**Section 727.290 Tank Systems**

a) Applicability of This Section. This Section applies to the owner or operator of a facility that treats or stores hazardous waste in above-ground or on-ground tanks under a RCRA standardized permit pursuant to Subpart J of 35 Ill. Adm. Code 703, except as provided in Section 727.100(a)(2).

1) A facility owner or operator does not have to meet the secondary containment requirements in subsection (f) if its tank systems do not contain free liquids and are situated inside a building with an impermeable floor. The owner or operator must demonstrate the absence or presence of free liquids in the stored or treated waste, using Method 9095B (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", USEPA Publication SW-846, incorporated by reference in 35 Ill. Adm. Code 720.111(a).

2) The facility owner or operator does not have to meet the secondary containment requirements of subsection (f)(1) if its tank system, including sumps, as defined in 35 Ill. Adm. Code 720.110, is part of a secondary containment system to collect or contain releases of hazardous wastes.

BOARD NOTE: Subsection (a) is derived from 40 CFR 267.190 (2017).

b) Required Design and Construction Standards for New Tank Systems or Components. The facility owner or operator must ensure that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the wastes to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. The owner or operator must obtain a written assessment, reviewed and certified by an independent, qualified registered professional engineer, following 35 Ill. Adm. Code 702.126(d), attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. This assessment must include, at a minimum, the following information:

1) Design standards for the construction of tanks or the ancillary equipment.

2) Hazardous characteristics of the wastes to be handled.

3) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of the following:

A) Factors affecting the potential for corrosion, such as the following:

i) Soil moisture content;

ii) Soil pH;

iii) Soil sulfides level;

iv) Soil resistivity;

v) Structure to soil potential;

vi) Existence of stray electric current; and

vii) Existing corrosion-protection measures (for example, coating, cathodic protection, etc.).

B) The type and degree of external corrosion protection needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:

i) Corrosion-resistant materials of construction (such as special alloys, fiberglass reinforced plastic, etc.);

ii) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (for example, impressed current or sacrificial anodes); and

iii) Electrical isolation devices (such as insulating joints, flanges, etc.).

4) Design considerations to ensure that the following will occur:

A) Tank foundations will maintain the load of a full tank;

B) Tank systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of Section 727.110(i)(1); and

C) Tank systems will withstand the effects of frost heave.

BOARD NOTE: Subsection (b) is derived from 40 CFR 267.191 (2017).

c) Handling and Inspection Procedures During Installation of New Tank Systems

1) The facility owner or operator must ensure that it follows proper handling procedures to prevent damage to a new tank system during installation. Before placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of tank systems or components, must inspect the system for the presence of any of the following items:

A) Weld breaks;

B) Punctures;

C) Scrapes of protective coatings;

D) Cracks;

E) Corrosion; or

F) Other structural damage or inadequate construction or installation.

2) The facility owner or operator must remedy all discrepancies before the tank system is placed in use.

BOARD NOTE: Subsection (c) is derived from 40 CFR 267.192 (2017).

d) Testing Requirements. The facility owner or operator must test all new tanks and ancillary equipment for tightness before you place them in use. If the owner or operator finds a tank system that is not tight, it must perform all repairs necessary to remedy the leaks in the system before it covers, encloses, or places the tank system into use.

BOARD NOTE: Subsection (d) is derived from 40 CFR 267.193 (2017).

e) Installation Requirements

1) The facility owner or operator must support and protect ancillary equipment against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

2) The facility owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided pursuant to subsection (b)(3), to ensure the integrity of the tank system during use of the tank system. An independent corrosion expert must supervise the installation of a corrosion protection system that is field fabricated to ensure proper installation.

3) The facility owner or operator must obtain, and keep at the facility, written statements by those persons required to certify the design of the tank system and to supervise the installation of the tank system as required in subsections (c), (d), (e)(1), and (e)(2). The written statement must attest that the tank system was properly designed and installed and that the owner or operator made repairs pursuant to subsections (c) and (d). These written statements must also include the certification statement as required in 35 Ill. Adm. Code 702.126(d).

BOARD NOTE: Subsection (e) is derived from 40 CFR 267.194 (2017).

f) Secondary Containment Requirements. To prevent the release of hazardous waste or hazardous constituents to the environment, the owner or operator must provide secondary containment that meets the requirements of this subsection (f) for all new and existing tank systems.

1) Secondary containment systems must meet both of the following requirements:

A) It must be designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to any soil, groundwater, or surface water at any time during the use of the tank system; and

B) It must be capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

2) To meet the requirements of subsection (f)(1), secondary containment systems must meet all of the following minimum requirements:

A) It must be constructed of or lined with materials that are compatible with the wastes to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic);

B) It must be placed on a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift;

C) It must be provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours; and

D) It must be sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. The facility owner or operator must remove spilled or leaked waste and accumulated precipitation from the secondary containment system within 24 hours, or as promptly as possible, to prevent harm to human health and the environment.

BOARD NOTE: Subsection (f) is derived from 40 CFR 267.195 (2017).

g) Required Devices for Secondary Containment and Their Design, Operating, and Installation Requirements

1) Secondary containment for tanks must include one or more of the following features:

A) A liner (external to the tank);

B) A double-walled tank; and

C) An equivalent device; the owner or operator must maintain documentation of equivalency at the facility.

2) An external liner system must fulfill the following requirements:

A) It must be designed or operated to contain 100 percent of the capacity of the largest tank within its boundary;

B) It must be designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. The additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;

C) It must be free of cracks or gaps; and

D) It must be designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tanks (that is, it must be capable of preventing lateral as well as vertical migration of the waste).

3) A double-walled tank must fulfill the following requirements:

A) It must be designed as an integral structure (that is, it must be an inner tank completely enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell;

B) It must be protected, if constructed of metal, from both corrosion of the primary tank interior and of the external surface of the outer shell; and

C) It must be provided with a built-in continuous leak detection system capable of detecting a release within 24 hours.

BOARD NOTE: Subsection (g) is derived from 40 CFR 267.196 (2017).

h) Requirements for Ancillary Equipment. The facility owner or operator must provide ancillary equipment with secondary containment (for example, trench, jacketing, double-walled piping, etc.) that meets the requirements of subsections (f)(1) and (f)(2), except for the following:

1) Above ground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis;

2) Welded flanges, welded joints, and welded connections, that are visually inspected for leaks on a daily basis;

3) Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis; and

4) Pressurized above ground piping systems with automatic shut-off devices (for example, excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices, etc.) that are visually inspected for leaks on a daily basis.

BOARD NOTE: Subsection (h) is derived from 40 CFR 267.197 (2017).

i) General Operating Requirements for Tank Systems

1) The facility owner or operator must not place hazardous wastes or treatment reagents in a tank system if the substances could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.

2) The facility owner or operator must use appropriate controls and practices to prevent spills and overflows from tank or containment systems. These include the following minimum requirements:

A) Spill prevention controls (for example, check valves, dry disconnect couplings, etc.);

B) Overfill prevention controls (for example, level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank, etc.); and

C) Sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.

3) The facility owner or operator must comply with the requirements of subsection (k) if a leak or spill occurs in the tank system.

BOARD NOTE: Subsection (i) is derived from 40 CFR 267.198 (2017).

j) Inspection Requirements. The facility owner or operator must comply with the following requirements for scheduling, conducting, and documenting inspections:

1) It must develop and follow a schedule and procedure for inspecting overfill controls;

2) It must inspect the following at least once each operating day:

A) Aboveground portions of the tank system to detect corrosion or releases of waste;

B) Data gathered from monitoring and leak detection equipment (for example, pressure or temperature gauges, monitoring wells, etc.) to ensure that the tank system is being operated according to its design; and

C) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (for example, dikes) to detect erosion or signs of releases of hazardous waste (for example, wet spots, dead vegetation, etc.);

3) It must inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly:

A) It must confirm that the cathodic protection system is operating properly within six months after initial installation and annually thereafter; and

B) It must inspect or test all sources of impressed current, as appropriate, at least every other month; and

4) It must document, in the operating record of the facility, an inspection of those items in subsections (j)(1) through (j)(3).

BOARD NOTE: Subsection (j) is derived from 40 CFR 267.199 (2017).

k) Required Actions in Case of a Leak or a Spill. If there has been a leak or a spill from a tank system or secondary containment system, or if either system is unfit for use, the facility owner or operator must remove the system from service immediately, and it must satisfy the following requirements:

1) It must immediately stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release;

2) It must remove the waste from the tank system or secondary containment system, as follows:

A) If the release was from the tank system, the owner or operator must, within 24 hours after detecting the leak, remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed; or

B) If the material released was to a secondary containment system, the owner or operator must remove all released materials within 24 hours or as quickly as possible to prevent harm to human health and the environment;

3) It must immediately conduct a visual inspection of the release and, based on that inspection, undertake the following actions:

A) It must prevent further migration of the leak or spill to soils or surface water; and

B) It must remove, and properly dispose of, any visible contamination of the soil or surface water;

4) It must report any release to the environment, except as provided in subsection (k)(4)(A), to the Agency within 24 hours after its detection. If the owner or operator has reported the release to USEPA pursuant to federal 40 CFR 302, that report will satisfy this requirement, subject to the following exceptions:

A) The facility owner or operator does not need to report on a leak or spill of hazardous waste if it fulfills the following conditions:

i) The spill was less than or equal to a quantity of one pound (0.45 kg); and

ii) The facility owner or operator immediately contained and cleaned up the spill; and

B) Within 30 days of detection of a release to the environment, the owner or operator must submit a report to the Agency that contains the following information:

i) The likely route of migration of the release;

ii) The characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate, etc.);

iii) The results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within 30 days, the owner or operator must submit these data to the Agency as soon as they become available;

iv) The proximity to downgradient drinking water, surface water, and populated areas; and

v) A description of response actions taken or planned;

5) It must either close the system or make necessary repairs, as follows:

A) Unless the owner or operator satisfies the requirements of subsections (k)(5)(B) and (k)(5)(C), it must close the tank system according to subsection (l);

B) If the cause of the release was a spill that has not damaged the integrity of the system, the owner or operator may return the system to service as soon as it removes the released waste and makes any necessary repairs; or

C) If the cause of the release was a leak from the primary tank system into the secondary containment system, the owner or operator must repair the system before returning the tank system to service; and

6) If the owner or operator has made extensive repairs to a tank system in accordance with subsection (k)(5) (for example, installation of an internal liner; repair of a ruptured primary containment or secondary containment vessel, etc.), it may not return the tank system to service unless the repair is certified by an independent, qualified, registered, professional engineer in accordance with 35 Ill. Adm. Code 702.126(d), as follows:

A) The engineer must certify that the repaired system is capable of handling hazardous wastes without release for the intended life of the system; and

B) The facility owner or operator must submit this certification to the Agency within seven days after returning the tank system to use.

BOARD NOTE: Subsection (k) is derived from 40 CFR 267.200 (2017).

l) Requirements When the Owner or Operator Stops Operating the Tank System. When the facility owner or operator close a tank system, it must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless 35 Ill. Adm. Code 721.103(d) applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in Sections 727.210 and 727.240.

BOARD NOTE: Subsection (l) is derived from 40 CFR 267.201 (2017).

m) Special Requirements for Ignitable or Reactive Wastes

1) The facility owner or operator may not place ignitable or reactive waste in tank systems, unless any of the following three conditions are fulfilled:

A) The owner or operator treats, renders, or mixes the waste before or immediately after placement in the tank system so that the following is true:

i) The owner or operator complies with Section 727.110(h)(2); and

ii) The resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste pursuant to 35 Ill. Adm. Code 721.121 or 721.123;

B) The owner or operator stores or treats the waste in such a way that it is protected from any material or conditions that may cause the waste to ignite or react; or

C) The facility owner or operator uses the tank system solely for emergencies.

2) If the facility owner or operator stores or treats ignitable or reactive waste in a tank, it must comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built on, as required in Tables 2-1 through 2-6 of "Flammable and Combustible Liquids Code", NFPA 30, incorporated by reference in 35 Ill. Adm. Code 720.111(a)).

BOARD NOTE: Subsection (m) is derived from 40 CFR 267.202 (2017).

n) Special Requirements for Incompatible Wastes

1) A facility owner or operator may not place incompatible wastes or incompatible wastes and materials in the same tank system, unless it complies with Section 727.110(h)(2).

2) A facility owner or operator may not place hazardous waste in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless it complies with Section 727.110(h)(2).

BOARD NOTE: Subsection (n) is derived from 40 CFR 267.203 (2017).

o) Air Emission Standards. The facility owner or operator must manage all hazardous waste placed in a tank following the requirements of Subparts AA, BB, and CC of 35 Ill. Adm. Code 724. Under a RCRA standardized permit, the following control devices are permissible: a thermal vapor incinerator, a catalytic vapor incinerator, a flame, a boiler, a process heater, a condenser, or a carbon absorption unit.

BOARD NOTE: Subsection (o) is derived from 40 CFR 267.204 (2017).

(Source: Amended at 42 Ill. Reg. 24055, effective November 19, 2018)