrosion Engineers, Measurement Techniques Related to Criteria for Cathodic Protection of Underground Storage Tank Systems, 2012 edition, National Association of Corrosion Engineers, Box 218340, Houston, TX 77218.

(u) NACE TM0497-2012, 2012 means Measurement Techniques Related to Criteria for Cathodic Protection on Underground or Submerged Metallic Piping Systems, 2012 edition, National Association of Corrosion Engineers, Box 218340, Houston, TX 77218.

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

(w) NFPA 30, 2012 means National Fire Protection Association, Flammable and Combustible Liquids Code 2012 edition, NFPA, Batterymarch Park, Quincy, MA 02269.

(x) NFPA 326, 2010 means National Fire Protection Association, Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair, 2010 edition, NFPA, Batterymarch Park, Quincy, MA 02269.

(y) 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.

(z) PEI RP900, 2017 means Petroleum Equipment Institute (PEI), UST Inspection and Maintenance, 2017 edition, Petroleum Equipment Institute (PEI) P. O. Box 2380, Tulsa, OK 74101-2380.

(aa) PEI RP1200, 2019 means Petroleum Equipment Institute (PEI), Testing and Verification of Spill, Overfill, Leak Detection and Secondary Containment Equipment at UST Facilities, 2019 edition, Petroleum Equipment Institute (PEI) P. O. Box 2380, Tulsa, OK 74101-2380.

(ab) 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.

(ac) STI R051, January 2006 means Cathodic Protection Testing Procedures for sti-P3® USTs, revised January 2006, 944 Donata Court, Lake Zurich, IL 60047.

(ad) STI R972, December 2010 means Steel Tank Institute, Recommended Practice for the Addition of Supplemental Anodes to sti-P3® USTs, revised December 2010, 944 Donata Court, Lake Zurich, IL 60047.

(ae) 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 Grouse Road, Scarborough, Ontario, Canada M1R3A9.

(af) 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 Grouse Road, Scarborough, Ontario, Canada M1R3A9.

(ag) 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 Grouse Road, Scarborough, Ontario, Canada M1R3A9.

(ah) 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 15, 2015, Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(ai) 40 CFR 281 means part 281 of title 40 of the Code of Federal Regulations, Approval of State Underground Storage Tank Programs, July 15, 2015, Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(aj) 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, DC 20402.

598-1.17 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.

598-1.18 Future Climate Risk

In addition to the other requirements set forth in this Part, all facilities must take into account the provisions of ECL Article 17 Title 10 section 15 to comply with the provisions of this Part.

Subpart 598-2 Underground storage tank systems

598-2.1 Design, construction, and installation

(a) Applicability. This Subpart applies to underground tank systems used to store hazardous substances which include a tank of any storage capacity.

(b) Design and equipment requirements for UST systems.

(1) Tank requirements. Tanks must be of sufficient structural strength to withstand normal handling and use. Tanks must be compatible with the hazardous substance to be stored and be protected from or resistant to all forms of internal and external wear, vibration, shock and corrosion. Tanks 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 30 years of useful life unless a shorter useful life is defined in the spill prevention report.

(i) Category 1 tank requirements. Every Category 1 tank must have met all tank requirements in accordance with subparagraph (ii) of this paragraph by December 22, 1998.

(ii) Category 2 tank requirements. Every tank must meet the following requirements:

(‘a’) Tank design and construction standards.

(‘1’) Except for tanks described in subclause (2) of this clause, all Category 2 tanks must be designed, constructed, and installed or certified by a qualified engineer or technician in accordance with one of the following:

(‘i’) ULC Standard S603;

(‘ii’) ASTM D4021-92 (see section 1.16 of this Part); or

(‘iii’) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) Tanks installed in an inaccessible area must be designed, constructed, and installed or certified by a qualified engineer or technician in accordance with subclause 3.1(b)(1)(ii)(a)(1) of this Part.

(‘3’) All Category 2 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 must be guaranteed by the manufacturer to be tight.

(‘4’) Tanks subject to scouring. All 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 144 square inches and be installed in a manner which avoids crevice corrosion.

(‘b’) Corrosion protection.

(‘1’) All Category 2 tanks which are in contact with soil and subject to corrosion must be protected from external corrosion by one of the following:

(‘i’) corrosion resistant materials; or

(‘ii’) a cathodic protection system.

(‘2’) Cathodic protection must consist of one or a combination of the following:

(‘i’) sacrificial anodes and coating;

(‘ii’) impressed current; or

(‘iii’) another method that is designed and installed in accordance with a code of practice (including API 1632, ULC-S603.1, or NACE RP-02-85) developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘3’) The cathodic protection system must be designed and constructed by a qualified engineer or corrosion specialist and must provide a minimum of 30 years of protection against external corrosion. The engineer or

specialist must supervise the installation of all field fabricated cathodic protection systems and prefabricated systems where necessary to assure that the system has been installed as designed.

(‘4’) Tanks which are protected with sacrificial anodes must be electrically insulated from the piping if the piping is constructed of a conductive material, unless the cathodic protection system has been designed to protect the entire tank system. Electrical insulation must be provided by dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to the stored substances and soil.

(‘5’) The cathodic protection system must be installed with a monitor or monitoring port that allows for annual review of the adequacy of the cathodic protection.

(‘6’) The tank must be isolated from or protected against stray electric currents which include currents from underground cables, electric machinery, railroad systems and electrical grounding rods.

(‘7’) Tank and piping connections of two dissimilar metals which together create a corrosion inducing galvanic cell are prohibited.

(‘8’) External coatings must be fiberglass-reinforced-plastic, epoxy, or other suitable dielectric material with a minimum thickness of 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.

(‘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.

(‘c’) Secondary containment.

(‘1’) All Category 2 tanks must have a secondary containment system. This must consist of one of the following:

(‘i’) a double-walled tank in accordance with subclause (3) of this clause;

(‘ii’) a vault in accordance with subclause (4) of this clause;

(‘iii’) a synthetic liner in accordance with subclause (5) of this clause; or

(‘iv’) another method that is designed and installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) The secondary containment system must:

(‘i’) contain hazardous substance leaked from the primary containment until it is detected and remediated;

(‘ii’) prevent the release of hazardous substance;

(‘iii’) be designed and constructed with a permeability rate to the substance stored of 1 × 10-6 cm/sec or less;

(‘iv’) be designed, installed and operated to prevent any migration of hazardous substances out of the system to the environment;

(‘v’) allow for detection and collection of spills and accumulated liquids until the collected material is removed;

(‘vi’) be constructed of or lined with materials that are compatible with the hazardous substances to be placed in the tank system. The materials must have sufficient strength and thickness to prevent failure due to pressure, physical contact with the materials to which it is exposed, climatic conditions, and the stresses it is subject to during normal operation; and

(‘vii’) 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.

(‘3’) Standards for double-walled tanks. Double-walled tanks must be designed, constructed, and installed in accordance with the following:

(‘i’) the outer wall must contain a spill from any portion of the inner wall and must enclose the entire primary tank;

(‘ii’) the tank must be designed so that monitoring of the interstitial space for tightness can be readily performed;

(‘iii’) the tank must be designed so that a failure of the inner wall can be detected and to allow for the monitoring of leaks as specified in subparagraph 2.3(c)(2)(i) of this Part;

(‘iv’) there must be no penetrations of any kind through the outer wall into the tank, except top entry manholes and fittings required for filling and emptying the tank, venting the tank, or monitoring the tank;

(‘v’) the outer wall must be resistant to punctures and protected from corrosion in a manner consistent with clause (‘b’) of this subparagraph; and

(‘vi’) 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.

(‘4’) Standards for vaults. Vaults used as secondary containment must be designed, constructed, and installed in accordance with the following:

(‘i’) the vault must be able to contain at least 100 percent of the capacity of the largest tank within its boundary;

(‘ii’) the vault must surround the tank completely (for example, it is capable of preventing lateral as well as vertical migration of the hazardous substances being stored).

(‘iii’) the vault must be liquid-tight, impervious to leakage of hazardous substances, and able to prevent the interference of precipitation and groundwater intrusion;

(‘vi’) the vault must be compatible with the substance in storage, and able to withstand chemical deterioration and structural stresses from internal and external causes;

(‘v’) 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; and

(‘vi’) The tank or tanks within the vault must be supported, backfilled or bedded in a manner consistent with generally acceptable engineering practices.

(‘5’) Standards for synthetic liners. Synthetic liners used as secondary containment must be designed, constructed, and installed in accordance with the following:

(‘i’) the liner must be able to contain at least 100 percent of the capacity of the largest tank within its boundary;

(‘ii’) the liner must surround the tank completely (for example, it is capable of preventing lateral as well as vertical migration of the hazardous substances being stored).

(‘iii’) the liner must be able to prevent the interference of precipitation and groundwater intrusion;

(‘iv’) the liner must be compatible with the substance in storage, be at least 60 mils in thickness and not deteriorate in an underground environment for the life of the tank system. 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;

(‘v’) the expected useful life of the liner must be specified in the spill prevention report;

(‘vi’) all punctures, tears or inadequate seams in the liner must be repaired in accordance with the manufacturer’s instructions prior to backfilling; and

(‘vii’) the liner must be installed with a slope to the sump of at least one quarter of an inch per foot.

(2) Piping requirements. Piping must be compatible with the substance(s) stored and be protected from or resistant to all forms of internal and external wear, vibration, shock and corrosion. Piping must be free of leakage, structurally sound, properly supported under all operating conditions, and protected from fire, heat, vacuum, and pressure which would cause the system to fail. Piping must be designed and installed to prevent

damage from expansion, jarring, vibration, contraction, and frost. The expected useful remaining life of the system must be specified in the spill prevention report.

(i) Category 1 piping requirements. Category 1 piping that is in contact with the ground must have met all piping requirements in accordance with subparagraph (ii) of this paragraph by December 22, 1998. Category 1 aboveground piping must have met all piping requirements in accordance with clauses (ii)(a) through (c) of this paragraph by December 22, 1999.

(ii) Category 2 piping requirements.

(‘a’) Piping design and construction standards

(‘1’) Category 2 piping must be designed and constructed in accordance with one or more of the following:

(‘i’) ULC-C107.7;

(ii) ASTM D2996-88; (see section 1.16 of this Part); or

(iii) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) Adequate provisions must be made to protect all exposed piping from damage that might result from moving machinery such as forklifts, automobiles and trucks.

(‘3’) Joint compounds and gaskets must be compatible with the substance(s) stored.

(‘4’) Piping must contain shut-off valves located adjacent to pump or compressor connections.

(‘5’) Flexible connectors, elbows, loops, expansion chambers, or other equipment must be installed singularly, or in combination, to allow for movement and prevent damage from water hammer.

(‘6’) Piping that carries 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.

(‘7’) Refrigerated piping must be constructed of materials suitable for the operating conditions in the tank system.

(‘8’) Piping which employs screw-type fittings must be provided with means to prevent leakage from these fittings.

(‘b’) Corrosion protection.

(‘1’) Piping in contact with the ground and subject to corrosion must be protected from external corrosion by one of the following:

(‘i’) corrosion resistant materials; or

(‘ii’) a cathodic protection system.

(‘2’) Cathodic protection must consist of one or a combination of the following:

(‘i’) sacrificial anodes and coating;

(‘ii’) impressed current; or

(‘iii’) another method that is designed and installed in accordance with a code of practice (including API 1632 or NACE RP-01-69) developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘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 30 years of protection against external corrosion. The engineer or specialist must supervise the installation of all field fabricated protection systems and prefabricated systems to assure that the system has been installed as designed.

(‘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 substances or corrosive soil.

(‘5’) The cathodic protection system must be installed with a monitor or monitoring port that allows for annual review of the adequacy of the cathodic protection.

(‘6’) Piping must be isolated from, or protected against, sources of stray electric current which include underground cables, electric machinery, railroad systems and electrical grounding rods.

(‘7’) Tank and piping connections of two dissimilar metals which together create a corrosion-inducing galvanic cell are prohibited.

(‘8’) External coatings must be fiberglass-reinforced plastic, epoxy, or any other suitable dielectric material with a minimum thickness of 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.

(‘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.

(‘c’) Secondary containment for piping in contact with the ground.

(‘1’) All Category 2 piping in contact with the ground 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:

(‘i’) double-walled piping in accordance with subclause (3) of this clause;

(‘ii’) a synthetic trench liner in accordance with subclause (4) of this clause; or

(‘iii’) another method that is designed and installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) The secondary containment system must:

(‘i’) contain hazardous substance leaked from the primary containment until it is detected and remediated;

(‘ii’) prevent the release of hazardous substance;

(‘iii’) be designed and constructed with a permeability rate to the substance stored of 1 × 10-6 cm/sec or less;

(‘iv’) be designed, installed, and operated to prevent any migration of hazardous substances out of the system at any time during the use of the piping;

(‘v’) allow for detection and collection of spills and accumulated liquids until the collected material is removed;

(‘vi’) be constructed of or lined with materials that are compatible with the hazardous substances to be placed in the piping. The materials must have sufficient strength and thickness to prevent failure due to pressure, physical contact with the materials to which it is exposed, climatic conditions, and the stresses it is subject to during normal operation;

(‘vii’) be placed on a suitable foundation which prevents failure due to settlement, compression or uplift;

(‘viii’) 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 24 hours. If the owner or operator can demonstrate that removal of the spilled or leaked substance, or accumulated precipitation cannot be accomplished within 24 hours, then it must be removed in as timely a manner as possible to prevent harm to human health and the environment; and

(‘ix’) have a leak detection system that is designed, installed, and operated so that it will either detect the failure of the primary containment structure or the presence of any spill or leak of hazardous substance or accumulated liquid in the secondary containment system within two hours.

(‘3’) Double-walled piping. If the secondary containment system consists of double-walled piping, the piping must be constructed in accordance with the following:

(‘i’) outer walls of double-walled piping must be protected from corrosion in accordance with clause (b) of this subparagraph;

(‘ii’) the outer wall must contain a spill from any portion of the inner wall and must enclose the entire primary piping;

(‘iii’) the outer wall must be designed so that a failure of the inner wall can be detected and to allow for the monitoring of leaks as specified in subparagraph 2.3(c)(2)(i) of this Part; and

(‘iv’) the outer wall must allow for safe venting of vapors.

(‘4’) Synthetic trench liners. Synthetic liners used as secondary containment must be designed, constructed, and installed in accordance with the following:

(‘i’) the liner must surround the piping completely (for example, it is capable of preventing lateral as well as vertical migration of the hazardous substances being stored).

(‘ii’) the liner must be able to prevent the interference of precipitation and groundwater intrusion;

(‘iii’) the liner must be compatible with the substance in storage, be at least 60 mils in thickness and not deteriorate in an underground environment for the life of the tank system. 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;

(‘iv’) the expected useful life of the liner must be specified in the spill prevention report;

(‘v’) all punctures, tears or inadequate seams in the liner must be repaired in accordance with the manufacturer’s instructions prior to backfilling; and

(‘vi’) the liner must be installed with a slope to the sump of at least one quarter of an inch per foot.

(‘d’) Aboveground piping requirements.

(‘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 section 1.16 of this Part), 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 more protective surface coating or protective system designed to prevent corrosion and deterioration.

(‘2’) All Category 2 permanent aboveground piping greater than two inches in diameter must have welded or flanged connections or be plastic lined metal piping 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.

(‘3’) Piping passing through dike walls must be designed to prevent excessive stresses as a result of settlement or fire exposure.

(3) Overfill prevention. Tanks must be equipped with overfill prevention equipment that meets the following requirements:

(i) Overfill prevention equipment must do one of the following:

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

(‘b’) alert the person responsible for transfer activities when the tank is no more than 90 percent full by restricting the flow into the tank or triggering a high-level alarm;

(‘c’) automatically by-pass to an overflow tank if the overflow tank is equipped with overflow protection or other equivalent systems for preventing overfills;

(‘d’) restrict flow 30 minutes prior to overfilling so that none of the fittings located on top of the tank are exposed to hazardous substance due to overfilling;

(‘e’) alert the person responsible for transfer activities with a high-level alarm one minute before overfilling so that none of the fittings located on top of the tank are exposed to hazardous substance due to overfilling (note: vent whistles cannot be used as high-level alarms); or

(‘f’) automatically shut off flow into the tank so that none of the fittings located on top of the tank are exposed to hazardous substance due to overfilling.

(ii) The overfill prevention equipment must be appropriate for the type of delivery made to the UST system and all other tank system equipment installed.

(iii) Flow restrictors in vent lines may not be installed, and existing flow restrictors may not be repaired or replaced, to comply with the requirements of subparagraph (i) of this paragraph after October 13, 2015.

(4) Transfer station secondary containment and spill prevention equipment.

(i) Secondary containment for transfers. Transfer of hazardous substances must take place within a transfer station equipped with a permanently installed secondary containment system. This containment system must:

(‘a’) be capable of containing leaks and spills which are likely to occur during the transfer, including leaks or spills from connections, couplings, vents, pumps, valves, hose failure, or overturning of a container. Open-ended fill pipes must be located within the secondary containment system;

(‘b’) be designed and constructed with a permeability rate to the substance(s) transferred of less than $1 \times 10\text{-}6$ 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;

(‘c’) be designed, installed, and operated to prevent any migration of hazardous substances out of the system before cleanup. The system is not required to be designed to contain the gaseous component of a spill;

(‘d’) 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. The system must support any vehicle brought into the transfer station, and must have a foundation which prevents failure due to settlement, compression, or uplift;

(‘e’) be equipped with a sump and 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 containment system within 24 hours; and

(‘f’) contain the volume of any leak or spill likely to occur at the transfer station. 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.

(‘g’) Stormwater must be pumped from slop tanks and catch tanks to allow for the containment of the volume required by clause (f) of this subparagraph.

(ii) Spill prevention at pumps and valves. The owner or operator must prevent spills and leaks at all pumps and valves by using at least one of the following methods:

(‘a’) installation of sealless pumps and valves, fail-safe double seal pumps and valves or equivalent technology;

(‘b’) 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 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

(‘c’) 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.

(5) Valves and couplings. UST systems must be equipped with valves and couplings which meet the following:

(i) any coupling or open-ended valve used for making a transfer must be located within the secondary containment system of the transfer station;

(ii) where a substance transfer pipe or fill pipe 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;

(iii) 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

(iv) 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, which must have the proper capacity and control characteristics. They must also have a proper mechanical balance for the application so that they are capable of shutting off flow against the operating pressure and capable of being manually controlled or have fail-safe features which operate in the event of a power loss.

(6) Venting.

(i) All tanks must be protected from over-pressurization and excessive vacuums such as those that 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 the following means:

(‘a’) vents;

(‘b’) rupture discs;

(‘c’) pressure/vacuum relief devices;

(‘d’) controllers;

(‘e’) fail-safe vessel designs; or

(‘f’) other means determined by a qualified engineer.

(ii) 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.

(iii) 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.

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

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

(vi) All vents must have provisions for draining any condensate which may accumulate.

(vii) Vents must be arranged so that the possibility of tampering will be minimized.

(viii) Vents must have direct contact with the vapor space of the tank.

(ix) The capacity of the vent must not be restricted below design.

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

(xi) 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.

(xii) All atmospheric tanks and all low-pressure tanks must be equipped with normal vents designed to accommodate:

(‘a’) inbreathing resulting from maximum outflow of hazardous substances from the tank;

(‘b’) inbreathing resulting from contraction of vapors caused by maximum decrease in atmospheric temperature;

(‘c’) outbreathing resulting from maximum inflow of hazardous substances into the tank and maximum evaporation caused by such inflow; and

(‘d’) outbreathing resulting from expansion and evaporation that result from maximum increase in atmospheric temperature (thermal breathing).

(xiii) 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 a combination of devices.

(7) Pressure, vacuum, and thermal monitoring.

(i) All tanks subject to failure due to pressure or vacuum must be provided with pressure/vacuum gauges and pressure/vacuum controllers.

(ii) Thermal monitors, pressure/vacuum indicators, and their corresponding alarms must be provided for all tanks where a reaction may cause damage to the tank system or endanger human health, safety or the environment.

(iii) All heated or cooled tanks must be equipped with a temperature and pressure gauge and appropriate thermal controls.

(iv) 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 the following means: temperature controllers, insulation, alarms, fail-safe cooling systems, material selection, or other means determined by a qualified engineer.

(8) Compatibility. Tank system equipment must be either made of or lined with materials that are compatible with the hazardous substance stored in the UST system.

598-2.2 General installation, operation, and maintenance requirements.

(a) Installation requirements.

(1) Category 1 requirements. Piping in contact with the ground must be installed in accordance with the following:

(i) Backfill. Piping that is installed underground must use backfill material that is a non-corrosive, porous, homogeneous substance and it must be placed completely around the piping and compacted to ensure that the piping is fully and uniformly supported. Backfill of at least six inches in depth must be placed underneath the piping.

(ii) Burial depth. Piping buried underground must be installed so that the top of the piping is at least 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.

(iii) Inspection of piping in contact with the ground.

(‘a’) Prior to covering, enclosing, or placing piping in use, the piping 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 requirements of this subparagraph. This inspection must include:

(‘1’) weld breaks;

(‘2’) punctures;

(‘3’) scrapes of protective coatings;

(‘4’) cracks;

(‘5’) corrosion;

(‘6’) structural damage; and

(‘7’) improper installation.

(‘b’) Before being placed in service, the piping must be tested for tightness in accordance with paragraph 2.3(d)(2) of this Part.

(‘c’) All joints must be liquid-tight and air-tight. If piping is found not to be tight or to be defective, all repairs necessary to remedy the leaks or deficiencies in the piping must be performed prior to the piping being placed in service.

(‘d’) Upon completion of the tightness test and inspection, the inspector must sign and date a statement certifying that the system meets the requirements of this subdivision.

(‘e’) The inspector's statement and records of the tightness test and repairs must be kept for five years following the date of installation and made part of the spill prevention report.

(iv) Installation Instructions. In addition to the above requirements, all piping in contact with the ground 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 subparagraph, such as API 1615. (See section 1.16 of this Part). This includes repair of any damaged coatings prior to backfilling.

(2) Category 2 requirements. Tank systems must be installed in accordance with the following:

(i) Backfill. Tank systems that are installed underground must use backfill material that is a non-corrosive, porous, homogeneous substance and it must be placed completely around the tank system and compacted to ensure that the tank system is fully and uniformly supported. Backfill of at least six inches in depth must be placed underneath the piping.

(ii) Burial depth. Tanks must be installed at a depth consistent with NFPA 30, 1993 section 2-4.2. Piping buried underground must be installed so that the top of the piping is at least 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.

(iii) Connections.

(‘a’) All connections to USTs must be located within a containment sump constructed of a compatible material and capable of containing hazardous substance leaks from the connections. Such sumps must be fitted with a manhole or other means of access so that connections can be inspected.

(‘b’) Valves and other ancillary equipment must be protected against physical damage including by freezing or vehicular traffic.

(iv) Inspection of tank systems.

(‘a’) Prior to covering, enclosing, or placing a tank system in use, the tank 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 requirements of this subparagraph. This inspection must include:

(‘1’) weld breaks;

(‘2’) punctures;

(‘3’) scrapes of protective coatings;

(‘4’) cracks;

(‘5’) corrosion;

(‘6’) other structural damage; and

(‘7’) improper installation.

(‘b’) Before being placed in service, the tank system must be tested for tightness in accordance paragraphs 2.3(c)(1) and 2.3(d)(2) of this Part.

(‘c’) All joints must be liquid-tight and air-tight. If the tank system is found not to be tight or to be defective, all repairs necessary to remedy the leaks and deficiencies in the tank system must be performed in accordance with subdivision (h) of this section or in accordance with the manufacturer’s instructions prior to it being placed in service.

(‘d’) Upon completion of the tightness test and inspection, the inspector must sign and date a statement certifying that the system meets the standards of this subdivision.

(‘e’) The inspector's statement and records of the tightness test and repairs must be kept for five years following the date of installation and made part of the spill prevention report.

(v) Qualifications of tank system installers. Installation of an underground tank system must be performed by a qualified installer or technician who is trained in the engineering methods for installing underground tank systems.

(vi) Installation Instructions. In addition to the above requirements, all tank systems 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 subparagraph, such as API 1615. (See section 1.16 of this Part). This includes repair of any damaged coatings prior to backfilling.

(b) Spill and overfill prevention.

(1) Labelling requirements.

(i) All Category 2 tanks must bear a permanent stencil, label or plate with the following information:

('a') a manufacturer's or qualified engineer's certification that states:

"This tank conforms with 6 NYCRR Part 598". Tanks installed prior to the effective date of this Part may continue to use existing statements that state "This tank conforms with 6 NYCRR Part 599";

('b') the standard of design by which the tank was manufactured;

('c') the hazardous substances which may be stored permanently and compatibly within the tank, or reference to a list available from the manufacturer which identifies substances compatible with all tank materials;

('d') the year in which the tank was manufactured;

('e') the dimensions, design and working capacity, and model number of the tank; and

('f') the name of the manufacturer.

(ii) All UST systems must have a label that is conspicuously displayed, readily visible to the carrier, and permanently affixed (for example, imbedded in concrete or welded in place) at the fill port which indicates the following information:

(‘a’) the information required in subparagraph (i) of this paragraph;

(‘b’) the tank system identification number as shown on the registration certificate;

(‘c’) the chemical name (or common name if the chemical name is not appropriate) of the substance stored; and

(‘d’) the date of installation of the tank.

(iii) All Category 2 aboveground piping 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 conspicuously visible label must be provided at each end of the piping.

(iv) Labeling of safety/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:

(‘a’) the name or identifying trademark of the manufacturer;

(‘b’) the manufacturer's design or type number;

(‘c’) the pipe size of the inlet;

(‘d’) the set pressure or vacuum, in PSIG;

(‘e’) the full open pressure or vacuum, in PSIG; and

(‘f’) 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.

(v) Monitoring 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.

(2) Delivery to tank systems.

(i) 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 and 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.

(ii) Immediately prior to the transfer, the operator/carrier must determine that the hazardous substance will be transferred to the proper tank, that the receiving tank has available capacity to receive the hazardous substance amount to be transferred, and that all tank valving and flow control devices are in the proper positions to accept delivery. All couplings and other connections must be inspected to ensure that they are leak free, undamaged, and fully functional. During and after the transfer, all couplings and other connections must be monitored for leaks.

(iii) Brakes must be set and wheels chocked on all rail cars before and during loading and unloading.

(iv) 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 potential direction. Signs must remain in place until operations are completed, all connections are removed, and outlets properly closed.

(v) During the entire transfer, and while the tank system is connected to the loading or unloading device, the operator/carrier must always supervise, monitor, and control the transfer to prevent overfilling and spilling. The operator/carrier must be trained in the proper transfer procedures and must take immediate action to stop the transfer of the hazardous substance when the working capacity is reached, or if an equipment failure or emergency occurs.

(vi) During the transfer of a hazardous substance with a flash point below 100 degrees Fahrenheit (37.8 degrees Celsius) or wherever flammable vapors may be present, all potential ignition sources must be controlled. Sources of ignition include open flames, lightning, smoking, cutting, welding, hot surfaces, friction, heat, sparks

from static, electrical or mechanical sources, spontaneous ignition, chemical and physical-chemical reactions, and radiant heat.

(vii) Equipment or practices that prevent the mixing of incompatible substances must be in-place. This must include mating of couplings to prevent mixing, written site procedures that 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 paragraph must be specified in the spill prevention report required by section 1.9 of this Part.

(c) Periodic inspection of overfill prevention equipment. Overfill prevention equipment must be inspected to ensure that the equipment is operating properly and will prevent releases to the environment.

(1) Inspections of overfill prevention equipment must be conducted at least once every three years and must, at a minimum, ensure that:

(i) the overfill prevention equipment is set to activate at the working capacity specified under paragraph 2.1(b)(3) of this Subpart; and

(ii) the overfill prevention equipment will activate when the tank is filled to its working capacity.

(2) Inspections must be conducted in accordance with one of the following (refer to section 1.16 of this Part for complete citation of references):

(i) manufacturer’s instructions;

(ii) PEI RP1200, 2019 edition; or

(iii) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(3) Recordkeeping. Records of inspections required by this subdivision must be retained for three years or until the next inspection, whichever is later.

(d) Periodic monitoring/testing of transfer station secondary containment and containment sumps used for interstitial monitoring of piping. Transfer station secondary containment and containment sumps used for interstitial monitoring of piping must be monitored or inspected to ensure that the equipment is operating properly and will prevent releases to the environment.

(1) The integrity of transfer station secondary containment and containment sumps used for interstitial monitoring of piping must be documented by meeting one of the following:

(i) The equipment is, at a minimum, double-walled and the integrity of both walls is periodically monitored at a frequency not less than the frequency of the applicable walkthrough inspections required under subdivision (f) of this section. (If switching from integrity monitoring to integrity testing, integrity testing must commence within 30 days after the equipment was last monitored, in accordance with subparagraph (ii) of this paragraph.)

(ii) The transfer station secondary containment and containment sumps used for interstitial monitoring of piping are tested at least once every three years to ensure the secondary containment and containment sumps are liquid-tight by using vacuum, pressure, or liquid testing in accordance with one of the following criteria (refer to section 1.16 of this Part for complete citation of references):

('a') requirements developed by the manufacturer (Note: this option may be used only if the manufacturer has developed such testing requirements);

('b') PEI RP1200, 2019 edition;

('c') a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department; or

('d') if none of the criteria in clauses (a) through (c) of this subparagraph can be feasibly utilized, an alternative testing method may be proposed to the department. Accordingly, the department may approve a testing method that can demonstrate that the secondary containment for the transfer station meets all the requirements of paragraph 2.1(b)(4) of this Subpart.

(2) Recordkeeping. Records of tests required by subparagraph (1)(ii) of this subdivision must be retained for three years or until the next test, whichever is later. For double-walled equipment not tested every three years, records indicating that the equipment is double-walled and the integrity of both walls is periodically monitored in accordance with subparagraph (1)(i) of this subdivision, must be retained for as long as the equipment is monitored, plus an additional three years.

(e) Periodic inspection/testing of leak detection equipment.

(1) Monthly connectivity inspections for electronic equipment. All electronic monitoring systems must be inspected for connectivity at monthly intervals.

(2) Annual operability inspections.

(i) Leak detection equipment required under subdivision 2.3(b) of this Subpart must be operated and maintained, and inspected annually for operability, in accordance with one of the following:

(‘a’) manufacturer’s instructions;

(‘b’) PEI RP1200, 2019 edition; or

(‘c’) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(ii) The inspection must, at a minimum, cover the following components and criteria as applicable:

(‘a’) Automatic tank gauge and other controllers. Test alarm; verify system configuration; and test battery backup.

(‘b’) Probes and sensors. Inspect for residual buildup; ensure floats move freely; ensure shaft is not damaged; ensure cables are free of kinks and breaks; and test alarm operability and communication with controller.

(‘c’) Automatic line leak detector. Test operability to meet criteria in paragraph 2.3(d)(1) of this Subpart by simulating a leak.

(‘d’) Vacuum pumps and pressure gauges. Ensure proper communication with sensors and controller.

(‘e’) Hand-held electronic sampling equipment for groundwater and vapor monitoring. Ensure operability.

(3) Recordkeeping. Records of inspections and testing required by this subdivision must be retained for three years.

(f) Periodic operation and maintenance walkthrough inspections.

(1) Walkthrough inspection practices. One of the following types of walkthrough inspections must be performed to ensure proper operation and maintenance of UST systems:

(i) walkthrough inspections that, at a minimum, check the following equipment at intervals specified below:

(‘a’) every 30 days (note: fill port catch basins and transfer station secondary containment of UST systems receiving deliveries less frequent than every 30 days may be inspected prior to each delivery):

(‘1’) Fill port catch basins. Visually check for damage; remove liquid or debris; check for and remove obstructions in the delivery piping; check the fill cap to make sure it is securely on the delivery piping; and, for double-walled fill port catch basin with interstitial monitoring, check for a leak in the interstitial area.

(‘2’) Leak detection equipment. Check to make sure that the leak detection equipment required under subdivision 2.3(b) of this Subpart is operating with no alarms or other unusual operating conditions present and ensure records of leak detection testing are reviewed and current.

(‘3’) Other equipment. Alarms, overfill prevention equipment, spill prevention equipment, cathodic protection monitoring equipment, other monitoring equipment, warning alarms, and safety systems must be visually inspected for cleanliness, leakage, corrosion, and operability.

(‘b’) annually:

(‘1’) Containment sumps. Visually check for damage, leaks to the containment area, or releases to the environment; remove liquid (in contained sumps) or debris; and, for double walled sumps with interstitial monitoring, check for a leak in the interstitial area.

(‘2’) Handheld leak detection equipment. Check devices such as tank gauge sticks or groundwater bailers for operability and serviceability, if used for a leak detection method listed under subdivision 2.3(c) of this Subpart.

(ii) operation and maintenance walkthrough inspections conducted in accordance with one of the following codes of practice (refer to section 1.16 of this Part for complete citation of references):

(‘a’) PEI RP900, 2017; or

(‘b’) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(2) Recordkeeping. Records of inspections required by this subdivision must be retained for three years. Records must include a list of each tank system component/area checked, whether the equipment/area checked was acceptable or needed action taken, a description of actions taken to correct an issue, and delivery records if the fill port catch basin is checked less frequently than every 30 days due to infrequent deliveries.

(g) Operation and maintenance of corrosion protection. Metal tank system components must be protected from corrosion to prevent releases due to corrosion until the UST system is permanently closed in accordance with subdivision 2.6(b) of this Subpart.

(1) Corrosion protection systems must be operated and maintained to continuously and adequately protect metal tank system components that are in contact with the ground and routinely contain hazardous substance.

(2) Cathodic protection systems must be tested for proper operation by a qualified cathodic protection tester in accordance with the following requirements:

(i) Frequency. Cathodic protection systems are tested within six months of the cathodic protection system’s installation, reinstallation, or repair and at yearly intervals thereafter; and

(ii) Inspection criteria. One of the following codes of practice (refer to section 1.16 of this Part for complete citation of references) is used to determine that cathodic protection is adequate:

(‘a’) NACE TM0101-2012, 2012 edition;

(‘b’) NACE TM0497-2012, 2012 edition;

(‘c’) STI R051, January 2006;

(‘d’) NACE SP0285-2011, 2011 edition; or

(‘e’) NACE SP0169-2013, 2013 edition.

(3) Impressed current systems must be inspected for proper operation every 60 days. The inspection does not need to be conducted by a qualified cathodic protection tester, but must indicate:

(i) the current rectifier readings (both voltage and amperage);

(ii) whether the current amperage reading is within 20 percent of the baseline amperage reading from the previous annual cathodic protection test;

(iii) whether the rectifier clock, if available, has been operated continuously;

(iv) whether the bonding cable connections are secure; and

(v) any issues found and the actions taken to address them.

(4) Records of inspections and testing required by paragraphs (2) and (3) of this subdivision must be retained for three years.

(h) Maintenance and repairs.

(1) If the tank system or any component thereof is inadequate or not tight, or any inspection shows that continuation of an operation or practice will result in a leak, then:

(i) the operation or practice must be modified or discontinued immediately;

(ii) the tank system or tank system component must be immediately replaced; or

(iii) the tank system must be immediately emptied and taken out of service in accordance with subdivision 2.6(a) of this Subpart before the necessary repairs and required subsequent testing are performed, unless the tank system is permanently closed in accordance with subdivision 2.6(b) of this Subpart. (Examples which may indicate that a leak is imminent include: leaking valves, pumps, and pipe joints; 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.)

(2) If the tank system or any component thereof, or continuation of an operation or practice, is not in imminent danger of causing a leak, but an inspection shows that the tank system is malfunctioning or is in disrepair, and that a leak is likely or probable unless action is taken, then:

(i) the operation or practice must be modified or discontinued immediately;

(ii) the tank system or tank system component must be replaced within 90 days (unless a shorter time is deemed necessary by the department); or

(iii) the tank system must be taken out of service in accordance with subdivision 2.6(a) of this Subpart before the necessary repairs and required subsequent testing are performed, unless the tank system is permanently closed in accordance with subdivision 2.6(b) of this Subpart. (Examples of such equipment disrepair include: secondary containment dikes with erosion or rodent damage; deficiencies in coatings for preventing corrosion caused by exposure to the environment; malfunctioning leak detection equipment; and cathodic protection systems which fail to provide the necessary electric current to prevent corrosion.)

(3) Repairs must be permanent, equal to or more protective than the standards of original construction, and accompanied by a signed statement from the person who performed the repair that the repair meets this requirement.

(4) Repairs to a UST system must be properly conducted in accordance with one of the following codes of practice, as applicable (refer to section 1.16 of this Part for complete citation of references):

(i) NFPA 30, 2012 edition;

(ii) API RP 2200, September 2010;

(iii) API RP 1631, June 2001;

(iv) NFPA 326, 2010 edition;

(v) STI R972, December 2010;

(vi) NACE SP0285-2011, 2011 edition;

(vii) FTPI RP T-95-02, January 1995; or

(viii) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(5) Repairs to fiberglass-reinforced plastic tanks must be conducted in accordance with one of the codes of practice in paragraph (4) of this subdivision or may instead be made by the manufacturer's authorized representative in accordance with the manufacturer's specifications for such repair.

(6) Metal pipe sections and fittings from which hazardous substance has leaked as a result of corrosion or other damage must be replaced.

(7) Noncorrodible pipes and fittings from which hazardous substance has leaked as a result of damage must be repaired or replaced.

(8) Within 30 days following the repair of secondary containment for tanks or piping, or containment sumps used for interstitial monitoring, the repaired equipment must be tested in accordance with the manufacturer's instructions, a code of practice listed under paragraph (4) of this subdivision, or subdivision 2.2(d) of this section, as applicable.

(9) Within 30 days following the repair of tanks and piping not covered in paragraph (8) of this subdivision, repaired tanks and piping must be tightness tested in accordance with paragraph 2.3(c)(1) and (d)(2) of this Subpart, respectively, with the exception of the following:

(i) tanks that are internally inspected in accordance with API RP 1631 following the repair; and

(ii) tanks and piping that are monitored for leaks in accordance with a method listed under paragraph 2.3(c)(2) of this Subpart.

(10) Within six months following the repair of any tank system component that is cathodically protected, or any repair or reinstallation of a cathodic protection system, the cathodic protection system must be tested and inspected, as applicable, in accordance with paragraphs (g)(2) and (3) of this section to ensure proper operation.

(11) Within 30 days following the repair of overfill prevention equipment, fill port catch basins, or transfer station secondary containment, the repaired equipment must be tested or inspected, as applicable, in accordance with subdivision (c) or (d) of this section to ensure proper operation.

(12) Recordkeeping. Records of repairs and maintenance performed in accordance with this subdivision must be retained until the UST system is permanently closed in accordance with section 2.6(b) of this Subpart.

(i) Tank linings.

(1) Tanks must be lined in accordance with:

(i) NLPA 631 (see section 1.16 of this Part); or

(ii) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(2) Tank linings must be compatible with the substance stored.

(3) Linings of carbon steel tanks must be applied no later than eight hours after abrasive blasting and cleaning of the internal surface or in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department. Visible rust, moisture or foreign matter must not be present.

(4) All linings 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 lining must maintain a permanent bond to the equipment.

(5) The lining’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 lining.

(6) The lining material must be applied and cured in strict accordance with the lining manufacturer's specifications.

(7) The lining must be checked for blisters and air pockets and electrically tested for pinholes. The thickness of the lining 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.

(8) The date of installation of the lining, condition of the tank, installation methods, and other pertinent information must be kept in the spill prevention report for the life of the tank system.

(9) Within 10 years after a lining is affixed to a tank, the 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 years thereafter.

(j) Replacement of rupture disks. All rupture disks must be replaced with new ones at least every three 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.

(k) Switching from one hazardous substance to another hazardous substance. If the substance stored within a tank system is to be switched from one hazardous substance to another, then the tank system must be evaluated by a qualified engineer before the change to the different hazardous substance is made to determine that materials are compatible, pressure and vacuum relief systems are adequate, and that the tank system is properly designed and suitable.

(l) Requirements for tanks subject to flooding. Any 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. In determining whether a tank system is susceptible to inundation by water, the facility must include consideration of the future physical climate risk due

to sea level rise, storm surges, and flooding, based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data if applicable. Tanks must be designed, installed and maintained in accordance with operating standards set forth in NFPA 30, 1993 section 2-6.6 (see section 1.16 of this Part) and in accordance with State and local flood plain regulations. Dikes in flood plains must be designed and installed to withstand structural damage and overtopping by a 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 State unless such discharge is in conformance with the standards of Parts 701, 702, 703 and 750 of this Title, as applicable.

(m) Uninspected tank systems. If any of the following tests or inspections are not performed, the owner or operator must take the uninspected portion of the tank system out-of-service pursuant to the requirements of subdivision 2.6(a) of this Subpart:

(1) equipment inspections in accordance with subclause 2.2(f)(1)(i)(a)(3) of this section;

(2) automatic line leak detector operability inspections in accordance with clause 2.2(e)(2)(ii)(c) of this section;

(3) cathodic protection testing in accordance with subdivision 2.2(g) of this section; and

(4) lining inspections in accordance with paragraph 2.2(i)(9) of this section.

598-2.3 Leak detection

(a) General leak detection requirements.

(1) A method, or combination of methods, of leak detection must be provided that:

(i) can detect a leak from any portion of the tank and the piping that is in contact with the ground and routinely contains hazardous substance;

(ii) is installed and calibrated in accordance with the manufacturer’s instructions; and

(iii) meets the requirements of subdivisions (c) and (d) of this section, as applicable. In addition, the methods listed under paragraphs (c)(1), (d)(1), and (d)(2) of this section must be capable of detecting the leak rate or quantity specified for that method with a probability of detection of 95 percent and a probability of false alarm of 5 percent.

(2) If a method of leak detection that complies with the requirements of this section cannot be implemented, the UST system must be permanently closed in accordance with subdivision 2.6(b) of this Subpart.

(b) Specific leak detection requirements for tanks and piping.

(1) Tank leak detection. Every tank must be monitored for leaks at weekly intervals in accordance with paragraph (c)(2) of this section. Continuous electronic monitoring satisfies the weekly monitoring requirement.

(2) Piping leak detection. All piping in contact with the ground must be monitored for leaks at weekly intervals in accordance with paragraph (c)(2) of this section. Additionally, all piping in contact with the ground that conveys hazardous substance under pressure must be equipped with an automatic line leak detector that is operated in accordance with paragraph (d)(1) of this section.

(c) Tank leak detection methods. Tank leak detection methods used to meet the requirements of paragraph (b)(1) of this section must be conducted in accordance with the following:

(1) Tank tightness testing.

(i) 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 a test capable of detecting a tank leak of one tenth gallons per hour (gph) with a probability of detection of 95 percent and probability of false alarm of five percent or less with a maximum threshold for declaring a leak of five hundredths of a gallon in one hour accounting for variables such as vapor pockets, thermal expansion and contraction of product, temperature stratification, groundwater level, evaporation, pressure and tank deformation.

(ii) 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.

(iii) 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 their representative to perform the test.

(2) Interstitial monitoring. Interstitial monitoring between the primary and secondary containment may be used if the monitoring equipment is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains hazardous substance, and if the monitoring equipment meets the requirements of either subparagraph (i) or (ii) of this paragraph:

(i) For a double-walled tank or double-walled piping, the sampling or testing method:

(‘a’) can detect a leak through the inner wall in any portion of the tank that routinely contains hazardous substance; and

(‘b’) is capable of detecting a breach in both the inner and outer walls of the tank and/or piping if using continuous vacuum, pressure, or liquid-filled methods of interstitial monitoring.

(ii) For a UST system with secondary containment within the excavation zone, the sampling or testing method can detect a leak between the primary and secondary containment, and the following conditions are met:

(‘a’) The secondary containment consists of artificially constructed material that is sufficiently thick and impermeable (i.e., with a permeability rate to water equal to or less than 1×10-6 cm/sec) to direct a leak to the monitoring point and permit its detection.

(‘b’) The secondary containment is compatible with the hazardous substance stored so that a leak from the UST system will not cause a deterioration of the secondary containment, allowing a leak to pass through undetected.

(‘c’) For cathodically protected tank systems the secondary containment must be installed so that it does not interfere with the proper operation of the cathodic protection system.

(‘d’) The groundwater, soil moisture, or rainfall will not render the testing or sampling method inoperative so that a leak could go undetected for more than seven days.

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

(‘f’) Monitoring wells are clearly marked in accordance with subparagraph 2.2(b)(1)(v) of this Subpart and secured to avoid unauthorized access and tampering.

(d) Piping leak detection methods. Piping leak detection methods used to meet the requirements of paragraph (b)(2) of this section must be conducted in accordance with the following:

(1) Automatic line leak detectors. Methods which indicate the presence of a leak by restricting or shutting off the flow of hazardous substance through piping, or triggering an audible or visual alarm, may be used only if they detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within one hour.

(2) Line tightness testing.

(i) 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 a test capable of detecting a piping leak of one tenth gallons per hour (gph) with a probability of detection of 95 percent and probability of false alarm of five percent or less with a maximum threshold for declaring a leak of five hundredths of a gallon in one hour accounting for variables such as vapor pockets, thermal expansion and contraction of product, temperature stratification, groundwater level, evaporation, pressure and tank deformation.

(ii) 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.

(iii) 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 their representative to perform the test.

(e) Recordkeeping. Records of the tests and inspections required by this section must meet the following requirements:

(1) The results or records of any sampling, testing, or monitoring must be retained for at least three years.

(2) The results of tank and line tightness testing must be retained for three years or until the next test, whichever is later, and include the following information:

(i) facility registration number;

(ii) tank system identification number as shown on the registration certificate for the tank or piping tested;

(iii) date of test;

(iv) results of test;

(v) test method;

(vi) certification by the technician that the test complies with paragraph (c)(1) or paragraph (d)(2) of this section;

(vii) statement of technician’s qualifications;

(viii) address of technician; and

(ix) signature of technician.

(3) Written performance claims pertaining to any leak detection system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or installer, must be retained for five years after the date of equipment installation.

(4) Written documentation of all calibration, maintenance, and repairs of leak detection equipment installed on-site must be retained for at least three years after the servicing work is completed. Schedules of required

calibration and maintenance provided by the leak detection equipment manufacturer must be retained for five years after the date of equipment installation.

(f) Uninspected tank systems. If any portion of a tank system is not tested or inspected as required by this section, the owner or operator must take the uninspected portion of the tank system out-of-service pursuant to the requirements of subdivision 2.6(a) of this Subpart.

598-2.4 Reporting, investigation, and confirmation

(a) Reporting responsibilities.

(1) The reporting requirements of this section apply to the following persons:

(i) the facility owner;

(ii) the tank system owner;

(iii) the operator;

(iv) the carrier;

(v) any contractor in a contractual relationship with the facility owner, tank system owner, or operator;

(vi) any other party and its contractors who have been retained as part of a business transaction relating to the facility; and

(vii) any person who causes a spill at the facility.

(2) Any person required to report under paragraph (1) of this subdivision must report the spill in accordance with subdivision (f) of this section.

(3) Notwithstanding the provisions of paragraph (1) of this subdivision, employees of an owner or operator may report spills 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 section 1.9 of this Part. Independent consultants and contractors are not considered to be employees of the facility for the purposes of this section.

(b) Prohibition of spills. The spilling of a hazardous substance is prohibited unless:

(1) such spill is authorized;

(2) such spill is continuous and stable in quantity and rate and has been reported pursuant to paragraph 597.4(b)(4) of this Title; or

(3) such spill is of fire-fighting foam containing Perfluorooctanoic Acid (CAS No. 335-67-1), Ammonium Perfluorooctanoate (CAS No. 3825-26-1), Perfluorooctane Sulfonic Acid (CAS No. 1763-23-1), or Perfluorooctane Sulfonate (CAS No. 2795-39-3) used for fighting fires (but not for training purposes) and occurs on or before April 25, 2017. In the event there is a spill of such foam that exceeds the reportable quantity of any hazardous substance, the spill must be reported pursuant to subdivision (f) of this section.

(c) Reporting of suspected spills.

(1) Suspected spills must be reported to the department's Spill Hotline (800-457-7362) within 2 hours after discovery and the procedures in subdivision (e) of this section must be followed for any of the following conditions:

(i) the discovery of hazardous substance outside of a UST system at the facility or in the surrounding area (e.g., the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water);

(ii) unusual operating conditions observed (e.g., the erratic behavior of hazardous substance dispensing equipment, the sudden loss of hazardous substance from the UST system, an unexplained presence of water in the tank, or water in the interstitial space of secondarily contained tank system components), unless the tank system component is found to be defective but not leaking, and is immediately repaired or replaced;

(iii) monitoring/testing results, including alarms, from a leak detection method required under subdivisions 2.3(a) and (b) of this Subpart which indicate that a leak may have occurred, unless:

('a') the monitoring device is found to be defective, and is immediately repaired, recalibrated, or replaced, and additional monitoring does not confirm the initial result; or

(‘b’) the alarm was investigated and determined to be a non-spill event (e.g., from a power surge or caused by filling the tank during leak detection testing);

(iv) testing/monitoring results from periodic testing/monitoring required under paragraph 2.2(d)(1) of this Subpart, for a fill port catch basin, containment sump, or any other containment equipment, indicate that the containment equipment has no integrity.

(v) any other conditions or indications of a suspected spill.

(2) Where a spill of any hazardous substance has occurred or is suspected, the department may order the owner to inspect any tank system, location, and/or associated equipment which might be the source of the actual or suspected spill and to test for tightness and structural soundness. If the owner fails to conduct such tests within 10 days of the order, the department may do so. The reasonable expenses of conducting such tests incurred by the department shall be paid by the owner.

(d) Investigation due to off-site impacts. When required by the department, the procedures in subdivision (e) of this section must be followed to determine if the UST system is the source of off-site impacts. These impacts include the discovery of a hazardous substance(s) (e.g., the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface and drinking waters) that has been observed by the department or brought to its attention by another party.

(e) Leak investigation and confirmation steps. Unless corrective action is initiated in accordance with Subpart 6 of this Part, any leak or suspected leak of a hazardous substance(s) must be immediately investigated using either one of the methods described in paragraphs (1) or (2) of this subdivision or another procedure approved by the department. The investigation must be completed, and the results submitted to the department, prior to any repairs and within 7 days after the reporting required under subdivision (c) or (f) of this section. 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.

(1) System test. Testing must be conducted in accordance with paragraph 2.2(d)(1), 2.3(c)(1), or 2.3(d)(2) of this Subpart to determine whether a leak exists in the portion of the UST system (including delivery piping) suspected of leaking and, in the case of hazardous substance reaching secondary containment, whether a breach of the secondary containment occurred.

(i) If the test results indicate that a leak or release has occurred, the leaking UST system must be immediately emptied to prevent further leaks and be:

('a') promptly taken out of service in accordance with subdivision 2.6(a) of this Subpart and repaired in accordance with subdivision 2.2(h) of this Subpart;

('b') replaced; or

('c') permanently closed in accordance with subdivision 2.6(b) of this Subpart.

(ii) If the test results indicate that a release has occurred, corrective action must also begin in accordance with Subpart 6 of this Part.

(iii) If the test results do not indicate that a leak exists but environmental contamination is the basis for suspecting a leak, a site check must be conducted in accordance with paragraph (2) of this subdivision.

(iv) If the test results do not indicate that a leak exists and environmental contamination is not the basis for suspecting a leak, further investigation is not required.

(2) Site check. The presence or absence of a release must be determined where contamination is most likely to be present at the facility (i.e., in the excavation zone or at the UST system location). In selecting sample types, sample locations, and measurement methods, the following must also be considered: nature of the hazardous substance(s) previously stored in the UST system; type of initial alarm or cause for suspicion; type of backfill; depth of groundwater; and other factors appropriate for identifying the presence and source(s) of the release.

(i) If the site check results indicate that a release has occurred, corrective action must begin in accordance with Subpart 6 of this Part.

(ii) If the site check results do not indicate that a release has occurred, further investigation is not required.

(f) Response to spills.

(1) With the exception of spills described in paragraph (3) of this subdivision, the following spills of a hazardous substance, that is covered under clauses 597.1(b)(7)(i)(a) and (b) of this Title, must be reported to the department's Spill Hotline (800-457-7362) within two hours after discovery by any person in actual or constructive control or possession of the hazardous substance when it is spilled, or any employee, agent, or representative of such person who has knowledge of the spill:

(i) the spill of a reportable quantity that occurs within any twenty-four hour period;

(ii) the spill of a quantity that is less than a reportable quantity if any of the following conditions exist:

('a') such spill results, or may reasonably be expected to result, in a fire;

('b') such spill results, or may reasonably be expected to result, in an explosion;

('c') such spill results, or may reasonably be expected to result, in the violation of air quality standards;

('d') such spill 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 where a release originates; or

('e') runoff from fire control or dilution waters may reasonably be expected to result in or contribute to a violation of water quality standards.

(2) A spill of a hazardous substance mixture is subject to the following reporting requirements:

(i) If the quantity of the hazardous constituents of the hazardous substance mixture is known, notification is required where a reportable quantity or more of any hazardous constituent is released.

(ii) If the quantity of the hazardous constituent(s) of the hazardous substance mixture is unknown, reporting is required where the total amount of the mixture released equals or exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity.

(3) Notwithstanding the provisions of paragraph (1) of this subdivision, it is not necessary to report a spill of a reportable quantity of a hazardous substance if all of the following conditions are met:

(i) there is control over the spill and it is completely contained;

(ii) the spill has not and will not reach the land or waters of the State;

(iii) the spill is cleaned up within two hours after discovery;

(iv) the total volume of the spill is recovered or accounted for; and

(v) the spill will not result in any of the conditions listed in subparagraph (1)(ii) of this subdivision.

(g) Emergency response.

(1) In addition to the requirements of paragraph (2) of this subdivision, the owner or operator must take immediate action upon discovery of a spill to protect human health, safety, and the environment. Immediate actions which may be necessary include 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 spill and stopping, plugging or containing the spill. Corrective action as specified in 6.2 of this Part must also be undertaken to clean up and remove the spilled material and restore the site to protect public health, safety, and the environment.

(2) Leaking tank systems must be immediately emptied to prevent further leaks and be:

(i) promptly taken out of service in accordance with subdivision 2.6(a) of this Subpart and repaired in accordance with subdivision 2.2(h) of this Subpart;

(ii) replaced; or

(iii) permanently closed in accordance with subdivision 2.6(b) of this Subpart.

598-2.5 Operator training

(a) Designation of operators. The following Class A, Class B, and Class C Operators who meet the requirements of this section must be designated:

(1) one Class A and one Class B Operator for each UST system or group of UST systems (the same individual may be designated for multiple Operator classes and tank systems); and

(2) every individual who meets the definition of Class C Operator at the facility as a Class C Operator. At least one Class C Operator must be designated for each UST system (the same individual may be designated as the Class C Operator for multiple tank systems).

(b) Requirements for operator testing. Class A, Class B, and Class C Operators must meet the requirements of this subdivision. Any individual designated for more than one Operator class must pass the required exam for each Operator class in which the individual is designated.

(1) Class A Operators. Class A Operators must pass an exam offered by the department that measures knowledge of the purpose, methods, and function of the requirements of this Part concerning:

(i) spill and overfill prevention;

(ii) leak detection;

(iii) corrosion protection;

(iv) emergency response;

(v) compatibility;

(vi) financial responsibility;

(vii) registration;

(viii) out-of-service status and permanent closure;

(ix) related reporting, recordkeeping, testing, and inspections;

(x) environmental and regulatory consequences of releases; and

(xi) knowledge and training requirements for Class B and Class C Operators, respectively.

(2) Class B Operators. Class B Operators must pass an exam offered by the department that measures knowledge of the purpose, methods, and function of the requirements of this Part concerning:

(i) operation and maintenance;

(ii) spill and overfill prevention;

(iii) leak detection and related reporting;

(iv) corrosion protection and related testing;

(v) emergency response;

(vi) compatibility;

(vii) related reporting, recordkeeping, testing, and inspections;

(viii) environmental and regulatory consequences of releases; and

(ix) training requirements for Class C Operators.

(3) Class C Operators. Class C Operators must be trained and tested under the direction of the Class A or Class B Operator at the facility to take appropriate actions in response to emergencies and alarms indicating spills or releases (including reporting leaks, suspected leaks, or releases to the department in accordance with section 2.4 of this Subpart).

(c) Timing of operator testing and training.

(1) Class A and Class B Operators must meet the requirements of paragraphs (b)(1) and (2) of this section, respectively, before being designated.

(2) Class C Operators must meet the requirements of paragraph (b)(3) of this section before being designated.

(3) In the event that a Class A and/or Class B Operator is no longer the designated Operator (due to separation from employment, death, or other circumstance), a new Class A and/or B Operator must be designated within 30 days after the event.

(4) Periodic retesting. Class A and Class B Operators who possess a current and valid operator training credential by passing the Department’s exam must be retested every five years after the date of the last valid

Operator authorization certificate until the Department receives written notice and documentation that the individual either is no longer the designated Operator or inactivates their authorization.

(d) Retesting due to significant non-compliance. Class A or Class B Operators designated for UST systems that are determined by the department to be in significant non-compliance must be retested in accordance with the requirements of subdivision (b) of this section. Any reliance on previously obtained operator training credentials issued by another state will not be accepted by the department. Class A or Class B Operators must be retested within 30 days after the date the department determines that a UST system is in significant non-compliance. Alternatively, a different Class A or Class B Operator may be designated, as appropriate, for the UST systems determined by the department to be in significant non-compliance.

(e) Recordkeeping. Records of this section must be retained for as long as the Operator remains designated at the facility plus an additional three years, and must consist of the following:

(1) authorization certificates issued by the department upon successful completion of the Operator training exam for all Class A and Class B Operators; and

(2) training logs for all Class C Operators that include the following:

(i) the name of the Class C Operator;

(ii) the date(s) the Class C Operator was trained;

(iii) the name and certificate of the Class A and/or Class B Operator that trained the Class C Operator; and

(iv) a signed statement from the Class A and/or Class B Operator who trained the Class C Operator, acknowledging that the Class C Operator was trained to take appropriate actions at the facility in response to emergencies and alarms indicating spills or releases.

598-2.6 Out-of-service underground tank systems and closure

(a) Out-of-service UST systems.

(1) A UST system is out of service if:

(i) the facility owner (or their authorized representative) takes the tank system out of service by submitting an application to the department, in accordance with paragraph 1.14(a)(5) of this Part, indicating that the tank system is out of service; or

(ii) the tank system is no longer receiving or dispensing a hazardous substance, unless the tank system is used for standby storage, is part of a closed-loop system, or the facility has received approval from the department. Records explaining why a tank system that no longer receives or dispenses hazardous substance is not out of service, must be retained until the tank system is permanently closed and made part of the spill prevention report. Within 30 days after the tank system becomes out of service, the facility owner (or their authorized representative) must submit an application to the department, in accordance with paragraph 1.14(a)(5) of this Part, indicating that the tank system is out of service.

(2) Out-of-service UST systems are still subject to all applicable requirements of this Part, with the exception of periodic equipment testing/monitoring/inspections, walkthrough inspections, and leak detection required under subdivisions 2.2(c) through (f), and 2.3(a) and (b) of this Subpart if the UST system is empty. (A UST system is considered empty when all hazardous substance has been removed using commonly employed practices so that no more than 2.5 centimeters (one inch) of residue remain in the UST system.)

(i) The suspended requirements of subdivisions 2.2(c) through (f), and 2.3(a) and (b) of this Subpart must resume in accordance with the original schedule when the UST system is returned to service. However, if the UST system has been out of service such that any of the next periodic testing/monitoring/inspections was not conducted in accordance with the original schedule, the testing/monitoring/inspection must be performed when the UST system is returned to service.

(ii) For UST systems taken out of service due to repairs (in response to a leak), the repair and subsequent testing requirements of subdivision 2.2(h) of this Subpart must be successfully completed before the UST system is returned to service.

(3) When a UST system is out-of-service for 30 or more days, the UST system must meet the following requirements:

(i) The tank must be emptied so that no more than 2.5 centimeters (one inch) of residue remains. Any hazardous waste that is removed from the tank system 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;

(ii) Vent lines must be left open and functioning; and

(iii) All piping, manways, fill ports, gauge openings, vapor returns, pump connections, and ancillary equipment must be capped and secured.

(4) UST systems that are out-of-service for more than one year must be permanently closed if the tank system has not been protected from corrosion as required in clause 2.1(b)(1)(ii)(b) of this Subpart. The department may grant a time extension based on the findings of a site assessment performed by the owner or operator in accordance with subdivision (d) of this section. UST systems that are out-of-service for more than one year must be inspected or tested in accordance with paragraphs 2.3(c)(1) and 2.3(d)(2) of this Subpart and determined to be structurally sound and tight before being returned to service.

(b) Permanent closure of tank systems. To permanently close a tank system, the tank system must be removed from the ground or closed in place in accordance with paragraph (1) of this subdivision or undergo a change-in-service in accordance with paragraph (2) of this subdivision.

(1) A tank system must be removed from the ground or closed in-place in accordance with the following:

(i) At least 30 days before permanent closure, the facility owner (or their authorized representative) must notify the department of this action, unless such action is in response to corrective action in accordance with Subpart 6 of this Part.

(ii) The required assessment of the excavation zone under subdivision (d) of this section must be performed after notifying the department in accordance with subparagraph (i) of this paragraph, but before completion of the permanent closure. The resultant report must be submitted to the department within 90 days after permanent closure.

(iii) liquid and sludge must be removed from the tank system. Any removed hazardous waste must be transported and disposed of in accordance with all applicable State, local and Federal requirements;

(iv) 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;

(v) all piping must be disconnected and removed or securely capped or locked out or plugged. Manways must be securely fastened in place;

(vi) tanks must be removed from the ground unless it will be detrimental to a building foundation or other structure. Tanks that are closed 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;

(vii) if a tank is to be disposed of, 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; and

(viii) all tanks must be protected from floatation caused by flooding or high ground water level in accordance with generally accepted engineering practices.

(ix) Within 30 days after permanent closure, the facility owner (or their authorized representative) must submit an application to the department, in accordance with paragraph 1.14(a)(6) of this Part, indicating that the UST system has been permanently closed.

(2) A tank system must undergo a change-in-service in accordance with the following:

(i) At least 30 days before permanent closure, the facility owner (or their authorized representative) must notify the department of this action, unless such action is in response to corrective action in accordance with Subpart 6 of this Part.

(ii) The required assessment of the excavation zone under subdivision (d) of this section must be performed after notifying the department in accordance with subparagraph (i) of this paragraph, but before completion of the permanent closure. The resultant report must be submitted to the department within 90 days after permanent closure.

(iii) liquid and sludge must be removed from the tank system. Any removed hazardous waste must be transported and disposed of in accordance with all applicable State, local and Federal requirements;

(iv) 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;

(v) Within 30 days after permanent closure, the facility owner (or their authorized representative) must submit an application to the Department, in accordance with paragraph 1.14(a)(6) of this Part, indicating that the UST system has been permanently closed.

(c) Closure of tank systems abandoned prior to August 11, 1994. All tanks taken out-of-service, but still in or on the ground, prior to August 11, 1994 must be closed in accordance with the requirements of subdivision (b) of this section.

(d) Site assessment for permanent closure.

(1) The owner or operator must perform a site assessment at the time of permanent closure of any underground tank system. A site assessment may be required of any such tank system that is permanently closed prior to August 11, 1994 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 groundwater monitoring in sufficient depth to determine if environmental contamination exists in the vicinity of the tank site.

(2) In selecting sample types, sample locations, and measurement methods, the following must be considered: the method of closure, type of backfill, geology, water table contours, aquifer thickness, porosity, background water quality, the nature of the substance known or suspected to have been stored at the facility, and other factors appropriate for identifying the presence of a release.

(3) If contaminated soil, vapor, groundwater or free product is discovered, the owner and operator must begin corrective action in accordance with section 6.2 of this Part.

(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.

Subpart 598-3 Aboveground storage tank systems

598-3.1 Design, construction, and installation

(a) Applicability. This Subpart applies to aboveground tank systems used to store hazardous substances which includes a tank with a storage capacity of 185 gallons or greater.

(b) Design and equipment requirements for AST systems.

(1) Tank requirements. Tanks must be of sufficient structural strength to withstand normal handling and use. The tank must be compatible with the hazardous substance being stored and with any soil the tank is in contact with. Tanks must be protected from, or resistant to, all forms of internal and external wear, vibration, shock and corrosion. Tanks 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 forklifts 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 30 years of useful life unless a shorter useful life is defined in the spill prevention report.

(i) Category 1 tank requirements. Every tank must meet the following requirements:

('a') Tank design and construction standards.

('1') All Category 1 tanks must be designed, constructed, and installed or certified by a qualified engineer or technician in accordance with one of the following:

('i') API 650;

('ii') API 620;

('iii') CAN4-S601-M84;

('iv') CAN4-S630-M84;

('v') ASTM D4097-88;

('vi') ASTM D3299-88, (see section 1.16 of this Part); or

('vii') a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

('2') Tanks subject to scouring. All Category 1 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 144 square inches and be installed in a manner which avoids crevice corrosion.

('3') Tanks subject to melting. All 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 expose persons, buildings, structures or the environment.

('4') Manways. All Category 1 tanks with a design capacity of 5,000 gallons or more must be provided with an access lid or manhole.

(‘5’) Explosion protection. Tanks must be protected from explosion in accordance with generally accepted engineering practices. Protection must be provided by fail-safe cooling systems, fireproofing, 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.

(‘b’) Corrosion protection.

(‘1’) The bottom of a Category 1 tank in contact with the ground must be protected from external corrosion by one of the following:

(‘i’) corrosion resistant materials; or

(‘ii’) a cathodic protection system.

(‘2’) Cathodic protection must consist of one or a combination of the following:

(‘i’) sacrificial anodes and coating;

(‘ii’) impressed current; or

(‘iii’) another method that is designed and installed in accordance with a code of practice (including API 651) developed by a nationally recognized association or independent testing laboratory and approved by the department.

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

(‘4’) Tanks which are protected with sacrificial anodes must be electrically insulated from the piping if the piping is constructed of a conductive material, unless the cathodic protection system has been designed to protect the entire tank system. Electrical insulation must be provided by dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to the stored substances and soil.

(‘5’) The cathodic protection system must be installed with a monitor or monitoring port that allows for annual review of the adequacy of protection.

(‘6’) The tank must be isolated from or protected against stray electric currents which include currents from underground cables, electric machinery, railroad systems and electrical grounding rods.

(‘7’) Tank and piping connections of two dissimilar metals which together create a corrosion inducing galvanic cell are prohibited.

(‘8’) External coatings must be fiberglass-reinforced-plastic, epoxy, or other suitable dielectric material with a minimum thickness of 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.

(‘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.

(‘10’) The exposed exterior surfaces of all aboveground tank systems must be protected from corrosion. Protection must be provided by using at least one of the following methods:

(‘i’) corrosion resistant equipment materials such as stainless steel or Monel;

(‘ii’) non-metallic cladding, epoxy coating, or similar coating with a minimum finish thickness of 10 mils (0.01 inches);

(‘iii’) paints, consisting of an inhibitive primer coat, intermediate inhibitive and two or more final coats applied to a surface prepared to a SSPC SP #6 blast (see section 1.16 of this Part); or

(‘iv’) an equivalent or more protective 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.

(‘c’) Secondary containment.

(‘1’) All Category 1 tanks used to store a hazardous substance must have a secondary containment system which contains a leak or spill. The secondary containment system must prevent spills that might result from tank rupture, failure of pumps, valves and other ancillary equipment, and overfilling from entering the land or waters of the State. In addition, the system must isolate and protect the tank from traffic, fire, and spills of incompatible substances which may originate from adjacent storage or work areas. 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:

(‘i’) a surrounding dike and impoundment system in accordance with subclause (7) of this clause;

(‘ii’) a remote catch tank or impoundment area in accordance with subclause (8) of this clause; or

(‘iii’) another method that is designed and installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) The secondary containment system must be:

(‘i’) designed and constructed with a permeability rate to the hazardous substance stored of 1 × 10-6 cm/sec or less;

(‘ii’) designed, installed, and operated to prevent any migration of hazardous substances out of the system before cleanup;

(‘iii’) 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;

(‘iv’) constructed, coated or lined with materials that are 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);

(‘v’) placed on a foundation which prevents settlement, compression or uplift;

(‘vi’) equipped with a sump and 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 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 24 hours of the spill or leak; and

(‘vii’) capable of containing at least 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.

(‘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 Parts 701, 702, 703, and 750 of this Title, as applicable.

(‘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 the secondary containment soil being contaminated.

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

(‘6’) If a synthetic liner is used, it must be compatible with the substance in storage, be at least 60 mils in thickness, not deteriorate in an underground environment and have an expected useful life 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 in accordance with the manufacturer's instructions 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.

('7') Standards for dike and impoundment systems.

('i') In addition to the requirements of subclauses (1) through (6) of this clause, a dike system used for secondary containment must be constructed in accordance with NFPA, 1993 sections 2-3.4.3 (see section 1.16 of this Part), unless specified otherwise in these regulations.

('ii') All dikes and impoundment floors subject to hydraulic pressure must be designed to prevent migration of moisture into the dike system.

('iii') If constructed within a floodplain, the dike must be designed and installed to withstand structural damage and overtopping by a 100-year flood.

('iv') A slope of not less than one percent away from the tank must be provided for at least 50 feet or to the dike base, whichever is less.

('v') To permit access, the outside base of the dike at ground level must be no closer than 10 feet to any property line that is or can be built upon.

('vi') The walls of the diked area must not exceed an average height of six feet above interior grade, unless provisions are made for safe access and egress to tanks, valves and other equipment.

('vii') Each diked area with two or more tanks containing a flammable, combustible or unstable hazardous liquid must be subdivided pursuant to NFPA 30, 1993 section 2-3.4.3(g) (see section 1.16 of this Part). The subdivision may be by intermediate dikes, drainage channels or curbs, and must prevent spills from endangering tanks within the diked area.

(‘8’) Standards for remote impoundment. Remote catch tanks and surface impounding areas used for secondary containment must comply with the following:

(‘i’) All of the general requirements of subclauses (1) through (6) of this clause must be followed;

(‘ii’) A slope of not less than one percent away from the tank must be provided so that accumulated liquid drains away from the tank to the sump;

(‘iii’) The route of the drainage system must be located so that if liquids in the drainage system are ignited, the fire will not affect tank systems or adjoining property; and

(‘iv’) The confines of the surface impounding area must be located so that when filled to capacity, the liquid level will be no closer than 50 feet from any property line that is or can be built upon, or from any tank.

(ii) Category 2 tank requirements. Every tank must meet the following requirements:

(‘a’) Tank design and construction standards.

(‘1’) All Category 2 tanks must be designed, constructed, and installed or certified by a qualified engineer or technician in accordance with one of the following:

(‘i’) API 650;

(‘ii’) API 620;

(‘iii’) CAN4-S601-M84;

(‘iv’) CAN4-S630-M84;

(‘v’) ASTM D4097-88;

(‘vi’) ASTM D3299-88, (see section 1.16 of this Part); or

(‘vii’) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) Tanks subject to scouring. All Category 2 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 144 square inches and be installed in a manner which avoids crevice corrosion.

(‘3’) Tanks subject to melting. All 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 expose persons, buildings, structures or the environment.

(‘4’) Manways. All Category 2 tanks with a design capacity of 5,000 gallons or more must be provided with an access lid or manhole.

(‘5’) Explosion protection. Tanks must be protected from explosion in accordance with generally accepted engineering practices. Protection must be provided by fail-safe cooling systems, fireproofing, 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.

(‘6’) Impermeable barriers under tanks in contact with the ground. Tanks in contact with 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.

(‘b’) Corrosion protection for bottoms of tanks in contact with the ground.

(‘1’) The bottom of a Category 2 tank in contact with the ground must be protected from external corrosion by one of the following:

(‘i’) corrosion resistant materials; or

(‘ii’) a cathodic protection system.

(‘2’) Cathodic protection must consist of one or a combination of the following:

(‘i’) sacrificial anodes and coating;

(‘ii’) impressed current; or

(‘iii’) another method that is designed and installed in accordance with a code of practice developed (including API 651) by a nationally recognized association or independent testing laboratory and approved by the department.

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

(‘4’) Tanks which are protected with sacrificial anodes must be electrically insulated from the piping if the piping is constructed of a conductive material, unless the cathodic protection system has been designed to protect the entire tank system. Electrical insulation must be provided by dielectric fittings, bushings, washers, sleeves or gaskets which are chemically stable when exposed to the stored substances and soil.

(‘5’) The cathodic protection system must be installed with a monitor or monitoring port that allows for annual review of the adequacy of the cathodic protection.

(‘6’) The tank must be isolated from or protected against stray electric currents which include currents from underground cables, electric machinery, railroad systems and electrical grounding rods.

(‘7’) Tank and piping connections of two dissimilar metals which together create a corrosion inducing galvanic cell are prohibited.

(‘8’) External coatings must be fiberglass-reinforced-plastic, epoxy, or other suitable dielectric material with a minimum thickness of 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.

(‘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.

(‘10’) The exposed exterior surfaces of all aboveground tank systems must be protected from corrosion. Protection must be provided by using at least one of the following methods:

(‘i’) corrosion resistant equipment materials such as stainless steel or Monel;

(‘ii’) non-metallic cladding, epoxy coating, or similar coating with a minimum finish thickness of 10 mils (0.01 inches);

(‘iii’) paints, consisting of an inhibitive primer coat, intermediate inhibitive and two or more final coats applied to a surface prepared to a SSPC SP #6 blast (see section 1.16 of this Part); or

(‘iv’) an equivalent or more protective 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.

(‘c’) Secondary containment.

(‘1’) All Category 2 tanks used to store a hazardous substance must have a secondary containment system which contains a leak or spill. The secondary containment system must prevent spills that might result from tank rupture, failure of pumps, valves and other ancillary equipment, and overfilling from entering the land or waters of the State. In addition, the system must isolate and protect the tank from traffic, fire, and spills of incompatible substances which may originate from adjacent storage or work areas. 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:

(‘i’) a surrounding dike and impoundment system in accordance with subclause (7) of this clause;

(‘ii’) a remote catch tank or impoundment area in accordance with subclause (8) of this clause; or

(‘iii’) another method that is designed and installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) The secondary containment system must be:

(‘i’) designed and constructed with a permeability rate to the hazardous substance stored of 1 × 10-6 cm/sec or less;

(‘ii’) designed, installed, and operated to prevent any migration of hazardous substances out of the system before cleanup;

(‘iii’) 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;

(‘iv’) constructed, coated or lined with materials that are 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);

(‘v’) placed on a foundation which prevents settlement, compression or uplift;

(‘vi’) equipped with a sump and 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 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 24 hours of the spill or leak; and

(‘vii’) capable of containing at least 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.

(‘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 Parts 701, 702, 703, and 750 of this Title, as applicable.

(‘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 the secondary containment soil being contaminated.

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

(‘6’) If a synthetic liner is used, it must be compatible with the substance in storage, be at least 60 mils in thickness, not deteriorate in an underground environment and have an expected useful life 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 in accordance with the manufacturer’s instructions 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.

(‘7’) Standards for dike and impoundment systems.

(‘i’) In addition to the requirements of subclauses (1) through (6) of this clause, a dike system used for secondary containment must be constructed in accordance with NFPA, sections 2-3.4.3 (see section 1.16 of this Part), unless specified otherwise in these regulations.

(‘ii’) All dikes and impoundment floors subject to hydraulic pressure must be designed to prevent migration of moisture into the dike system.

(‘iii’) If constructed within a floodplain, the dike must be designed and installed to withstand structural damage and overtopping by a 100-year flood.

(‘iv’) A slope of not less than one percent away from the tank must be provided for at least 50 feet or to the dike base, whichever is less.

(‘v’) To permit access, the outside base of the dike at ground level must be no closer than 10 feet to any property line that is or can be built upon.

(‘vi’) The walls of the diked area must not exceed an average height of six feet above interior grade, unless provisions are made for safe access and egress to tanks, valves and other equipment.

(‘vii’) Each diked area with two or more tanks containing a flammable, combustible or unstable hazardous liquid must be subdivided pursuant to NFPA, section 2-3.4.3(g) (see section 1.16 of this Part). The subdivision may be by intermediate dikes, drainage channels or curbs, and must prevent spills from endangering tanks within the diked area.

(‘8’) Standards for remote impoundment. Remote catch tanks and surface impounding areas used for secondary containment must comply with the following:

(‘i’) All of the general requirements of subclauses (1) through (6) of this clause must be followed;

(‘ii’) A slope of not less than one percent away from the tank must be provided so that accumulated liquid drains away from the tank to the sump;

(‘iii’) The route of the drainage system must be located so that if liquids in the drainage system are ignited, the fire will not affect tank systems or adjoining property; and

(‘iv’) The confines of the surface impounding area must be located so that when filled to capacity, the liquid level will be no closer than 50 feet from any property line that is or can be built upon, or from any tank.

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

(i) Category 1 piping requirements. Category 1 piping that is in contact with the ground must have met all piping requirements in accordance with subparagraph (ii) of this paragraph by December 22, 1998. Category 1 aboveground piping must have met all piping requirements in accordance with clauses (ii)(a) through (c) of this paragraph by December 22, 1999.

(ii) Category 2 piping requirements.

(‘a’) Piping design and construction standards

(‘1’) Category 2 piping must be designed and constructed in accordance with one or more of the following:

(‘i’) ULC-C107.7;

(‘ii’) ASTM D2996-88; (see section 1.16 of this Part); or

(‘iii’) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) Adequate provisions must be made to protect all exposed piping from damage that might result from moving machinery such as forklifts, automobiles and trucks.

(‘3’) Joint compounds and gaskets must be compatible with the substance(s) stored.

(‘4’) Piping must contain shut-off valves located adjacent to pump or compressor connections.

(‘5’) Flexible connectors, elbows, loops, expansion chambers, or other equipment must be installed singularly, or in combination, to allow for movement and prevent damage from water hammer.

(‘6’) Piping that carries 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.

(‘7’) Refrigerated piping must be constructed of materials suitable for the operating conditions in the tank system.

(‘8’) Piping which employs screw-type fittings must be provided with means to prevent leakage from these fittings.

(‘b’) Corrosion protection.

(‘1’) Piping in contact with the ground and subject to corrosion must be protected from external corrosion by one of the following:

(‘i’) corrosion resistant materials; or

(‘ii’) a cathodic protection system.

(‘2’) Cathodic protection must consist of one or a combination of the following:

(‘i’) sacrificial anodes and coating;

(‘ii’) impressed current; or

(‘iii’) another method that is designed and installed in accordance with a code of practice (including API 1632 or NACE RP-01-69) developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘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 30 years of protection against external corrosion. The engineer or specialist must supervise the installation of all field fabricated protection systems and prefabricated systems to assure that the system has been installed as designed.

(‘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 substances or corrosive soil.

(‘5’) Each cathodic protection system must have a monitor or monitoring port that allows the adequacy of the cathodic protection system to be checked on an annual basis.

(‘6’) Piping must be isolated from, or protected against, sources of stray electric current which include underground cables, electric machinery, railroad systems and electrical grounding rods.

(‘7’) Tank and piping connections of two dissimilar metals which together create a corrosion-inducing galvanic cell are prohibited.

(‘8’) External coatings must be fiberglass-reinforced plastic, epoxy, or any other suitable dielectric material with a minimum thickness of 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.

(‘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.

(‘10’) The exposed exterior surfaces of all aboveground tank systems must be protected from corrosion. Protection must be provided by using at least one of the following methods:

(‘i’) corrosion resistant equipment materials such as stainless steel or Monel;

(‘ii’) non-metallic cladding, epoxy coating, or similar coating with a minimum finish thickness of 10 mils (0.01 inches);

(‘iii’) paints, consisting of an inhibitive primer coat, intermediate inhibitive and two or more final coats applied to a surface prepared to a SSPC SP #6 blast (see section 1.16 of this Part); or

(‘iv’) an equivalent or more protective 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.

(‘c’) Secondary containment for piping in contact with the ground.

(‘1’) All Category 2 piping in contact with the ground 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:

(‘i’) double-walled piping in accordance with subclause (3) of this clause;

(‘ii’) a synthetic trench liner in accordance with subclause (4) of this clause; or

(‘iii’) another method that is designed and installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(‘2’) The secondary containment system must:

(‘i’) contain hazardous substance leaked from the primary containment until it is detected and remediated;

(‘ii’) prevent the release of hazardous substance;

(‘iii’) be designed and constructed with a permeability rate to the substance stored of 1 × 10-6 cm/sec or less;

(‘iv’) be designed, installed, and operated to prevent any migration of hazardous substances out of the system at any time during the use of the piping;

(‘v’) allow for detection and collection of spills and accumulated liquids until the collected material is removed;

(‘vi’) be constructed of or lined with materials that are compatible with the hazardous substances to be placed in the piping. The materials must have sufficient strength and thickness to prevent failure due to pressure, physical

contact with the materials to which it is exposed, climatic conditions, and the stresses it is subject to during normal operation;

(‘vii’) be placed on a suitable foundation which prevents failure due to settlement, compression or uplift;

(‘viii’) 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 24 hours. If the owner or operator can demonstrate that removal of the spilled or leaked substance, or accumulated precipitation cannot be accomplished within 24 hours, then it must be removed in as timely a manner as possible to prevent harm to human health and the environment; and

(‘ix’) have a leak detection system that is designed, installed, and operated so that it will either detect the failure of the primary containment structure or the presence of any spill or leak of hazardous substance or accumulated liquid in the secondary containment system within two hours.

(‘3’) Double-walled piping. If the secondary containment system consists of double-walled piping, the piping must be constructed in accordance with the following:

(‘i’) outer walls of double-walled piping must be protected from corrosion in accordance with clause (b) of this subparagraph;

(‘ii’) the outer wall must enclose the primary piping;

(‘iii’) the outer wall must be designed to allow for monitoring of leaks in accordance with paragraph 3.3(c)(2) of this Part; and

(‘iv’) the outer wall must allow for safe venting of vapors.

(‘4’) Synthetic trench liners. Synthetic liners used as secondary containment must be designed, constructed, and installed in accordance with the following:

(‘i’) the liner must surround the piping completely (for example, it is capable of preventing lateral as well as vertical migration of the hazardous substances being stored).

(‘ii’) the liner must be able to prevent the interference of precipitation and groundwater intrusion;

(‘iii’) the liner must be compatible with the substance in storage, be at least 60 mils in thickness and not deteriorate in an underground environment for the life of the tank system. 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;

(‘iv’) the expected useful life of the liner must be specified in the spill prevention report;

(‘v’) all punctures, tears or inadequate seams in the liner must be repaired in accordance with the manufacturer’s instructions prior to backfilling; and

(‘vi’) the liner must be installed with a slope to the sump of at least one quarter of an inch per foot.

(‘d’) Aboveground piping requirements.

(‘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 section 1.16 of this Part), 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 more protective surface coating or protective system designed to prevent corrosion and deterioration.

(‘2’) All Category 2 permanent aboveground piping greater than two inches in diameter must have welded or flanged connections or be plastic lined metal piping 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.

(‘3’) Piping passing through dike walls must be designed to prevent excessive stresses as a result of settlement or fire exposure.

(3) Overfill prevention. Overfill prevention equipment and practices must consist of the following:

(i) ASTs 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. Where filling or emptying is remotely operated, all gauges, gauge labeling, and alarms required must be located at the remote operating station. In addition, remote flow controls must be provided.

(ii) ASTs must be equipped with one of the following:

(‘a’) a device which will alert the operator or carrier by triggering either a high-level warning alarm when the substance reaches 95 percent of the working capacity of the tank;

(‘b’) a device such as a high-level trip (delivery cut-off system) which will automatically shut off or restrict flow when the substance level reaches the working capacity of the tank; or

(‘c’) an automatic by-pass to an overflow tank if the overflow tank is equipped with overflow protection or other equivalent systems for preventing overfills.

(4) Transfer station secondary containment and spill prevention equipment.

(i) Secondary containment for transfers. Transfer of hazardous substances must take place within a transfer station equipped with a permanently installed secondary containment system. This containment system must:

(‘a’) be capable of containing leaks and spills likely to occur during the transfer, including leaks or spills from connections, couplings, vents, pumps, valves, hose failure, or overturning of a container. Open-ended fill pipes must be located within the secondary containment system;

(‘b’) be designed and constructed with a permeability rate to the substance(s) transferred of less than $1 \times 10\text{-}6$ 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;

(‘c’) be designed, installed, and operated to prevent any migration of hazardous substances out of the system before cleanup. The system is not required to be designed to contain the gaseous component of a spill;

(‘d’) 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. The system must support any vehicle brought into the transfer station, and must have a foundation which prevents failure due to settlement, compression, or uplift;

(‘e’) be equipped with a sump and 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 containment system within 24 hours; and

(‘f’) contain the volume of any leak or spill likely to occur at the transfer station. 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.

(‘g’) Stormwater must be pumped from slop tanks and catch tanks to allow for the containment of the volume required by clause (f) of this subparagraph.

(ii) Spill prevention at pumps and valves. The owner or operator must prevent spills and leaks at all pumps and valves by using at least of the following methods:

(‘a’) installation of sealless pumps and valves, fail-safe double seal pumps and valves or equivalent technology;

(‘b’) 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 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

(‘c’) 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.

(5) Valves and couplings. AST systems must be equipped with valves and couplings which meet the following:

(i) any coupling or open-ended valve used for making a transfer must be located within the secondary containment system of the transfer station;

(ii) where a substance transfer pipe or fill pipe 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;

(iii) 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

(iv) 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, which must have the proper capacity and control characteristics. They must also have a proper mechanical balance for the application so that they are capable of shutting off flow against the operating pressure and capable of being manually controlled or have fail-safe features which operate in the event of a power loss.

(6) Venting.

(i) All tanks must be protected from over-pressurization and excessive vacuums such as those that 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 the following means:

(‘a’) vents;

(‘b’) rupture discs;

(‘c’) pressure/vacuum relief devices;

(‘d’) controllers;

(‘e’) fail-safe vessel designs; or

(‘f’) other means determined by a qualified engineer.

(ii) 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.

(iii) 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.

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

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

(vi) All vents must have provisions for draining any condensate which may accumulate.

(vii) Vents must be arranged so that the possibility of tampering will be minimized.

(viii) Vents must have direct contact with the vapor space of the tank.

(ix) The capacity of the vent must not be restricted below design.

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

(xi) 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.

(xii) All atmospheric tanks and all low-pressure tanks must be equipped with normal vents designed to accommodate:

(‘a’) inbreathing resulting from maximum outflow of hazardous substances from the tank;

(‘b’) inbreathing resulting from contraction of vapors caused by maximum decrease in atmospheric temperature;

(‘c’) outbreathing resulting from maximum inflow of hazardous substances into the tank and maximum evaporation caused by such inflow; and

(‘d’) outbreathing resulting from expansion and evaporation that result from maximum increase in atmospheric temperature (thermal breathing).

(xiii) Normal vents may include a pilot-operated relief valve, a pressure relief valve, a pressure-vacuum valve, a conservation vent, an open vent or an equivalent device or a combination of devices.

(xiv) Emergency vents. All atmospheric, low-pressure and high-pressure tanks must have emergency vents to ensure that the safe pressure for the tank is not exceeded. Emergency vents must be designed by a qualified engineer in accordance with generally accepted engineering practices. Emergency vent designs 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.

(7) Pressure, vacuum, and thermal monitoring.

(i) All tanks subject to failure due to pressure or vacuum must be provided with pressure/vacuum gauges and pressure/vacuum controllers.

(ii) Thermal monitors, pressure/vacuum indicators, and their corresponding alarms must be provided for all tanks where a reaction may cause damage to the tank system or endanger human health, safety or the environment.

(iii) All heated or cooled tanks must be equipped with a temperature and pressure gauge and appropriate thermal controls.

(iv) 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 the following means: temperature controllers, insulation, alarms, fail-safe cooling systems, material selection, or other means determined by a qualified engineer.

(8) Compatibility. Tank system equipment must be either made of or lined with materials that are compatible with the hazardous substance stored in the AST system.

598-3.2 General operating requirements

(a) Installation requirements.

(1) Category 1 requirements. Piping in contact with the ground must be installed in accordance with the following:

(i) Backfill. Piping that is installed underground must use backfill material that is a non-corrosive, porous, homogeneous substance and the backfill material must be placed completely around the piping and compacted to ensure that the piping is fully and uniformly supported. Backfill of at least six inches in depth must be placed underneath the piping.

(ii) Burial depth. Piping buried underground must be installed so that the top of the piping is at least 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.

(iii) Inspection of piping in contact with the ground.

(‘a’) Prior to covering, enclosing, or placing piping in use, the piping 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 requirements of this subparagraph. This inspection must include:

(‘1’) weld breaks;

(‘2’) punctures;

(‘3’) scrapes of protective coatings;

(‘4’) cracks;

(‘5’) corrosion;

(‘6’) structural damage; and

(‘7’) improper installation.

(‘b’) Before being placed in service, the piping must be tested for tightness in accordance with ‘paragraph 3.3(d)(2) of this Part.

(‘c’) All joints must be liquid-tight and air-tight. If piping is found not to be tight or to be defective, all repairs necessary to remedy the leaks or deficiencies in the piping must be performed prior to the piping being placed in service.

(‘d’) Upon completion of the tightness test and inspection, the inspector must sign and date a statement certifying that the system meets the standards of this subdivision.

(‘e’) The inspector's statement and records of the tightness test and repairs must be kept for five years following the date of installation and made part of the spill prevention report.

(iv) Installation Instructions. In addition to the above requirements, all piping in contact with the ground 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 subparagraph, such as API 1615. (See section 1.16 of this Part). This includes repair of any damaged coatings prior to backfilling.

(2) Category 2 requirements. Tank systems must be installed in accordance with the following:

(i) Foundation design.

(‘a’) ASTs must have a stable and well drained foundation, footing and structural support which are capable of supporting the total weight of the tank when filled to its design capacity. Supports, foundations and anchorage of all tanks must be in accordance with NFPA 30, 1993 section 2-6.1, 2-6.2, 2-6.3, 2-6.4 and 2-6.5 (see section 1.16 of this Part).

(‘b’) Horizontal ASTs 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 1/3 of the circumference of the shell. If bearing of less than 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.

(‘c’) Tank systems that are exposed to temperatures of less than 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.

(ii) Avoiding traffic hazards. AST systems must be protected from physical damage that may result from moving machinery or vehicles, such as forklifts, automobiles or trucks.

(iii) Separation of incompatible substances. All ASTs must assure separation of incompatible substances. One means of accomplishing this separation is by installing separate independent secondary containment systems capable of preventing the mixing of the incompatible substances in the event of a leak, spill or overfill.

(iv) Emergency response equipment. All AST systems and dikes must be accessible for emergency response (e.g., firefighting equipment).

(v) Backfill. Tank systems that are installed underground must use backfill material that is a non-corrosive, porous, homogeneous substance and it must be placed completely around the tank system and compacted to ensure that the tank system is fully and uniformly supported. Backfill of at least six inches in depth must be placed underneath the piping.

(vi) Burial depth. Piping buried underground must be installed so that the top of the piping is at least 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.

(vii) Inspection of tank systems.

('a') Prior to covering, enclosing, or placing a tank system in use, the tank 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 requirements of this subparagraph. This inspection must include:

('1') weld breaks;

('2') punctures;

('3') scrapes of protective coatings;

('4') cracks;

('5') corrosion;

('6') other structural damage; and

('7') improper installation.

('b') In addition to the above, tank systems must be tested for tightness in accordance with paragraphs 3.3(c)(1) and 3.3(d)(2) of this Part 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 subparagraph, such as API 650 or API 620. (See section 1.16 of this Part).

('c') All joints must be liquid-tight and air-tight. If the tank system is found not to be tight or to be defective, all repairs necessary to remedy the leaks and deficiencies in the tank system must be performed in accordance with

subdivision (d) of this section or in accordance with the manufacturer’s instructions prior to it being placed in service.

(‘d’) Upon completion of the tightness test and inspection, the inspector must sign and date a statement certifying that the system meets the standards of this subdivision.

(‘e’) The inspector's statement and records of the tightness test and repairs must be kept for five years following the date of installation and made part of the spill prevention report.

(viii) Qualifications of tank system installers. Installation of an AST system must be performed by a qualified installer or technician who is trained in the engineering methods for installing AST systems.

(ix) Installation Instructions. In addition to the above requirements, all tank systems 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 subparagraph, such as API 1615. (See section 1.16 of this Part). This includes repair of any damaged coatings prior to backfilling.

(b) Spill and overfill prevention.

(1) Labelling requirements.

(i) The design and working capacities of each tank in the tank system, the tank system identification number as shown on the registration certificate, and the chemical name (or common name if the chemical name is not appropriate) of the substance stored must be marked on each tank.

(ii) Where filling or emptying is remotely operated, the design capacity, working capacity, and identification number of the tank as shown on the registration certificate must be clearly marked at the remote operating station.

(iii) All Category 2 aboveground piping 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 conspicuously visible label must be provided at each end of the piping.

(iv) All fill and dispensing ports for tanks which are remote from 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 system, this would be the tank identification number. Valves and controllers which govern the filling and emptying of a tank system must contain information on closed and open positions.

(v) Labeling of safety/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:

(‘a’) the name or identifying trademark of the manufacturer;

(‘b’) the manufacturer's design or type number;

(‘c’) the pipe size of the inlet;

(‘d’) the set pressure or vacuum, in PSIG;

(‘e’) the full open pressure or vacuum, in PSIG; and

(‘f’) 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.

(2) Delivery to tank systems.

(i) 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 and 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.

(ii) Immediately prior to the transfer, the operator/carrier must determine that the hazardous substance will be transferred to the proper tank, that the receiving tank has available capacity to receive the hazardous substance amount to be transferred, and that all tank valving and flow control devices are in the proper positions to accept delivery. All couplings and other connections must be inspected to ensure that they are leak free, undamaged, and fully functional. During and after the transfer, all couplings and other connections must be monitored for leaks.

(iii) Brakes must be set and wheels chocked on all rail cars before and during loading and unloading.

(iv) 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 potential direction. Signs must remain in place until operations are completed, all connections are removed, and outlets properly closed.

(v) During the entire transfer, and while the tank system is connected to the loading or unloading device, the operator/carrier must always supervise, monitor, and control the transfer to prevent overfilling and spilling. The operator/carrier must be trained in the proper transfer procedures and must take immediate action to stop the transfer of the hazardous substance when the working capacity is reached, or if an equipment failure or emergency occurs.

(vi) During the transfer of a hazardous substance with a flash point below 100 degrees Fahrenheit (37.8 degrees Celsius) or wherever flammable vapors may be present, all potential ignition sources must be controlled. Sources of ignition include open flames, lightning, smoking, cutting, welding, hot surfaces, friction, heat, sparks from static, electrical or mechanical sources, spontaneous ignition, chemical and physical-chemical reactions, and radiant heat.

(vii) Equipment or practices that prevent the mixing of incompatible substances must be in-place. This must include mating of couplings to prevent mixing, written site procedures that 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 paragraph must be specified in the spill prevention report required by section 1.9 of this Part.

(c) Daily, annual, and five-year inspections.

(1) Daily inspections. The owner or operator must visually inspect the aboveground 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.

(2) Annual inspections.

(i) The structure-to-electrolyte potential of cathodic protection systems used to protect the bottom of tanks and piping in contact with the ground 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 paragraph (d)(2) of this section.

(ii) The owner or operator must conduct comprehensive annual inspections of the aboveground tank system. This inspection must include:

(‘a’) 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;

(‘b’) visually inspecting dikes, transfer station secondary containment, and other secondary containment systems for erosion, cracks, evidence of releases, excessive settlement and structural weaknesses;

(‘c’) 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;

(‘d’) visual checking equipment, structures and foundations for excessive wear or damage; and

(‘e’) reviewing compliance with this Part.

(3) Five-year inspections. Tanks must, at least every five years, be inspected in accordance with paragraph 3.3(c)(3) of this Subpart. If thinning of one millimeter per year or greater occurs on the tank walls, or the calculated expected remaining useful life as determined by the inspection is less than 10 years, then reinspection must be performed on the tank at one half of the remaining useful life.

(4) Recordkeeping. Records of the annual inspections required by this subdivision must be retained for 5 years. Records of the five-year inspections required by this subdivision must be retained for 10 years.

(d) Maintenance and repairs.

(1) If the tank system or any component thereof is inadequate or not tight, or any inspection shows that continuation of an operation or practice will result in a leak, then:

(i) the operation or practice must be modified or discontinued immediately;

(ii) the tank system or tank system component must be immediately replaced; or

(iii) the tank system must be immediately emptied and taken out of service in accordance with subdivision 3.6(a) of this Subpart before the necessary repairs and required subsequent testing are performed, unless the tank system is permanently closed in accordance with subdivision 3.6(b) of this Subpart. (Examples which may indicate that a leak is imminent include: leaking valves, pumps, and pipe joints; 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.)

(2) If the tank system or any component thereof, or continuation of an operation or practice, is not in imminent danger of causing a leak, but an inspection shows that the tank system is malfunctioning or is in disrepair, and that a leak is likely or probable unless action is taken, then:

(i) the operation or practice must be modified or discontinued immediately;

(ii) the tank system or tank system component must be replaced within 90 days (unless a shorter time is deemed necessary by the department); or

(iii) the tank system must be taken out of service in accordance with subdivision 3.6(a) of this Subpart before the necessary repairs and required subsequent testing are performed, unless the tank system is permanently closed in accordance with subdivision 3.6(b) of this Subpart. (Examples of such equipment disrepair include: secondary containment dikes with erosion or rodent damage; deficiencies in coatings for preventing corrosion caused by exposure to the environment; malfunctioning leak detection equipment; and cathodic protection systems which fail to provide the necessary electric current to prevent corrosion.)

(3) Inspection of repaired equipment. All repaired equipment must be inspected for tightness and soundness in accordance with paragraphs 3.3(c)(1) or 3.3(d)(2) of this Subpart before it is returned to service.

(e) Tank linings.

(1) Tanks must be lined in accordance with:

(i) API 652 (see section 1.16 of this Part); or

(ii) a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department.

(2) Tank linings must be compatible with the substance stored.

(3) Linings of carbon steel tanks must be applied no later than eight hours after abrasive blasting and cleaning of the internal surface or in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and approved by the department. Visible rust, moisture or foreign matter must not be present.

(4) All linings 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 lining must maintain a permanent bond to the equipment.

(5) The lining’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 lining.

(6) The lining material must be applied and cured in strict accordance with the lining manufacturer's specifications.

(7) The lining must be checked for blisters and air pockets and electrically tested for pinholes. The thickness of the lining 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.

(8) The date of installation of the lining, condition of the tank, installation methods, and other pertinent information must be kept in the spill prevention report for the life of the tank system.

(f) Replacement of rupture disks. All rupture disks must be replaced with new ones at least every three 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.

(g) Switching from one hazardous substance to another hazardous substance. If the substance stored within a tank system is to be switched from one hazardous substance to another, then the tank system must be evaluated by a qualified engineer before the change to the different hazardous substance is made to determine that materials are compatible, pressure and vacuum relief systems are adequate, and that the tank system is properly designed and suitable.

(h) Requirements for tanks subject to flooding. Any 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. In determining whether a tank system is susceptible to inundation by water, the facility must include consideration of the future physical climate risk due to sea level rise, storm surges, and flooding, based on available data predicting the likelihood of future extreme weather events, including hazard risk analysis data if applicable. Tanks must be designed, installed and maintained in accordance with operating standards set forth in NFPA 30, 1993 section 2-6.6 (see section 1.16 of

this Part) and in accordance with State and local flood plain regulations. Dikes in flood plains must be designed and installed to withstand structural damage and overtopping by a 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 State unless such discharge is in conformance with the standards of Parts 701, 702, 703 and 750 of this Title, as applicable.

(i) Vegetation within secondary containment. No vegetation must be allowed to grow within secondary containment systems unless vegetation is required for the secondary containment to function properly and does not interfere with the requirements of clauses 3.1(b)(1)(i)(c), 3.1(b)(1)(ii)(c), 3.1(b)(2)(i)(c), and 3.1(b)(2)(ii)(c) of this Subpart. Any grass within the secondary containment system must be trimmed to no longer than six inches. No accumulation of dead vegetation which could endanger the tank, if ignited, is allowed within the secondary containment system.

(j) Uninspected tank systems. If any portion of a tank system is not tested or inspected as required by this section, the owner or operator must take the uninspected portion of the tank system out-of-service pursuant to the requirements of subdivision 3.6(a) of this Subpart.

598-3.3 Leak detection

(a) General leak detection requirements. A method, or combination of methods, of leak detection must be provided that:

(1) can assess the integrity and remaining useful life of tank system and detect a leak from any portion of the tank and the piping that are in contact with the ground and routinely contain hazardous substance;

(2) is installed and calibrated in accordance with the manufacturer’s instructions; and

(3) meets the requirements of subdivisions (c) and (d) of this section, as applicable. In addition, the methods listed under paragraphs (c)(1), (d)(1), and (d)(2) of this section must be capable of detecting the leak rate or

quantity specified for that method with a probability of detection of 95 percent and a probability of false alarm of 5 percent.

(b) Specific leak detection requirements for tanks and piping.

(1) Tank leak detection.

(i) Category 1 tanks. Category 1 tanks must, at least every five years, be inspected in accordance with paragraph (c)(3) of this section. If thinning of one millimeter per year or greater occurs on the tank walls, or the calculated expected remaining useful life as determined by the inspection is less than 10 years, then reinspection must be performed on the tank at one half of the remaining useful life.

(ii) Category 2 tanks. Category 2 tanks must be monitored in accordance with the following:

('a') Category 2 tanks must, at least every five years, be inspected in accordance with paragraph (c)(3) of this section. If thinning of one millimeter per year or greater occurs on the tank walls, or the calculated expected remaining useful life as determined by the inspection is less than 10 years, then reinspection must be performed on the tank at one half of the remaining useful life; and

('b') Category 2 tanks must have a system for monitoring leakage between the tank bottom and the secondary containment system. This may include perforated gravity collection piping 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. This monitoring must be performed in accordance with the frequencies in subdivision 3.2(c) of this Subpart.

(2) Piping leak detection. All piping in contact with the ground must be monitored for leaks at weekly intervals in accordance with paragraph (c)(2) of this section. Additionally, all piping in contact with the ground that conveys hazardous substance under pressure must be equipped with an automatic line leak detector that is

operated in accordance with paragraph (d)(1) of this section. No leak detection is required for suction piping that is demonstrated to be designed and constructed to meet the following standards:

(i) The piping operates at less than atmospheric pressure.

(ii) The piping is sloped so that the contents of the pipe will drain back into the tank if the suction is released.

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

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

(c) Tank leak detection methods. Tank leak detection methods used to meet the requirements of paragraph (b)(1) of this section must be conducted in accordance with the following:

(1) Tank tightness testing.

(i) 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:

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

('b') a structural inspection performed in accordance with the requirements of paragraph (3) of this subdivision.

(ii) 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.

(iii) 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 their representative to perform the test.

(2) Interstitial monitoring. Interstitial monitoring between the primary and secondary containment may be used if the monitoring equipment is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains hazardous substance, and if the monitoring equipment meets the requirements of either subparagraph (i) or (ii) of this paragraph:

(i) For a double-walled tank or double-walled piping, the sampling or testing method:

(‘a’) can detect a leak through the inner wall in any portion of the tank that routinely contains hazardous substance; and

(‘b’) is capable of detecting a breach in both the inner and outer walls of the tank and/or piping if using continuous vacuum, pressure, or liquid-filled methods of interstitial monitoring.

(ii) For an AST system with secondary containment within the excavation zone, the sampling or testing method can detect a leak between the primary and secondary containment, and the following conditions are met:

(‘a’) The secondary containment consists of artificially constructed material that is sufficiently thick and impermeable (i.e., with a permeability rate to water equal to or less than 1×10-6 cm/sec) to direct a leak to the monitoring point and permit its detection.

(‘b’) The secondary containment is compatible with the hazardous substance stored so that a leak from the AST system will not cause a deterioration of the secondary containment, allowing a leak to pass through undetected.

(‘c’) For cathodically protected tank systems the secondary containment must be installed so that it does not interfere with the proper operation of the cathodic protection system.

(‘d’) The groundwater, soil moisture, or rainfall will not render the testing or sampling method inoperative so that a leak could go undetected for more than seven days.

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

(‘f’) Monitoring 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.

(3) Five-year inspections.

(i) The owner or operator must inspect the aboveground tank system. 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 paragraph. If no consensus code, standard or, practice is applicable to the tank system, a method otherwise approved by the department must be used. The inspection must consist of the following:

(‘a’) a calculated useful remaining life of the tank. The calculated useful remaining life of the tank may not exceed the useful life as determined by the manufacturer;

(‘b’) a determination of tank system tightness in accordance with paragraphs (c)(1) and (d)(2) of this section;

(‘c’) an evaluation on structural soundness of the tank system;

(‘d’) an assessment of tank system corrosion, wear, and operability; and

(‘e’) an evaluation on foundation strength.

(ii) For aboveground ancillary equipment, the inspection must consist of the following:

(‘a’) 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;

(‘b’) 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;

(‘c’) a tightness test of any connecting piping in contact with the ground in accordance with paragraph (d)(2) of this section;

(‘d’) 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

(‘e’) an identification of system deficiencies which may result in a leak due to vibration, expansion, contraction, frost, settlement, shock or other causes.

(iii) For tanks with a capacity of 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, where applicable, include the following:

(‘a’) 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;

(‘b’) removal, transportation and disposal of solid precipitates or accumulated sludge in compliance with all applicable State, Federal and local laws;

(‘c’) 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;

(‘d’) visual inspection of the internal surfaces of the tank and difficult-to-reach areas for corrosion or failure; and

(‘e’) inspection of internal and external liners, cladding and coatings for any signs of failure such as cracks, bubbles, blisters, peeling, curling or separation.

(d) Piping leak detection methods. Piping leak detection methods used to meet the requirements of paragraph (b)(2) of this section must be conducted in accordance with the following:

(1) Automatic line leak detectors. Methods which indicate the presence of a leak by restricting or shutting off the flow of hazardous substance through piping, or triggering an audible or visual alarm, may be used only if they detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within one hour.

(2) Line tightness testing.

(i) 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:

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

(‘b’) a structural inspection performed in accordance with the requirements of paragraph (c)(3) of this section.

(ii) 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.

(iii) 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 their representative to perform the test.

(e) Recordkeeping. Records of the tests and inspections required by this section must meet the following requirements:

(1) The results of five-year inspections must be retained for 10 years.

(2) The results of tank and line tightness testing must be retained for three years or until the next test, whichever is later, and include the following information:

(i) facility registration number;

(ii) tank system identification number as shown on the registration certificate for the tank or piping tested;

(iii) date of test;

(iv) results of test;

(v) test method;

(vi) certification by the technician that the test complies with paragraph (c)(1) or paragraph (d)(2) of this section;

(vii) statement of technician’s qualifications;

(viii) address of technician; and

(ix) signature of technician.

(f) Uninspected tank systems. If any portion of a tank system is not tested or inspected as required by this section, the owner or operator must take the uninspected portion of the tank system out-of-service pursuant to the requirements of subdivision 3.6(a) of this Subpart.

598-3.4 Reporting, investigation, and confirmation

(a) Reporting responsibilities.

(1) The reporting requirements of this section apply to the following persons:

(i) the facility owner;

(ii) the tank system owner;

(iii) the operator;

(iv) the carrier;

(v) any contractor in a contractual relationship with the facility owner, tank system owner, or operator;

(vi) any other party and its contractors who have been retained as part of a business transaction relating to the facility; and

(vii) any person who causes a spill at the facility.

(2) Any person required to report under paragraph (1) of this subdivision must report the spill in accordance with subdivision (f) of this section.

(3) Notwithstanding the provisions of paragraph (1) of this subdivision, employees of an owner or operator may report spills 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 section 1.9 of this Part. Independent consultants and contractors are not considered to be employees of the facility for the purposes of this section.

(b) Prohibition of spills. The spilling of a hazardous substance is prohibited unless:

(1) such spill is authorized;

(2) such spill is continuous and stable in quantity and rate and has been reported pursuant to paragraph 597.4(b)(4) of this Title; or

(3) such spill is of fire-fighting foam containing Perfluorooctanoic Acid (CAS No. 335-67-1), Ammonium Perfluorooctanoate (CAS No. 3825-26-1), Perfluorooctane Sulfonic Acid (CAS No. 1763-23-1), or Perfluorooctane Sulfonate (CAS No. 2795-39-3) used for fighting fires (but not for training purposes) and

occurs on or before April 25, 2017. In the event there is a spill of such foam that exceeds the reportable quantity of any hazardous substance, the spill must be reported pursuant to subdivision (f) of this section.

(c) Reporting of suspected spills.

(1) Suspected spills must be reported to the department's Spill Hotline (800-457-7362) within 2 hours after discovery and the procedures in subdivision (e) of this section must be followed for any of the following conditions:

(i) the discovery of hazardous substance outside of an AST system at the facility or in the surrounding area (e.g., the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water);

(ii) unusual operating conditions observed (e.g., the erratic behavior of hazardous substance dispensing equipment, the sudden loss of hazardous substance from the AST system, an unexplained presence of water in the tank, or water in the interstitial space of secondarily contained tank system components), unless the tank system component is found to be defective but not leaking, and is immediately repaired or replaced;

(iii) monitoring/testing results, including alarms, from a leak detection method required under subdivisions 3.3(a) and (b) of this Subpart which indicate that a leak may have occurred, unless:

('a') the monitoring device is found to be defective, and is immediately repaired, recalibrated, or replaced, and additional monitoring does not confirm the initial result; or

('b') the alarm was investigated and determined to be a non-spill event (e.g., from a power surge or caused by filling the tank during leak detection testing);

(iv) any other conditions or indications of a suspected spill.

(2) Where a spill of any hazardous substance has occurred or is suspected, the department may order the owner to inspect any tank system, location, and/or associated equipment which might be the source of the actual or suspected spill and to test for tightness and structural soundness. If the owner fails to conduct such tests within

10 days of the order, the department may do so. The reasonable expenses of conducting such tests incurred by the department shall be paid by the owner.

(d) Investigation due to off-site impacts. When required by the department, the procedures in subdivision (e) of this section must be followed to determine if the AST system is the source of off-site impacts. These impacts include the discovery of a hazardous substance(s) (e.g., the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface and drinking waters) that has been observed by the department or brought to its attention by another party.

(e) Leak investigation and confirmation steps. Unless corrective action is initiated in accordance with Subpart 6 of this Part, any leak or suspected leak of a hazardous substance(s) must be immediately investigated using either one of the methods described in paragraphs (1) or (2) of this subdivision or another procedure approved by the department. The investigation must be completed, and the results submitted to the department, prior to any repairs and within 7 days after the reporting required under subdivision (c) or (f) of this section. 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.

(1) System test. Testing must be conducted in accordance with 3.3(c)(1) or 3.3(d)(2) of this Subpart to determine whether a leak exists in the portion of the AST system (including delivery piping) suspected of leaking and, in the case of hazardous substance reaching secondary containment, whether a breach of the secondary containment occurred.

(i) If the test results indicate that a leak or release has occurred, the leaking AST system must be immediately emptied to prevent further leaks and be:

(‘a’) promptly taken out of service in accordance with subdivision 3.6(a) of this Subpart and repaired in accordance with subdivision 3.2(d) of this Subpart;

(‘b’) replaced; or

(‘c’) permanently closed in accordance with subdivision 3.6(b) of this Subpart.

(ii) If the test results indicate that a release has occurred, corrective action must also begin in accordance with Subpart 6 of this Part.

(iii) If the test results do not indicate that a leak exists but environmental contamination is the basis for suspecting a leak, a site check must be conducted in accordance with paragraph (2) of this subdivision.

(iv) If the test results do not indicate that a leak exists and environmental contamination is not the basis for suspecting a leak, further investigation is not required.

(2) Site check. The presence or absence of a release must be measured where contamination is most likely to be present at the facility (i.e., in the excavation zone or at the AST system location). In selecting sample types, sample locations, and measurement methods, the following must also be considered: nature of the hazardous substance(s) previously stored in the AST system; type of initial alarm or cause for suspicion; type of backfill; depth of groundwater; and other factors appropriate for identifying the presence and source(s) of the release.

(i) If the site check results indicate that a release has occurred, corrective action must begin in accordance with Subpart 6 of this Part.

(ii) If the site check results do not indicate that a release has occurred, further investigation is not required.

(f) Response to spills

(1) With the exception of spills described in paragraph (3) of this subdivision, the following spills of a hazardous substance, that is covered under clause 597.1(b)(7)(i)(a) and (b) of this Title, must be reported to the department’s Spill Hotline (800-457-7362) within two hours after discovery by any person in actual or constructive control or possession of the hazardous substance when it is spilled, or any employee, agent, or representative of such person who has knowledge of the spill:

(i) the spill of a reportable quantity that occurs within any twenty-four hour period;

(ii) the spill of a quantity that is less than a reportable quantity if any of the following conditions exist:

(‘a’) such spill results, or may reasonably be expected to result, in a fire;

(‘b’) such spill results, or may reasonably be expected to result, in an explosion;

(‘c’) such spill results, or may reasonably be expected to result, in the violation of air quality standards;

(‘d’) such spill 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 where a release originates; or

(‘e’) runoff from fire control or dilution waters may reasonably be expected to result in or contribute to a violation of water quality standards.

(2) A spill of a hazardous substance mixture is subject to the following reporting requirements:

(i) If the quantity of the hazardous constituents of the hazardous substance mixture is known, notification is required where a reportable quantity or more of any hazardous constituent is released.

(ii) If the quantity of the hazardous constituent(s) of the hazardous substance mixture is unknown, reporting is required where the total amount of the mixture released equals or exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity.

(3) Notwithstanding the provisions of paragraph (1) of this subdivision, it is not necessary to report a spill of a reportable quantity of a hazardous substance if all of the following conditions are met:

(i) there is control over the spill and it is completely contained;

(ii) the spill has not and will not reach the land or waters of the State;

(iii) the spill is cleaned up within two hours after discovery;

(iv) the total volume of the spill is recovered or accounted for; and

(v) the spill will not result in any of the conditions listed in subparagraph (1)(ii) of this subdivision.

(g) Emergency response.

(1) In addition to the requirements of paragraph (2) of this subdivision, the owner or operator must take immediate action upon discovery of a spill to protect human health, safety, and the environment. Immediate

actions which may be necessary include 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 spill and stopping, plugging or containing the spill. Corrective action as specified in 6.2 of this Part must also be undertaken to clean up and remove the spilled material and restore the site to protect public health, safety, and the environment.

(2) Leaking tank systems must be immediately emptied to prevent further leaks and be:

(i) promptly taken out of service in accordance with subdivision 3.6(a) of this Subpart and repaired in accordance with subdivision 3.2(d) of this Subpart;

(ii) replaced; or

(iii) permanently closed in accordance with subdivision 3.6(b) of this Subpart.

598-3.5 Operator Training

Reserved.

598-3.6 Out-of-service aboveground tank systems and closure

(a) Out-of-service AST systems.

(1) An AST system is out of service if:

(i) the facility owner (or their authorized representative) takes the tank system out of service by submitting an application to the department, in accordance with paragraph 1.14(a)(5) of this Part, indicating that the tank system is out of service; or

(ii) the tank system is no longer receiving or dispensing a hazardous substance, unless the tank system is used for standby storage, is part of a closed-loop system, or the facility has received approval from the department. Records explaining why a tank system that no longer receives or dispenses hazardous substance is not out of service, must be retained until the tank system is permanently closed and made part of the spill prevention report. Within 30 days after the tank system becomes out of service, the facility owner (or their authorized

representative) must submit an application to the department, in accordance with paragraph 1.14(a)(5) of this Part, indicating that the tank system is out of service.

(2) Out-of-service AST systems are still subject to all applicable requirements of this Part, with the exception of periodic inspections and leak detection required under subdivisions 3.2(c) and 3.3(a) and (b) of this Subpart, respectively, if the AST system is empty. (An AST system is considered empty when all hazardous substance has been removed using commonly employed practices so that no more than 2.5 centimeters (one inch) of residue remain in the AST system.)

(i) The suspended requirements of subdivisions 3.2(c) and 3.3(a) and (b) of this Subpart must resume in accordance with the original schedule when the AST system is returned to service. However, if the AST system has been out of service such that any of the next periodic inspections or leak detection was not conducted in accordance with the original schedule, the inspections and leak detection must be performed when the AST system is returned to service.

(ii) For AST systems taken out of service due to repairs (in response to a leak), the repair and subsequent testing requirements of subdivision 3.2(d) of this Subpart must be successfully completed before the AST system is returned to service.

(3) When an AST system is out-of-service for 30 or more days, the following must be performed:

(i) The tank must be emptied so that no more than 2.5 centimeters (one inch) of residue remains. Any hazardous waste that is removed from the tank system 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;

(ii) Vent lines must be left open and functioning; and

(iii) All piping, manways, fill ports, gauge openings, vapor returns, pump connections, and ancillary equipment must be capped and secured.

(4) AST systems that are out-of-service for more than one year must be inspected in accordance with paragraph 3.3(c)(3) of this Subpart or tested in accordance with paragraphs 3.3(c)(1) and 3.3(d)(2) of this Subpart and determined to be structurally sound and tight before being returned to service.

(b) Permanent closure of tank systems. To permanently close a tank system, the tank system must be meet the requirements of paragraph (1) of this subdivision or undergo a change-in-service in accordance with paragraph (2) of this subdivision.

(1) A tank system must be closed in accordance with the following:

(i) At least 30 days before permanent closure, the facility owner (or their authorized representative) must notify the department of this action, unless such action is in response to corrective action in accordance with Subpart 6 of this Part.

(ii) liquid and sludge must be removed from the tank system. Any removed hazardous waste must be transported and disposed of in accordance with all applicable State, local and Federal requirements;

(iii) 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;

(iv) all piping must be disconnected and removed or securely capped or locked out or plugged. Manways must be securely fastened in place;

(v) tanks must be stenciled with the date of permanent closure;

(vi) if a tank is to be disposed of, 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; and

(vii) all tanks must be protected from floatation caused by flooding or high ground water level in accordance with generally accepted engineering practices.

(viii) secondary containment systems of permanently closed aboveground tank systems must have drainage for accumulated water or precipitation.

(ix) Within 30 days after permanent closure, the facility owner (or their authorized representative) must submit an application to the department, in accordance with paragraph 1.14(a)(6) of this Part, indicating that the AST system has been permanently closed.

(2) A tank system must undergo a change-in-service in accordance with the following:

(i) At least 30 days before permanent closure, the facility owner (or their authorized representative) must notify the department of this action, unless such action is in response to corrective action in accordance with Subpart 6 of this Part.

(ii) liquid and sludge must be removed from the tank system. Any removed hazardous waste must be transported and disposed of in accordance with all applicable State, local and Federal requirements;

(iii) 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;

(iv) Within 30 days after permanent closure, the facility owner (or their authorized representative) must submit an application to the department, in accordance with paragraph 1.14(a)(6) of this Part, indicating that the AST system has been permanently closed.

(c) Closure of tank systems abandoned prior to August 11, 1994. All tanks taken out-of-service, but still in or on the ground, prior to August 11, 1994 must be closed in accordance with the requirements of subdivision (b) of this section.

Subpart 598-4 Storage of Hazardous Substances in Containers

598-4.1 Containers

(a) Applicability. This Subpart applies to containers used to store 1,000 kilograms (2,200 lbs.) or more of a hazardous substance at a facility for a period of 90 consecutive days or more.

(b) Container storage areas.

(1) Except as described in paragraph (2) of this subdivision, containers must meet the following requirements:

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

(ii) an enclosure such as a warehouse or storm shelter must be provided for those containers which contain materials which could react with water to generate heat, cause pressure build-up in the container, or cause a fire, explosion or other adverse reaction. The enclosure must protect the containers from exposure to water, be designed to withstand storms, and be anchored into the ground;

(iii) containers must be located in an area which has an impervious floor and a perimeter curb or ramp of sufficient height to contain 110 percent of the contents of the largest container or the total volume which can be spilled from interconnected containers 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

(iv) containers 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 containers which are marked, certified, or sold as qualified for use in the transportation of hazardous substances and which meet applicable Federal requirements; and

(v) containers must be stored in a stable position and in accordance with the manufacturer’s instructions. If containers are stacked, they must be stacked on a stable platform.

(vi) hazardous substances which are water soluble solids at ambient temperature must be stored in containers which prevent entry of water or stored in an area that is protected against the entry of water, such as a building or similar enclosure. The container, including the floor, must be designed and constructed with a permeability rate to the substance stored of 1 × 10-6 cm/sec or less.

(2) Containers which are being transported or which are located at a staging area for a period of less than five days, and railcars and truck trailers at the site for 180 days or less are exempt from the storage requirements of paragraph (1) of this subdivision.

(c) Transfer station secondary containment. Transfer of hazardous substances must take place within a transfer station equipped with a permanently installed secondary containment system. This containment system must:

(1) be capable of containing leaks and spills likely to occur during the transfer, including leaks or spills from connections, couplings, vents, pumps, valves, hose failure, or overturning of a container. Open-ended fill pipes must be located within the secondary containment system;

(2) be designed and constructed with a permeability rate to the substance(s) transferred of less than $1 \times 10\text{-}6$ 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;

(3) be designed, installed, and operated to prevent any migration of hazardous substances out of the system before cleanup. The system is not required to be designed to contain the gaseous component of a spill;

(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. The system must support any vehicle brought into the transfer station, and must have a foundation which prevents failure due to settlement, compression, or uplift;

(5) be equipped with a sump and 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 containment system within 24 hours

(ii) the volume of the hazardous substance being stored; and

(iii) hazards associated with the storage of the hazardous substance in the container;

(2) Delivery to containers.

(i) 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 and 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.

(ii) Immediately prior to the transfer, the operator/carrier must determine that the hazardous substance will be transferred to the proper container, that the receiving container has available capacity to receive the hazardous substance amount to be transferred, and that all container valving and flow control devices are in the appropriate position to accept delivery. All couplings and other connections must be inspected to ensure that they are leak free, undamaged, and fully functional. During and after the transfer, all couplings and other connections must be monitored for leaks.

(iii) Brakes must be set and wheels chocked on all rail cars before and during loading and unloading.

(iv) 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 potential direction. Signs must remain in place until operations are completed, all connections are removed, and outlets properly closed.

(v) During the entire transfer, and while the container is connected to the loading or unloading device, the operator/carrier must always supervise, monitor, and control the transfer to prevent overfilling and spilling. The operator/carrier must be trained in the proper transfer procedures and must take immediate action to stop the transfer of the hazardous substance when the working capacity is reached, or if an equipment failure or emergency occurs.

(vi) During the transfer of a hazardous substance with a flash point below 100 degrees Fahrenheit (37.8 degrees Celsius) or wherever flammable vapors may be present, all potential ignition sources must be controlled.

Sources of ignition include open flames, lightning, smoking, cutting, welding, hot surfaces, friction, heat, sparks from static, electrical or mechanical sources, spontaneous ignition, chemical and physical-chemical reactions, and radiant heat.

(vii) Connections to a container 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.

(viii) Equipment or practices that prevent the mixing of incompatible substances must be in-place. This must include mating of couplings to prevent mixing, written site procedures that 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 paragraph must be specified in the spill prevention report required by section 1.9 of this Part.

(b) Inventory records. Inventory records must be kept for all containers stored at the facility. Such records must include the number of containers and the contents of each.

598-4.3 Leak detection

Reserved.

598-4.4 Reporting, investigation, and confirmation

(a) Reporting responsibilities.

(1) The reporting requirements of this section apply to the following persons:

(i) the facility owner;

(ii) the container owner;

(iii) the operator;

(iv) the carrier;

(v) any contractor in a contractual relationship with the facility owner, container owner, or operator;

(vi) any other party and its contractors who have been retained as part of a business transaction relating to the facility; and

(vii) any person who causes a spill at the facility.

(2) Any person required to report under paragraph (1) of this subdivision must report the spill in accordance with subdivision (d) of this section.

(3) Notwithstanding the provisions of paragraph (1) of this subdivision, employees of an owner or operator may report spills 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 section 1.9 of this Part. Independent consultants and contractors are not considered to be employees of the facility for the purposes of this section.

(b) Prohibition of spills. The spilling of a hazardous substance is prohibited unless:

(1) such spill is authorized;

(2) such spill is continuous and stable in quantity and rate and has been reported pursuant to paragraph 597.4(b)(4) of this Title; or

(3) such spill is of fire-fighting foam containing Perfluorooctanoic Acid (CAS No. 335-67-1), Ammonium Perfluorooctanoate (CAS No. 3825-26-1), Perfluorooctane Sulfonic Acid (CAS No. 1763-23-1), or Perfluorooctane Sulfonate (CAS No. 2795-39-3) used for fighting fires (but not for training purposes) and occurs on or before April 25, 2017. In the event there is a spill of such foam that exceeds the reportable quantity of any hazardous substance, the spill must be reported pursuant to subdivision (d) of this section.

(c) Reporting of suspected spills.

(1) Suspected spills must be reported to the department’s Spill Hotline (800-457-7362) within 2 hours after discovery for any of the following conditions:

(i) the discovery of hazardous substance outside of a container at the facility or in the surrounding area (e.g., the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water);

(ii) unusual operating conditions observed (e.g., the erratic behavior of hazardous substance dispensing equipment, the sudden loss of hazardous substance from the container, an unexplained presence of water in the container, or water in the interstitial space of secondarily contained components), unless the container component is found to be defective but not leaking, and is immediately repaired or replaced;

(iii) any other conditions or indications of a suspected spill.

(2) Where a spill of any hazardous substance has occurred or is suspected, the department may order the owner to inspect any container, location, and/or associated equipment which might be the source of the actual or suspected spill and to test for tightness and structural soundness. If the owner fails to conduct such tests within 10 days of the order, the department may do so. The reasonable expenses of conducting such tests incurred by the department shall be paid by the owner.

(d) Response to spills

(1) With the exception of spills described in paragraph (3) of this subdivision, the following spills of a hazardous substance, that is covered under clause 597.1(b)(7)(i)(a) and (b) of this Title, must be reported to the department's Spill Hotline (800-457-7362) within two hours after discovery by any person in actual or constructive control or possession of the hazardous substance when it is spilled, or any employee, agent, or representative of such person who has knowledge of the spill:

(i) the spill of a reportable quantity that occurs within any twenty-four hour period;

(ii) the spill of a quantity that is less than a reportable quantity if any of the following conditions exist:

('a') such spill results, or may reasonably be expected to result, in a fire;

('b') such spill results, or may reasonably be expected to result, in an explosion;

('c') such spill results, or may reasonably be expected to result, in the violation of air quality standards;

(‘d’) such spill 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 where a release originates; or

(‘e’) runoff from fire control or dilution waters may reasonably be expected to result in or contribute to a violation of water quality standards.

(2) A spill of a hazardous substance mixture is subject to the following reporting requirements:

(i) If the quantity of the hazardous constituents of the hazardous substance mixture is known, notification is required where a reportable quantity or more of any hazardous constituent is released.

(ii) If the quantity of the hazardous constituent(s) of the hazardous substance mixture is unknown, reporting is required where the total amount of the mixture released equals or exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity.

(3) Notwithstanding the provisions of paragraph (1) of this subdivision, it is not necessary to report a spill of a reportable quantity of a hazardous substance if all of the following conditions are met:

(i) there is control over the spill and it is completely contained;

(ii) the spill has not and will not reach the land or waters of the State;

(iii) the spill is cleaned up within two hours after discovery;

(iv) the total volume of the spill is recovered or accounted for; and

(v) the spill will not result in any of the conditions listed in subparagraph (1)(ii) of this subdivision.

(e) Emergency response.

(1) In addition to the requirements of paragraph (2) of this subdivision, the owner or operator must take immediate action upon discovery of a spill to protect human health, safety, and the environment. Immediate actions which may be necessary include 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 spill and stopping, plugging or containing the spill. Corrective action as specified in 6.2 of this

Part must also be undertaken to clean up and remove the spilled material and restore the site to protect public health, safety, and the environment.

(2) Leaking containers must be immediately emptied to prevent further leaks, properly cleaned out, and be:

(i) disposed of in accordance with all applicable State, local and Federal requirements; or

(ii) repaired in accordance with the manufacturer's instructions.

598-4.5 Operator training

Reserved.

598-4.6 Out-of-service container systems and closure

Reserved.

Subpart 598-5 Delivery prohibition

598-5.1 Circumstances and process for imposing a delivery prohibition.

(a) Tier 1 conditions.

(1) When the department finds that a Tier 1 condition exists at a facility, the department will attach a tag to every fill port of the relevant tank system.

(2) At the time that it attaches a tag, the department will provide to the facility owner, tank system owner, or operator, if one is present, a written notification of the imposition of delivery prohibition identifying the relevant condition(s) at the facility. Otherwise, the department will then send the written notification via certified mail or personal service to the correspondence address listed in the current facility registration or license within five business days following the time that the tag is attached.

(3) The following are tier 1 conditions:

(i) A tank system is known to be releasing a hazardous substance. If the source of the release cannot be determined upon inspection, then a tag will be attached to every fill port of all tank systems that are probable sources of the release.

(ii) A UST system is missing one or more of the following equipment:

('a') secondary containment equipment required under clauses 2.1(b)(1)(ii)(c) or 2.1(b)(2)(ii)(c) of this Part;

('b') transfer station secondary containment required under paragraph 2.1(b)(4) of this Part;

('c') overfill prevention equipment required under paragraph 2.1(b)(3) of this Part;

('d') valves required under paragraph 2.1(b)(5) of this Part;

('e') corrosion protection equipment required under clauses 2.1(b)(1)(ii)(b) or 2.1(b)(2)(ii)(b) of this Part; or

('f') leak detection equipment required under subclause 2.1(b)(2)(ii)(c)(2)(ix) or subdivisions 2.3(a) or (b) of this Part.

(b) Tier 2 conditions.

(1) When the department finds that a tier 2 condition exists at a facility, the department may attach a tag to every fill port of the relevant tank system.

(2) Prior to attaching a tag, the department will send a written statement identifying the relevant condition(s) at the facility. The department will send the written statement via certified mail to the correspondence address listed in the current facility registration.

(3) At the time that it attaches a tag, the department will provide to the facility owner, tank system owner, or operator, if one is present, a written notification of the imposition of delivery prohibition identifying the relevant condition(s) at the facility. Otherwise, the department will then send the written notification via certified mail to the correspondence address listed in the current facility registration within five business days following the time that the tag is attached.

(4) The following are tier 2 conditions:

(i) The results of monitoring/testing required by subdivision 2.2(d) of this Part, leak detection required by subdivisions 2.3(a) and (b) or 3.3(a) and (b) of this Part, or inspections required by subdivisions 2.2(f) or 3.2(c) of this Part, indicate that the tank system may be leaking a hazardous substance or would not contain a leak if

one were to occur, unless documentation acceptable to the department is submitted within ten days after receipt of the department's statement issued in accordance with paragraph (2) of this subdivision, demonstrating that the relevant tank system is not leaking or has been appropriately repaired.

(ii) With respect to the operation of a UST system, compliance with the following standards is not demonstrated within 30 days following receipt of the department's statement issued in accordance with paragraph (2) of this subdivision:

('a') spill and overfill prevention operating standards under subdivisions 2.2(b), (c), or (d) of this Part;

('b') cathodic protection operating standards under subdivision 2.2(g) of this Part; or

('c') applicable leak detection methods under subdivisions 2.3(c) or (d) of this Part.

(iii) An AST system is missing one or more of the following equipment and installation of the missing equipment is not documented to the department within 30 days after receipt of the Department's statement issued in accordance with paragraph (2) of this subdivision:

('a') secondary containment equipment required under clauses 3.1(b)(1)(i)(c) or 3.1(b)(1)(ii)(c) of this Part;

('b') transfer station secondary containment required under paragraph 3.1(b)(4) of this Part;

('c') overfill prevention equipment required under paragraph 3.1(b)(3) of this Part;

('d') valves required under paragraph 3.1(b)(5) of this Part

('e') corrosion protection equipment required under clauses 3.1(b)(1)(i)(b), 3.1(b)(1)(ii)(b), 3.1(b)(2)(i)(b), or 3.1(b)(2)(ii)(b) of this Part; or

('f') leak detection equipment required under clause 3.3(b)(1)(ii)(b) of this Part and paragraph 3.3(b)(2) of this Part.

(c) The department may issue the written finding that a Tier 1 or Tier 2 condition exists, in accordance with paragraph (a)(2) or (b)(3) of this section, but withhold the imposition of delivery prohibition for a period that may not exceed 180 days, where:

(1) there is no evidence that the tank system is leaking; and

(2) imposing the delivery prohibition would jeopardize public health or safety or the availability of, or access to, fuel in a rural and remote area.

598-5.2 Prohibitions

(a) Delivery prohibition. No person may deliver or cause the delivery of a hazardous substance to any tank system whose fill port has a tag attached. No person may accept a delivery of a hazardous substance to any tank system whose fill port has a tag attached.

(b) Tag tampering and removal prohibition. Unless authorized by the department, no person may tamper with or remove a tag attached to a fill port or cause such tampering or removal.

598-5.3 Notifications

(a) Notice of delivery prohibition to facility and carrier. The presence of a tag attached to the fill port of a tank system constitutes notice of the delivery prohibition.

(b) Notification to carrier by facility. After the department attaches a tag and prior to the next scheduled delivery of a hazardous substance, all carriers that normally deliver to the tank system must be informed that delivery is prohibited. Records of any correspondence regarding the delivery prohibition must be retained for three years after the imposition of delivery prohibition.

598-5.4 Termination of delivery prohibition

(a) A delivery prohibition may be terminated by the department on its own initiative or following the conclusion of review of compliance submissions or an expedited hearing.

(1) Department initiative. If the department terminates a delivery prohibition on its own initiative, the department will send a written notification confirming that the prohibition has been terminated. The department will send the notification via certified mail to the correspondence address listed in the current facility registration.

(2) Review of compliance submissions.

(i) At any time, information may be submitted to the department demonstrating that the facility is in compliance or the condition(s) that prompted the department to impose the prohibition has been corrected.

(ii) Upon submission of information to the department, the department will designate an individual to review submissions and provide a written decision as set forth below.

(iii) The designated individual will provide a written decision to the facility within five business days after the department receives the facility's submission. If the designated individual decides to deny termination of the delivery prohibition, the decision will set forth the reasons for the denial including a description of any deficiency in the information supplied by the facility.

(iv) The decision of the designated individual will constitute a final agency determination subject to challenge under article 78 of the Civil Practice Law and Rules.

(v) The department will retain the record generated during the staff review process for one year.

(3) Expedited hearing.

(i) Not later than 15 days after a tag is attached, the department will provide the facility with an opportunity to present proof on the limited issue of whether the department incorrectly determined that any tier 1 or tier 2 conditions existed at the facility. Notice of such hearing will be sent together with the written notification of any delivery prohibition issued pursuant to paragraphs 5.1(a)(2) or 5.1(b)(3) of this Part.

(ii) The department will bear the burden of proof at the expedited hearing.

(iii) The failure of the facility to appear at the time and place scheduled for the expedited hearing will constitute a waiver of the opportunity for an expedited hearing.

(iv) The expedited hearing will be held before a department hearing officer. The hearing officer will make a report to the commissioner setting forth the appearances, the arguments presented at the hearing, findings of fact and conclusions of law, and a recommended determination for consideration by the commissioner.

(v) The hearing officer may, to the extent practicable and without prejudice to the facility's right to have a timely expedited hearing, consolidate the expedited hearing regarding the existence of tier 1 or 2 conditions with any hearing regarding the facility's violation of other provisions of the Environmental Conservation Law, or any order, rule, or regulation issued or promulgated thereunder.

(vi) The hearing officer will have the powers and authority provided to a presiding officer under the State Administrative Procedure Act.

(vii) The expedited hearing will be recorded. If requested, the hearing officer will have a typed transcript of the record created.

(viii) The hearing officer will issue his or her report within 30 days after the close of the hearing, unless the parties agree to an extension of this time.

(b) Removal of a tag. Within two business days after a decision by the department that all tier 1 and tier 2 conditions at a facility have been resolved, the department will remove the tag, or authorize its removal.

Subpart 598-6 Release Response and Corrective Action

598-6.1 General.

The following persons must, in response to a release at a facility, comply with the requirements of this Subpart:

(a) the facility owner;

(b) the tank system or container owner;

(c) the operator;

(d) the carrier, if the carrier is a discharger; and

(e) any person who is a discharger.

598-6.2 Initial Response.

In response to a release at a facility, the facility must immediately perform the following initial response actions:

(a) identify and mitigate fire, explosion, and vapor hazards;

(b) take immediate action to prevent any further release of hazardous substance; and

(c) report the release to department's Spill Hotline (800-457-7362) within two hours after discovery.

598-6.3 Initial abatement measures and site check.

(a) Unless directed to do otherwise by the department, the facility must perform the following abatement measures:

(1) immediately empty the tank system or container to prevent further release;

(2) visually inspect any aboveground releases or exposed belowground releases and prevent further hazardous substance migration;

(3) continue to monitor and mitigate any additional fire and safety hazards posed by the hazardous substance that have migrated from the excavation zone and entered into subsurface structures (such as sewers or basements);

(4) remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, abatement, or corrective action activities. If these remedies include treatment or disposal of soils, the facility must comply with applicable State and local requirements;

(5) measure for the presence of a release where contamination is most likely to be present at the facility, unless the presence and source of the release have been confirmed in accordance with the site check required by paragraphs 2.4(e)(2) or 3.4(e)(2) of this Part or the site assessment required by subdivision 2.6(d) of this Part. In selecting sample types, sample locations, and measurement methods, the facility must consider the nature of the hazardous substance stored, the type of backfill, depth to groundwater and other factors as appropriate for identifying the presence and source of the release; and

(6) investigate to determine the possible presence of free product and begin free product removal as soon as practicable and in accordance with section 6.5 of this Subpart.

(b) Within 20 days after release confirmation, the facility must submit:

(1) a report to the department summarizing the initial abatement steps taken under subdivision (a) of this section; and

(2) any resulting information or data.

598-6.4 Initial site characterization.

(a) Unless directed to do otherwise by the department, the facility must assemble information about the site and the nature of the release, including information gained while confirming the release or completing the initial abatement measures in section 6.3 of this Subpart. This information must include:

(1) data on the nature and estimated quantity of release;

(2) data from available sources and/or site investigations concerning the following factors: surrounding populations, water quality, use and approximate locations of wells potentially affected by the release, subsurface soil conditions, locations of subsurface sewers, climatological conditions, and land use;

(3) results of the site check required under section 2.4(e)(2) or 3.4(e)(2) of this Part; and

(4) results of the free product investigations required under paragraph 6.3(a)(6) of this Subpart, to be used by the facility to determine whether free product must be recovered under section 6.5 of this Subpart.

(b) Within 45 days after release confirmation or another reasonable period of time determined by the department, the facility must submit the information collected in compliance with subdivision (a) of this section to the department in a manner that demonstrates its applicability and technical adequacy, or in a format and according to the schedule required by the department.

598-6.5 Free product removal.

At a facility where an investigation under paragraph 6.3(a)(6) of this Subpart indicates the presence of free product, the facility must undertake corrective action to meet the cleanup objectives of the department. In meeting the requirements of this section, the facility must:

(a) conduct free product removal in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the facility, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable local, state, and federal regulations;

(b) use abatement of free product migration as a minimum objective for the design of the free product removal system;

(c) handle any flammable products in a safe and competent manner to prevent fires or explosions; and

(d) unless directed to do otherwise by the department, prepare and submit to the department, within 45 days after confirming a release, a free product removal report that provides at least the following information:

(1) the name of the person(s) responsible for implementing the free product removal measures;

(2) the estimated quantity, type, and thickness of free product observed or measured in wells, boreholes, and excavations;

(3) the type of free product recovery system used;

(4) whether any discharge will take place on the facility or off the facility during the recovery operation and where this discharge will be located;

(5) the type of treatment applied to, and the effluent quality expected from, any discharge;

(6) the steps that have been or are being taken to obtain necessary permits for any discharge; and

(7) the disposition of the recovered free product.

598-6.6 Investigations for soil and groundwater cleanup.

(a) In order to determine the full extent and location of soils contaminated by the release and the presence and concentrations of dissolved product contamination in the groundwater, the facility must conduct investigations of the release, the release site, and the surrounding area possibly affected by the release if any of the following conditions exist:

(1) there is evidence that groundwater wells have been affected by the release (for example, as found during release confirmation or previous corrective action measures);

(2) free product is found to need recovery in compliance with section 6.5 of this Subpart;

(3) there is evidence that contaminated soils may be in contact with groundwater (for example, as found during conduct of the initial response measures or investigations required under sections 6.2 through 6.5 of this Subpart); and

(4) the department requests an investigation, based on the potential effects of contaminated soil or groundwater on nearby surface water and groundwater resources.

(b) The facility must submit the information collected under subdivision (a) of this section as soon as practicable or in accordance with a schedule established by the department.

598-6.7 Corrective action plan.

(a) At any point after reviewing the information submitted in compliance with sections 6.2 through 6.4 of this Subpart, the department may require the facility to submit additional information or to develop and submit a corrective action plan for responding to contaminated soils and groundwater. If a plan is required, the facility must submit the plan according to a schedule and format established by the department. Alternatively, the facility may, after fulfilling the requirements of sections 6.2 through 6.4 of this Subpart, choose to submit a corrective action plan for responding to contaminated soil and groundwater. In either case, the facility is responsible for submitting a plan that provides for adequate protection of public health and the environment as determined by the department and must modify the facility's plan as necessary to meet this standard.

(b) The department will approve the corrective action plan only after ensuring that implementation of the plan will adequately protect public health, safety, and the environment. In making this determination, the department will consider the following factors as appropriate:

(1) the physical and chemical characteristics of the hazardous substance, including its toxicity, persistence, and potential for migration;

(2) the hydrogeologic characteristics of the facility and the surrounding area;

(3) the proximity, quality, and current and future uses of nearby surface water and groundwater;

(4) the potential effects of residual contamination on nearby surface water and groundwater;

(5) an exposure assessment; and

(6) any information assembled in compliance with this Subpart.

(c) Upon approval of the corrective action plan or as directed by the department, the facility must implement the plan, including modifications to the plan made by the department. The facility must monitor, evaluate, and report the results of implementing the plan in accordance with a schedule and in a format established by the department.

(d) The facility may, in the interest of minimizing environmental contamination and promoting more effective cleanup, begin cleanup of soil and groundwater before the corrective action plan is approved provided that the facility:

(1) notifies the department of the facility's intention to begin cleanup;

(2) complies with any conditions imposed by the department, including halting cleanup or mitigating adverse consequences from cleanup activities; and

(3) incorporates these self-initiated cleanup measures in the corrective action plan that is submitted to the department for approval.

598-6.8 Public Participation.

(a) For each confirmed release that requires a corrective action plan, the department will provide an opportunity for public involvement by those members of the public directly affected by the release and the planned corrective action. This notice may include public notice in local newspapers, block advertisements, public

service announcements, e-mail, publication in a State Register, letters to individual households, or personal contacts by field staff.

(b) The department will ensure that site release information and decisions concerning the corrective action plan are made available to the public for inspection upon request.

(c) Before approving a corrective action plan, the department may hold a public meeting to consider comments on the proposed corrective action plan if there is sufficient public interest, or for any other reason.

(d) The department will provide public notice that complies with subdivision (a) of this section if implementation of an approved corrective action plan does not achieve the established cleanup levels in the plan and termination of that plan is under consideration by the department.