

TITLE 41: FIRE PROTECTION  
CHAPTER I: OFFICE OF THE STATE FIRE MARSHAL

PART 175  
TECHNICAL REQUIREMENTS FOR UNDERGROUND STORAGE TANKS AND THE  
STORAGE, TRANSPORTATION, SALE AND USE OF PETROLEUM  
AND OTHER REGULATED SUBSTANCES

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#### SUBPART A: DEFINITIONS

##### **Section 175.100 Definitions**

Unless otherwise provided by the text in this Part, all terms in this Part shall be as defined in 41 Ill. Adm. Code 174.100.

#### SUBPART B: MOTOR FUEL DISPENSING FACILITY REQUIREMENTS

##### **Section 175.200 General Requirements for Motor Fuel Dispensing Facilities**

- a) Other than kerosene and except as otherwise provided in this Subpart B and 41 Ill. Adm. Code 180, all dispensing of flammable and combustible liquids at motor fuel dispensing facilities shall be from underground storage tanks.
- b) All motor fuel dispensing facilities must abide by the operating and other requirements of this Subpart B.
- c) Motor fuel dispensing facilities must hold a current and valid motor fuel dispensing permit for the particular type of facility involved in order to operate. No motor fuel dispensing facility shall open for business until inspected and approved by OSFM. Facilities operating under different classifications at any time shall obtain dispensing permits for and meet the requirements for all respective classifications that apply to the facility. Approval for dispensing operations will be granted upon compliance with 41 Ill. Adm. Code 172, 174, 175, 176 and 177.

No owner or other person or responsible entity shall permit any person to violate the provisions of this Subpart B. Violation of the requirements for motor fuel dispensing facilities of this Subpart B may subject the owner or operator to penalties that may include revocation of the facility motor fuel dispensing permit issued under this Subpart and the compliance certification (green decal) issued under 41 Ill. Adm. Code 177 as required for operation of the facility. Failure to remain in compliance with UST rules may also result in OSFM's issuance of a red tag for the tanks at issue, prohibiting any further operation of the facility or further deposit of regulated substances into any tank subject to a red tag. Maintenance of equipment physically connected to the UST, including emergency stops and shear valves, are required items subject to red tag for noncompliance.

- d) Applications for a Motor Fuel Dispensing Facility Permit
- 1) No construction of a motor fuel dispensing facility or modification of an existing motor fuel dispensing facility shall be commenced until applications and plans are given written approval in the form of a review letter by OSFM.
  - 2) Only contractors currently licensed and certified in accordance with 41 Ill. Adm. Code 172 may submit motor fuel dispensing facility permit applications. A UST contractor portal for the on-line submission of the motor fuel dispensing permit application can be found at <https://webapps.sfm.illinois.gov/USTPortal>. The applications shall be those prescribed by OSFM and plans must be submitted for each motor fuel dispensing facility showing compliance with applicable OSFM rules. The plans shall be drawn to scale and shall, at a minimum, include the following:
    - A) Lot lines and dimensions.
    - B) Building lines and dimensions.
    - C) Location and size of tanks and pump island.
    - D) Location of control station (if applicable).
    - E) Type, make, model and location of dispensing devices or equipment.
    - F) Fire extinguisher locations.

- G) Clearances from dispensing devices to property lines and buildings both on and off the property.
  - H) Locations of all emergency stops.
  - I) Locations of all collision protection for dispensers.
  - J) Locations of any propane storage, with a description of collision protection conforming to Section 175.210(q).
- 3) After examining the submitted application and plans, OSFM shall issue a review letter valid for a period of 6 months. Submission of incomplete or illegible applications and/or plans shall be cause for denial of applications.
- 4) Motor fuel dispensing facility work of the following kinds requires application and plan submittal to OSFM prior to commencing the work:
- A) A station being newly constructed.
  - B) A station being established in a building that previously contained a different occupancy.
  - C) Making substantial modifications to an existing facility. Substantial modification would include, but not be limited to:
    - i) Installation of new dispensing islands or dispensers in new locations.
    - ii) Relocation of an emergency stop.
  - D) Changing from one facility category to another, as those categories are listed in Sections 175.210 through 175.250. The requirement to obtain a permit for the change will still apply even if only part of the facility is being changed (for example only one dispenser island) or if the facility plans to operate under a different category for only a portion of a 24-hour period.
  - E) Construction or relocation of buildings on the property, even if they are not the "primary" motor fuel dispensing facility station control buildings.
- 5) Motor fuel dispensing facility work of the following kinds does not require application and plan submittal to OSFM prior to commencing the

work. This type of work or modifications will be inspected by OSFM when the facility is due for permit renewal:

- A) Like-for-like replacement of existing equipment (e.g., replacement of existing dispensing cabinets or components not involving the shear valve or items below the shear valve; changing existing dispensing nozzles, hoses or fittings; replacing an existing emergency stop in its current location).
  - B) Replacing (or installing additional) collision protection posts or guardrails.
  - C) Changing or replacing warning or instructional signs.
  - D) Replacing or adding to the complement of portable fire extinguishers.
- 6) In addition to the requirement for a motor fuel dispensing permit pursuant to this Subpart before any dispensing can occur, work affecting UST components or equipment shall also require a separate Section 175.300 permit to be obtained via the submittal of separate applications to OSFM pursuant to that Section.
- e) Issuance and Renewal of Motor Fuel Dispensing Facility Permits
- 1) A motor fuel dispensing facility permit or permit renewal will be issued by OSFM after an on-site inspection has been conducted by OSFM to verify compliance with all applicable OSFM rules.
  - 2) No motor fuel dispensing facility shall open for business until inspected and approved by OSFM, and until OSFM issues a motor fuel dispensing facility permit, which must be prominently displayed at all times at the motor fuel dispensing facility. When a facility is required to obtain more than one kind of permit, all the permits shall be displayed.
  - 3) Motor fuel dispensing facility permits shall be issued on a biennial basis. These permits shall expire on December 31 of the year shown on the permit.
  - 4) Any name or ownership change shall require submission to OSFM of a Notification of Ownership Change for Underground Storage Tanks under 41 Ill. Adm. Code 176.440(g) within 30 days. Copies of proof of legal ownership, including, but not limited to, the current deed, contract or

lease, shall be supplied to OSFM with this Notification upon OSFM's written request.

- f) Storage and handling of LP gases at motor fuel dispensing facilities shall be in accordance with 41 Ill. Adm. Code 200.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.210 Attended Self-Service Motor Fuel Dispensing Facilities and Islands**

All dispensing of Class I, II or III liquids at attended self-service motor fuel dispensing facilities and islands must be under the supervision and control of an attendant. The following requirements shall apply to attended self-service motor fuel dispensing facilities and islands:

- a) All electrical installations shall comply with the edition of NFPA 70 in effect at the time of installation of the electrical equipment and shall further comply with the applicable requirements of Section 175.425.
- b) Every self-service motor fuel dispensing facility shall maintain a control station in a location readily accessible to the attendant. Separate fueling areas more than 100 feet apart and designated by signage so indicating may have separate control stations if each separate fueling area complies with this Subpart B and 41 Ill. Adm. Code 174, 175 and 176.
- c) A method that does not require coins or currency to activate shall be provided for the attendant to contact the fire department.
- d) Conspicuously marked and easily accessible emergency stops must be provided at each facility and shall be:
  - 1) Located so that at least one emergency stop is at least 20 feet but not more than 100 feet from each dispenser.
  - 2) Interconnected so that activation of one emergency stop activates all the emergency stops whenever more than one emergency stop is provided.
  - 3) Equipped with an emergency stop at all control stations, which shall be conspicuously marked and readily accessible to the attendant, whether or not the control station is less than 20 feet from any dispenser or a security booth is provided for the attendant. The emergency stop shall be located in a position to allow all dispensing devices to be readily visible to the attendant, or as approved by OSFM.

- 4) Compliance retrofits shall be completed by September 1, 2013.
- e) Power for illumination of dispensing areas required by this Subpart B shall not be affected by activation of any of the electrical shutoffs when the illumination is located outside of hazardous (classified) locations or is intrinsically safe.
- f) Resetting from an emergency stop activation shall require manual intervention by the owner or attendant and shall be accomplished only after the condition that caused the activation has been corrected.
- g) All dispensing units shall be readily visible from the control station without assistive devices. However, as an alternative, in the event that the attendant's view of a dispenser is permanently obstructed, or if a dispenser is located so that activity at the dispenser is not readily visible, closed-circuit cameras that provide a view of each side of the dispensing unit and project an image on a screen at least 6 inches in diagonal located at the control station may be used. The cameras shall be allowed to sweep to provide a view of multiple dispensing locations, but must provide a view on the screen of each dispensing unit at least every 30 seconds. In lieu of the closed-circuit camera, the facility may elect to have an emergency stop that shall be located at least 20 and not more than 50 feet from the dispenser that has a permanently obstructed view. Using an emergency stop in lieu of the closed-circuit camera pursuant to this subsection (g) must be approved in advance by OSFM. If a closed-circuit camera or viewing screen is inoperable and cannot provide surveillance of dispensing units to the attendant at the control station, and an emergency stop has not been approved by OSFM and provided in lieu of the camera as provided in this subsection (g), self-service dispensing of fuel at these dispensers is prohibited.
- h) The attendant shall at all times be able to communicate with persons in the dispensing area. For distances greater than 40 feet between the control station and the dispenser, a communication system audible to each dispensing area shall be required that allows the attendant to give instruction or warning to the customer.
- i) All emergency stops shall be tested, and all shear valves visually inspected, at least annually to ensure that they are functioning properly and that the dispenser is mounted properly. Inspection should ensure that the shear valves are located ½ inch above or below grade; are securely mounted using a listed rigid anchor device; and the link arm functions when tripped, allowing the poppet valve to close freely. Upon completion of this testing and inspection, the owner/operator shall complete forms titled "Certification of Operational Testing of Emergency Stops" and "Certification of Annual Inspection of All Dispenser Shear Valves", available at <https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>. Documentation of annual

emergency stop testing and shear valve inspection, using the OSFM forms, shall be kept at the motor fuel dispensing facility for 2 years and available for examination by a representative of OSFM. If documentation of annual testing of emergency stops is not available, the facility shall be subject to demonstration of this equipment during inspection by OSFM.

j) Attendants

- 1) At all times when an attended motor fuel dispensing station is open for public use, at least one attendant shall be on duty, and no motor fuel shall be dispensed at any time when the attendant is not at or near the control station or pump island. The attendant's primary duty shall be to supervise the dispensing of motor fuels, motor oils and services normally related to the dispensing.
- 2) The attendant shall refuse service to any person who is smoking or who appears to be unable to dispense fuel safely, and shall shut off the dispensing unit if a patron fails to follow instructions in compliance with OSFM rules. It shall be the responsibility of the attendant to:
  - A) carefully observe the dispensing of liquids into vehicles and portable containers;
  - B) control or eliminate sources of ignition;
  - C) immediately notify local fire authorities of any product spilled;
  - D) take other appropriate actions to prevent ignition of accidental spills;
  - E) refuse service to any customer who appears to lack the ability to properly and safely utilize the equipment (e.g., intoxication, inability to place the nozzle in the gas tank receptacle, inability to follow written or oral instructions of the attendant, or the person is too young to be aware of the hazards and requirements for safe dispensing of motor vehicle fuels);
  - F) to inspect all portable containers for conformance with 41 Ill. Adm. Code 174.

k) All attendants and other employees of the motor fuel dispensing facility shall be thoroughly instructed in the location, operation and proper use of the communication system, control station, emergency stops, fire extinguishing

equipment, operation of the dispensing units, and safety regulations for the dispensing of motor fuels. Upon request, all attendants shall demonstrate to OSFM their ability to use this equipment. Facilities that fail to instruct employees in these requirements shall be in violation and subject to enforcement action.

- l) No dwelling unit or sleeping facilities of any kind for the owner, attendant or any person shall be permitted at a self-service motor fuel dispensing facility. This does not include dormitory facilities for use of drivers at truck stops, provided that the dormitories are in compliance with the applicable provisions of 41 Ill. Adm. Code 100.
- m) Fire extinguishers shall be provided in accordance with 41 Ill. Adm. Code 174.350.
- n) Signs giving instructions for the operation of dispensing equipment must be conspicuously posted on each dispensing island where self-service is offered.
- o) Minimum Signage. Signs shall be provided that are clearly visible to all self-service customers. The signs shall be made of all-weather material and the lettering shall be not less than  $\frac{7}{8}$  inch high. The signs shall be mounted no higher than 10 feet above grade, or at a height approved by OSFM, and shall include the following wording, at a minimum:
  - 1) "Warning";
  - 2) "Stop Engine";
  - 3) "No Smoking";
  - 4) "Persons fueling vehicles shall remain with their vehicle, at the nozzle, while fueling is in progress";
  - 5) "It is unlawful and dangerous for anyone to dispense gasoline into unapproved containers".
- p) Dispensing activity shall be limited to or supervised by persons old enough to hold a valid driver's license.
- q) Collision Protection for LP Gas Storage Cabinets at Motor Fuel Dispensing Facilities. LP gas storage cabinets (including cabinets for LP gas tank exchange for gas grills) shall comply with Section 8.4 of NFPA 58, incorporated by reference in 41 Ill. Adm. Code 174.210, and shall also provide collision protection that consists of one of the following options:

- 1) guardrails;
- 2) steel or concrete bollards;
- 3) raised sidewalks that are at least 5 inches tall at the face with the cabinet set up so the distance from the face of the raised sidewalk to the front of the cabinet is at least 40 inches. This measurement may also include an additional bumper guard to reach the required 40 inches. Raised sidewalks may also consist of curbs or parking bumper guards; or
- 4) any other arrangement certified by a Licensed Professional Engineer in accordance with national codes of practice and accepted engineering practices and approved in advance by OSFM.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.220 Unattended Self-Service Motor Fuel Dispensing Facilities and Islands**

Unattended self-service motor fuel dispensing facilities and islands shall comply with all of the requirements for attended motor fuel dispensing facilities and islands (see Section 175.210) with the additions and modifications provided in this Section. Requirements specific to control stations and attendants in Section 175.210 are not applicable to unattended facilities. If a motor fuel dispensing facility is to be operated as an unattended station during any portion of a day, it shall meet the standards for unattended operation.

- a) **Minimum Signage.** Signs shall be posted in all weather materials by each actuator (or at the dispenser if the actuator is an integral part of the dispenser) and the lettering shall be not less than  $\frac{7}{8}$  inch high. The signs shall be mounted no higher than 10 feet above grade, or at a height approved by OSFM, and shall include the following wording, at a minimum:
  - 1) "No smoking";
  - 2) "Turn off engine";
  - 3) "Containers for gasoline must be red";
  - 4) "Containers for kerosene must be blue";
  - 5) "It is dangerous and unlawful to fill unapproved containers with gasoline, diesel or kerosene";

- 6) "In case of fire or spill use EMERGENCY STOP located at..." (owner must insert the locations of the emergency stops);
  - 7) "EMERGENCY STOP activation transmits a fire alarm to the fire department".
- b) Easily accessible emergency stops must be provided at each dispensing island. Each emergency stop shall be identified by an approved sign on all-weather materials stating "EMERGENCY STOP" in 2 inch red capital letters. Combinations of dispenser islands where a master and corresponding satellite dispenser are used to fuel saddle tanks on trucks and similar vehicles shall be considered as being on one island so long as the piping and electronics are one integral unit and the satellite unit is controlled by the master dispensing unit. In addition, there shall be at least one emergency stop located at least 20 feet but not more than 100 feet from each dispenser. When more than one emergency stop is provided, all devices shall be interconnected so that activation of one emergency stop activates all the emergency stops. Stations with only one island may elect to utilize a single emergency stop located at least 20 feet but not more than 100 feet from each dispenser, or at a location approved by OSFM. A sign shall be placed at each emergency stop stating that activation of the emergency stop "transmits a fire alarm to the fire department". Resetting from an emergency stop activation shall require manual intervention by the owner or attendant and shall be accomplished only after the condition that caused the activation has been corrected.
- c) Fire Alarm Systems
- 1) Activation of any emergency stop at the facility shall automatically transmit an alarm to local emergency fire services providers by sending a signal via one of the following mechanisms, which shall meet the requirements of NFPA 72:
    - A) Auxiliary alarm system;
    - B) Central station alarm connection;
    - C) Proprietary alarm receiving facility or system;
    - D) Remote station alarm connection; or
    - E) When the mechanisms in subsections (c)(1)(A) through (c)(1)(D) are not available, an alternate plan for notification of local emergency services meeting NFPA 70 and NFPA 72 and approved by OSFM in advance of the use.

- 2) The fire alarm system shall be installed, tested and maintained according to NFPA 70 and NFPA 72. The alarm system must also meet the alarm system requirements of subsections (h)(1)(C) and (h)(2)(D), including the requirement for an audible alarm when triggered.
- d) All emergency stops shall be tested, and all shear valves visually inspected, at least annually to ensure that they are functioning properly and that the dispenser is mounted properly. Documentation of annual emergency stop testing and shear valve inspection shall be kept at the motor fuel dispensing facility and available for examination by a representative of OSFM. If documentation of annual testing of emergency stops is not available, the facility shall be subject to demonstration of this equipment during inspection by OSFM.
- e) Actuators may use currency, coins, keys, cards or electronic means to activate dispensers and pumps.
- f) Dispensing devices or actuators must limit the delivery of product in a manner that requires reactivation of the latch open (hold-open) device for any dispensing beyond the following amounts:
  - 1) Motor vehicle fuels (Class I, II and III)
    - A) Class I liquids (gasoline, gasohol, ethanol, motor fuel blends) – maximum 100 gallons.
    - B) Class II and III liquids (diesel fuel) – maximum 250 gallons.
  - 2) Kerosene (grade K-1 only) – 18 gallons.
  - 3) Other Class I, II and III liquids – 6 gallons.
- g) Except for farms, when kerosene is to be dispensed at unattended motor fuel dispensing facilities, only grade K-1 kerosene shall be dispensed.
- h) All unattended motor fuel dispensing facilities shall have installed and maintained equipment and systems that meet the requirements of subsection (h)(1) or (h)(2), although local governments may require option (h)(1) or (h)(2):
  - 1) Unattended dispensing areas for Class I, II and III liquid motor fuels utilizing this option shall be protected by an automatic fire suppression systems meeting the standards of UL 1254 and NFPA 17. If a fire suppression system meeting these requirements is installed, no fire

extinguishers are required. In the event of a fire suppression system discharge, the fuel dispensing facility shall not be returned to service until the suppression system is recharged and fully operational in the area protected by the system. The fire suppression system shall, when activated:

- A) Automatically activate an emergency stop that is equipped so that all fuel dispensing units and submersible pumps would be stopped by the activation.
  - B) Sound a local alarm notification device that is audible throughout the dispensing area and meets the requirements of NFPA 72.
  - C) Automatically transmit an alarm, through a system installed, tested and maintained according to NFPA 70 and 72, to local emergency fire services providers by sending a signal via one of the following mechanisms, which shall meet the requirements of NFPA 72:
    - i) Auxiliary alarm system;
    - ii) Central station alarm connection;
    - iii) Proprietary alarm receiving facility or system;
    - iv) Remote station alarm connection; or
    - v) Where the mechanisms in subsections (h)(1)(C)(i) through (iv) are not available, an alternate plan for notification of local emergency services meeting NFPA 70 and NFPA 72 and approved by OSFM in advance of the use.
  - D) Include extinguishing agent discharge nozzles mounted above dispensers and at or near ground level to discharge agent underneath vehicles being fueled.
- 2) Unattended dispensing areas for Class I, II and III motor vehicle fuels electing this option shall be equipped with portable fire extinguishers and a fire detection system located under a weather enclosure canopy (unless written documentation is submitted verifying that the detection system will operate properly without a canopy).

- A) The system shall detect a fire in the dispensing area through the use of rate compensation, rate of rise or flame sensing detectors. The installation must meet the requirements of NFPA 72.
  - B) Activation of the system shall automatically activate an emergency stop that is equipped so that all fuel dispensing units and submersible pumps would be stopped by the activation.
  - C) Activation of the system shall cause the sounding of a local alarm notification device audible throughout the dispensing area and meeting the requirements of NFPA 72.
  - D) Activation of the system, which shall be installed, tested and maintained according to NFPA 70 and 72, shall automatically transmit an alarm to local emergency fire services providers by sending a signal via one of the following mechanisms, which shall meet the requirements of NFPA 72:
    - i) Auxiliary alarm system;
    - ii) Central station alarm connection;
    - iii) Proprietary alarm receiving facility or system;
    - iv) Remote station alarm connection; or
    - v) Where the mechanisms in subsections (h)(2)(D)(i) through (iv) are not available, an alternate plan for notification of local emergency services meeting NFPA 70 and NFPA 72 and approved by OSFM in advance of the use.
  - E) Fire extinguishers meeting the requirements of 41 Ill. Adm. Code 174.350 shall be installed and maintained at each island and at the emergency stop. Cabinets, or other enclosures for extinguishers, shall not require breaking of glass or other acts that could injure users attempting to access the extinguishers, though doors, panels and local alarm systems may be provided for these enclosures at the owner's option.
- 3) The annual system testing required under NFPA 17 and NFPA 72 must be documented and the documents regarding this testing kept at the facility or available within 30 minutes or before OSFM completes its inspection, whichever is later.

- 4) In meeting the requirements of subsections (c) and (h), facilities in existence as of September 1, 2010 shall have the option of complying with the editions of NFPA 17, NFPA 70 and NFPA 72 and UL 1254 incorporated by reference in 41 Ill. Adm. Code 174.210 or the OSFM alarm system and fire suppression and fire detection system requirements in effect at the time of their installation.
- 5) Any changes to either fire suppression or fire detection systems and related alarms require that the facility notify OSFM in writing at least 60 days in advance of the change.
  - i) At least once each year the facility shall verify that the alarm notification devices required under subsections (c) and (h) are working. The facility shall record the verification date and results on a record kept along with the other facility records.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.230 Fleet Vehicle Motor Fuel Dispensing Facilities**

Fleet vehicle motor fuel dispensing facilities shall comply with all of the requirements for unattended self-service motor fuel dispensing facilities in Section 175.220, except that the signs required under Section 175.220(a) and the fire detection and fire suppression systems required under Section 175.220(h) shall not be required. Automatic notification to local emergency fire services providers when the emergency stop is activated shall not be required so long as the facility is not open to the public for unattended dispensing at any time. Fleet facilities shall comply with requirements for portable fire extinguishers found in Section 175.220(h)(2)(E) and 41 Ill. Adm. Code 174.350. Other signage requirements under Section 175.220 shall still apply, along with the remainder of the requirements of Section 175.220.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.240 Full Service Motor Fuel Dispensing Facilities and Islands**

Full service motor fuel dispensing facilities and islands shall comply with all of the requirements for attended self-service motor fuel dispensing facilities in Section 175.210, with the following modifications or additions.

- a) A control station and audible communication system shall not be required at a full service motor fuel dispensing facility or island. The attendant shall, however, at all times be able to communicate with persons in the dispensing area. Facilities with dispensers that are not on a full-service island remain subject to the

requirements for attended facilities under Section 175.210 for the dispensers that are not full-service.

- b) **Minimum Signage.** Signs shall be provided that are clearly visible to all full-service customers. The signs shall be made of all-weather material and the lettering shall be not less than  $\frac{7}{8}$  inch high. The signs shall be mounted no higher than 10 feet above grade, or at a height approved by OSFM, and shall include the following wording, at a minimum: "No dispensing by anyone other than the attendant".

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.250 Marine Motor Fuel Dispensing Facilities**

- a) Marine motor fuel dispensing facilities shall be of the attended type only. Self-service is prohibited.
- b) No vessel or marine craft shall be made fast to any other vessel or marine craft occupying a berth at a fuel dispensing location during fueling operations.
- c) Smoking materials, including matches and lighters, shall not be used within 20 feet of areas used for fueling, servicing fuel systems for internal combustion engines, or receiving or dispensing Class I liquids.
- d) The fuel delivery nozzle shall be put into contact with the vessel fill pipe before the flow of fuel commences and this bonding contact shall be continuously maintained until fuel flow has stopped to avoid possibility of electrostatic discharge.
- e) At all marinas, clearly identified emergency stops that are readily accessible in case of fire or physical damage at any dispensing unit shall be provided on each marine wharf and located at least 20 feet but not more than 100 feet from each dispenser, or at a location as approved by OSFM. The emergency stops shall be interconnected to shut off power to all dispenser and submersible pump motors from any individual location. Each emergency stop shall be identified by an approved sign on all-weather materials stating "EMERGENCY STOP" in 2 inch red capital letters. Resetting from an emergency stop activation shall require manual intervention by the owner or attendant and shall be accomplished only after the condition that caused the activation has been corrected. A master electrical shutoff means an emergency stop.
- f) All emergency stops shall be tested and all shear valves visually inspected at least annually to ensure that they are functioning properly and that the dispenser is

mounted properly. Documentation of annual emergency stop testing and shear valve inspection shall be kept at the motor fuel dispensing facility and available for examination by a representative of OSFM. If documentation of annual testing of emergency stops is not available, the facility shall be subject to demonstration of this equipment during inspection by OSFM.

- g) **Minimum Signage.** A conspicuous sign shall be made of all-weather material with prominent letters not less than  $\frac{7}{8}$  inch high. The sign shall be mounted no higher than 10 feet above the dispenser base, or at a height approved by OSFM, and shall be visible in all directions, stating "No dispensing by anyone other than the attendant".
- h) **Fire Extinguishers.** Fire extinguishers shall be provided in accordance with 41 Ill. Adm. Code 174.350.
- i) **Spill containment** shall be provided on docks adjacent to dispensers to contain spills that may occur during the filling of approved portable containers. Portable containers of 6 gallons or less shall be filled on the dock where spill containment is provided.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.260 Miscellaneous General Operating Requirements**

- a) No motor vehicle or other craft shall be serviced with Class I, II or III fuel until motor and ignition have been shut off. Equipment or appliances utilizing pilot lights, arcing motors or similar devices shall be shut off (in addition to motors and ignitions) before servicing the vehicle.
- b) No smoking shall be permitted in the dispensing and vehicle service areas at any time.
- c) No open lights or flames shall be permitted on the premises, except in heating devices within station buildings.
- d) Premises shall be kept neat, clean and free from rubbish or loose trash. Brush, debris, wood chips, mulch and other combustibles shall not be located within 10 feet of dispensing areas or dispensers.
- e) Cleaning of station floors or premises with gasoline, naphtha or other Class I or Class II liquids shall not be permitted.

- f) Kerosene dispensers installed after April 1, 1995 shall not be located on the same island or within 20 feet of any petroleum or hazardous substance dispensers. Labeling of kerosene dispensers shall comply with the Space Heating Safety Act [425 ILCS 65], including the following requirements:
- 1) where kerosene is offered for sale, a conspicuous notice shall be posted on all-weather materials and visible to all purchasers at the place of sale stating that the product is kerosene, and, in letters at least 3 inches in height, stating whether it is grade K-1 or K-2; and
  - 2) where K-2 kerosene is sold, an additional notice shall be posted on all-weather materials adjacent to or immediately below any listing of prices stating the following in letters 3 inches in height: "This is grade K-2 kerosene and it is not to be used in portable unvented kerosene heaters".
- g) All dispensing areas shall be provided with ample lighting.

#### SUBPART C: PERMITS, FEES AND SCHEDULING

#### **Section 175.300 Permitted UST Activity**

Any UST activity or other permitted activity under this Section must comply with the following:

- a) Permit Requirements
- 1) Prior to the onset of UST activity, a completed permit application, including fee payment of \$200 per permitted activity, shall be submitted to OSFM.
  - 2) A separate fee is required for each type of activity.
  - 3) This fee is to be paid by check, money order made payable to "Office of the State Fire Marshal", or electronic payment via the UST contractor portal (at <https://webapps.sfm.illinois.gov/USTPortal>) and is to be from the licensed contractor obtaining the permit.
  - 4) Only contractors currently licensed and certified in accordance with 41 Ill. Adm. Code 172 may obtain permits. Contractors are required to be OSFM licensed and have at least one employee doing the work who shall be certified under 41 Ill. Adm. Code 172 for the UST activity that is being performed. A UST contractor portal for the on-line submission of permit applications and the scheduling of permitted work can be found at the website cited in subsection (a)(3).

- 5) Only contractors, their employees or subcontractors may perform the permitted UST activity in accordance with 41 Ill. Adm. Code 172.
  - 6) Permit applications denied or rejected the second time will require a new permit application and submission of a new fee.
  - 7) Permit applications and issued permits are not transferable.
  - 8) The owner of the UST must be identified on the permit application.
  - 9) No permit may be issued when the current owner listed on the application owes fees pursuant to 41 Ill. Adm. Code 176.450 or 176.455 until the fees are paid in full.
  - 10) No permit may be issued for UST activity unrelated to correcting existing violations while the violations continue to exist on that same site.
- b) No UST activity requiring a permit may proceed without a granted permit.
  - c) No UST owners or operators may perform any UST activity, unless the owner complies with the licensing and certification requirements of 41 Ill. Adm. Code 172.
  - d) UST activity performed that is not in compliance with the conditions of a permit issued to a licensed contractor, or false information supplied to obtain a permit, is cause for permit revocation, or suspension or revocation of the license of the contractor to perform any UST activity.
  - e) For purposes of this Section, the following terms shall be considered interchangeable or equivalent: "installer" and "replacer"; "install" and "replace"; "repairer" and "a person who upgrades"; "repair" and "upgrade"; "remover" and "a person who abandons-in-place"; and "remove" and "abandon-in-place".
  - f) Actions Requiring a Permit. A permit is required to do any of the following to USTs:
    - 1) install new underground tanks or piping;
    - 2) remove tanks, piping or interstitial sensors;
    - 3) abandon-in-place a UST or piping;

- 4) upgrade;
  - 5) repair, including replacing flex connectors, risers or vents. If the work performed on risers or vents is done as a result of water ingress or a failed tank precision test, a subsequent tank precision test shall be performed after the work is completed;
  - 6) line;
  - 7) inspect linings;
  - 8) emergency repairs;
  - 9) repair, install or remove cathodic or corrosion protection, including on flex connectors;
  - 10) perform any hot work on a UST;
  - 11) installation, upgrade or removal of the following (except for any like-for-like replacements listed in subsection (g)):
    - A) leak detection systems (see Section 175.630(f), providing that existing interstitial monitoring sensors and systems cannot be removed);
    - B) spill containment at the tank or remote fills; and
    - C) overfill prevention equipment;
  - 12) dispenser activity that triggers the requirement to install under-dispenser containment under Section 175.410(e) and any new dispenser location;
  - 13) submersible activity that triggers the requirement to install a tank containment sump under Section 175.410(c);
  - 14) electronic enhancement of an automatic tank gauge (ATG) that requires work within the ATG control module;
  - 15) connection of a new or existing bulk load-out to a new or existing UST at a motor fuel dispensing facility.
- g) Actions Not Requiring a Permit

- 1) No permit is required to do like-for-like replacements for the following:
  - A) submersible pumps, if already equipped with a tank containment sump;
  - B) spill containment devices (insert replacements shall be at least 3.5 gallons capacity; newly installed spill containment devices shall be a minimum of 5 gallons capacity);
  - C) drop tube valves;
  - D) ATG probes;
  - E) mechanical line leak detectors;
  - F) electronic line leak detectors;
  - G) wireless electronic line leak detectors;
  - H) rectifiers;
  - I) interstitial monitoring sensors; or
  - J) replacement of the bolted-on top section of a shear valve only (replacement of an entire shear valve requires a permit and under-dispenser containment).
  
- 2) The exceptions listed in subsection (g)(1) are the only exceptions from the permit requirement. If the equipment is not present or another type of equipment is to be used, a permit shall be required. Any pipe or flex connector work requires a permit. However, merely disconnecting a fitting, coupling or union without replacing that fitting, coupling or union to accomplish the replacement of the like-for-like equipment on the list in subsection (g)(1) will not by itself trigger the requirement for a permit. Although a permit is not required for like-for-like replacements, the work must still be performed by a licensed contractor. When product piping is broken or disconnected to perform a like-for-like replacement, the piping line must be precision tested as tight prior to putting the piping line back into service. Replacing any of the equipment listed in subsection (g)(1) must be reported electronically or in writing, within 24 hours after the activity, to OSFM, on a Like-for-Like Replacement Report form provided by OSFM (available at the website cited in subsection (a)(3)), listing the make, model and manufacturer of the equipment, and indicating where the

equipment is being installed. For a list of the types of OSFM permits required for specific permitted UST activities, see Appendix B.

- h) Expiration and Extension of Permits. Permits expire 6 months from the date they are issued. The applicant may apply for additional 6-month extensions. Permit extensions that circumvent newly adopted technical requirements will not be allowed. If a party submits evidence of non-cancelable contracts executed in reliance on the permit sought to be extended, or if work has commenced, a party will not be viewed as circumventing the technical requirement. Each extension request must be submitted electronically or in writing before the permit lapses and must be accompanied by a \$200 fee.
- i) Amended Permits. Granted permits may be amended twice without a new application fee. For all permit amendments, each change that requires a new contractor, more than minor changes to the site plan, or another engineering review to determine acceptability will require submission of a new permit application and \$200 fee. Drawings related to any amendment must be submitted to OSFM with the amendment. Permit amendments that circumvent newly adopted technical requirements will not be allowed.
- j) Site plans showing setback distances shall be submitted by the contractor listed on the permit application, to OSFM, along with any motor fuel dispensing permit application required by Section 175.200. Site plans are subject to approval by OSFM before any new construction, addition or remodeling that alters building size, when encroachment on required setbacks would occur; dispenser locations; or locations or sizes of vehicle service area or storage tanks. Removals, lining and upgrades that involve replacing equipment with that of identical manufacture and model do not require submission of site plans.
- k) Miscellaneous
  - 1) In the event that equipment requiring a permit is installed without a permit or in violation of the terms of the permit, the owner/operator will be required to do the following:
    - A) Hire an OSFM licensed contractor other than the person and company who did the unauthorized/non-permitted work.
    - B) Submit the proper permit application to OSFM and obtain approval from OSFM.
    - C) The work shall be uncovered as necessary to allow proper inspection of the UST installation or modification at issue and

OSFM may require any changes necessary to bring the installation into compliance with 41 Ill. Adm. Code 160, 174, 175, 176, 177 and 180.

- 2) When temporarily replacing a defective electronic line leak detector with a mechanical line leak detector, the contractor must notify OSFM electronically or in writing within 8 working hours after replacement, on a Like-for-Like Replacement Report form provided by OSFM (available at the website cited in subsection (a)(3)). Replacement of the temporary mechanical line leak detector with the final electronic line leak detector must be completed within 10 working days, and notification of this replacement shall be submitted to OSFM electronically or in writing on a Like-for-Like Replacement Report form within the same 10 day period.
  - 3) When removed piping exceeds 20 feet or 50% of the total piping run at a site, both a removal and an upgrade permit are required. When there are indications of a leak that are not contained to the UST system, owners and operators shall follow the procedures and requirements of 41 Ill. Adm. Code 176.Subpart C.
  - 4) A valid permit does not remedy the technical compliance aspects of a violation until the work is completed and does not allow for any extensions of time for compliance. Completion of the work and a satisfactory OSFM final inspection does not preclude OSFM enforcement action against the person who illegally installed the equipment without a permit.
- 1) Permits for Marinas. Due to the unique characteristics of the site at marina locations, additional information will be required as specified in this subsection (1) and as determined to be necessary by OSFM.
- 1) Additional statements will be required as requested by OSFM to substantiate ownership or consent from authorities having jurisdiction over the waterway.
  - 2) Site Plans and Drawings. Detailed site plans and drawings shall be supplied as requested by OSFM to show length, width, location and configuration of the dock, type of construction, dispenser location and dispensing area, along with profiles of the UST indicating differences in elevation between tanks, piping and dispensers showing all valves, manholes, sumps, location of leak detection equipment, anti-siphon devices, pressure relief valves, pipe chases, sewage lines, etc. High water,

low water and normal pool elevations shall also be given in relation to tank, piping and dispensers, along with any pertinent site characteristics.

- m) Permits for Abandonment-in-Place
  - 1) An on-site evaluation establishing the existence of at least one of the eligibility criteria of Section 175.840(a) shall be submitted by the OSFM-licensed contractor and must include accurate site plans. A complete plan or diagram of the area shall be provided and show the location of tanks, fill pipes, vent lines, sewers, streets, product lines, utilities and buildings. The facility name and location and the number and size of USTs involved shall also be included in the site plans.
  - 2) A description of the specific inert material to be used shall be indicated on the permit application. Allowed inert material shall be limited to sand, gravel, clay, bentonite or inert material mixed with portland cement to increase flowability. The portland cement concentration may not exceed 50 lbs. per cubic yard of mixed material. Any other materials must be approved by OSFM during the permit process. If tripolymer foam is to be used, the permit application must include buoyancy calculations based upon the particular tripolymer foam to be used. Information must also be included that verifies the methods and materials that will be used to protect against UST floatation once abandoned-in-place. PEI/RP-100 addresses the issue of floatation and anchorage calculations that may be of assistance to the submitting contractor relative to determining ballast needs.
  - 3) If the ability to abandon-in-place is questioned, a third-party professional structural engineer may be used to determine the feasibility of removal in order to verify that the tank is or is not eligible to be abandoned in place under Section 175.840(a).
- n) For permits applicable to mobile fueling sites and related contractors, see 41 Ill. Adm. Code 174.440 and 174.450.
- o) In the event there is a delegation of authority to the City of Chicago to enforce UST rules and regulations, pursuant to the Gasoline Storage Act [430 ILCS 15/2], subject to the terms of that agreement, the City has the authority to modify subsections (a)(1) through (a)(10) to issue the permits and collect the fees for its own use, regarding UST activities within the jurisdiction of the City.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.310 Site Plans**

When OSFM permit application forms indicate that permit submittals must be accompanied by site plans, the following shall apply:

- a) Site plans shall be submitted simultaneously with associated permit applications and shall accurately reflect the scope and all components of the work involved.
- b) Site plans shall be submitted by the contractor listed on the permit application.
- c) Site plans shall be legible and sizes shall be 8½" x 11", 8½" x 14", 11" x 17" or electronic scans only; blueprints are not acceptable as site plans.
- d) Site plans shall be drawn to an identified scale, or all dimensions shall be labeled to allow OSFM to determine compliance with applicable rules.
- e) Site plans shall indicate or contain the following information:
  - 1) The name of the OSFM-licensed contractor proposing the work;
  - 2) The name and address of the facility where the proposed work is to occur, including the location of the proposed work with reference to city, village or town;
  - 3) The plot to be utilized and its immediate surroundings on all sides. All property lines are to be designated and adjacent streets and highways shall be named, and legends or markings shall include a compass marking the directions of north, east, south and west;
  - 4) The components of the installation as proposed, including tanks and their capacities, name and class of liquids to be stored, piping, pumps, dispensers, buildings and all UST equipment. When partial piping is being installed or replaced, show total length of the entire piping run and identify the specific length and location of the portion of the piping that is being installed or replaced;
  - 5) Clearance from tanks and piping to property lines;
  - 6) Clearances from tanks and piping to adjacent buildings;
  - 7) Separation distance between USTs when more than one UST is present;
  - 8) Location of driveways or paths for vehicle access;

- 9) Location of existing piping trenches not being reused, existing trenches being reused, and new trenches where new piping is being installed;
  - 10) Location of electrical wiring and conduit, including an indication of the depth or elevation at which these components will be installed;
  - 11) Location of basements, cellars or pits of buildings on the property or on adjacent properties, and location of tanks and piping to allow OSFM to ensure compliance with Section 175.430. If buildings on the property or adjacent property have no basements, cellars or pits, a notation to that effect shall be made on the site plan;
  - 12) Location of sewers, manholes, catch basins, cesspools, septic tanks, wells or cisterns (whether on the property, on adjacent property or in adjoining streets, highways or alleys); whether the sewer is made of petroleum-resistant piping or material; and location of tanks and piping to allow OSFM to ensure compliance with Section 175.430. If there is no sewer, manhole or catch basin in a street or alley or no sewer, cesspool, septic tank, well or cistern on a property, a notation to that effect shall be made on the site plan;
  - 13) Location of UST vent piping, vent termination points, and any other vent outlets required by Section 175.440, including a clear indication of the elevation of vent termination points;
  - 14) Location of fill pipes, including remote fills, required by Section 175.445;
  - 15) Ventilation methods for grease pits or other below-grade areas required by Section 175.450(f);
  - 16) Location and form of all collision protection for dispensers and vent terminals; and
  - 17) Any other information pertinent to the installation to ensure that OSFM plan reviewers can determine compliance with applicable rules.
- f) In the event there is a delegation of authority to the City of Chicago to enforce UST rules and regulations, pursuant to the Gasoline Storage Act [430 ILCS 15/2], subject to the terms of the agreement, the City has the authority to modify this Section to change any reference to "Office of the State Fire Marshal" or OSFM to the appropriate City authority.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.320 Scheduling of UST Activity**

- a) All permitted activity shall be scheduled with OSFM. There are 2 sets of procedures for scheduling permitted activity, Operational Safety Inspection (OSI) or Performance Assurance Inspection (PAI). The procedures for scheduling OSI Activity (Date Certain) are set forth in subsection (c) and for PAI Activity (Date and Time Certain) are set forth in subsection (d). A contractor shall have at least one employee certified for the UST activity for which the permit was issued actively supervising in person the UST activity being performed on the site. At all times during permitted activity, including at all STSS inspections, including any final inspection, there shall be an employee or individual contractor certified in the work to be done on the job site. Subcontractors are not "employees" for this purpose.
- b) No permitted and scheduled OSI or PAI activity can be performed outside the schedule unless changes have been approved in advance by OSFM. Notice of cancellation must be received by OSFM no later than 6:00 a.m. of the scheduled date and the revised date of the work must be at least one complete working day after OSFM receipt of the revised job schedule request. The day of receipt is not included in the advance notice/receipt calculation. A new permit and fee will be required when there is a failure to meet any of the schedules. This includes not being present for inspection, not being completely ready for inspection, allowing permit to expire before completing the final inspection, or not canceling the job within the allowed time frame. Failure to meet the schedules also includes a failure to complete all UST work and site preparation necessary for the STSS inspection, including any necessary testing and related corrections, prior to the time the STSS is scheduled to first arrive. Upon these events, the permit is considered void and no work may commence until a new permit is issued and the work scheduled pursuant to this Section.
- c) OSI (Date Certain) Activity. OSI activity includes UST installations, installation or removal of an entire pipe run, tank removal, abandonment-in-place, lining and lining inspection, tank entry and any hot work. Regarding UST installation, scheduled OSFM inspections are required for an air test on the tank prior to installation, tank installation, air test on primary lines, air test on secondary containment, hydrostatic test on containments prior to backfill, and final inspection. Regarding installation of an entire pipe run, OSFM inspections are required for both the primary and secondary air test on the piping and a hydrostatic test on containments prior to backfill, and final inspection. Any additional inspection in follow-up to tank penetration via hot work, including a

final lining inspection and tank precision testing, shall be scheduled as a PAI inspection. For a listing of OSI activities, see Appendix A to this Part.

- 1) For OSI activity, the contractor shall have a granted permit before scheduling with OSFM to establish a specific date and time that is not less than one complete working day before the anticipated date of the permitted activity. A UST contractor portal for the on-line submission of permit applications and the scheduling of permitted work can be found at <https://webapps.sfm.illinois.gov/USTPortal>.
  - 2) Only the contractor or an employee of the contractor (this does not include subcontractors) may schedule the work with OSFM.
  - 3) For OSI activity, the work will not be allowed to be done unless an STSS is on site.
- d) PAI (Time and Date Certain) Activity. PAI permitted activity includes upgrades not involving piping installation, repairs not involving hot work, or cathodic protection activity. PAI activities will be scheduled for a period of at least 2 working hours (between 8:30 a.m. and 3:30 p.m. on State business days) and subsequent activities that interfere with the ability to inspect will not proceed until the time period is over. Tank and line precision testing and cathodic protection testing following permitted activity, or at any time in the course of investigating a suspected release, or pursuant to an NOV must be scheduled with OSFM pursuant to subsection (d)(2). For a listing of OSI activities, see Appendix A.
- 1) Permitted PAI Activity. The contractor shall have a granted permit before scheduling the permitted activity with OSFM not less than one complete working day before the anticipated date of work. A UST contractor portal for the on-line submission of permit applications and the scheduling of permitted work can be found at the website cited in subsection (c)(1). The Division of Petroleum and Chemical Safety (DPCS) will transmit an e-mail confirmation of scheduling approval back to the contractor within one working day. Work shall not commence until the contractor receives this confirmation. Only the contractor or an employee of the contractor (this does not include subcontractors) may schedule the work with OSFM.
  - 2) Non-permitted PAI Activity. Non-permitted PAI activity includes tank and line precision testing and cathodic protection testing following permitted activity, or at any time in the course of investigating a suspected release, or pursuant to an NOV. The contractor or contractor's employee shall schedule the activity with OSFM in advance of the anticipated work. Only the

contractor or an employee of the contractor (this does not include subcontractors) may schedule the work with OSFM. A UST contractor portal for the on-line scheduling of non-permitted work can be found at the website cited in subsection (c)(1).

- 3) For spill or overfill prevention device final PAI (Time and Date Certain) inspections, a contractor representative is not required to be on site, but scheduling of the final inspection is required.
  - 4) Any time an emergency repair permit is issued, the contractor shall schedule and complete the final inspection within 10 days after issuance of the permit.
- e) A Notification for Underground Storage Tanks form provided by OSFM (available at <https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>) shall be completed and submitted to OSFM within 30 days after completion of the permitted work for UST removal and abandonment-in-place. For all UST installations, the final inspection shall not be scheduled without prior submission of the completed Notification form and, if applicable, the completed motor fuel dispensing permit application. Other kinds of permitted work do not require submission of this Notification form.
- f) There shall be no transfer or sale of product from a UST until the UST is in compliance with OSFM rules and any required final inspection has been completed. Any request to fill a required minimal amount of fuel necessary to perform compliance testing must be submitted by an OSFM-licensed contractor in writing and approved by OSFM in advance. A Drop Fuel Request form is available at the UST contractor portal at the website cited in subsection (c)(1). A depositor may make one deposit of a regulated substance to a newly installed or newly lined tank to provide ballast; that fuel shall not be sold or dispensed until the required decal is obtained.
- g) In the event there is a delegation of authority to the City of Chicago to enforce UST rules and regulations, pursuant to the Gasoline Storage Act [430 ILCS 15/2], subject to the terms of that agreement and to the extent the City is authorized to supervise the above-referenced activities, the City is authorized to substitute, for references in this Section to OSFM or its agents or employees, comparable references to the City or its agents or employees.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.330 Payment of 1988 Annual UST Fee (Repealed)**

(Source: Repealed at 42 Ill. Reg. 10476, effective October 13, 2018)

#### SUBPART D: DESIGN, INSTALLATION AND CONSTRUCTION REQUIREMENTS

##### **Section 175.400 Design and Construction of USTs**

- a) Tanks. Any newly installed or replaced underground tank shall be of double-wall construction and equipped with interstitial monitoring that meets the applicable requirements of Section 175.630(f) and 40 CFR 280.43(g) for all permits issued on February 1, 2008 and after. Third-party listed, factory manufactured, jacketed tanks having an interstitial space with interstitial monitoring shall be considered as meeting the double-wall requirement.
- b) Each newly installed, replaced and existing tank shall be properly designed, constructed and installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and third-party listed for its intended use. Any portion underground that routinely contains product shall be protected from corrosion. In addition, each tank shall meet one of the following requirements:
  - 1) The tank is constructed of fiberglass-reinforced plastic.
  - 2) The tank is constructed of steel and protected in the following manner:
    - A) Metallic tanks installed on or after April 21, 1989 shall be thoroughly coated on the outside with suitable rust-resisting dielectric material; and
    - B) All steel tanks shall utilize a cathodic protection system designed by a corrosion expert certified by NACE in cathodic protection design or by an Illinois Licensed Professional Engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks. If an impressed current system is selected, it must also be designed to allow determination of the system's operating status by means of permanently installed lights and gauges as required in Section 175.510.
  - 3) The tank is constructed of steel and clad or jacketed with a noncorrodible material.
  - 4) The tank construction and corrosion protection are determined by OSFM to be designed to prevent release or threatened release of any stored

regulated substance in a manner that is no less protective of human health and the environment than this subsection (b). Before the installation of any tank, its construction and corrosion protection shall be submitted to OSFM, in writing, and is subject to written approval by OSFM.

- c) Re-certified tanks shall satisfy the requirements of subsection (b), and, on or after February 1, 2008, shall be double-walled with interstitial monitoring; however, written proof of re-certification shall be submitted to OSFM. Re-certified tanks must be reinstalled within 6 months after removal or re-certification, whichever is sooner. Re-certified tanks must have a warranty remaining for at least 5 years. Re-certifications must be conducted by a Licensed Professional Engineer having expertise in UST design or the original tank manufacturer.
- d) Any UST that fails to meet the criteria and requirements of Subparts D, E and F shall be removed within 60 days after receipt of a Notice of Violation requiring its removal. Field-constructed tanks and airport hydrant systems shall comply with Subpart I.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.405 Spill Containment and Overfill Prevention Equipment**

- a) To prevent spilling and overfilling associated with product transfer to the UST, owners or operators shall use the following spill containment and overfill prevention equipment:
  - 1) Both:
    - A) Spill containment equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (e.g., a spill catch basin). As of May 1, 2003, new or replaced spill containment equipment must have a minimum 5 gallon capacity, except that a third party listed replacement containment designed by the manufacturer to be inserted into an existing spill containment will be allowed as long as it has a minimum capacity of 3.5 gallons. Spill containment equipment shall be maintained in a dry, clean state; and
    - B) Overfill prevention equipment that:
      - i) Automatically shuts off flow into the tank when the tank is no more than 95% full; or

- ii) Alerts the transfer operator when the tank is no more than 90% full by restricting the flow into the tank or triggering an audible and visual high-product level alarm; or
  - 2) Provides alternative methods that are no less restrictive than subsections (a)(1) and (a)(2) and no less protective of human health or the environment, as approved in writing by OSFM.
- b) Owners and operators of UST systems with spill and overflow prevention equipment must meet the requirements of subsections (b) and (c) and shall ensure the equipment is operating properly and will prevent releases to the environment. Spill prevention equipment (such as a catchment basin, spill bucket, or other spill containment device) must prevent releases to the environment by meeting one of the following:
  - 1) The equipment is double-walled and the integrity of both walls is periodically monitored at a frequency not less than once every 30 days. Owners and operators must begin meeting the testing requirements of subsection (b)(2) and conduct a test within 30 days after discontinuing periodic monitoring of this equipment; or
  - 2) The spill prevention equipment is tested at installation, immediately after any repairs, and at least once every three years to ensure the equipment is liquid tight by using vacuum, pressure or liquid testing in accordance with one of the following criteria:
    - A) Requirements developed by the manufacturer of the spill prevention equipment. Owners and operators may use this option only if the manufacturer has developed requirements;
    - B) Requirements developed by the manufacturer of the testing equipment; or
    - C) A hydrostatic test that meets the requirements of Section 175.410(j).
- c) Overflow prevention equipment must be inspected at installation, immediately after any repairs, and at least once every three years, and the inspection shall meet the following criteria:
  - 1) At a minimum, the inspection must ensure that overflow prevention equipment is set to activate at the correct level specified in subsection (a);

- 2) The overfill prevention equipment will activate when the regulated substance reaches that level; and
  - 3) Inspections must be conducted in accordance with inspection requirements developed by the manufacturer.
- d) Owners and operators must begin meeting the requirements for testing and inspection in subsections (b) and (c) as follows:
- 1) For UST systems in use on or before October 13, 2015, the initial spill prevention equipment test and overfill prevention equipment inspection must be conducted not later than October 13, 2018.
  - 2) For UST systems brought into use after October 13, 2015, these requirements apply at installation.
- e) Owners and operators must maintain the following records for spill prevention equipment and overfill prevention equipment:
- 1) All records of installation shall be maintained for the life of the equipment;
  - 2) All records of testing or inspection must be maintained for three years; and
  - 3) For spill prevention equipment not tested every three years, documentation showing that the prevention equipment is double-walled and the integrity of both walls is periodically monitored at a frequency not less than once every 30 days must be maintained for as long as the equipment is periodically monitored.
- f) Ball float vent valves for overfill prevention shall not be installed on new and existing UST systems after October 13, 2015. If an approved method of overfill prevention is not present on a UST when a ball float valve fails inspection, overfill prevention equipment meeting the requirements of this Section shall be installed.
- g) A UST that is filled by transfers of no more than 25 gallons at one time shall require spill containment but does not require overfill prevention.
- h) In addition to the requirements of this Section, waste oil tanks shall be equipped with spill containment devices at all fill and retrieval points.
- i) All testing and inspections required by this Section shall be performed:

- 1) By an OSFM-licensed contractor that has licensure in the installation/retrofitting or tank and piping tightness testing module; and
- 2) Using an employee of an OSFM-licensed contractor for testing or inspection who is certified in the installation-retrofitting or tank and piping tightness testing module and also certified by the manufacturer of the equipment being tested or inspected and the testing equipment being utilized.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.410 Containment Sumps**

- a) All containment sumps must consist of a factory manufactured containment that is liquid-tight on its sides, bottom and at any penetrations and is compatible with the substance conveyed by the piping.
- b) On or after May 1, 2003, a submersible containment sump must be installed at the tank on all new tanks with submersible pumps or American suction piping systems. European suction piping systems are not required to have this containment.
- c) When an existing submersible pump is removed and replaced with another submersible pump, or when piping, flex connectors or other transitional components at the submersible pump are replaced, a submersible containment sump must be installed.
- d) On or after May 1, 2003, under-dispenser containment must be installed on all new dispenser installations where there previously was no dispenser. European suction systems are not exempt from the requirement for under-dispenser containment. Under-dispenser containment must allow for visual inspection and access to the components in the containment system or be monitored every 30 days for leaks from the dispenser system.
- e) Under-dispenser containment shall be required when:
  - 1) Both the dispenser and the equipment needed to connect the dispenser to the underground storage tank system are installed at a UST facility. The equipment necessary to connect the dispenser to the underground storage tank system includes check valves, shear valves, unburied risers or flexible connectors, or other transitional components that are underneath the dispenser and connect the dispenser to the underground piping; or

- 2) Work is being done to replace or modify any components at or below the shear valve, regardless of whether the dispenser is replaced.
- f) On or after October 13, 2028, containment sumps shall be installed where none currently exist.
  - g) If more than 20 feet or 50% of a pipe run is replaced, the appropriate containment required to make the associated interstitial monitoring functional (e.g., a tank containment sump, under-dispenser containment, or a junction sump) shall also be installed.
  - h) Water in Sumps
    - 1) Sumps Without Interstitial Monitoring Sensors. If water is in a sump and it is in contact with bare metal piping or metal, including flex connectors, then corrosion protection, using impressed current, spike anodes, or wristband anodes with proper electrolyte, must be installed on the metal piping in accordance with Section 175.510.
    - 2) Sumps with Interstitial Monitoring Sensors. Water that could interfere with the operation of double-wall interstitial monitoring systems or that is in contact with bare metal piping or metal, including flex connectors, shall be permanently removed and the source of ingress repaired. The sump shall be maintained so that, other than internal condensation, there is no water in contact with bare metal.
    - 3) Requirement for All Sumps. In all cases, sumps shall be maintained and repaired using petroleum compatible materials as necessary so that, in the event of a release, product will not be leaked out of sumps via cracks, broken seals or other openings.
  - i) Ban on Field-installed Spray-on or Pour-on Materials in UST Containment Sumps. All required containments shall be factory manufactured containments resistant to petroleum and chemical products. Field-applied spray-on or pour-on materials shall not be used in UST containment sumps. All repairs shall be made according to manufacturer's specifications. The application of any material shall not interfere with the normal operation of the shear valves or fusible links, or any equipment installed under dispensers or submersible pumps.
  - j) A hydrostatic test will be performed on all containment sump installations and immediately after repairs (including all submersible, piping, transition and fill sumps, whether single-walled or double-walled) as follows:

- 1) All penetrations, including electrical, must be completed prior to testing.
  - 2) Piping containment sumps are to be filled with water to a height that covers the highest penetration or sidewall seam by 4 inches.
  - 3) Fill sumps (spill buckets) shall be filled to within 1½ inches of the top of the sump.
  - 4) Minimal backfilling that may be necessary for support of the containment sump is allowed prior to the test.
  - 5) Test duration is 30 minutes and performed under PAI Time and Date Certain requirements with no drop in water level of more than ⅛ inch.
- k) All testing required by this Section shall be performed:
- 1) By an OSFM-licensed contractor that has licensure in the installation/retrofitting or tank and piping tightness testing module; and
  - 2) Using an employee of an OSFM-licensed contractor for testing who is certified in the installation-retrofitting or tank and piping tightness testing module and also certified by the manufacturer of the equipment being tested and the testing equipment being utilized.
- l) Owners and operators of UST systems with containment sumps used for interstitial monitoring of piping must meet these requirements for periodic testing and shall ensure the equipment is operating properly and will prevent releases to the environment by meeting one of the following:
- 1) The equipment is double-walled and the integrity of both walls is periodically monitored at a frequency not less than once annually. Owners and operators must begin meeting the testing requirements of subsections (1)(2) and (1)(3) and conduct a test within 30 days after discontinuing periodic monitoring of this equipment;
  - 2) The containment sumps used for interstitial monitoring of piping are tested at least once every three years to ensure the equipment is liquid-tight by using vacuum, pressure or liquid testing in accordance with one of the following criteria:

- A) Requirements developed by the manufacturer of the containment sump. Owners and operators may use this option only if the manufacturer has developed testing requirements;
  - B) Requirements developed by the manufacturer of the testing equipment; or
  - C) A hydrostatic test that meets the requirements of subsection (j); or
- 3) An alternative test procedure for containment sumps with discriminating and nondiscriminating sensors is allowed subject to the following requirements.
- A) This alternative test procedure shall be conducted as follows:
    - i) Sumps shall be inspected and must be free of debris and liquids and obvious structural damage prior to testing;
    - ii) A liquid level sensor is mounted at the lowest point in the sump and a periodic test is performed by adding liquid to a point that will ensure activation of the sensor;
    - iii) The submersible pump automatically shuts off when liquid activates the sensor; and
    - iv) The level of liquid and type of liquid used to ensure activation of the sensor conforms to the sensor manufacturer's specifications.
  - B) Written documentation from the manufacturer detailing the minimum amount of liquid and the type of testing liquid required to activate the sensor must be provided when OSFM requests it.
  - C) The following conditions shall disqualify sumps from this testing method:
    - i) Sensors found to be raised out of the required position for proper activation shall trigger an NOV requiring hydrostatic testing above the highest penetration or seam for the containment sump in question, if the containment sump has been tested using the alternative test procedure in this subsection (1)(3); and

- ii) Those sumps with obvious structural damage, such as cracks or breaks in the walls or floor of the containment sump, shall require repair or replacement. Containment sumps shall be tested pursuant to subsection (j) following repair or replacement of sump.
- F) Containment sumps shall be inspected prior to testing. Sumps must be free of debris and moisture prior to testing, and those sumps with obvious structural damage, such as cracks or breaks in the walls or floor of the containment sump, shall require repair or replacement. Containment sumps shall be tested pursuant to subsection (j) following repair or replacement of the sump.
- m) Owners and operators must begin meeting the requirements for testing in subsection (l) as follows:
  - 1) For UST systems in use on or before October 13, 2015, the initial testing for containment sumps used for interstitial monitoring of piping must be conducted not later than October 13, 2018.
  - 2) For UST systems brought into use after October 13, 2015, these requirements apply at installation.
- n) Owners and operators must maintain the following records for containment sumps used for interstitial monitoring of piping:
  - 1) All records of installation shall be maintained for the life of the equipment;
  - 2) All records of testing must be maintained for three years; and
  - 3) For containment sumps used for interstitial monitoring of piping not tested every three years, documentation showing that the containment sumps used for interstitial monitoring of piping are double-walled and the integrity of both walls is periodically monitored every 30 days, must be maintained for as long as the equipment is periodically monitored.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.415 UST Compatibility with Product Stored**

- a) Owners and operators shall use a UST made of or lined with materials that are compatible with the substance stored in the UST.

- b) Owners and operators must notify OSFM at least 30 days prior to switching to a regulated substance containing greater than 10% ethanol, greater than 20% biodiesel, or any other regulated substance identified by OSFM, using a Notification for Underground Storage Tanks form (available at <https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>). In addition, owners and operators with UST systems storing these regulated substances must meet one of the following:
- 1) Demonstrate compatibility of the UST system (including the tank and any internal lining materials, piping, containment sumps, pumping equipment (including submersible, suction and dispenser pumps, as well as attached hoses and nozzles), release detection equipment, spill equipment, and overfill equipment and, for USTs installed after October 13, 2018, any associated seals, gaskets and adhesives). Owners and operators may demonstrate compatibility of the UST system by using one of the following options:
    - A) Certification or listing of UST system equipment or components by a nationally recognized, independent testing laboratory for use with the regulated substance stored; or
    - B) Equipment or component manufacturer approval. The manufacturer's approval must be in writing, indicate an affirmative statement of compatibility, specify the range of biofuel blends with which the equipment or component is compatible, and be from the equipment or component manufacturer; or
  - 2) Use another option determined by OSFM to be no less protective of human health and the environment than the options listed in subsection (b)(1). Demonstration of any such method shall be in writing submitted to OSFM. If the option is approved, the owner or operator shall comply with any conditions imposed by OSFM to ensure the protection of human health or the environment. Before the utilization of the option, OSFM shall issue written approval.
- c) Owners and operators must maintain records in accordance with 41 Ill. Adm. Code 176.430 documenting compliance with subsection (b) for as long as the UST system is used to store the regulated substance. Documentation shall include a completed Checklist for Documenting UST Compatibility form, available at the website cited in subsection (b).

- d) Existing USTs Previously Converted to a Blended Fuel (as defined in 41 Ill. Adm. Code 174.100). In those instances in which a blended fuel is being stored in an existing tank lined at any time, the lining material must be approved by OSFM based on information supplied by the manufacturer or a nationally recognized, independent testing laboratory, in accordance with the criteria identified in Section 175.500, as compatible with the blended fuel, or the owner/operator must remove the blended fuel from the tank. Existing field installed linings shall be allowed to remain if both the lining and all UST components are compatible with the product stored, but shall comply with the requirements of Section 175.500, including requirements for 5-year inspections by a certified contractor. New field-installed linings for compatibility purposes only are allowed after January 1, 2011. These provisions, allowing new linings for compatibility purposes only, shall not be used to circumvent prohibitions against lining tanks for purposes of corrosion protection or repair after January 1, 2011. A steel tank shall be deemed compatible with all motor, alternative and blended fuels in the absence of a detailed engineering evaluation by an Illinois Licensed Professional Engineer establishing a problem with compatibility between the steel tank and the substance proposed to be stored in the tank.
- e) Blended Fuels and Compatibility. Materials and leak detection equipment that are listed as compatible with gasoline and/or petroleum diesel will be permitted to be used with gasoline/ethanol blends equal to or less than 10% ethanol or diesel/biodiesel blends equal to or less than 20% biodiesel.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.420 Piping**

- a) Piping that routinely contains regulated substances and is in contact with the ground, backfill or water shall be properly designed, constructed and protected from corrosion in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory, shall be third party listed for its intended use, and shall also meet the requirements of one of the following subsections:
- 1) The piping is constructed of noncorrodible material.
  - 2) The piping is constructed of steel and protected as follows:
    - A) The piping is coated with a suitable dielectric material, if installed on or after April 21, 1989; and

- B) All steel piping utilizes a cathodic protection system designed by a corrosion expert certified by NACE in cathodic protection design or by an Illinois Licensed Professional Engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks. If an impressed current system is selected, it must also be designed to allow determination of system operating status by means of permanently installed lights, amp, volts and hour gauges as required in Section 175.510.
- 3) The piping construction and corrosion protection are determined by OSFM to be designed to prevent release or threatened release of any stored regulated substance, in a manner that is no less protective of human health and the environment than the requirements in subsections (a)(1) and (a)(2). Before the installation of any such piping, its construction and corrosion protection shall be submitted to OSFM, in writing, and OSFM shall issue written approval.
- b) Installed underground piping shall be of double-wall construction and equipped with interstitial monitoring that meets the applicable requirements of Section 175.630(f) and 40 CFR 280.43(g) for all permits issued February 1, 2008 and after. When required to make interstitial monitoring functional, the appropriate containment (e.g., under-dispenser containment, tank containment sumps, or junction sumps) shall be installed. Any replaced piping that exceeds 20 feet or 50% of the total piping run shall require the entire pipe run to be replaced with double-wall, monitored piping as required for newly installed piping. If the site has multiple distinct pipe runs, only that piping run being replaced shall be required to be double-wall construction with interstitial monitoring installed in compliance with this subsection (b). European suction systems are exempt from the requirement for having double-wall product piping, as well as from the requirement for having interstitial monitoring.
- c) Piping, valves and fittings for flammable liquids shall be designed for the working pressures and structural stresses to which they may be subjected and third party listed for their intended use. The application of any material shall not interfere with the normal operation of the shear valves, fusible links or any equipment installed under the dispensers or submersibles. They shall be of steel or other materials suitable for use with the liquid being handled.
- d) All piping shall be located so as to be protected from physical damage. Pipe trenches and pipe installation shall meet manufacturer's specifications for depth, width, slope, spacing and placement of pipe. Joint adhesive and thread sealant

shall meet manufacturer's requirements for the regulated substance stored and/or transported by the pipe.

- e) Pressurized piping systems (including existing systems) shall also be equipped with automatic line leak detectors (see Section 175.640(a)). After installation, pressurized piping shall be air tested for 30 minutes at 1.5 times the working pressure or 50 psi, whichever is higher. Suction and vent piping shall be air tested at a minimum positive pressure of 7 psi or in accordance with the manufacturer's recommended procedures.
- f) All steel risers, vents and fills in contact with the ground, backfill or water shall be dielectrically wrapped or coated.
- g) Beginning May 1, 2003, a positive shutoff valve shall be installed on the product line at the submersible or at the tank for all suction systems on all new installations and when piping is replaced at existing sites and made accessible at grade. An extractor valve will be accepted on European suction instead of a positive shutoff valve.
- h) Vent lines will be air tested from the tank to grade level at the time of installation. This test will be done at 7 psi minimum or at the pressure recommended by the manufacturer. This test will be performed at the time of the line PAI test.
- i) The application of any material shall not interfere with the normal operation of the shear valves or fusible links, or any equipment installed under dispensers or submersibles.
- j) Any time product piping is installed or broken for repairs, a precision test must be conducted before the piping is put back into service.
- k) Beginning May 1, 2003, the new installation or total upgrade of product piping shall be double-walled for the entire length of that product line, with the exception of European suction.
- l) Any UST that fails to meet the criteria and requirements of Subparts D, E and F shall be removed within 60 days after receipt of a Notice of Violation requiring that removal. Field-constructed tanks and airport hydrant systems shall comply with Subpart I.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.425 UST Wiring Procedures**

- a) Unless otherwise specified in this Section, all wiring at UST locations shall be in accordance with the Edition of NFPA 70 in force at the time of installation of the electrical equipment.
- b) Wiring within 20 feet of tanks and product piping, dispenser pumps or product lines shall be installed in rigid metallic conduit, threaded steel conduit, or any petroleum or product resistant rigid nonmetallic conduit listed and manufacturer-approved for that use. Rigid nonmetallic conduit must have written verification of its approval for petroleum or other product use. The approval must be via manufacturer's certification or third-party listing and must be kept on site and must be submitted with any applicable permit application. Electrical conduit shall maintain at least 6 inches of separation from product piping to avoid damage from abrasion or stray electrical current and shall be routed in compliance with subsection (e) when it becomes necessary to locate electrical wiring in the same trench as product piping.
- c) A minimum of 24 inches of cover is required over all UST wiring conduit. When rigid nonmetallic conduit is used, threaded rigid metal conduit or threaded steel intermediate metal conduit shall be used for the last 2 feet of the underground run to emergence or to the point of connection to the aboveground raceway.
- d) Intrinsically safe wiring shall be in conduit when installed within Class I locations, as specified in NFPA 70. Caution shall be taken when grounding not to impair cathodic protection of metallic tanks or piping.
- e) When locating electrical wiring in the same trench as the product lines, the conduit shall be positioned on either side of the product piping but not above or below the product piping. The electrical conduit shall cross over the top of any product piping whenever a crossover is necessary, unless all connections and fittings in the conduit run are liquid-tight. Any connections and fittings in the electrical conduit where the conduit crosses over or under the product piping shall be a minimum of 10 feet from the point where the conduit crosses the piping. A minimum 6 inch separation shall be maintained at all times, even during a crossover. All crossovers shall be kept to a minimum.
- f) All electrical power shall be shut off at the immediate location where installations, repairs or upgrades are in progress.
- g) All electrical seal-offs are to be properly filled whether being used or for future use.
- h) Beginning October 13, 2018, all electrical conduit run to under-dispenser containment sumps shall enter the sump by going over the top of the side wall of

the containment sump. No penetration of the under-dispenser sump by electrical conduit shall be allowed.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.430 Clearance Required for USTs**

- a) Distance to Basements. No UST shall be less than 20 feet from any basement, cellar, pit or below-grade excavation on or off the property.
- b) Distance to Sewers. Individual tanks and piping shall be buried so that the tops of the tanks and piping are lower than the bottom level of all sewers, manholes, catch-basins, cesspools, septic tanks, septic tank clean out stations, wells or cisterns within 20 feet, on or off the property, or tanks and piping shall maintain a full clearance of 20 feet. The term "sewer" includes sanitary and storm sewer lines out of motor fuel dispensing facilities and bulk facilities. These clearances shall not be required when a sewer line is constructed throughout of petroleum resistant piping.
- c) Distance to Property Lines. Individual tanks shall be at least 20 feet to property lines unless these clearances on the side adjacent to a public street, alley or highway are waived by consent of the authority having immediate jurisdiction over the public street, alley or highway. In the event the clearances to property lines is waived by the consent of the authority having immediate jurisdiction over the public street, alley or highway, the required sewer clearances will be maintained.
- d) Distance to Special Classes of Property. Tanks and dispensers shall maintain a clearance of not less than 300 feet to any mine shaft, air or escape shaft for any mine and 85 feet to any educational, health care or assembly occupancy, as defined in 41 Ill. Adm. Code 100. The distance shall be measured from the nearest points of tanks and pumps to the nearest points of buildings or shafts.
- e) Tanks in service on October 1, 1985 (or after October 1, 1985 if approved by OSFM) may maintain existing underground tank clearances. Basements at motor fuel dispensing facilities existing on October 1, 1985 less than 20 feet from a UST shall be provided with mechanical ventilation. Only non-sparking explosion proof motors and compressors shall be permitted in these basements. Proof of compliance shall be submitted to OSFM.
- f) Except for the 20-foot clearance distance to basements, the clearances required under this Section shall not be required when both tanks and piping are double-walled with interstitial monitoring. For these USTs, the minimum clearance shall

be such as to avoid projecting loads onto underground sewers, utilities and other structures. The clearance must also be sufficient to ensure that site activity does not undermine the UST backfill materials (for example, pea gravel base) for any UST once in place.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.435 Testing of Tanks or Lines**

- a) The use of air or non-inert gases to test underground storage tanks or piping containing, or that have contained, flammable or combustible liquids is prohibited.
- b) Approved tank or line precision testing with inert gases (nitrogen and helium) may be utilized.
- c) Prior to the precision test, preliminary air tests may be used for tanks cleaned and vapor freed for the purposes of testing manway coverplates or gaskets.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.440 Venting of Tanks**

- a) Normal Venting
  - 1) Each tank shall be provided with a separate normal working vent pipe, connected with the top of the tank and carried up to the outer air. Underground manifolding of normal working vents is prohibited. The pipe shall be arranged for proper drainage to the storage tank, and its lower end shall not extend through the top of the tank for a distance of more than one inch; it shall have no traps or pockets. Float vent valve overfill devices are not considered an extension of the standard vent. Manifolded normal vents existing and previously approved by OSFM prior to April 1, 1995 may be left in place, provided that the vents can be shown, by field verification, to comply with OSFM rules at the time of approval.
  - 2) The upper end of the pipe shall be provided with an updraft vent device only, with 40 gauge screening, unless alterations are required by Stage II Vapor Recovery requirements. A pressure vacuum vent will meet this requirement.

- 3) The vent pipe shall be of sufficient cross-sectional area to permit escape of air and vapor during the filling operation and in compliance with NFPA 30, incorporated by reference in 41 Ill. Adm. Code 174.210, and in no case less than 1¼" in diameter. If a power pump is used in filling the storage tank, and a tight connection is made to the fill pipe, the vent pipe shall not be smaller than the fill pipe.
  - 4) The vent pipe shall terminate outside buildings at a point at least one foot above the level of the highest remote fill or any fill from which the tank may be filled, not less than 12 feet above the adjacent ground level and not less than 5 feet, measured vertically and horizontally, from any window or other building opening, such as a basement, cellar, pit, ventilated soffit or air intake of any building, and in a location that will not permit pocketing of vapor or liquid. The vent piping shall project above any canopy fascia no less than 4 feet.
  - 5) No vent piping is allowed inside buildings. Existing vent piping inside buildings may remain if approved, in writing, by OSFM.
  - 6) Adequate collision protection to protect against physical damage shall be provided for vent piping.
  - 7) Hazardous substance tanks shall be vented in accordance with a nationally recognized standard for the substance contained within the tank or as approved by OSFM to be no less protective of human health or the environment.
- b) Special Purpose Vents
- 1) Manifolding of special purpose vents, such as for vapor recovery, is allowed in accordance with NFPA 30.
  - 2) Manifolding of normal working vents aboveground, for the purpose of being tied into a Stage II Recovery System, is allowed providing the following steps are followed:
    - A) Manifolding will be installed no less than 3 feet above grade and no more than 5 feet aboveground.
    - B) Each vent shall be capable of being separated and isolated from the manifold.

- C) Class II and III products cannot be attached to a manifold that includes Class I products.
- D) Final riser shall be of adequate sizing as specified by NFPA 30.

#### **Section 175.445 Fill Pipes**

- a) Fill pipes shall be extended to a location outside of any building, as remote as possible from any doorway or other opening into any building, and in no case closer than 5 feet from any such opening. Remote fills are subject to approval by OSFM, on a case by case basis. Fill pipes for used oil tanks are permissible when located inside buildings.
- b) Location shall be in a place where there is a minimum danger of breakage from trucks or other vehicles and adequate collision protection to protect against physical damage shall be provided.
- c) For new and existing facilities, each fill pipe shall be closed by a gasketed screw cap or other tight fitting gasketed cap of a type that can be locked. It is the responsibility of the owner/operator to maintain the security of the UST.
- d) Each loading pipe or fill pipe riser shall be identified by color code or labeling to indicate the product contained in the tank.
- e) All remote fills installed after May 1, 2003 shall be double-wall and constructed of noncorrosive material or cathodically protected, except for gravity flow waste oil.
- f) After May 1, 2003, any new installation with a remote fill over 20 feet in length shall have interstitial monitoring and an audible and visible overfill alarm. Remote fills shall be sloped back to the tank.
- g) Beginning February 1, 2008, on all new installations where non-metallic piping is used for a remote fill, a grounding station shall be installed and used during delivery.
- h) Except for USTs holding waste oil, all tanks shall be equipped with a drop tube that extends to within 6 inches of the bottom of the tank.

#### **Section 175.450 Pumps, Dispensers and Other Product Transfer Equipment**

- a) Pumps. Petroleum and hazardous substances shall be transferred from tanks by means of fixed pumps designed and equipped to allow control of the flow and to

prevent leakage or accidental discharge. Systems that employ continuous air pressure on storage tanks in connection with gauging or venting devices are prohibited, with the exception of those systems utilized in Stage II Vapor Recovery.

- b) Gravity Flow Prohibitions and Precautions
  - 1) Devices that discharge by gravity are prohibited and were to have been removed by January 1, 1986. The transfer of waste motor oil to or from USTs is not subject to the requirements for transfer by means of fixed pumps. Gravity transfer of waste motor oil is permitted. Gravity devices at motor fuel dispensing facilities, bulk facilities, motor vehicle repair shops and parking garages that are retained for their novelty or historical interest may be retained at the facility, but shall be rendered nonfunctional.
  - 2) Where tanks are at an elevation that produces a gravity head on the dispensing device, the tank outlet shall be equipped with a device, such as a solenoid valve, positioned downstream as close as possible to the tank, installed and adjusted so that liquid cannot flow by gravity from the tank.
- c) Siphon Bars. Siphon bars that are used to transfer petroleum and hazardous substances between tanks by means of gravity or negative atmospheric pressure shall be permitted subject to the following requirements:
  - 1) The height of the tops of all tanks connected by the siphon bars shall be within 6 inches of each other;
  - 2) Piping shall meet the requirements of Section 175.420; and
  - 3) Release detection methods for tanks and piping shall be of a type approved for tanks connected by siphon bars, in accordance with Section 175.630.
- d) Electrical Equipment and Requirements for Pumps and Dispensers. All pumps and dispensing devices for petroleum and hazardous substances and all connected electrical equipment shall be installed in accordance with Section 175.425. Dispenser discharge nozzles shall be constructed of nonferrous material or equipped with static wire hose.
- e) Dispensers. All dispensers shall be required to comply with the following:
  - 1) Under-dispenser Containment. Under-dispenser containment is required pursuant to Section 175.410.

- 2) Labeling. All dispensing devices used for drawing regulated substances from USTs shall be labeled in a conspicuous place with the name of the product.
- 3) Size Limits. With the exception of industrial or fleet facilities with no connection to any UST from which regulated products are sold at retail, dispensers shall not be connected, directly or indirectly, to any tank for which the total of all compartments is over 30,000 gallons capacity.
- 4) Hoses and Reels. Mechanical retractable devices are required on dispenser hoses in excess of 18 feet in length. Hose length on mechanical retractors shall not exceed 50 feet without written approval of OSFM. Detection of any of the following conditions indicates permanent damage and shall require that the hose be replaced with the nozzle immediately bagged if any portion of the hose or nozzle is actively leaking:
  - A) hose cuts, abrasions or cracks in the hose cover that penetrates to the reinforcement;
  - B) blisters or loose cover;
  - C) soft spots in the hose, particularly adjacent to the coupling;
  - D) indication of coupling slippage or irregular coupling alignment; or
  - E) flattened or kinked hose resulting in permanent deformation.
- 5) Third-party Listed Latch-open Devices. When dispensing liquids into motor vehicle fuel tanks, dispenser nozzles shall be either manually held open or may be held open by a latch-open device that is an integral part of the listed nozzle assembly. An automatic self-closing type nozzle with a latch hold open device must be installed as an integral part of the listed nozzle assembly.
- 6) The dispensing nozzle must be an automatic closing type that has been tested and is third party listed for its intended use. Nozzles used to dispense diesel fuel at attended self-service and unattended self-service motor fuel dispensing facilities shall have large-diameter, "leaded" spouts to avoid dispensing diesel fuel into vehicles with gasoline tanks.
- 7) Prohibition on Unapproved Hold-open Devices. Temporary, portable or removable hold-open devices, including, but not limited to, plastic hooks, wires, wood blocks, gas caps and similar devices, shall not be used on

dispenser nozzles. No person shall market, expose for sale, sell or distribute by any means whatsoever, in the State of Illinois, any temporary, portable or readily removable device designed or intended to be used for the purpose of holding open flammable or combustible liquid dispensing nozzles during dispensing operations at motor fuel dispensing facilities.

- 8) Requirements for a Secondary Means of Control. Any dispensing devices from which the flow of product is normally stopped by means other than by the closure of the nozzle valve shall further comply with either of the following:
  - A) The system shall be provided with equipment with a feature that causes or requires the closing of the nozzle valve before product flow may be resumed or before the nozzle can be replaced in its normal position in the dispenser; or
  - B) The nozzle valve latch-open device shall be removed.
- 9) Flow Shutoff
  - A) Hose nozzle valves shall be of the type that will close automatically, independent of the latch-open device, upon loss of pressure in the dispensing system. The latch-open device may only be engaged when the dispensing system is under pressure.
  - B) All dispensing devices shall be equipped with 2 methods of controlling the flow of fuel:
    - i) deactivation of the dispenser; and
    - ii) closing of the hand nozzle or some other secondary means to shut off flow.
  - C) The nozzle must be designed and maintained to cease the flow of product if the nozzle falls to the ground from the fill pipe of the motor vehicle being fueled.
  - D) A listed emergency breakaway device designed to retain liquid on both sides of the breakaway point shall be installed on each hose. If hoses are attached to a hose-retrieving mechanism, the listed emergency breakaway device shall be installed between the point

of attachment of the hose-retrieving mechanism to the hose and the hose nozzle valve.

- E) A control shall be provided that will permit the pump to operate only when a dispensing nozzle is removed from its bracket or normal position with respect to the dispensing device, and the switch on the dispensing device is manually activated. This control shall also stop the pump when all nozzles have been returned, either to their brackets or normal nondispensing position.
- 10) Rebuilt Hose Nozzles. Rebuilt hose nozzles may be used if they are listed for that purpose.
  - 11) Spout Anchor Springs. Nozzles must be equipped with devices (e.g., wire or a spout anchor spring) designed to retain the nozzle spout in the vehicle fill pipe while refueling. These devices must be part of the listed nozzle assembly. The spout anchor spring shall be of the type recommended by the manufacturer of the hose nozzle valve and be installed and maintained in accordance with the manufacturer's recommendations. Vacuum assist and balanced type vapor recovery nozzles prohibited from having wire or spout anchor springs as the result of their design shall be exempt from this requirement.
  - 12) Shear Valve. Pressurized piping systems require a listed rigidly anchored emergency shutoff (shear) valve installed per manufacturer's specifications in each supply line at the base of each individual dispenser. The valve shall incorporate a fusible link or other thermally activated device, designed to close automatically in the event of severe impact or fire exposure.
    - A) In addition to being rigidly anchored to structural supports, each shear valve shall also be:
      - i) Installed so as to align with the dispenser piping to avoid stresses on the connection between the shear valve and the dispenser supply piping;
      - ii) Installed so that the shearpoint of the valve is within ½ inch plus or minus of grade, with grade being the mounting plane of the dispenser base; and
      - iii) Installed so that the link arms can freely operate and the valve close without interference.

- B) After October 13, 2018, any product piping manifolded beneath a dispenser must be manifolded so that each line connecting to dispenser supply piping is on its own separate shear valve.
  - i) Manifolding of piping under a dispenser shall not be done above a shear valve.
  - ii) Piping beneath a dispenser that was manifolded above a shear valve prior to October 13, 2018 may remain in that configuration until the piping is upgraded, provided that any single poppet shear valve beneath the dispenser is replaced with a double poppet shear valve. This shear valve replacement, if indicated, shall be completed by October 13, 2019.
- 13) Collision Protection for Dispensers. All fuel dispensers shall be mounted or protected against collision damage by means of islands, posts or an equivalent means.
- 14) Secure Mounting of Dispensers. Dispensing devices shall be bolted to their mounting surface in accordance with the manufacturer's instructions.
- 15) Under-dispenser containments shall be factory manufactured and shall comply with the design requirements of Section 175.410(i).
- f) Location of Pumps and Dispensers
  - 1) Unless otherwise allowed under this Section or permitted at the time of installation, dispensers and pumps shall be located outside of buildings. Dispenser hoses shall not be able to reach to within 5 feet from any building or window or other building opening, such as a basement, cellar, pit, ventilated soffit or any air intake or exhaust of any building, and must be located to avoid pocketing of vapor or liquid. Dispensers installed after October 1, 1985 shall not be located below grade. A transfer pump is not considered a dispenser and may be located inside a pumphouse or industrial building. Bulk-load outs are not considered dispensing and shall comply with NFPA 30 (see 41 Ill. Adm. Code 174.310).
  - 2) However, detached buildings separated by at least 20 feet from other buildings and used exclusively for fleet dispensing of motor fuels may house dispensers and dispensing equipment for combustible liquids (Class

II and III) so long as the buildings and equipment are in compliance with NFPA 30A, incorporated by reference in 41 Ill. Adm. Code 174.210.

- 3) Indoor dispensing shall otherwise be allowed only if approved by OSFM in writing prior to November 29, 1993 and if the following requirements are met:
  - A) For dispensing units existing prior to September 15, 1978:
    - i) be separated from other areas by 2 hour fire resistive construction;
    - ii) be provided with a mechanical or gravity ventilation system electrically interlocked with the dispensing units so that the dispensing units cannot be operated, unless the ventilation fan motors are energized and operating. The system shall be upgraded to meet NFPA 30A not later than September 1, 2011; and
    - iii) have all openings beneath dispenser enclosures sealed to prevent the flow of leaking fuel to lower building spaces.
  - B) For dispensers existing as of October 1, 1985 and located within repair and parking garages:
    - i) be not below grade;
    - ii) be separated from motor vehicle repair areas, pits and basements by 2 hour fire resistive construction;
    - iii) be protected against physical damage from vehicles by mounting the dispensing unit on a concrete island or by equivalent means;
    - iv) be located in a position where the dispensers and pumps cannot be struck by an out-of-control vehicle descending a ramp or other slope;
    - v) be provided with an approved mechanical or gravity ventilation system, that shall be upgraded to meet NFPA 30A by not later than September 1, 2011; and

- vi) be provided with a clearly identified emergency stop, readily accessible in case of fire or physical damage to any dispensing units to shut off the power to dispensing units and submersible pumps.
- C) Existing dispensing units located below grade in repair and parking garages as of October 1, 1985 shall have independent mechanical ventilation systems and the entire dispensing area shall be protected by an automatic sprinkler system conforming to the requirements of NFPA 13, incorporated by reference in 41 Ill. Adm. Code 174.210. The sprinkler system shall be interconnected to an alarm system conforming to NFPA 72, incorporated by reference in 41 Ill. Adm. Code 174.210, and the sprinkler system shall be a wet system except in unheated areas. Facilities in existence as of September 1, 2011 shall have the option of complying with the Edition of NFPA 72 incorporated by reference in 41 Ill. Adm. Code 174.210 or the NFPA alarm and sprinkler system requirements in effect at the time of their installation.
- i) The ventilation systems shall be electrically interlocked with the gasoline dispensing units so that the dispensing units cannot be operated unless the ventilation fan motors are energized and operating, and shall be upgraded to meet NFPA 30A by not later than September 1, 2011.
  - ii) Existing dispensing units located below grade within buildings shall also comply with subsection (f)(3)(B), as applicable.
- 4) Curb pumps or pumps located in any portion of a public street are prohibited, except that devices at motor fuel dispensing facilities, bulk facilities, vehicle repair garages and parking garages that are retained for their novelty or historical interest may be retained at the facility if rendered nonfunctional.
- 5) Dispensing devices at a motor fuel dispensing facility shall be located 10 feet or more from any property lines or buildings, so that all parts of the vehicle being served will be on the premises of the facility or garage.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.455 USTs Inside or Under Buildings**

- a) The floor level under which a UST is located shall be above grade to prevent the flow of liquids or vapors into buildings, and the floors shall be of concrete or other fire resistant construction.
- b) Beginning April 1, 1995, no buildings or structures shall be constructed on top of any UST, including any heating oil USTs and pre-'74 USTs. Beginning April 1, 1995, no new UST shall be installed under any building. Any existing USTs installed prior to April 1, 1995 that are located under buildings shall be located, with respect to existing building foundations and supports, so that the loads cannot be transmitted to the tank. Beginning April 1, 1995, no existing UST located under a building shall be replaced in a manner that will allow the tank or piping to be located under a building. If a building with a basement, cellar or excavation is removed, the basement, cellar or excavation shall be filled in prior to construction of any new building over the basement, cellar or excavation.
- c) No USTs or dispensers containing motor fuel shall be installed inside buildings, except as authorized under Section 175.450(f).
- d) No underground product piping connecting USTs or dispensers that contain fuel shall be installed or routed under buildings after September 1, 2010, except that used oil UST piping with an inside fill may be permitted with OSFM approval signified on the applicable permit.
- e) If OSFM determines that a release from a UST under a building or structure, including any heating oil UST and pre-'74 UST, poses a current or potential threat to human health and the environment, or any UST, including any heating oil UST and pre-'74 UST, is damaged or found damaged during excavation or other site activity, OSFM may require the UST to be removed.

#### **Section 175.460 Marinas**

- a) Dispensing equipment at marine motor fuel dispensing facilities shall comply with the requirements of Section 175.450(e), with the additions or modifications specified in this Section. Marine motor fuel dispensing facilities shall also comply with Section 175.250.
  - 1) Dispensing devices at marine motor fuel dispensing facilities may be located on open piers, wharves or floating docks, on shore, or on piers of the solid-fill type and shall be located away from other structures to provide room for safe ingress and egress of craft to be fueled.
  - 2) Under-dispenser containment shall be required for dispensers.

- 3) A mechanical return reel shall be required for hose lengths in excess of 18 feet. All hose shall be secured and protected from damage and shall not be permitted to lie in the water or on the ground in a manner that is unprotected from accidental damage.
  - 4) Dispenser nozzles shall be of the automatic closing type; hold-open clips or devices shall not be allowed.
- b) Piping and Shutoff Valves
- 1) Anti-siphon devices such as solenoid valves shall be required when the piping slopes downward from the tank.
  - 2) Floating docks or structures shall require flexible lines from shore to dock. Suitable lengths of approved flexible hose may be employed between the shore piping and the piping on the floating structure, as made necessary by change in water level or shoreline. A breakaway valve shall be installed on shore where the piping approaches the dock or other floating structure. Any product supply line shall have secondary containment, and new installations must be double-wall after April 1, 1995. Flexible connectors shall be required at dock hinge points for rigid primary.
  - 3) All aboveground piping shall have proper hangers or mounts and shall be protected from physical damage.
  - 4) Where stray electrical currents are encountered, piping containing liquids at marine motor fuel dispensing facilities shall be electrically insulated from the shore piping.
  - 5) A readily accessible valve to shut off the product supply from shore shall be provided in each pipeline at or near the approach to the pier and at the shore end of each marine pipeline, adjacent to the point where a flexible hose is attached.
- c) Leak Detection
- 1) All pressurized piping systems shall be equipped with line leak detectors pursuant to Section 175.640.
  - 2) After April 1, 1995, all installations shall have double-wall piping with interstitial monitoring.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.465 Additional Requirements for Installation and Upgrade of USTs**

Installation and upgrade of USTs shall be properly conducted in accordance with 41 Ill. Adm. Code 174 through 176 and manufacturer's recommended procedures and instructions. In addition, the following requirements shall be adhered to:

- a) Excavation for USTs shall be made with due care to avoid undermining of foundations of existing structures.
- b) The UST site shall be prepared to ensure safe movement and installation of equipment and materials. Sloping, benching, stepping or shoring the sides of excavations shall be performed in compliance with OSHA requirements under 29 CFR 1926.
- c) Upon delivery at the installation site, tanks and piping shall be inspected to detect any evidence of damage to coatings or structure.
- d) Upon discovery of any damage to tanks or piping, repairs shall be made in accordance with 41 Ill. Adm. Code 172, 174, 175 and 176 and manufacturer's instructions.
- e) Equipment shall be provided with sufficient lifting capacity to unload and place USTs into the tank excavation. The tank shall be placed in the excavation with care, since dropping or rolling the tank into the excavation can break a weld, puncture or damage the tank, or scrape off the protective coating of coated tanks. Tanks shall not be rolled, dropped or dragged.
- f) Tanks shall be set on firm foundations and surrounded with at least 12 inches of noncorrosive inert material such as clean sand or gravel, well-tamped in place.
- g) USTs shall be installed to safeguard against movement by anchoring or ballasting in accordance with manufacturer's instructions.
- h) Unless otherwise prescribed by the manufacturer's recommended installation procedures, steel tanks shall be covered with a minimum of 3 feet of earth. USTs existing on October 1, 1985 shall be buried so that the tops of the tanks will not be less than 2 feet below the surface of the ground or shall be under at least 12 inches of earth and a slab of reinforced concrete not less than 4 inches in thickness; the slab shall be set on a firm, well-tamped earth foundation and shall extend at least one foot beyond the outline of the tank in all directions. When asphaltic or reinforced paving is used as part of the protection, it shall extend at least one foot horizontally beyond the outline of the tank in all directions.

- i) Tank to tank separation distance shall be a minimum of 24 inches for all tanks installed after May 1, 2003.
- j) There shall be a minimum of 2 manufactured slotted or perforated observation wells of at least 4" diameter installed in each new tank field of tanks larger than 1,000 gallons and one well for 1,000 gallon tanks or less and shall have 2 wells for fields with more than one tank. They shall be placed at opposite ends or opposite corners one foot below the invert elevation of the lowest UST. Lids shall be securely protected against unauthorized activities. Only one well will be required if groundwater flow direction can be proven and that proof is supplied at the time of permitting and the well is then installed in the downstream location.
- k) Metallic tanks and metallic piping shall not be backfilled with cinders or other material of corrosive effect. Corrosion protection shall be provided in accordance with Section 175.510.
- l) Before the final inspection, but after the UST system has been installed, connected, backfilled and covered, tank and line precision testing shall be done on the entire UST system. Passing test results from the tank and line precision tests shall be available for the inspector to verify at the time of the final inspection.
- m) Any work performed in or around the excavation area must stop at sunset unless adequate lighting is provided.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### SUBPART E: CORROSION PROTECTION

##### **Section 175.500 Interior Lining and Lining Inspection of USTs**

- a) **Tank Lining Requirements.** Lining of tanks shall no longer be allowed for all permit applications received on or after January 1, 2011. Existing lined tanks shall be allowed to use lining as a primary method of corrosion protection only if the tanks continue to pass the lining inspections as provided in this Section. Tanks failing to pass the lining inspection criteria will not be allowed to be touched up, repaired, totally relined or put back into use and shall be placed out of service immediately and decommissioned within 60 days after the lining inspection. As an alternative to decommissioning after a tank fails an internal lining inspection, that tank may be upgraded by installing a self-structural tank provided the tank material and installation procedure are third party listed for its intended use, and shall meet all other requirements of OSFM rules. The upgrade shall require submission of an OSFM Upgrade permit application within 60 days

after the failed lining inspection, and the work may only be performed by an OSFM-licensed contractor in accordance with 41 Ill. Adm. Code 172. The permit application shall be accompanied by either a passing tank precision test report or a site assessment report based on soil borings taken around each tank being upgraded. This kind of upgrade shall be designated as an OSI activity that may not proceed without the presence of an STSS on site. If the upgrade permit application is not submitted within 60 days after the failed lining inspection, any tank that failed its lining inspection shall be decommissioned.

- 1) The manufacturers of materials used to line tanks for the storage of petroleum or hazardous substances shall certify compatibility of the lining material with products to be stored by submitting to OSFM data as required by Section A4.6 of NLP 631. Tanks may be lined for purposes of compatibility only. Testing and inspection of linings and lining materials shall meet the specifications and procedures required by NLP 631.
- 2) Interior Lining Procedures. For all permit applications received prior to January 1, 2011, any tank that has not previously been internally lined may be lined only once by following the steps outlined in this Section.
  - A) Tank Entry. Before entering tanks, the procedures described in API 2015, incorporated by reference in 41 Ill. Adm. Code 174.210, shall be complied with. These requirements include checking the oxygen content inside the tank with a properly calibrated oxygen monitor. At all times, personnel entering the tank shall be equipped with positive pressure air supplied equipment with full face enclosure and safety harness connected to a safety line held by an attendant located outside the tank and using a tripod with a mechanical winch adequate to lift the person and equipment working inside the tank. Oil and water resistant rubber or neoprene boots and gloves shall be worn. Clothing shall cover the arms, legs, torso and head of tank entry personnel. Disposable clothing, impervious to product, is preferred. Clothing saturated with product shall be removed immediately upon departure from the tank. Tests with the combustible gas indicator and oxygen monitor shall be performed periodically in the tank to ascertain that the tank vapors and oxygen content are in the safe range. It shall be recognized that if the tank is perforated, product or vapors that have leaked into the soil may re-enter the tank through a perforation. The vent line shall remain clear and unobstructed to allow continuous ventilation. All other lines and openings shall

be plugged or capped off to insure no liquids or vapors may enter the tank during the lining operation.

- B) **Structural Criteria.** Prior to the application of lining, a structural criteria inspection shall be performed and the results of that inspection documented, as to whether the tank or tanks to be lined meet each of the structural criteria to be eligible to be lined pursuant to NLPA 631, and this subsection (a)(2)(B). The records from the structural criteria inspection shall be retained by the owner/operator for the life of the tank. Lining of tanks shall not be allowed if:
- i) The shell or heads are more than 2% out of round;
  - ii) The shell or heads have one or more flat spots that have a cross measurement greater than the radius of the tank endcap;
  - iii) The shell or heads have any dent with a cross measurement greater than the radius of the tank endcap;
  - iv) The shell or heads have any dent that protrudes into the tank a distance greater than one inch for every foot of tank radius;
  - v) The shell or head has any seam split greater than  $\frac{1}{2}$  inch wide or  $\frac{1}{6}$  of the circumference of the tank in length;
  - vi) The unrepaired shell or head thickness is less than 75% of the original tank thickness;
  - vii) The number of perforations, not larger than  $\frac{1}{2}$  inch, per 500 square feet of tank exceeds the limits in Table A10.4.2.4 of NLPA 631; or
  - viii) There are any welded repairs on the inside of the tank.
- C) **Application of Lining.** Prior to the application of lining material, a  $\frac{1}{4}$  inch steel reinforcing plate rolled to the contour of the tank and with minimum dimensions of 8 inches by 8 inches shall be installed under the fill (drop) tube and gauging tube. This plate shall be covered with fiberglass cloth embedded in resin. The blast-cleaned surface shall be coated within 8 hours after blasting and before any

visible rusting occurs. Only those lining materials meeting the specifications in API 1631 and NLP 631 shall be used. Manufacturer's instructions are to be complied with on handling and mixing of resin compounds, and these compounds shall be applied to the entire interior surface of the tank by the manufacturer or the manufacturer's designated distributor following the specified method of application, to the designated thickness and at the recommended application temperature. If a heater is used to accelerate the curing process, all other work which might release flammable vapors shall be halted, and the heating unit shall be attended whenever it is in operation. The coating shall be cured thoroughly to the manufacturer's specifications and checked for air pockets and pinholes using a holiday detector. If any exceptions are found, they shall be repaired to manufacturer's specifications. The contractor shall protect the coated surfaces from contamination by foreign matter. The coating thickness shall be checked with an Elcometer Thickness Gauge or equivalent and tested for hardness using a Barcol Hardness Tester or equivalent to ensure compliance with manufacturer's specifications.

- D) Tank Closing. If a tank has been previously lined and passes its internal inspection, the following may be done in lieu of the manway requirements of subsection (a)(2)(E):
- i) A ¼ inch thick steel cover plate, rolled to the contour of the tank, shall be made to overlap the hole at least 2 inches on each side (e.g., should measure at least 26 inches by 26 inches, if manhole was cut 22 inches by 22 inches);
  - ii) The cover shall be used as a template to locate ¾ inch diameter holes not exceeding 5 inch centers, one inch from the edge of the cover;
  - iii) The cover plate shall be sandblasted to white metal on both sides, and the entire inside surface shall be coated with coating material to act as a gasket;
  - iv) After being bolted to the tank, the cover plate and surrounding tank surface shall be properly sandblasted, coated with coating material and allowed to cure before backfilling the hole;

- E) Tank Closing after Entry Procedures. When a tank is being lined the following shall apply:
    - i) Attach a manway no less than 18 inches in diameter that fits the contour of the tank. This manway shall be surrounded with self-supporting material and be accessible from surface grade.
    - ii) The manway shall be used as a template around which will be located  $\frac{3}{4}$  inch diameter holes, 5 inches apart from center to center, one inch from the edge, and overlapping the entry hole at least 2 inches on each side, or welded in place if soil conditions will allow (no contamination is present). The lining material shall extend into the neck of the manway.
  - F) Tank Lining Shall Conform to NLPA Standard 631. Original field notes documenting that the pre-lining inspection and tank lining application process complied with the requirements of NLPA Standard 631 shall be kept by the owner/operator for the life of the tank.
  - G) Within 5 years after lining, and every 5 years thereafter, the lined tank shall be internally inspected and found to be structurally sound with the lining still performing in accordance with original design specifications. An interior lining inspection permit under Section 175.300 must be obtained to do an internal inspection. The results and data from the lining inspection, including whether the tank passed or failed, shall be kept by the tank owner for the life of the UST. Failed test reports shall be submitted to OSFM by the contractor within 3 days.
- 3) Internal Lining Combined with Cathodic Protection.
- A) For all applications received prior to January 1, 2011, a tank may be upgraded by both internal lining and cathodic protection if:
    - i) The lining is installed in accordance with the requirements of subsection (a)(2) and Section 175.700; and
    - ii) The cathodic protection system meets the requirements of Section 175.400(b)(2) and 175.510.

- B) An interior inspection for an installation of internal lining combined with cathodic protection is required only once, provided the installation of both was completed within 90 days of each other and a structural criteria inspection was performed and documented.
- b) Within 5 years after initial lining or total subsequent lining of a tank, a physical internal inspection shall be performed as follows:
- 1) The procedures for tank lining in subsection (a) shall be followed while entry is made into an existing UST for internal inspection purposes.
  - 2) Once a UST has been entered, a visual inspection of the lining shall be made. The lining shall be visually inspected for obvious evidence of peeling, blistering, surface wrinkling or roughing of the lining material. No repairs of any kind to existing linings will be allowed.
    - A) Testing shall be done to check the thickness of the shell and heads of the tank. The average metal thickness shall be at least 75% of the original tank metal thickness. Ultrasonic testing shall be done in accordance with Chapter B7 of NLP Standard 631.
      - i) Tanks not meeting the wall thickness requirements shall be condemned and not put back into service as referenced in Section B8.1 of NLP 631.
      - ii) No welding or cutting will be allowed inside the tank.
    - B) After a lined tank passes both the visual and the tank wall thickness test, it must be tested for holidays (air pockets) in the lining material. This test shall be performed using a holiday detector with a silicon brush electrode or other acceptable instrument to ensure the integrity of the lining material. The internal inspection holiday test shall be conducted at a rate of at least 100 volts per mil of nominal lining thickness, but in no case less than 12,500 volts or more than 35,000 volts. Tanks needing repairs shall be placed out of service pursuant to subsection (a).
    - C) If all previous testing ensures the integrity of the lining, it shall then be tested for hardness. Lining hardness test shall be performed using a Barcol Hardness Tester or another acceptable instrument to determine that the lining was properly cured when installed or that it has not been affected by the product stored. The overall hardness must meet the lining manufacturer's

specifications for the product stored. In the event that some areas pass the hardness test and other areas fail the hardness test, the tank shall be placed out of service pursuant to subsection (a).

- D) The final test to verify that an existing lining still meets the manufacturer's original specifications shall determine the thickness of the coating. The entire interior tank lining wall surface shall be no less than 100 mils thick with a nominal (i.e., approximate) thickness of 125 mils. If any areas of the existing coating do not meet the 100 mils minimum thickness requirement, the tank shall be placed out of service pursuant to subsection (a).
  - E) Where applicable, interior inspections of lined fiberglass tanks shall be the same as lined steel tanks, except testing will not be required for tank thickness and for holidays in the lining material.
- 3) During the Operational Safety Inspection, the contractor will not be allowed to either cut a new access hole into the tank, nor break open an existing entrance patch until all the required testing equipment is on site. The OSFM inspector must be on site before work may commence.
  - 4) The entrance manhole, hole or patch opening shall be closed and sealed. When a bolted manway is to be installed as a new access opening for future access use, an upgrade permit will be required to make this type of improvement to the tank. No upgrade permit will be required if a manway is installed in conjunction with a lining permit or lining inspection permit, with manholes bolted to the tank top only in conjunction with an inspection, so as not to damage the existing lining.
  - 5) All completed forms required by NLPA 631 shall be kept by the owner for the life of the UST.
  - 6) Every 5 years after the initial 5 year internal inspection, the tank must be reinspected. This can be done by a physical inspection or by another method approved by OSFM.
- c) UST lining and internal inspections shall meet the following OSFM requirements:
- 1) Secure proper permitting and obtain OSI schedule.
  - 2) Contractor shall present to OSFM inspector the OSHA Confined Space Entry permit for this job at the time of tank entry.

- 3) All monitoring equipment shall be maintained according to manufacturer's specifications.
- 4) Establish an exclusion zone, approved by the on-site STSS, within which any ignition source shall be prohibited. The use of spark producing/non-explosion proof equipment is prohibited in the vapor hazard area prior to attaining the LEL/oxygen levels required in subsection (c)(7).
- 5) USTs to be entered shall be isolated from all distribution lines, siphons, manifolds and manifold vent systems.
- 6) Remove all liquids from the tank using explosion proof pumps or hand pumps.
- 7) The tank atmosphere and the excavation area shall be regularly monitored, with a combustible gas indicator, for flammable or combustible vapor concentration. Monitoring of the UST shall be done at 3 levels in the tank: top, middle and bottom. Lower explosive limits (LEL) of 5% or less, or oxygen of 5% or less, shall be attained.
- 8) Except as otherwise provided in this Section, vapor freeing shall be done in accordance with API 1631 Section 2.4, incorporated by reference in 41 Ill. Adm. Code 174.210. Dry ice shall not be allowed as a method of inerting tanks. All inductors and diffusers must use metallic pipe. When vapor freeing the tank with compressed air or using inert gases under pressure, all devices shall be bonded to the tank, and the tank shall be grounded to a separated ground. Except when using liquid nitrogen, when using inert gases, the cylinder shall be equipped with a pressure gauge, so that no more than 5 psi can be discharged into the tank during vapor freeing procedures. To ensure and maintain proper grounding and bonding, the connections shall be tested by the contractor for continuity. This testing shall be done with equipment designed for continuity testing.
- 9) The STSS shall be on site before venting, cutting, cleaning or entry operations may proceed.
- 10) If no access exists, an opening with the minimum dimensions of 18 inches by 18 inches shall be cut in the top of the UST using non-sparking equipment in preparation for a manway. All installed manways must be accessible from surface grade by way of a non-collapsible structure.
- 11) Personal protective equipment shall be in accordance with API 1631.

- 12) Cutting, cleaning and application of lining material shall be done in accordance with manufacturer's specifications and OSFM requirements.
  - 13) For performing internal inspections, once a tank has been reclassified as a non-hazardous confined space, a positive flow of fresh air must be supplied into the tank in lieu of supplied air and continuous monitoring must be performed during the operation
- d) The following testing and records requirements shall apply to all tank lining and lining inspections activity:
- 1) It shall be the responsibility of the lining contractor to have a precision test performed within 3 days after the lining or lining inspection procedure completion and before the tank is put back into use and to submit the results to OSFM within 3 days after a failed test, on forms provided by OSFM (available at <https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>) . This precision test shall be performed any time a UST is entered to install a manway, install a cover plate after lining, do an internal inspection of the tank, or penetrate the tank for any lining or lining inspections purpose.
  - 2) Lining inspections records shall be maintained for the life of the UST, and the most recent inspection record shall be kept on site pursuant to Section 175.650(e). The results and data from the lining inspection, including whether the tank passed or failed, shall be kept by the owner of the tank for the life of the UST.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.510 Corrosion Protection**

In all situations, no matter which method is used to assess the integrity of the tank prior to addition of cathodic protection, the cathodic protection system being field installed in Illinois must be designed by a corrosion expert who is NACE certified in cathodic protection design or by a Licensed Professional Engineer with the state who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks. Those contractors installing the cathodic protection systems in Illinois must be licensed as cathodic protection installers. These contractors must successfully pass the International Code Council (ICC) certification exam module for cathodic protection. An installation/retrofitting ICC certified contractor may install wristband anodes or spike anodes on a flex connector without having a cathodic protection ICC certification.

- a) Cathodic Protection. A tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of 41 Ill. Adm. Code 174 through 176, and the integrity of the tank is ensured using one of the following methods:
- 1) To be suitable for upgrading by cathodic protection, the integrity of the tank must be ensured by one of the following methods:
    - A) For tanks installed for less than 10 years, one of the following requirements applies:
      - i) The tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic protection system. Two tank precision tests must also be conducted that meet the requirements of OSFM precision tank testing. The first precision test shall be conducted prior to the installation of the cathodic protection system. The second precision test shall be conducted between 3 and 6 months following the first operation of the installed cathodic protection system. Both precision tests must indicate tightness of the tanks; or
      - ii) Use of alternative methods approved by OSFM. These acceptable alternative methods are indicated in subsection (a)(1)(B) for tanks that are over 10 years old.
    - B) For tanks installed for more than 10 years, the following methods apply:
      - i) An invasive inspection method that ensures the tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic system. The internal inspection procedures shall follow the requirements of NLPA 631;
      - ii) An invasive remote video camera test is conducted prior to the installation of the cathodic protection system. The video system must be capable of recording a video survey of the interior surface of the tank with a suitable lighting source; or
      - iii) The tanks are assessed for corrosion holes by other methods determined by OSFM, to prevent releases in a

manner that is no less protective of human health and the environment than subsections (a)(1)(B)(i) and (ii).

- 2) OSFM requires a tank integrity assessment even if both cathodic protection and interior lining systems are being installed. If the cathodic protection and interior lining are installed at the same time, only one approved integrity assessment is required. Even if both systems have been installed, OSFM requires routine inspection and maintenance of both systems to continue.
- 3) USTs equipped with both interior lining and cathodic protection (sacrificial anodes or impressed current).
  - A) The following maintenance procedures shall apply:
    - i) Sacrificial anodes must be tested according to the requirements of subsection (f).
    - ii) Impressed current records of operation must be recorded every 30 days and records kept on site for 2 years. The system must be tested annually according to the requirements of subsection (f).
    - iii) As of September 1, 2010, some facilities may exist that had been previously granted an OSFM waiver for the UST lining maintenance requirements based upon original field notes from the initial lining, of an invasive method of initial tank integrity assessment verifying that there were no holes in the tank. For these systems, only the external cathodic protection system must be maintained and tested. This is contingent upon the original field notes being available, and a letter from OSFM existing from that time to verify the waiver was granted.
  - B) For those USTs where a non-invasive tank integrity assessment method was used or if there were any holes present in the tank, regular interior lining inspections must continue as described in Section 175.500.
- b) ACT-100 Tanks Installed with Sacrificial Anodes. Owners of ACT-100 tanks meeting STI F894, incorporated by reference in 41 Ill. Adm. Code 174.210, and able to produce ACT-100 warranty papers may choose the steel-FRP composite

design as a sole method of corrosion protection instead of maintaining the sacrificial anodes.

- c) Upgrades to Combine Internal Lining with Cathodic Protection. For all permit applications received prior to January 1, 2011, a tank may be upgraded by both internal lining and cathodic protection if:
  - 1) The lining is installed in accordance with the requirements of Section 175.500; and
  - 2) The cathodic protection system meets the requirements of Section 175.400(b)(2)(B) and this Section.
- d) Piping Corrosion Protection Requirements. All UST metal product piping that is in contact with backfill, ground or water shall be cathodically protected. All metal risers, vents and fills in contact with backfill, ground or water shall be dielectrically coated. Shrink-wrap or boots are not acceptable as a form of cathodic protection in a water environment.
- e) Wiring of all associated electrical equipment shall conform to the requirements of Section 175.425 and shall also conform to the following requirements:
  - 1) All wiring that is connected to any anode of an impressed current system shall be no less than No. 10 stranded, with jacketing that is suitable for direct burial and that is petroleum or hazard resistant for the product conveyed. Such jacketing is to have a thickness sufficient to cause the wiring to have a diameter of at least  $\frac{5}{16}$  inch. Systems existing prior to May 1, 2003 may remain.
  - 2) All wiring connected to any anode of a sacrificial anode system shall be suitable for direct burial and shall be resistant to petroleum and/or hazardous substances.
  - 3) All structural lead wiring of any cathodic protection system shall be suitable for direct burial and shall be petroleum and/or hazard resistant.
  - 4) For installation of cathodic protection systems to facilities existing prior to May 1, 2003, existing anode wiring may be replaced into existing pavement saw-cuts, provided that the following conditions are met:
    - A) No part of the wiring is less than one inch below the finished pavement surface, and provided that the portion of the saw-cut groove above the wiring is filled with a combination of at least  $\frac{3}{8}$

- inch of backer rod and at least ½ inch of self-leveling caulk suitable as a concrete filler.
- B) Structure lead wiring of impressed current systems shall consist of at least 2 separate leads. Such leads running from the junction box or rectifier to the UST structures must be in separate saw-cuts, jumpering from one UST structure to the next. One lead shall connect to the first structure to be protected and continue on to all structures in the UST. The second lead will connect to the last structure to be protected. Such loop is to ensure that if one lead were to become cut or disconnected, the other lead would ensure the continued connection of the UST structures and the junction box or rectifier.
  - C) All wiring from anodes shall terminate and be identified (as to location per approved site plan), in strategically located junction boxes, placed in and around the protected field. This will facilitate the testing of each anode.
  - D) Any additions or extensions done to the existing network must conform to Section 175.425(a).
- 5) Beginning May 1, 2003 for installation of cathodic protection systems, all wiring running outside of manholes or sumps shall be located at least 12 inches below the finished grade and installed in conduit approved for petroleum and/or hazardous installations.
- f) Operation and Maintenance of Cathodic Protection. Owners or operators of steel USTs with corrosion protection shall comply with the following requirements to ensure that releases due to corrosion are prevented for as long as the UST is used to store regulated substances:
- 1) All corrosion protection systems shall be operated and maintained to continuously provide corrosion protection to the metal components of that portion of the tank and piping that routinely contain regulated substances and are in contact with the ground, backfill or water.
  - 2) All USTs equipped with sacrificial anode or impressed current cathodic protection systems shall be regularly tested and inspected for proper operation, including when being first put into operation, by an OSFM-licensed contractor who has licensure in the cathodic protection module, using an employee who has successfully passed the International Code

Council (ICC) certification exam module for cathodic protection. Such testing shall be in accordance with the following requirements:

- A) Frequency.
  - i) Sacrificial anodes shall be tested every 3 years as long as testing results are -850 millivolts or a higher negative number. In the event testing results do not meet the -850 millivolt requirement, the anodes shall be replaced. This requirement applies to all sacrificial anodes, including wristband and spike anodes.
  - ii) Impressed current systems shall be tested annually as long as testing results are -850 millivolts or a higher negative number. In the event testing results do not meet the -850 millivolt requirement, the impressed current system shall be repaired or upgraded as needed to meet the -850 millivolt requirement.
  - iii) All cathodic protection systems shall be re-tested no less than 24 weeks and no more than 28 weeks from the date of installation or repairs.
- B) Inspection Criteria. The criteria that are used to determine that cathodic protection is adequate as required by this subsection (f)(2)(B) shall be in accordance with NACE SP0285 and SP0169, incorporated by reference in 41 Ill. Adm. Code 174.210. Subject to the technical applicability of these criteria given actual site conditions, one or more of the following criteria shall apply for adequacy of cathodic protection. Cathodic protection shall be repaired or replaced if it fails to meet the standards provided in this subsection (f)(2)(B).
  - i) A negative (cathodic) potential of -850 millivolts or a higher negative number with cathodic protection applied. This potential is measured with respect to a saturated copper/copper sulfate reference electrode contacting the electrolyte.
  - ii) A minimum 100 millivolt of cathodic polarization between the structure and a saturated copper/copper sulfate reference electrode contacting the electrolyte. Such polarization shall be determined from the taking of a valid

"instant-off" test, that, for each testing point, determines the voltage reading at the second drop in voltage following the interruption in cathodic protection being applied, and determines if the voltage reading is at least 100 millivolts higher than either the native reading or any other reading after the structure has had time to depolarize with no cathodic protection applied.

- 3) USTs with impressed current cathodic protection systems shall be inspected every 30 days, to ensure the equipment is running properly.
- 4) For USTs using cathodic protection, records of the operation of the cathodic protection shall be maintained to demonstrate compliance with the performance standards in this Section. These records shall provide the following:
  - A) The results of 6-month testing for sacrificial anode systems must be maintained on site for 2 years;
  - B) All records from the last 2 cathodic protection total system tests by a qualified cathodic protection tester pursuant to a 3-year cycle must be maintained on site;
  - C) Impressed current systems must be inspected every 30 days and reports or a log maintained that shows date of inspection, initials of inspector, hour, volt and amp readings, and power on verification. A minimum of 2 years of records shall be kept on site; and
  - D) The records from the impressed current annual test conducted by an OSFM licensed contractor shall be kept on site for 2 years.
- 5) Alternative methods of corrosion protection may be used if approved in writing by OSFM, provided they are no less protective of human health or the environment.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### SUBPART F: RELEASE DETECTION

##### **Section 175.600 Owner/Operator Spill and Overfill Release Control Responsibilities**

- a) Owners or operators shall ensure that releases due to spilling or overfilling do not occur. The owners or operators shall ensure that the volume available in the tank

is greater than the volume of product to be transferred to the tank before the transfer is made and that the transfer operation is monitored constantly to prevent overfilling and spilling.

- b) Owners or operators shall report, investigate and clean up any spills and overfills in accordance with 41 Ill. Adm. Code 176.300 through 176.350.

### **Section 175.610 General Release Detection Requirements for All USTs**

- a) Owners or operators of new and existing USTs shall provide a method, or combination of methods, of release detection that:
  - 1) Can detect a release from the entire tank and any portion of the connected underground piping that routinely contains product;
  - 2) Is installed, calibrated, operated and maintained in accordance with the manufacturer's instructions, including routine maintenance and service checks for operability or running condition;
  - 3) Meets the performance requirements in Sections 175.630, 175.640 or Subpart I, as applicable. All performance claims and the manner of determining the claims shall be described in writing by the equipment manufacturer or installer. In addition, methods used shall be capable of detecting the leak rate or quantity specified for that method in Section 175.630 and 175.640 with a probability of detection of 0.95 and a probability of false alarm of 0.05. Release detection for tanks and piping permitted on or after February 1, 2008 must also meet the interstitial monitoring requirements indicated in Sections 175.400 and 175.420; and
  - 4) Beginning October 13, 2018, is operated and maintained, and electronic and mechanical components are tested for proper operation, in accordance with manufacturer's instructions or a code of practice developed by a nationally recognized association or independent testing laboratory. As an alternative, another test method may be used that is determined by OSFM to be not less protective of human health and the environment. Before the utilization of any such method, it shall be submitted to OSFM in writing, and OSFM shall issue written approval.
    - A) A test of the proper operation must be performed at installation and at least annually thereafter and, at a minimum, as applicable to the facility, shall cover the following components and criteria:

- i) Automatic tank gauge and other controllers: test alarm; verify system configuration; test battery backup;
  - ii) Probes and sensors: inspect for residual buildup; ensure floats move freely; ensure shaft is not damaged; ensure cables are free of kinks and breaks; test alarm operability and communication with controller;
  - iii) Automatic line leak detector: test operation to meet criteria in Section 175.640(a)(3) by simulating a leak;
  - iv) Vacuum pumps and pressure gauges: ensure proper communication with sensors and controller; and
  - v) Hand-held electronic sampling equipment associated with groundwater and vapor monitoring: ensure proper operation.
- B) All testing and inspections required by this Section shall be performed:
  - i) By an OSFM-licensed contractor that has licensure in the installation/retrofitting or tank and piping tightness testing module; and
  - ii) Using an ICC-certified employee for testing or inspection who is also certified by the manufacturer of the equipment being inspected and any testing equipment being utilized.
- b) All leak detection equipment must be evaluated and be listed in the NWGLDE publication "List of Leak Detection Evaluations for Storage Tank Systems", as referenced in 41 Ill. Adm. Code 174.210, or, may be utilized if approved by OSFM.
- c) When a release detection method operated in accordance with the performance standards in Sections 175.630 and 175.640 or Subpart I indicates a release may have occurred, owners or operators shall notify the Illinois Emergency Management Agency in accordance with 41 Ill. Adm. Code 176.300 through 176.330.
- d) All leak detection equipment installed on a UST, whether required or not, shall be maintained. Self-diagnosing release detection systems may not be used to circumvent any testing required by 41 Ill. Adm. Code 174, 175, 176 or 177.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.620 Release Detection Requirements for Hazardous Substance USTs**

- a) Owners or operators of hazardous substance USTs, permitted prior to February 1, 2008, shall provide release detection that complies with Section 175.610 and 40 CFR 280.42, and shall be designed, constructed and installed to contain regulated substances released from the tank system until they are detected and removed, prevent the release of regulated substances to the environment at any time during the operational life of the UST, and be checked at least every 30 days for evidence of a release. Underground piping shall be equipped with secondary containment as allowed under subsections (a) and (b) and, if under pressure, be equipped with both an automatic line leak detector and interstitial monitoring meeting the requirements of Sections 175.640(a) and 175.630(f) and 40 CFR 280.
- b) The following existing systems installed before February 1, 2008 are allowed:
  - 1) Secondary containment systems with interstitial monitoring meeting the requirements of Section 175.630(f) and capable of detecting a failure from the inner and outer wall.
  - 2) Double-wall tanks which are able to detect the failure of the inner or outer wall.
  - 3) External liners (including vaults) that meet the requirements of 40 CFR 280.42.
  - 4) Other methods of release detection may be used if owners or operators:
    - A) Demonstrate to OSFM that an alternate method can detect a release of the stored substance as effectively as the method allowed in Section 175.630(f); written approval is required from OSFM to use the alternate release detection method before it can be used; and
    - B) Provide written information to OSFM on effective corrective action technologies, health risks and chemical and physical properties of the stored substance, and the characteristics of the UST site.
- c) Hazardous substance USTs permitted on or after February 1, 2008 shall be double-wall and shall have interstitial monitoring in compliance with Section 175.630(f). All pressurized piping shall have automatic line leak detectors.

Hazardous substance USTs shall not be permitted unless all UST components are listed by a nationally recognized independent third party organization as compatible with the product being stored.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.630 Methods of and Requirements for Release Detection for Tanks**

Owners and operators of petroleum USTs shall provide release detection on tanks. Only one approved method of primary release detection is required for each tank although multiple methods are acceptable. If present, secondary release detection systems must be maintained. No method of release detection shall be used unless that method has been approved by OSFM. USTs must be monitored at least every 30 days for releases using one or more of the methods listed below:

- a) **Manual Tank Gauging**
  - 1) Only tanks of 600 gallons or less nominal capacity may use the method described in this subsection (a). All owners or operators using manual tank gauging methods must conduct a monthly reconciliation and maintain those reconciliation records. The requirements for this type of release detection shall adhere to requirements listed in this subsection for the specific tank sizes noted:

#### **Requirements**

<b>Nominal tank capacity</b>	<b>Whether use of manual tank gauging for release detection is allowed</b>	<b>Time limit on use of manual tank gauging for release detection</b>
600 gallons or less	Allowed as sole method of release detection	Allowed indefinitely
601-2,000 gallons	Not allowed	Not allowed
Over 2,000 gallons	Not allowed	Not allowed

- 2) **Standards**

- A) In order to be eligible to continue to use manual tank gauging alone (tanks 600 gallons or less only), the following standards regarding maximum variation between beginning and ending product level measurements shall be adhered to:

**Standards**

<b>Nominal tank capacity</b>	<b>Weekly standard (one test)</b>	<b>Monthly standard (average of 4 tests taken once weekly over a 4- week period)</b>
600 gallons or less	10 gallons	5 gallons

- B) A leak is suspected and subject to the requirements of 41 Ill. Adm. Code 176.300 through 176.360 if the variation between beginning and ending measurements exceeds the weekly or monthly standards as listed in this subsection (a). Weekly inventory records, monthly reconciliation records, and related records shall be maintained for 2 years in order to continue to be eligible to continue to use manual tank gauging.
- 3) Manual tank gauging shall also meet the following requirements:
- A) Tank liquid level measurements are taken at the beginning and ending of a period of at least 36 hours during which no liquid is added to or removed from the tank;
- B) Level measurements are based on an average of 2 consecutive stick readings at both the beginning and ending of the period;
- C) The equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest  $\frac{1}{8}$  inch;
- D) The measurement of any water level in the bottom of the tank is made to the nearest  $\frac{1}{8}$  inch at least once a month; and
- E) All personnel involved in performing manual tank gauging measurements, recordkeeping and related performance must be knowledgeable in that performance and activities.

- 4) Manual tank gauging cannot be used as a method of release detection for any tank that, after passing only a noninvasive tank integrity assessment, was upgraded using the cathodic protection method.
- b) In conjunction with Statistical Inventory Reconciliation (SIR) and any other release detection methods when required, tank precision testing, as approved by OSFM (not a stand-alone method of release detection):
- 1) Tank precision testing (or another test of equivalent performance) shall be capable of detecting a 0.1 gallon per hour leak rate from any portion of the tank that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table. There are 4 types of tank precision testing:
    - A) 100% volumetric overfill;
    - B) Volumetric underfill with an approved ullage test of negative pressure or inert gas as approved by OSFM;
    - C) A negative pressure; or
    - D) Other approved methods, in accordance with subsection (h).
  - 2) In the case of a suspected release, tracer elements and automatic tank gauging (ATG) are not approved methods of tank precision testing.
- c) Automatic Tank Gauging (use of an ATG). ATG equipment that tests for the loss of product and conducts inventory control shall meet the following requirements:
- 1) The automatic product level monitor test can detect a 0.2 gallon per hour leak rate from any portion of the tank that routinely contains product;
  - 2) The ATG must also meet or exceed the performance criteria and requirements found at 40 CFR 280.43(a) and the test must be performed with the system operating in one of the following modes:
    - A) In-tank static testing conducted at least once every 30 days; or
    - B) Continuous in-tank leak detection operating on an uninterrupted basis or operating within a process that allows the system to gather incremental measurements to determine the leak status of the tank at least once every 30 days.

- 3) The ATG must be installed, calibrated and in compliance with the protocol of the third party evaluation;
  - 4) Beginning May 1, 2003, all new or replacement ATG monitors shall be mounted no more than 6 feet from the floor and must remain unobstructed and accessible;
  - 5) All ATG systems must be equipped with printers. If a system has to be retrofitted, a permit will be required. Systems with remote printers will be accepted.
- d) Vapor Monitoring. Testing or monitoring for vapors within the soil gas of the excavation zone shall meet the following requirements:
- 1) The materials used as a backfill are sufficiently porous (e.g., gravel, sand or crushed rock) to readily allow diffusion of vapor from releases into the excavation area;
  - 2) The stored regulated substance or a tracer compound placed in the tank system is sufficiently volatile (e.g., gasoline) to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank;
  - 3) The measurement of vapors by the monitoring device is not rendered inoperative by groundwater, rainfall, soil moisture or other known interferences so that a release could go undetected for more than 30 days;
  - 4) The level of background contamination in the excavation zone will not interfere with the method used to detect releases from the tank;
  - 5) The vapor monitors are designed and operated to detect any significant increase in concentration above the background of the regulated substance stored in the tank system, a component or components of that substance, or a tracer compound placed in the tank system; vapor monitor sensors must be permanently installed in the vapor monitor wells; a monthly inspection of the vapor monitoring system must be made and a log maintained showing the date of inspection, results and initials of the party doing the inspection; all vapor sensors must be tested for functionality by a licensed contractor pursuant to Section 175.610(a)(4) at least once every 3 years and the records kept until the next test;

- 6) In the UST excavation zone, the site is assessed to ensure compliance with the requirements in subsections (d)(1) through (4) and to establish the number and positioning of monitoring wells that will detect releases within the excavation zone from any portion of the tank that routinely contains product. In the event of a confirmed release, this method of release detection may not be used until remediation is complete and a new site assessment is conducted that demonstrates that the vapor monitoring system will meet all criteria, including documentation on the threshold for a release and documentation that background contamination will not interfere with the ability to detect a release. If replacement of the UST system triggers the requirement for double-walled tanks and piping, interstitial monitoring is required. If the owner/operator wishes to combine this form of release detection with groundwater monitoring during seasonal variations, the site assessment must clearly document that use;
  - 7) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering;
  - 8) Vapor monitoring wells shall be of sufficient design to allow vapors to be detected from any portion of the tank being monitored and shall be a minimum of 4 inches in diameter or as approved by OSFM on the applicable permit;
  - 9) An adequate number of vapor monitoring wells shall be provided to ensure that a release can be detected from any portion of the tank. Adequacy of the wells is subject to approval of OSFM on the applicable permit; and
  - 10) Phase out and elimination of vapor monitoring. Except pursuant to Subpart I, no permits for installation of vapor monitoring systems will be issued after October 13, 2018. Except pursuant to Subpart I, this method will no longer be allowed for tanks after October 13, 2023.
- e) Groundwater Monitoring. Testing or monitoring for liquids on the groundwater shall meet the following requirements:
- 1) The regulated substance stored is immiscible in water and has a specific gravity of less than one;
  - 2) Groundwater is never more than 20 feet from the ground surface, the hydraulic conductivity of the soil between the UST and the monitoring wells or devices is not less than 0.01 cm/sec (e.g., the soil should consist of

gravels, coarse to medium sands, coarse silts or other permeable materials), and groundwater shall be present in the groundwater monitoring wells at all times;

- 3) The slotted or perforated portion of the monitoring well casing shall be designed to prevent migration of natural soils or filter pack into the well and to allow entry of regulated substance on the water table into the well under both high and low groundwater conditions;
- 4) Groundwater monitoring wells shall be sealed from the ground surface to the top of the filter pack;
- 5) Monitoring wells or devices intercept the excavation zone or are as close to it as is technically feasible;
- 6) The continuous monitoring devices or manual methods used can detect the presence of at least  $\frac{1}{8}$  inch of free product on top of the groundwater in the monitoring wells.
  - A) The continuous monitoring devices must be fixed sensors mounted permanently inside the well or samples must be taken by a mechanical bailer capable of detecting the presence of at least  $\frac{1}{8}$  inch of free product on top of the groundwater in the monitoring wells.
  - B) Groundwater monitoring must be done monthly and a log of the inspection made showing the date of the inspection, initials of the person conducting the inspection, and results of the well sampling;
- 7) Within and immediately below the UST excavation zone, the site is assessed to ensure compliance with the requirements in subsections (e)(1) through (5) and to establish the number and positioning of monitoring wells or devices that will detect releases from any portion of the tank that routinely contains product. In the event of a confirmed release, this method of release detection may not be used until remediation is complete and a new site assessment is conducted that demonstrates that the groundwater monitoring system will meet all criteria, including documentation on the threshold for a release and documentation that background contamination will not interfere with the ability to detect a release. If replacement of the UST system triggers the requirement for double-walled tanks and piping, interstitial monitoring is required. If the owner/operator wishes to combine this form of release detection with

- vapor monitoring during seasonal variations, the site assessment must clearly document that use;
- 8) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering;
  - 9) As of September 1, 2010, the minimum diameter of newly installed groundwater monitoring wells shall be 8 inches;
  - 10) An adequate number of groundwater monitoring wells shall be provided to ensure that a release can be detected from any portion of the tank based upon the direction of groundwater flow and the tank placement. Adequacy of the wells is subject to approval of OSFM on the applicable permit. Beginning May 1, 2003, an adequate number of monitoring wells shall require a minimum of two 8-inch diameter monitoring wells for the first tank and one additional well for each additional tank installed. The wells will be of manufactured slotted or perforated type. They shall be at opposite ends and corners, one foot below the invert elevations of the lowest UST; and
  - 11) Phase out and elimination of groundwater monitoring. Except pursuant to Subpart I, no permits for installation of groundwater monitoring leak detection systems shall be issued after October 13, 2018. Except pursuant to Subpart I, this method will no longer be allowed for tanks after October 13, 2023.
- f) **Interstitial Monitoring.** Interstitial monitoring between the UST and a secondary barrier immediately around or beneath it, or interstitial monitoring as required by Sections 175.400(a) and 175.420(b) and meeting the requirements of this Section, may be used but only if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product. All tanks permitted on or after February 1, 2008 must be equipped with interstitial monitoring sensors. When required to make tank or piping interstitial monitoring functional, the appropriate containment (e.g., under-dispenser containment, tank containment sumps or junction sumps) shall be installed. All existing interstitial monitoring systems and sensors shall be maintained and, beginning September 8, 2008, may not be removed irrespective of whether the leak detection is secondary or redundant to other forms of leak detection. If the interstitial monitoring is not functional or not operating properly it shall promptly be repaired or replaced and any necessary measures to prevent false positive and false negative readings shall be implemented.

- 1) Interstitial monitoring must also meet one of the following requirements:
  - A) For double-wall USTs, the sampling or testing method can detect a release through the inner wall in any portion of the tank that routinely contains product;
  - B) For USTs existing prior to February 1, 2008 and with a secondary barrier within the excavation zone, the sampling or testing method used can detect a release between the underground storage tank system and the secondary barrier.
    - i) The secondary barrier around or beneath the UST consists of artificially constructed material that is sufficiently thick and impermeable (at least 0.000001 cm/sec for the regulated substance stored) to direct a release to the monitoring point and permit its detection;
    - ii) The barrier is compatible with the regulated substance stored so that a release from the UST will not cause a deterioration of the barrier allowing a release to pass through undetected;
    - iii) For cathodically protected tanks, the secondary barrier shall be installed so that it does not interfere with the proper operation of the cathodic protection system;
    - iv) The groundwater, soil moisture or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days;
    - v) The site is assessed to ensure that the secondary barrier is always above the groundwater and not in a 25-year flood plain unless the barrier and monitoring designs are for use under those conditions;
    - vi) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering; and
    - vii) An adequate number of monitoring wells shall be provided to ensure that a release can be detected from any portion of the tank. Adequacy of the number of the wells is subject to the approval of OSFM.

- C) For tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner, and the liner is compatible with the substance stored.
  - 2) The interstitial monitoring system must be tested every year pursuant to Section 175.610(a)(4) to verify its operation and records from the 2 previous tests must be kept on site, or available within 30 minutes or before OSFM completes its inspection, whichever is later. Testing of the system sensors shall be done in such a way as to verify their function but not damage the sensors. This testing shall be done by a licensed contractor. Interstitial monitoring must also comply with the requirements of Section 175.640.
  - 3) The operability of the interstitial monitoring sensors shall be inspected and verified by the owner/operator every 30 days. Pursuant to Section 175.650(e), records for the previous 2 years must be kept on site or available within 30 minutes or before OSFM completes its inspection, whichever is later.
- g) Statistical Inventory Reconciliation
- 1) Release detection methods based on the application of statistical principles to inventory data must meet the following requirements:
    - A) Report a quantitative result with a calculated leak rate;
    - B) Be capable of detecting a leak rate of 0.2 gallon per hour or a release of 150 gallons within 30 days; and
    - C) Use a threshold that does not exceed one-half the minimum detectible leak rate.
  - 2) The company that uses this method shall provide OSFM a written affirmation that their data collection staff is trained in the data gathering procedures and that only trained staff will be utilized for data collection. Each tank monitored by SIR shall be identified to OSFM in writing within 30 days after the commencement of the monitoring, specifying tank size, product stored, facility location and any other pertinent identification information necessary. SIR data shall be compiled and analyzed once each month to determine if a release has occurred, and the results put into a monthly report that is maintained by the facility.

- 3) SIR methods may only be used in conjunction with tank precision testing conducted annually, starting with the time that SIR is first used. An additional tank precision test pursuant to subsection (b) shall be mandatory if any data analysis indicates a possible release or is inconclusive or indeterminate, or for any test result other than a pass, or when a report is not available for any month of monitoring.
  - 4) The measurement of any water level in the bottom of the tank is made to the nearest  $\frac{1}{8}$  inch at least once a month.
  - 5) New requests to use SIR after May 1, 2003 will no longer be accepted. If SIR is discontinued on a UST, SIR will not be allowed again.
  - 6) After January 1, 2006, SIR may not be used on systems with blending pumps or siphon tanks.
- h) Other Methods. Any other type of release detection method or combination of methods, approved by OSFM, may be used if the owner or operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in subsections (b) through (f). Demonstration of any such method shall be in writing submitted to OSFM. In comparing methods, OSFM shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected. If the method is approved, the owner or operator shall comply with any conditions imposed by OSFM on its use to ensure the protection of human health or the environment. Before the utilization of the method, OSFM shall issue written approval.
- i) One copy of each independent third-party evaluation and its protocol, for the release detection methods in subsections (b), (c), (d), (f), (g), and (h), shall be submitted to OSFM as part of the permit application process. Any deviation from the third-party evaluation shall be submitted to OSFM for approval with the permit application, including, but not limited to, an evaluation by a licensed professional engineer finding that the release detection system as installed meets the performance requirements of 40 CFR 280 and this Part and the performance claims established by the independent third party evaluation and its protocol. For requirements regarding listing of components used with alternative or blended fuels, see Section 175.415.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.640 Methods of and Requirements for Release Detection for Piping**

Owners and operators of petroleum USTs shall provide release detection for all piping containing regulated substances. The release detection must meet the requirements specified in this Section.

- a) Pressurized piping systems shall comply with the following requirements:
  - 1) Every pressurized piping line installed after February 1, 2008 shall be equipped with interstitial monitoring sensors at all piping sumps, dispenser sumps, and piping junction sumps. For installations and replacements after September 1, 2010, these sensors must immediately shut off the submersible turbine pump (STP) supplying that line upon detection of a release, except for USTs serving emergency power generators. Sensors for USTs serving emergency power generators shall trigger a local alarm upon the detection of a release. The automatic shutoff shall be deactivated in any UST serving emergency power generators when that function has been previously installed. Pursuant to Sections 175.630(f) and 175.610(a)(4), all interstitial monitoring sensors shall be tested annually, and the sensors inspected for operability at least once per month and a record of the inspection results generated.
  - 2) All new and existing sump sensors must be installed so as to detect liquid per manufacturer's specifications or, if not specified by the manufacturer, at the lowest point in the sump.
  - 3) Both new and existing pressurized piping installations shall be equipped with automatic line leak detectors. Mechanical and electronic line leak detectors that alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping or triggering an audible or visual alarm may be used only if they detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within one hour, except for USTs serving emergency power generators. All line leak detectors must have a functionality test performed annually pursuant to Section 175.610(a)(4). Self-diagnosing line leak detectors are not alone sufficient to meet the requirement for an annual functionality test. Automatic line leak detectors for USTs serving emergency power generators shall trigger a local alarm upon the detection of a release. Any automatic flow restriction or shutoff shall be deactivated in pressurized piping serving emergency generators when that function has been previously installed.
  - 4) In addition to utilizing automatic line leak detectors, pressurized piping systems shall utilize either line precision testing pursuant to this subsection (a)(4) or monthly monitoring pursuant to subsection (c). Line

precision testing requirements may be met by one of the following methods:

- A) Pressurized lines must have an annual precision test that is capable of detecting a 0.1 gallon per hour leak rate at 1.5 times the operating pressure for 30 minutes. Use of an inert gas to pressurize piping is also acceptable. Use of air to pressurize piping that contains product is prohibited.
  - B) The use of electronic line leak detection that is able to detect a 0.1 gallon per hour leak at 1.5 times the operating pressure in an annual precision test of the line, with the records of the 2 most recent annual precision tests kept on site or available within 30 minutes or before OSFM completes its inspection, whichever is later.
  - C) A method meeting the requirements of the NWGLDE publication "List of Leak Detection Evaluations for Storage Tank Systems", as referenced in 41 Ill. Adm. Code 174.210, or, if unavailable, as approved by OSFM.
  - D) In the case of a suspected release, tracer elements and line testing using the automatic tank gauge (ATG) are not approved methods of line precision testing.
- b) Suction lines and systems must comply with the following requirements:
- 1) American Suction
    - A) For all installations and replacements after September 1, 2010, every American suction piping line shall be equipped with interstitial monitoring sensors at all piping sumps, dispenser sumps and piping junction sumps that will immediately shut off the product supply pump upon the detection of a release, except for USTs serving emergency power generators. Sensors for USTs serving emergency power generators shall trigger a local alarm upon the detection of a release. The automatic shutoff shall be deactivated in any UST serving emergency power generators when that function has been previously installed. All interstitial monitoring sensors shall be tested annually pursuant to the requirements of Sections 175.630(f) and 175.610(a)(4). All interstitial monitoring sensors shall be inspected for operability at

- least once per month and a record of the inspection results generated.
- B) All American suction lines shall be precision tested annually or use a monthly monitoring method as approved by OSFM.
- 2) European suction lines do not require line leak detection or a precision line test if they are designed and constructed to meet the following:
- A) The below grade piping operates at less than atmospheric pressure;
  - B) The below grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;
  - C) Only one check valve is included in each suction line;
  - D) The check valve is located directly below and as close as practical to the suction pump; and
  - E) A method is provided that allows compliance with subsections (b)(2)(B), (C) and (D) to be readily determined as of the time of OSFM inspection.
- 3) Suction systems that do not meet the requirements of subsections (b)(2)(A) through (E) shall be classified as American suction and subject to the requirements for American suction in subsection (b)(1). European suction piping meeting the requirements of subsections (b)(2)(A) through (E) remains subject to requirements for under-dispenser containment pursuant to Section 175.410.
- c) Any of the methods in Section 175.630(d) through (f) and (h) may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances, as approved by OSFM. SIR is not acceptable as a form of line leak detection. Precision testing is not a stand-alone method for line leak detection.
- d) Existing interstitial monitoring systems and sensors shall be maintained and, beginning September 8, 2008, may not be removed irrespective of whether the leak detection is secondary or redundant to other forms of leak detection. If the interstitial monitoring is not functional or not operating properly it shall promptly be repaired or replaced and any necessary measures to prevent false positive and false negative readings shall be implemented.

- e) One copy of an independent third-party evaluation and its protocol for each piping release detection method shall be submitted to OSFM as part of the permit application process. Any deviation from the third-party evaluation shall be submitted to OSFM for approval with the permit application, including but not limited to an evaluation by a licensed professional engineer finding that the release detection system as installed meets the performance requirements of 40 CFR 280 and this Part and the performance claims established by the independent third-party evaluation and its protocol. See also Section 175.415 regarding compatibility with product stored.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.650 Release Detection and Cathodic Protection Recordkeeping**

UST owners or operators shall maintain records in accordance with 41 Ill. Adm. Code 176.430, demonstrating compliance with all applicable Sections of this Subpart F. Unless stated otherwise below, all records shall be maintained for at least the 2 most recent years and shall be kept on site or available within 30 minutes, or before OSFM completes its inspection, whichever is later, via fax, email or other transfer of information. The failure to maintain or produce the records required under this Section may result in OSFM's issuance of a red tag for the tank or tanks at issue pursuant to 41 Ill. Adm. Code 177 indicating non-compliance with the rules of OSFM and prohibiting any further deposit of regulated substances into the tank or tanks subject to a red tag in the event that testing with corresponding documentation is not forthcoming within 60 days. These records shall include the following:

- a) All written performance claims pertaining to any release detection system used and the manner in which these claims have been justified or tested by the equipment manufacturer or installer, shall be maintained for the life of the UST release detection equipment;
- b) The results of any sampling, testing or monitoring conducted or otherwise required shall be maintained for the required 2-year period, except that:
  - 1) The results of annual operation tests conducted in accordance with Section 175.610(a)(4) must be maintained for at least 3 years. At a minimum, the results must list each component tested, indicate whether each component tested meets criteria in Section 175.610(a)(3) or needs to have action taken, and describes any action taken to correct an issue;
  - 2) The results of tank precision testing conducted in accordance with Section 175.630(b) shall be retained until the next test is conducted; and

- 3) The results of tank tightness testing, line tightness testing, and vapor monitoring using a tracer compound placed in the tank system conducted in accordance with Subpart I must be retained until the next test is conducted.
- c) Written documentation of all calibration, maintenance and repair of release detection equipment permanently located on site shall be maintained for 5 years after the date of installation, and thereafter for 3 years after the servicing work is completed. Any schedules of required calibration and maintenance provided by the release detection equipment manufacturer shall be retained for the life of the UST release detection equipment;
- d) All records from the last 2 cathodic protection total system tests by a qualified cathodic protection tester pursuant to a 3-year cycle must be maintained on site; and
- e) At the time of a compliance inspection/audit, the following shall be verified:
  - 1) Corrosion Protection
    - A) Lining inspections records shall be maintained for the life of the UST, and the most recent inspection record shall be kept on site pursuant to Section 175.500(d).
    - B) All corrosion protection records must be maintained for the time periods required under Section 175.510.
  - 2) Tank Leak Detection
    - A) Manual Tank Gauging. Weekly inventory records, monthly reconciliation records, and related records shall be maintained.
    - B) Interstitial Monitoring. Records of interstitial monitoring of tanks and testing of interstitial monitoring systems must be maintained. The records can be from an ATG system showing the interstitial monitor's status (pass/normal/other) on a print out tape or by maintaining a log showing date of inspection, initials of inspector and status of system (pass/normal/other).
    - C) Inventory Control. Inventory control records for airport hydrant systems and field-constructed tanks shall be maintained for 2 years and tightness test records shall be maintained until the next tightness test is conducted.

- D) Automatic Tank Gauge. A print out tape of the tank leak test showing one pass per tank per month must be kept.
  - E) SIR. Annual tank precision test results and monthly SIR monitoring reports shall be maintained. At the commencement of SIR monitoring, a lag time of 60 days is allowed for the compilation of data and the generation of the monthly report for that data.
  - F) Vapor and Groundwater Monitoring. No later than October 13, 2018, records of site assessments under Section 175.630(d) and (e) must be maintained for as long as the methods are used, and shall be redone if found to be missing. Records of site assessments developed after October 13, 2015 must be signed by a professional engineer or professional geologist. A monthly record must be taken on a log showing date of each monthly inspection, results/status (pass or fail), and the initials of the party doing the inspection for each vapor monitoring sensor or groundwater monitoring well with records maintained.
- 3) Line Leak Detection
- A) Unless otherwise indicated in this Part, all line leak detection records, including any required line precision testing results, shall be maintained for a period of at least 2 years.
  - B) Interstitial monitoring records for lines shall comply with the same requirements and be maintained in the same manner as interstitial monitoring for tanks.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### SUBPART G: REPAIRS TO UNDERGROUND STORAGE TANKS AND DEFECTIVE EQUIPMENT

##### **Section 175.700 Repairs Allowed**

Owners and operators of USTs shall ensure that repairs will prevent releases due to structural failure or corrosion as long as the UST is used to store regulated substances. Any hole or penetration made into a tank, including, but not limited to, any bung openings or any entrance way established for interior lining inspection, shall be installed and closed as per this Section.

- a) All repairs to USTs shall be properly conducted in accordance with manufacturer's recommended procedures and a code of practice developed by a nationally recognized association or an independent testing laboratory and 41 Ill. Adm. Code 174 through 176. For repairs involving tank penetration or tank entry, the vapor freeing and inerting procedures and related requirements of Sections 175.500(a) and (c) and 175.830(a) shall be followed. No welding or cutting will be allowed inside the tank in conducting repairs.
- b) Repairs to fiberglass-reinforced plastic tanks shall be made by the manufacturer's authorized representative or a representative of any fiberglass tank manufacturer in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.
- c) Metal pipe sections and fittings that have released product as a result of corrosion or other damage shall be replaced. The entire pipe run shall be replaced upon finding a second corrosion-related piping leak in the wall of the same pipe run. Noncorrodible pipes and fittings may be repaired in accordance with the manufacturer's specifications. All repairs shall comply with the requirements of Section 175.420.
- d) Repairs to secondary containment areas of tanks and piping used for interstitial monitoring must have the secondary containment tested for tightness according to the instructions of the manufacturer of the tanks or piping, or a code of practice developed by a nationally recognized association or independent testing laboratory, prior to being brought back into use and within 30 days following the date of completion of the repair. All other repairs to tanks and piping must be precision tested in accordance with Sections 175.630(b) and 175.640(a)(4) prior to being brought back into use and within 30 days following the date of the completion of the repair, except as provided in subsections (d)(1) through (d)(3) of this Section:
  - 1) The repaired tank is internally inspected in accordance with Section 175.500;
  - 2) The repaired portion of the UST is monitored monthly for releases in accordance with a method specified in Section 175.630(c) through (g); or
  - 3) Another test method is used that is determined by OSFM to be not less protective of human health and the environment than those listed in subsections (d)(1) and (2); before the utilization of any such method, it shall be submitted to OSFM in writing, and OSFM shall issue written approval.

- e) Within 6 months following the repair of any cathodically protected UST system, the cathodic protection system must be tested in accordance with Section 175.510(f) to ensure that it is operating properly.
- f) All repaired spill prevention equipment and all repaired containment sumps shall be tested for being liquid-tight before being put back into operation. All repaired overfill prevention equipment shall be inspected before being put back into operation to insure it is operating properly. The testing or inspection described in this subsection shall be done according to the respective requirements of Sections 175.405 and 175.410.
- g) UST owners or operators shall maintain records of each repair for the remaining operating life of the UST that demonstrate compliance with the requirements of this Section. The last 2 years of records shall be retained on site.
- h) All materials used to make necessary repairs shall comply with Subpart D of this Part.
- i) When a tank is determined to be leaking, it can be permanently abandoned-in-place (subject to Section 175.840), removed (subject to Section 175.830), replaced (subject to Section 175.Subpart D) or repaired (subject to this Section).
- j) Removal or abandonment-in-place of a leaking tank shall be in compliance with Sections 175.830 and 175.840. Leaking piping shall be removed or abandoned-in-place in compliance with these Sections.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.710 Emergency Repairs**

- a) An emergency consists of a defect in a UST that is causing or threatens to cause harm to human health or the environment, or presents a threat to fire safety, and contact of the regulated substance with the defect cannot be prevented. In the event of a release, release reporting, investigation and initial response shall be conducted pursuant to 41 Ill. Adm. Code 174, 175 and 176. All emergency repairs shall meet the requirements of Section 175.700 and require a permit applied for after-the-fact on the next business day and require a final inspection scheduled pursuant to Section 175.320 within 10 days after issuance of the permit. A UST contractor portal for the on-line submission of permit applications and the scheduling of permitted work can be found at <https://webapps.sfm.illinois.gov/USTPortal>.

- b) If minor or temporary repairs are required to correct the defect, only the defective area can be repaired.
- c) Economic loss or the threat of economic loss does not constitute an emergency.
- d) Minor or temporary repairs, as a result of an emergency, to tanks or piping may begin on weekends, holidays and after business hours, when the repairs would otherwise require a permit prior to being performed. Permit applications are required for this UST activity and shall be submitted to OSFM after-the-fact, on the next business day. All repairs shall be inspected and precision tested in accordance with Sections 175.630(b) and 175.640(a)(4) prior to the repaired UST being put back into operation and within 30 days following the completion of the repair, unless otherwise directed by OSFM.
- e) When the emergency prompting the need for repairs occurs on a business day, the contractor shall obtain authorization to proceed with the emergency repair by submitting an electronic Emergency Repair Request on-line or by calling OSFM. After obtaining authorization, the contractor shall apply for a permit on the next business day. A UST contractor portal for the on-line submission of an Emergency Repair Request and permit applications and other forms can be found at the website in subsection (a).
- f) Repairs completed in violation of 41 Ill. Adm. Code 172, 174, 175, 176 and 177 may be required to be removed, exposed or replaced at the discretion of OSFM.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.720 Defective or Non-Compliant Equipment and Emergency Action by OSFM**

- a) Pursuant to Section 6 of the Gasoline Storage Act [430 ILCS 15/6], whenever necessary or appropriate to assure that the public health or safety is not threatened, OSFM shall have the authority to undertake emergency action whenever there is a release or substantial threat of a release of petroleum or regulated substances from a UST.
- b) Failed tank or line precision tests and defective tank or piping leak detection equipment will require that particular tank system to be shut down until repaired and functioning properly. Another approved method of leak detection may be implemented if approved by OSFM on an interim basis.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**SUBPART H: REMOVAL, ABANDONMENT AND CHANGE-IN-SERVICE****Section 175.800 Removal, Abandonment-in-Place or Change-in-Service Records**

Owners or operators shall maintain records in accordance with 41 Ill. Adm. Code 176.430 that are capable of demonstrating compliance with removal, abandonment-in-place or change-in-service requirements under all applicable Sections of this Subpart H. The results of the excavation zone or other assessment required in 41 Ill. Adm. Code 176.360 shall be maintained for the time period specified in 41 Ill. Adm. Code 176.330 following completion of a removal, abandonment-in-place or change-in-service in one of the following ways:

- a) By the owners or operators who took the UST out of service;
- b) By the current owners or operators of the UST site; or
- c) By mailing these records to OSFM if they cannot be maintained at the facility where the tank has been removed.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.810 Temporary Closure**

- a) USTs may be put into a temporary closure status provided they meet the performance standards for new UST systems or the upgrading requirements specified in 41 Ill. Adm. Code 174 through 176 and 40 CFR 280, except that spill and overfill prevention equipment requirements do not have to be met. The USTs may continue in a temporary closure status for a period of 5 years from the date of last use provided they meet the following requirements:
  - 1) The tank and product lines shall be emptied immediately upon placing the UST in a temporary closure status. The UST is empty when all materials have been removed using commonly employed practices so that no more than 2.5 centimeters (one inch) of residue, or 0.3% by weight of the total capacity of the UST system, remain in the system.
  - 2) Pursuant to Sections 175.500 and 175.510, all corrosion protection shall be maintained and operational for all tanks and lines, and tested as required, to include flex/pipe connectors. This will include any monthly logs that need to be maintained.
  - 3) OSFM must receive a written request, within 30 days after the date the tank was last used, requesting temporary closure status. The request shall be submitted on a Notification for Underground Storage Tanks on OSFM forms (available at

<https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>).

- 4) Vent lines shall be left open and functioning.
  - 5) Within 7 days, the owner/operator shall cap and secure all product lines and secure all pumps, manways and ancillary equipment.
  - 6) Subject to all other applicable OSFM requirements, a UST may be put back in operation any time during the first 12 months, without meeting the requirements of subsection (d), subject to the requirement that OSFM be notified in writing on the Notification for Underground Storage Tanks form at least 10 days prior to operation.
- b) Failure to maintain corrosion protection at any point during the remaining 4-year temporary closure period referenced in subsection (d) shall require the removal of the USTs.
- c) Failure to empty tanks in temporary closure shall require the owner to remove all contents to less than an inch before proceeding with bringing the tanks back into service.
- d) Systems that have been out of use for over one year but less than 5 years may be put back in service provided that the following additional requirements are met:
- 1) Tanks and lines shall be precision tested and proven sufficient.
  - 2) Tank and line release detection is tested and proven operational.
  - 3) Cathodic protection is tested and proven sufficient.
  - 4) A site assessment is conducted prior to bringing the UST back into service.
  - 5) All tests referenced in subsections (d)(1) through (d)(3) must be performed not more than 90 days and not less than 30 days before placing the tank back in service and submitted to OSFM at least 10 days prior to reopening so that a certification audit can be performed.
  - 6) Prior to a tank being put back in service, all requirements for return to service must be met, and all testing and inspections passed, and a Notification for Underground Storage Tanks Form placing the tanks "Currently in Use" must be submitted.

- e) Single-wall USTs over 30 years old that have been in temporary closure, formerly known as out-of-service, more than one year shall be removed rather than placed back into service.
- f) If a UST is not placed back into service within 5 years from the date of last use, the tank system shall be removed within 60 days after the conclusion of the 5-year period.
- g) USTs with double-walled tanks and piping equipped with interstitial monitoring shall not be subject to the 5-year limit during the period the tank manufacturer's warranty is in place if all of the following requirements are met:
  - 1) Corrosion protection has been and continues to be maintained;
  - 2) A site assessment under Section 176.330 has been performed;
  - 3) Any UST components found to be defective are replaced in the 45 days prior to any return to active use; and
  - 4) All requirements for return to use under subsection (d) and this Section are met.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.820 Change-in-Service of USTs**

- a) From a Regulated Substance to a Non-Regulated Substance. Continued use of a UST to store a non-regulated substance (so that it is no longer classified as a UST) is considered a change-in-service. Before a change-in-service, owners or operators shall empty and clean the tank by removing all liquid and accumulated sludge and conduct a site assessment. The minimum requirements for the site assessment will be the procedures and requirements of 41 Ill. Adm. Code 176.330. However, a change-in-service may only occur during the first 2 years, commencing with the date of installation of the tank. A tank system classified as a UST may not be re-classified as being a non-UST unless there has been a change-in-service as provided in this Section.
- b) From a Regulated Substance to a Regulated Substance. A change-in-service also consists of a conversion of a petroleum UST to a non-compatible petroleum UST or a hazardous substance UST to a non-compatible hazardous substance UST or a petroleum UST to a hazardous substance UST and vice versa. Before a change-in-service, owners or operators shall empty and clean the tank by

removing all liquid and accumulated sludge in accordance with the requirements of Sections 175.500(a) and (c) and 175.830(a), including API 2015, incorporated by reference in 41 Ill. Adm. Code 174.210. The owner or operator shall verify that the UST meets the requirements of a hazardous material system if being changed over to a hazardous material substance, including requirements for secondary containment with interstitial monitoring after December 22, 1998. (See Section 175.415 regarding when an existing UST is converted to a blended or alternative fuel.)

- c) From a Non-Regulated Substance to a Regulated Substance. A non-UST, which is used to store a non-regulated substance, may not be converted to a UST unless the tank has been re-certified and is in compliance with all applicable upgrade requirements for newly installed USTs. A waste oil tank that is supplying fuel to a waste oil furnace and is taken out of service shall be no longer classified as a heating oil tank. If the tank does not meet all upgrade requirements for release detection, spill, overfill and corrosion protection, the tank shall be removed.
- d) For all activity related to a change-in-service, the equipment must be compatible with the product being stored and notification of change-in-service must be submitted on the Notification for Underground Storage Tanks form (available at <https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>) to OSFM not less than 30 days prior to the change-in-service.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### **Section 175.830 Removal of USTs**

- a) For tank removals, the following requirements and procedures shall be followed:
  - 1) Compliance with subsections (a)(2) through (a)(18) is the responsibility of the contractor.
  - 2) Except as otherwise provided in this Section, the procedures of API 1604, incorporated by reference in 41 Ill. Adm. Code 174.210, shall be followed for vapor freeing and inerting procedures.
  - 3) Secure proper permitting and schedule removal date with OSFM. A new permit and fee will be required when there is a failure to meet the Date Certain schedule established under Section 175.320, including not showing for the inspection, not being completely ready for the inspection, allowing the permit to expire before the inspection, or not cancelling the

job before 6:00 a.m. the morning of the scheduled activity. (See Section 175.300 for additional permit requirements.)

- 4) Maintain all combustible gas indicator equipment according to manufacturer's specifications.
- 5) Establish an exclusion zone within which smoking is prohibited, which shall include all hazardous (classified) locations/areas where work related to removal is being conducted. The use of spark producing/non-explosion proof equipment is prohibited in the vapor hazard area prior to removal of product and sludges and attaining the lower explosive limit (LEL)/oxygen levels required in subsection (a)(9).
- 6) Excavate to the top of the tank. Drain product from piping into the tank or into approved drums, being careful to avoid any spillage to the excavation area. Safely disconnect product piping from the tank, and remove the piping. Pipe trenches shall remain open for inspection by an OSFM Storage Tank Safety Specialist (STSS). Further excavation below the top of the tank is not allowed until STSS has verified that tank conditions meet the LEL/oxygen criteria of subsection (a)(9).
- 7) Remove all liquids from the tank using explosion-proof pumps or hand pumps. When suctioning product out of tanks, plastic pipes shall not be allowed as a suction tube.
- 8) Regularly monitor the tank atmosphere and the excavation area with a combustible gas indicator for flammable or combustible vapor concentration until the tank is removed from both the excavation and the site. Monitoring the UST shall be done at 3 levels in the tank: top, middle and bottom. A confined space entry permit shall be obtained prior to tank entry and Safety Data Sheets (SDS) must be on site.
- 9) Regularly monitor the tank to insure explosive conditions do not exist. A maximum of 5% of the LEL, or 5% or less oxygen concentration, shall be attained before the tank is considered safe for removal, instead of 10%, as required in the API 1604. Dry ice shall not be allowed as a method of inerting tanks as referred to in API 1604.
- 10) Bond all devices to the tank and ground the tank to a separate ground when vapor freeing the tank with compressed air or using inert gases under pressure. When using inert gases the cylinder shall be equipped with a pressure gauge, so that no more than 5 psi can be discharged into the tank during vapor freeing procedures. To ensure and maintain proper

grounding and bonding, the connections shall be tested by the contractor for continuity. This testing shall be done with equipment designed for continuity testing. When vapor freeing of tanks, plastic pipes shall not be allowed as a vent tube on eductors.

- 11) Plug and cap all accessible tank holes. One plug should have an 1/8 inch vent hole.
- 12) Excavate around the tank to prepare for removal. This shall include excavation along one side and one end, from top to bottom.
- 13) A STSS shall be on site before hot work can proceed.
- 14) With STSS on site, remove tank from the ground. Equipment with sufficient lifting capacity shall be used to lift the tank from the excavation and must be rated as appropriate for the particular site and excavation.
- 15) Protective Equipment and Tank Cleaning Requirements
  - A) Cleaning procedures shall be in accordance with API 2015, incorporated by reference in 41 Ill. Adm. Code 174.210. Personal protection requirements for tank cleaning personnel shall, at a minimum, include the following:
    - i) protective respiratory equipment for tank cleaning personnel shall be the type that provides supplied positive air pressure to a full-face mask throughout the breathing cycle during all cleaning operations, in accordance with API 2015;
    - ii) level B personal protective equipment with body harness and tag line;
    - iii) protective booties;
    - iv) continual monitoring of LEL and oxygen during cleaning; and
    - v) attendant/observer.
  - B) Requirements in subsection (a)(15)(A) shall not apply in the event that no physical entry is made into the tank.

- 16) Any UST removed from the excavation zone shall be properly cleaned on site the day of the removal and removed from the site within 24 hours.
  - 17) Tanks larger than 2,000 gallons in capacity shall have holes or openings no less than 3 feet x 3 feet, one on each end or side, for cleaning. Tanks less than 2,000 gallons capacity shall have one entire side removed from end to end and shall be no less than 3 feet wide.
  - 18) The use of spark producing/non-explosion proof equipment is prohibited in the vapor hazard area prior to attaining the LEL/oxygen levels required in subsection (a)(9).
  - 19) The tank owner must submit an amended Notification for Underground Storage Tanks on OSFM forms (available at <https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>) to OSFM within 30 days after the tank removal.
  - 20) If an STSS has observed evidence of a release, the owner, operator or designated representative of the UST owner/operator must notify the Illinois Emergency Management Agency. This is to be done at the site immediately following the field determination and the incident number shall be given to the STSS prior to his/her leaving the site.
  - 21) All removals require a site assessment pursuant to 41 Ill. Adm. Code 176.330.
  - 22) Any tank being removed without an OSFM permit will be required to be put back in the excavation and vented to 12 feet above grade if it has not been removed from the site and covered with backfill until a permit and licensed contractor can remove it properly.
- b) Bunker Tanks
- 1) A commercial heating oil or emergency power generator tank situated below grade, in a basement, on a floor, and enclosed in a masonry wall structure, with the tank completely or partially covered by sand, or otherwise not fully accessible to inspection, commonly referred to as a "bunker tank", meets the definition of a UST (see 41 Ill. Adm. Code 174.100). Removal of a bunker tank shall require the owner or operator to hire a licensed decommissioning contractor to secure proper permitting and schedule the removal pursuant to Section 175.320.

- 2) That section of the enclosing masonry partition wall that is not part of the building's basement exterior wall will need to be dismantled, and all sand within the enclosure removed. Both masonry rubble and sand from the enclosure will be hauled off as special waste under manifest by a licensed waste hauler (see 35 Ill. Adm. Code 808 and 809).
- 3) The exposed tank will be emptied as much as possible of any residual liquids, and the area will be monitored for vapors, and ventilation provided as needed to maintain LELs of 5% or less. No further work on the tank removal will be allowed unless the STSS is on site.
- 4) With the STSS on site and LELs at a maximum of 5%, the tank will be accessed for cleaning. Tanks larger than 2,000 gallons in capacity shall have holes or openings no less than 3 feet x 3 feet, one on each end or side, for cleaning. Tanks less than 2,000 gallons capacity shall have one entire side removed from end to end and shall be no less than 3 feet wide.
- 5) Once cleaned, the tank will be cut up on site, the pieces removed from the building, and all parts of the tank scrapped.
- 6) Once the enclosure wall, sand and tank have been properly removed, the area where the bunker tank had been will be evaluated under the direction of the STSS on site.
  - A) For bunker tanks, soil sampling and a site assessment will be required if either of the following conditions are found:
    - i) Evidence indicating product may have migrated from the bunker tank to the environment beyond the floor or walls of the building it was located within, such as finding free product in a drain; or
    - ii) Evidence is seen of both leakage of product on the floor or building wall where the bunker tank was located, and the area of floor or wall associated with evidence of leakage of product from the bunker tank is deteriorated or cracked such that there is a possibility of the product having migrated beyond the enclosure confines.
  - B) In the event that any of the conditions described in subsection (b)(6)(A)(i) or (ii) are found, samples will be obtained from soil borings from beneath the floor or from outside the wall from areas where contamination is most likely to be present, based on the

- evidence discovered. Samples will be submitted for analysis, and a release shall be reported if indicated.
- C) In the event that none of the conditions described in subsection (b)(6)(A)(i) or (ii) are found, no samples from soil borings will be required, and no incident shall be reported.
  - D) The STSS on site will clearly document his/her observations under "Remarks" on the Log of Removal, noting whether any of the conditions listed in subsections (b)(6)(A)(i) and (ii) were present.
- 7) In addition to submitting the OSFM Site Assessment Results Report form, the following supplemental documentation shall also be submitted to OSFM to properly close the removal of a bunker tank. The form is available at the website cited in subsection (a)(19).
- A) If there is "Contamination" being reported:
    - i) The report from the lab, including analytical results derived from the soil samples showing locations of the samples taken, shall be attached to the OSFM Site Assessment Results Report;
    - ii) The OSFM form indicating "Contamination" shall be signed by a Professional Engineer or a Professional Geologist;
    - iii) The IEMA Incident Number from the release report shall be recorded on the OSFM form; and
    - iv) The box indicating "Bunker Tank" shall be marked on the OSFM form.
  - B) If there is "No Contamination" being reported:
    - i) A letter from the contractor shall be submitted, attesting to the proper handling of the debris generated by the removal and a description of the condition of the floor and building walls of the former enclosure (see subsection (b)(6)(A)(ii));
    - ii) A copy of the hauler's manifests for the sand and masonry rubble shall be submitted;

- iii) The box indicating "Bunker Tank" shall be marked on the form; and
  - iv) The OSFM form indicating "No Contamination" shall be submitted, and may be signed by the property owner.
- c) Disposal of Tanks
  - 1) If a tank is to be scrapped as junk, it shall be retested for combustible or flammable vapors and, if necessary, rendered gas free.
  - 2) If the tank last contained leaded gasoline, an unknown petroleum product or a hazardous substance, it may only be scrapped or junked, recertified, or discarded at a special waste or hazardous waste landfill as designated by Illinois EPA regulations. If tanks are being re-certified, the contractor must give written notice to OSFM on the removal permit as to the intent to re-certify and re-use the tanks being removed. The re-certified tank must be re-installed within 6 months from removal.
  - 3) Removed tanks may not be reused for any purpose other than those allowed by OSFM rules (proper disposal at an approved landfill, scrapped or junked after proper cleaning, or recertified pursuant to OSFM rules).
  - 4) Compliance with this subsection (c) is the responsibility of the contractor.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

#### **Section 175.840 Abandonment-in-Place**

- a) No tank or piping may be abandoned-in-place unless the permit applicant demonstrates eligibility for a waiver of the removal requirement for the tank and/or piping. The waiver shall be granted only in the following instances:
  - 1) it would be infeasible to remove the UST due to loss of adjacent or subjacent support of nearby structures, such as railroad tracks, streets (as defined in Section 1-201 of the Illinois Vehicle Code [625 ILCS 5/1-201]), and other USTs;
  - 2) removal is infeasible because of inaccessibility, as determined by OSFM; or

- 3) in unusual situations in which removal is infeasible due to other reasons, as determined by OSFM.
- b) In the event there is a delegation of authority to the City of Chicago to enforce UST rules and regulations, pursuant to the Gasoline Storage Act [430 ILCS 15/2], subject to the terms of such agreement, the City has the authority to modify subsection (d) of this Section, to issue permits to abandon in-place USTs located within the jurisdiction of the City and request records of abandonment-in-place; however, any criteria for abandonment-in-place shall be as stringent as that of OSFM. Tanks, inside the jurisdiction of the City of Chicago, which were abandoned-in-place prior to July 28, 1989 (the date of repeal of home rule by the City over USTs) in accordance with City laws, regulations or ordinances, need not be removed so long as a condition under subsection (a) allowing abandonment continues to exist.
- c) Tanks, outside the jurisdiction of the City of Chicago, filled with inert material, as described in subsection (d)(13), prior to October 1, 1985, need not be removed so long as a condition under subsection (a) allowing abandonment exists; however, the owners shall provide documentation of fill material and date of fill, upon request by OSFM. The documentation shall be a receipt or a written statement from the contractor who did the fill, a statement from the inspector who inspected the tank or a written statement from anyone designated by the State Fire Marshal or the Director of the Division of Petroleum and Chemical Safety.
- d) For UST abandonment-in-place, the following requirements and procedures shall be followed:
  - 1) An OSFM permit under Section 175.300 shall be obtained and the work scheduled with OSFM.
  - 2) Except as otherwise provided in this Section, the procedures of API 1604 shall be followed for vapor freeing and inerting procedures.
  - 3) All health and safety monitoring equipment shall be maintained according to manufacturer's specifications.
  - 4) An exclusion zone shall be established, within which smoking is prohibited. The exclusion zone shall include all hazardous (classified) locations/areas where work related to abandonment-in-place is being conducted. The use of spark producing/non-explosion proof equipment is prohibited in the vapor hazard area prior to removal of product and sludges and attaining the LEL/oxygen levels required in subsection (d)(9).

- 5) Upon excavating to the top of the tank, on-site personnel shall drain product into approved drums or other approved receptacles and remove all piping except the vent line. Any associated piping to be abandoned-in-place shall be properly secured or capped and have prior approval by OSFM. Pipe trenches shall remain open for inspection by OSFM Storage Tank Safety Specialist (STSS). Further excavation below the top of the tank is not allowed until STSS is present and has verified that tank conditions meet the LEL/oxygen criteria of subsection (d)(9).
- 6) All liquids shall be removed from the tank using explosion-proof pumps or hand pumps.
- 7) The tank atmosphere and the excavation area shall be regularly monitored with a combustible gas indicator for flammable or combustible vapor concentration. Monitoring the UST shall be done at 3 levels in the tank: top, middle and bottom. A confined space entry permit shall be obtained prior to tank entry and SDS must be on site.
- 8) Vapor freeing shall be done in accordance with API 1604, except that dry ice shall not be allowed as a method of inerting tanks. When vapor freeing the tank with compressed air or using inert gases under pressure, all devices shall be bonded to the tank and the tank shall be grounded to a separate ground. When using inert gases, the cylinder shall be equipped with a pressure gauge so that no more than 5 psi can be discharged into the tank during vapor freeing procedures. To ensure and maintain proper grounding and bonding, the connections shall be tested by the contractor for continuity. This testing shall be done with equipment designed for continuity testing. When vapor freeing a tank, plastic pipes shall not be allowed as a vent tube on eductors.
- 9) The tank shall be regularly monitored to insure that explosive conditions do not exist. A maximum of 5% of the LEL, or 5% or less oxygen concentration, shall be attained before the tank is considered safe for abandonment.
- 10) An STSS shall be on site before hot work can proceed.
- 11) A sufficient number of holes or openings shall be made in the tank for abandonment-in-place procedures if existing openings are not adequate.
- 12) Cleaning procedures shall be in accordance with API 2015, incorporated by reference in 41 Ill. Adm. Code 174.210. Protective respiratory

equipment for tank cleaning personnel shall be the type that provides positive air pressure to a full-face mask throughout the breathing cycle, in accordance with API 2015.

- 13) After cleaning, on-site personnel shall proceed to introduce an OSFM-approved, inert material through openings in the top of the tank to minimize any surface settling subsequent to abandonment of the tank in place. Allowed inert material shall be limited to sand, gravel, clay, bentonite or inert material mixed with portland cement to increase flowability. The portland cement concentration may not exceed 50 lbs. per cubic yard of mixed material. Any other materials must be approved by OSFM during the permit process. The procedure for filling shall be in accordance with API 1604.
  - 14) After the tank is filled with inert material, all tank openings shall be plugged or capped unless it was necessary to cut open the tank top. The vent line shall be disconnected, capped and removed.
  - 15) The tank owner must submit an amended Notification for Underground Storage Tanks on OSFM forms (available at <https://www2.illinois.gov/sites/sfm/About/Divisions/Petroleum-Chemical-Safety/Pages/Applications-and-Forms.aspx>) to OSFM within 30 days after the abandonment-in-place.
  - 16) If an STSS has observed evidence of a release, the owner, operator or designated representative of the UST owner/operator must notify IEMA. This is to be done at the site immediately following the field determination and the incident number shall be given to the STSS prior to his/her leaving the site.
  - 17) Every abandonment-in-place requires a site assessment (see 41 Ill. Adm. Code 176.330).
  - 18) When a UST is abandoned-in-place, the owner of the UST shall keep a permanent record of the UST location, the date of abandonment-in-place and the procedure used for abandonment-in-place.
- e) When a UST is allowed to be abandoned-in-place, as specified in this Section, the abandoned-in-place UST shall be removed when the condition for issuing the abandonment permit no longer exists. The removal procedures shall be followed and a removal permit is required.

- f) Compliance with subsections (d)(1) through (d)(14) is the responsibility of the contractor.

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**SUBPART I: UST SYSTEMS WITH FIELD-CONSTRUCTED TANKS AND  
AIRPORT HYDRANT FUEL DISTRIBUTION SYSTEMS**

**Section 175.900 General Requirements**

- a) Implementation of requirements. Owners and operators must comply with the requirements of this Part for UST systems with field-constructed tanks and airport hydrant systems as follows:
- 1) For UST systems installed on or before October 13, 2015 the requirements are effective according to the following schedule:

Requirement	Effective Date
Upgrading UST systems; general operating requirements; and operator training	October 13, 2018
Release detection	October 13, 2018
Release reporting, response, and investigation; closure; financial responsibility and notification (except as provided in subsection (b))	October 13, 2015

- 2) For UST systems installed after October 13, 2015, the requirements apply at installation.
- b) Not later than October 13, 2018, all owners of previously deferred UST systems must submit a one-time notice of tank system existence to OSFM, using the form required by 41 Ill. Adm. Code 176.440. Owners and operators of UST systems in use as of October 13, 2015 must demonstrate financial responsibility at the time of submission of the notification form.
- c) Except as provided in Section 175.910, owners and operators must comply with the requirements of 41 Ill. Adm. Code 174, 175, 176 and 177.
- d) Airport hydrant systems and field constructed tanks shall be designed and constructed by professional engineers with training and experience in the design

of those systems. In addition to the other codes of practice listed in 41 Ill. Adm. Code 174.210, owners and operators may use military construction criteria, such as Unified Facilities Criteria (UFC) 3-460-01, Petroleum Fuel Facilities, or may also use NFPA 407 Standard for Aircraft Fuel Servicing when designing, constructing and installing airport hydrant systems and field-constructed tanks, when applicable.

(Source: Added at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.910 Additions, Exceptions, and Alternatives for UST Systems with Field-Constructed Tanks and Airport Hydrant Systems**

- a) Exception to piping secondary containment requirements. Owners and operators may use single-walled piping when installing or replacing piping associated with UST systems with field-constructed tanks greater than 50,000 gallons and piping associated with airport hydrant systems. Piping associated with UST systems with field-constructed tanks less than or equal to 50,000 gallons and not part of an airport hydrant system must meet the secondary containment requirement when installed or replaced.
- b) Upgrade requirements. Not later than October 13, 2018, airport hydrant systems and UST systems with field-constructed tanks, when installation commenced on or before October 13, 2015, must meet the following requirements or be permanently closed pursuant to Section 175.830 or 175.840.
  - 1) Corrosion protection. UST system components in contact with the ground that routinely contain regulated substances must meet one of the following:
    - A) Except as provided in subsection (a), the new UST system performance standards for tanks at Section 175.400 and for piping at Section 175.420; or
    - B) Be constructed of metal and be cathodically protected, according to a code of practice developed by a nationally recognized association or independent testing laboratory, and meet the following:
      - i) Cathodic protection must meet the requirements of Sections 175.400(b) and 175.510 for tanks and Sections 175.420(a) and 175.510 for piping.
      - ii) Pursuant to Section 175.510(a), tanks without cathodic protection must be assessed to ensure the tank is

structurally sound and free of corrosion holes prior to adding cathodic protection. The assessment must be by internal inspection or another method determined by OSFM to adequately assess the tank for structural soundness and corrosion holes.

- 2) Spill and overflow prevention equipment. To prevent spilling and overflowing associated with product transfer to the UST system, all UST systems with field-constructed tanks and airport hydrant systems must comply with new UST system spill and overflow prevention equipment requirements specified in Section 175.405.
- c) Walkthrough inspections. In addition to the walkthrough inspection requirements in 41 Ill. Adm. Code 176.655(b), owners and operators must inspect the following additional areas for airport hydrant systems at least once every 30 days, if confined space entry according to the Occupational Safety and Health Administration (see 29 CFR 1910) is not required, or at least annually, if confined space entry is required, and keep documentation of the inspection (see 41 Ill. Adm. Code 176.655(b)).
- 1) Hydrant pits: Visually check for any damage; remove any liquid or debris; check for any leaks.
  - 2) Hydrant piping vaults: Check for any hydrant piping leaks.
- d) Release detection. Owners and operators of UST systems with field-constructed tanks and airport hydrant systems, when installation commenced on or before October 13, 2015, must begin meeting the release detection requirements described in this Subpart not later than October 13, 2018.
- 1) Methods of release detection for field-constructed tanks. Owners and operators of field-constructed tanks with a capacity less than or equal to 50,000 gallons must meet the release detection requirements in Subpart F. Owners and operators of field-constructed tanks with a capacity greater than 50,000 gallons must meet either the requirements in Subpart F (except Section 175.630(d) and (e)) must be combined with inventory control (see subsection (d)(1)(E)) or use one or a combination of the following alternative methods of release detection:
    - A) Conduct an annual tank tightness test that can detect a 0.5 gallon per hour leak rate;

- B) Use an automatic tank gauging system to perform release detection at least every 30 days that can detect a leak rate less than or equal to one gallon per hour. This method must be combined with a tank tightness test that can detect a 0.2 gallon per hour leak rate performed at least every 3 years;
- C) Use an automatic tank gauging system to perform release detection at least every 30 days that can detect a leak rate less than or equal to 2 gallons per hour. This method must be combined with a tank tightness test that can detect a 0.2 gallon per hour leak rate performed at least every 2 years;
- D) Perform vapor monitoring (conducted in accordance with Section 175.630(d) for a tracer compound placed in the tank system) capable of detecting a 0.1 gallon per hour leak rate at least every 2 years;
- E) Perform inventory control (conducted in accordance with Department of Defense Manual 4140.25; the ATA Airport Fuel Facility Operations and Maintenance Guidance Manual; or equivalent procedures) at least every 30 days that can detect a leak equal to or less than 0.5% of flow-through and either:
  - i) Perform a tank tightness test that can detect a 0.5 gallon per hour leak rate at least every 2 years; or
  - ii) Perform vapor monitoring or groundwater monitoring (conducted in accordance with Section 175.630(d) and (e), respectively, for the stored regulated substance) at least every 30 days; or
- F) Another method approved by OSFM if the owner and operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in subsections (d)(1)(A) through (d)(1)(E). Demonstration of any such method shall be submitted in writing to OSFM. In comparing methods, OSFM shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected. If the method is approved, the owner or operator shall comply with any conditions imposed by OSFM on its use to ensure the protection of human health and the environment. Before the utilization of the method, OSFM shall issue written approval.

- 2) Methods of release detection for piping. Owners and operators of underground piping associated with field-constructed tanks less than or equal to 50,000 gallons must meet the release detection requirements in Subpart F. Owners and operators of underground piping associated with airport hydrant systems and field-constructed tanks greater than 50,000 gallons must follow either the requirements in Subpart F (except Section 175.630(d) and (e) must be combined with inventory control; see subsection (d)(2)(C)) or use one or a combination of the following alternative methods of release detection:

A) Acceptable methods of leak detection:

- i) Perform a semiannual or annual line tightness test at or above the piping operating pressure in accordance with the following table.

**Maximum Leak Detection Rate Per Test Section Volume**

<b>Test Section Volume (gallons)</b>	<b>Semiannual Test leak detection rate not to exceed (gallons/hour)</b>	<b>Annual Test leak detection rate not to exceed (gallons/hour)</b>
<50,000	1.0	0.5
≥50,000 to <75,000	1.5	0.75
≥75,000 to <100,000	2.0	1.0
≥100,000	3.0	1.5

- ii) Piping segment volumes ≥100,000 gallons not capable of meeting the maximum 3.0 gallon per hour leak rate for the semiannual test may be tested at a leak rate up to 6.0 gallons per hour according to the following schedule:

**Phase In For Piping Segments ≥100,000 Gallons In Volume**

First Test	Not later than October 13, 2018 (may use up to 6.0 gph leak rate)
Second Test	Between October 13, 2018 and October 13, 2021 (may use up to 6.0 gph leak rate)

Third Test	Between October 13, 2021 and October 13, 2022 (must use 3.0 gph for leak rate)
Subsequent Tests	After October 13, 2022, begin using semiannual or annual line testing according to the Maximum Leak Detection Rate Per Test Section Volume table in subsection (d)(2)(A)(i)

- B) Perform vapor monitoring (conducted in accordance with Section 175.630(d) for a tracer compound placed in the tank system) capable of detecting a 0.1 gallon per hour leak rate at least every 2 years;
- C) Perform inventory control (conducted in accordance with Department of Defense Manual 4140.25; ATA Airport Fuel Facility Operations and Maintenance Guidance Manual; or equivalent procedures) at least every 30 days that can detect a leak equal to or less than 0.5% of flow-through and either:
- i) Perform a line tightness test (conducted in accordance with subsection (d)(2)(A) using the leak rates for the semiannual test) at least every 2 years; or
  - ii) Perform vapor monitoring or groundwater monitoring (conducted in accordance with Section 175.630(d) or (e), respectively, for the stored regulated substance) at least every 30 days; or
- D) Another method approved by OSFM if the owner and operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in subsections (d)(2)(A) through (d)(2)(C). Demonstration of any such method shall be submitted in writing to OSFM. In comparing methods, OSFM shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected. If the method is approved, the owner or operator shall comply with any conditions imposed by OSFM on its use to ensure the protection of human health or the environment. Before the utilization of the method, OSFM shall issue written approval.

- 3) Recordkeeping for release detection. Owners and operators must maintain release detection records according to the recordkeeping requirements in Section 175.650.
- e) Applicability of closure requirements to previously closed UST systems. When directed by OSFM, the owner and operator of a UST system, with field-constructed tanks or airport hydrant system permanently closed before October 13, 2015, must assess the excavation zone and close the UST system in accordance with Section 175.830 or 175.840, and 41 Ill. Adm. Code 176.Subpart C, if releases from the UST may, in the judgment of OSFM, pose a current or potential threat to human health and the environment.

(Source: Added at 42 Ill. Reg.10476\_, effective October 13, 2018)

### **Section 175.920 Partial Exclusions for Aboveground Storage Tanks Associated with Airport Hydrant Systems and Field-Constructed Tanks**

Aboveground storage tanks (ASTs) associated with airport hydrant systems and field-constructed tanks shall not be required to comply with 41 Ill. Adm. Code 174, 175, 176 and 177, except that they are required to comply with release reporting, response and corrective action requirements in 41 Ill. Adm. Code 176.300 through 176.360, and shall comply with 41 Ill. Adm. Code 160 and 180, as applicable. These ASTs shall also comply with the requirements for partially excluded USTs found at 41 Ill. Adm. Code 174.100 (definition of underground storage tank system).

(Source: Added at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.APPENDIX A UST Activity that Cannot Proceed Without an OSFM Inspector on Site**

In addition to obtaining a permit pursuant to 41 Ill. Adm. Code 175.300, the UST activities listed in this Appendix A will require that the inspection be scheduled with OSFM as an OSI, meaning under circumstances where the work cannot proceed in the absence of having an STSS on site. (See Section 175.320, regarding scheduling of UST activity.) Proceeding without completion of the required OSFM inspection is a violation of OSFM rules.

Removal of a UST or UST system, or removal of an entire underground pipe run
Abandonment-in-place, tanks or piping
UST hot work/tank entry (if cutting or penetration of tank shell or work capable of providing a source of ignition or heat is involved) (See definition of "hot work" at 41 Ill. Adm. Code 174.100)
Lining and lining inspection Installation of a UST or UST system, or installation of an entire underground pipe run (See Section 175.320(c))

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

### Section 175.APPENDIX B The Type of OSFM Permit Required for Specific Permitted UST Activities

Pursuant to Section 175.300 and 41 Ill. Adm. Code 174.440 and 174.450, the UST activities listed in this Appendix B will require the kinds of permits listed in this chart. A UST contractor portal for the on-line submission of permit applications and the scheduling of permitted work can be found at <https://webapps.sfm.illinois.gov/USTPortal>.

<b><u>Type of UST Activity</u></b>	<b><u>Permit Required</u></b>
Installation of a complete UST with all components, or installation of just the tank	Installation permit and motor fuel dispensing permit pursuant to Section 175.200
Installation of any portion of a UST (except corrosion protection or lining)	Upgrade permit and motor fuel dispensing permit pursuant to Section 175.200 as may be applicable
Removal of a UST or UST system, or removal of an entire underground pipe run	Removal permit
Abandonment-in-place of any tank or piping	Abandonment-in-place permit
UST repair to make an existing UST part functional, but not including lining or corrosion protection	Upgrade permit
Tank lining or tank lining inspections	Lining or interior lining inspection permit
Emergency repairs (excluding corrosion protection)	Upgrade permit (see the procedures of Section 175.710)
Repair or install cathodic protection or corrosion protection, including on flex connectors	Cathodic protection permit
Manway installation (no separate upgrade or entry permit for a manway is required where the original lining permit or lining inspection permit includes the installation of a manway)	Hot work/tank entry permit
UST activity requiring the cutting or penetration of the tank shell in any way (no separate hot work permit required where a lining or lining inspection permit is being issued)	Hot work permit
Installation, upgrade or removal of leak detection systems	Upgrade permit
New spill containment (except that replacement of spill containment is a like-for-like replacement that requires only notification to OSFM pursuant to Section 175.300)	Upgrade permit
Installation or replacement of a remote fill	Upgrade permit

New or replaced overfill prevention equipment (except that replacement of drop tube valves are like-for-like replacements that require only notification to OSFM pursuant to Section 175.300)	Upgrade permit
Installation or replacement of dispensers where piping or any other transitional components at or below the shear valve (including the shear valve) are replaced at the same time	Upgrade permit
Installation or replacement of an ATG unit (except that replacement of ATG probes are like-for-like replacements that require only notification to OSFM pursuant to Section 175.300)	Upgrade permit
Installation or replacement of a flex connector (only)	Upgrade permit
Installation of wristband anodes or spike anodes on an existing flex connector (only)	Cathodic protection permit
Installation or replacement of a flex connector <u>and</u> wristband anodes or spike anodes on the flex connector (only)	Cathodic protection permit (shall also be licensed in the retrofitting/installation module)
Connecting a new or existing bulk load-out to a new or existing UST at a motor fuel dispensing facility	Upgrade permit (Installation permit if an entire UST is being installed)
Construction of a building or structure where loading or unloading or dispensing operations will occur	Motor fuel dispensing permit pursuant to Section 175.200
Site for the mobile fueling of commercial vehicle fleets (pursuant to Section 2(1)(d)(C) of the Gasoline Storage Act [430 ILCS 15/2(1)(d)(C)])	Mobile fueling site permit (pursuant to 41 Ill. Adm. Code 174.440 and 174.450)
Tank vehicle to be used for the mobile fueling of commercial vehicle fleets (pursuant to Section 2(1)(d)(C) of the Gasoline Storage Act [430 ILCS 15/2(1)(d)(C)])	Mobile fueling vehicle permit (pursuant to 41 Ill. Adm. Code 174.440 and 174.450)
Person, company, or other entity proposing to conduct mobile fueling using tank vehicles to be used for the mobile fueling of commercial vehicle fleets (pursuant to Section 2(1)(d)(C) of the Gasoline Storage Act [430 ILCS 15/2(1)(d)(C)])	Mobile fueling contractor permit (pursuant to 41 Ill. Adm. Code 174.440 and 174.450)

(Source: Amended at 42 Ill. Reg. 10476, effective October 13, 2018)

**Section 175.APPENDIX C Derivation Table (Repealed)**

(Source: Repealed at 42 Ill. Reg. 10476, effective October 13, 2018)