

### **62-761.640 Performance Standards for Release Detection Methods.**

(1) General. Methods of release detection shall:

(a) Be capable of detecting a release of 0.2 gallons per hour or 150 gallons within 30 days with a probability of detection of 0.95, and a probability of false alarm of 0.05, with the exception of:

1. Tightness testing requirements in paragraph 62-761.640(3)(f) and subparagraph (4)(b)2., F.A.C.;
2. Visual inspections in paragraph 62-761.640(2)(e), F.A.C.;
3. Groundwater or vapor monitoring in subsection 62-761.640(2), F.A.C.; and
4. Manual tank gauging in paragraph 62-761.640(3)(c), F.A.C.

(b) With the exception of bailers and monitoring wells, be approved in accordance with subsection 62-761.850(2), F.A.C.

(c) Have a release detection response level described in writing for each method or combination of methods.

(2) External release detection methods.

(a) Well construction standards.

1. Monitoring well requirements. Monitoring wells shall be constructed and installed by a licensed water well contractor when required by Chapter 62-531, F.A.C. Monitoring wells shall:

- a. Be a minimum of two inches in interior diameter;
- b. Be slotted from the bottom to two feet below ground surface;
- c. Have a minimum slot size of 0.010 inch;
- d. Be backfilled with clean sand or a gravel filter pack to prevent blockage of the slots;
- e. Be constructed of at least schedule 40 PVC without any joints, or of another corrosion protected material;
- f. Be grouted into the borehole from the surface to the top of the filter pack plug with neat cement grout or other equivalent materials. Grouting shall not extend below the top of the well slotting. Bentonite slurry grouts shall not be used;
- g. Unless the monitoring well has an extended exterior casing, be equipped with a minimum six inch diameter manhole designed to prevent water intrusion with a one inch minimum grade increase above the surrounding surface. The well opening shall extend at least one inch above the bottom of the manhole;
- h. Be equipped with a watertight cap. The well shall be kept locked or secured to prevent tampering at all times except when the monitoring well is being sampled or maintained. Monitoring wells shall be marked in accordance with API RP 1615;
- i. Extend no deeper than 20 feet below ground surface. If such a depth penetrates a confining layer below the excavation, the monitoring well shall extend no deeper than to within six inches of the confining layer. Any well that penetrates a confining layer shall immediately be properly abandoned in accordance with Rule 62-532.500, F.A.C.; and
- j. If installed within a secondary containment liner system, extend no deeper than six inches from the liner.

2. Groundwater monitoring wells shall:

- a. Extend at least five feet below the normal groundwater surface level; and
  - b. Be properly developed by the licensed water well contractor before the initial sampling.
3. Vapor monitoring wells shall meet the requirements specified in DEP's "Guidelines for Vapor Monitoring."
4. Electronic sensors, probes, or fiber-optic systems shall be tested at least annually to verify that they operate in accordance with the Department's approval given pursuant to subsection 62-761.850(2), F.A.C.
5. Groundwater and vapor monitoring wells using the placement of sensors or probes in vertical, horizontal, or directionally-drilled wells shall be designed and installed in accordance with the equipment approval for that system granted in subsection 62-761.850(2), F.A.C.

(b) Site suitability determinations.

1. A site suitability determination shall be performed for each facility using groundwater or vapor monitoring. The site suitability determination shall be performed in accordance with DEP's "Guidelines for Site Suitability Determinations for External Monitoring" by a Professional Geologist registered in the State of Florida. If the site is not suitable for external monitoring, another method of release detection must be used.

2. The following facilities having Category-A and Category-B USTs are not required to perform site suitability determinations:

- a. Facilities located in counties having rules more stringent than the Department as specified in Chapter 376.317, F.S.
- b. Facilities with monitoring wells located in the tank excavation, provided that a demonstration can be made that the excavation contains sand or gravel backfill, and the wells were properly constructed and installed within the backfill.

(c) Groundwater monitoring.

1. The regulated substance shall be immiscible in water and have a specific gravity of less than one.  
2. Groundwater monitoring shall not be used for release detection after free product or a sheen is discovered in a monitoring well, unless:

a. A Site Rehabilitation Completion Order has been issued by the Department following the remediation of the free product or sheen, and there is no longer any free product in the monitoring well; or

b. Free product or sheen is not present and has not been observed in the well within the previous thirty (30) months, as demonstrated by records of at least six (6) monthly ground water monitoring sampling events, and within the previous two years, the system has been tested tight with tank and line piping tests or another internal method of release detection performed in accordance with subsection 62-761.640(3), F.A.C.

3. Another method of release detection specified in Rule 62-761.610, F.A.C., other than groundwater monitoring, shall be used when:

a. There is less than one foot of groundwater present in the well; or

b. The groundwater level is above the slotted portion of the well.

4. Records. The following information shall be maintained in accordance with the recordkeeping requirements of this chapter:

a. Date of sampling;

b. Depth of well;

c. Depth to groundwater;

d. Any presence of odor of stored regulated substances; and

e. Any sheen or free product found.

(d) Vapor monitoring.

1. Vapor monitoring can only be used to monitor regulated substances that are sufficiently volatile to be detected in soils or groundwater by vapor monitoring equipment.

2. The measurement of vapors in a vapor monitoring well shall not be rendered inoperative by groundwater, rainfall, soil moisture or other known interferences so that a discharge could go undetected for more than 30 days.

3. Sampling equipment shall be capable of detecting:

a. A vapor concentration of 500 parts per million total petroleum hydrocarbons, as measured by a flame ionization detector, for storage tank systems containing gasoline or equivalent petroleum substances;

b. A vapor concentration of 50 parts per million total petroleum hydrocarbons, as measured by a flame ionization detector, for storage tank systems containing kerosene, diesel or equivalent petroleum substances;

c. Vapor concentrations of hazardous substances or their constituents that would indicate a release; or

d. Vapor concentrations of tracer compounds used for release detection.

4. Vapor monitoring shall not be used for release detection if existing contamination interferes with the ability to detect a new release.

5. The vapor monitoring plan shall be developed and performed in accordance with DEP's "Guidelines for Vapor Monitoring." The plan shall include a description of monitoring wells or probes, the method of sampling, the establishment of a release detection response level and the data management procedures. Facilities with monitoring wells located in the tank excavation do not have to meet the requirements for DEP's "Guidelines for Site-Suitability Determinations for External Monitoring," provided that a demonstration can be made that the excavation contains sand or gravel backfill, and the wells were properly constructed and installed within the backfill.

(e) Visual inspections. Any visual inspection of the storage tank system or its secondary containment that reveals signs of corrosion, cracks, structural damage, leakage, or other similar problems shall be noted. Repairs shall be made in accordance with the requirements of Rule 62-761.700, F.A.C.

(3) Internal release detection methods.

(a) Interstitial monitoring for UST systems.

1. Interstitial monitoring for double-walled tanks, double-walled integral piping, dispenser liners, piping sumps, and other secondary containment systems, shall be designed and constructed to allow monitoring of the space between the primary and secondary containment. One or more of the following methods of interstitial monitoring shall be used:

a. Manual sampling of, or visual monitoring for, liquids;

b. Continuous electronic sensing equipment;

- c. Hydrostatic monitoring systems; or
- d. Vacuum monitoring.

2. Breach of integrity tests for Category-C systems. A test shall be performed for a breach of integrity of the interstice for double-walled USTs and for double-walled integral piping that is in contact with the soil and that is connected to USTs. Piping sumps and dispenser liners are not required to perform a breach of integrity test. The test shall be performed to determine the integrity of the inner and outer wall, is required only for tanks and integral piping with closed interstices, and does not apply to open-interstice systems with liners. The test shall be performed at the time of installation, and every five years from the date of installation, unless the test is a continuous test. If a UST is totally submerged in groundwater, monthly monitoring of the interstice for the presence of water shall be conducted. The breach of integrity test may be performed by using at least one of the following methods:

- a. A continuous hydrostatic system approved by the Department in accordance with subsection 62-761.850(2), F.A.C.;
- b. A continuous vacuum system, pursuant to paragraph 62-761.640(3)(a), F.A.C., that is approved by the Department in accordance with subsection 62-761.850(2), F.A.C.;
- c. Testing of the interstice for liquid tightness in accordance with manufacturer's installation instructions; or
- d. Another method in accordance with subsection 62-761.850(2), F.A.C.

3. Vacuum monitoring of the interstice shall meet the following requirements:

a. Liquid-filled gauges and air-filled gauges shall be calibrated in accordance with the National Institute of Standards and Technology. The gauges shall be operational at all times.

b. Vacuum monitoring may be used as a continuous method of release detection provided that the vacuum system is equipped with an audible or visual alarm. The alarm shall indicate when the minimum vacuum level allowed is reached as provided in the equipment approval granted in accordance subsection 62-761.850(2), F.A.C.

c. Vacuum readings shall be recorded monthly. Upon discovery of any significant vacuum level decrease, or any loss of vacuum exceeding 20% of the initial level, or any loss in excess of the levels established in the test protocols provided in the third party certification for the test method, the tank manufacturer shall be contacted and the vacuum refreshed in accordance with the storage tank system's equipment approval in subsection 62-761.850(2), F.A.C. If the loss of vacuum persists, an investigation shall be initiated and an incident reported in accordance with subsection 62-761.450(2), F.A.C. The source of the loss shall be repaired in accordance with Rule 62-761.700, F.A.C.

4. Interstitial monitoring for storage tanks and integral piping equipped with liners shall be designed and constructed to allow monitoring of the space between the primary and secondary containment and shall:

- a. Be capable of detecting a release through the inner wall into the interstice;
- b. Be constructed and installed so that groundwater, rainfall, or soil moisture will not render the testing or sampling method used inoperative; and
- c. Be equipped with an external release detection method meeting the standards of paragraphs 62-761.640(2)(a)-(d), F.A.C., except for the groundwater level and excavation zone assessment requirements; or
- d. Be visually inspected in accordance with paragraph 62-761.640(2)(e), F.A.C.; or
- e. Be equipped with a monitoring device approved in accordance with subsection 62-761.850(2), F.A.C., installed at the monitoring point within the liner.

(b) Inventory control.

1. General.

a. Inventory control shall be maintained for each single-walled tank that contains vehicular fuel.

b. Storage tank systems that have secondary containment are exempt from inventory control requirements.

2. Inventory control for USTs shall be performed and recorded in accordance with API RP 1621, as applicable. Manifolder tanks may be treated as a single tank for the purposes of inventory control. Inventory control shall be performed in the following manner:

a. Volume measurements for product inputs, withdrawals, and the amount remaining in each tank shall be recorded each operating day;

b. Measurements of product levels shall be recorded to the nearest one-eighth of an inch;

c. Product inputs shall be reconciled with delivery receipts by measurement of the tank product volume before and after delivery;

d. Product dispensed shall be metered as required by Chapters 525 and 531, F.S., and in accordance with the standards established by the Florida Department of Agriculture and Consumer Services in Chapter 5F-2, F.A.C.;

e. The measurement of water level in the bottom of the tank shall be made at least once a week to the nearest one-eighth of an inch; and

f. The significant loss or gain of product shall be calculated for each month.

3. Inventory control requirements for USTs. Water fluctuations exceeding one inch not attributed to deliveries shall be investigated in the following manner:

a. The accessible parts of the storage system shall be inspected for damage or openings;

b. Release detection systems shall be checked for signs of a discharge; and

c. If, within a week, the investigation does not reveal the source of the water fluctuation, the entire storage tank system shall be tested in accordance with subsection 62-761.640(3), F.A.C.

4. Investigation procedures for significant loss or gain. An investigation shall be initiated immediately to determine the source of a significant loss or gain. The entire storage tank system, excluding the vent, but including piping connections and remote fill lines, shall be tested or inspected to determine if the system is product tight. The investigation shall continue until the source has been found, using the following investigative procedure:

a. Inventory records shall be checked for errors in arithmetic, data recording, and measurement;

b. If the significant loss or gain is not reconcilable or cannot be affirmatively demonstrated to be the result of theft, the accessible parts of the storage system shall be checked for damage or leaks;

c. Release detection systems shall be checked for signs of a discharge;

d. Calibration of the inventory measuring system and dispensing system shall be verified;

e. If the investigation does not reveal the source of the significant loss or gain within one week for USTs, or if the Department or County determines that it is necessary to investigate based on evidence that the significant loss or gain could result in potential harm to the environment, the storage tank system shall be tested in accordance with the manufacturer's guidelines, if applicable, and subsections 62-761.640(3) and (4), F.A.C.; and

f. If a discharge is discovered, the leaking or defective component of the storage tank system shall be repaired in accordance with Rule 62-761.700, F.A.C. If the storage tank system cannot be repaired, it shall be closed in accordance with subsection 62-761.800(2), F.A.C.

(c) Manual tank gauging. Manual tank gauging for tanks of 2000 gallons or less containing regulated substances shall meet the following requirements:

1. Tank liquid level measurements shall be taken weekly at the beginning and ending of a period between 36 hours and 58 hours in accordance with Table MTG, during which no liquid is added to or removed from the tank;

2. Level measurements shall be based on an average of two consecutive stick readings taken at both the beginning and ending of the period; and

3. The equipment used shall be capable of measuring the level of product over the full range of the tank's height to the nearest one-eighth of an inch.

4. Readings exceeding the standards described in Table MTG shall be investigated in accordance with Rule 62-761.820, F.A.C.

<b>TABLE MTG</b>			
<b>Nominal tank capacity</b>	<b>Minimum duration of test</b>	<b>Weekly standard (one test)</b>	<b>Monthly standard (average of four tests)</b>
<b>550 gallons or less</b>	<b>36 hours</b>	<b>10 gallons</b>	<b>5 gallons</b>
<b>551-1,000 gallons (Tank diameter is 64")</b>	<b>44 hours</b>	<b>9 gallons</b>	<b>4 gallons</b>
<b>551-1,000 gallons (Tank diameter is 48")</b>	<b>58 hours</b>	<b>12 gallons</b>	<b>6 gallons</b>
<b>551-1,000 gallons (Tank diameter unknown)</b>	<b>36 hours</b>	<b>13 gallons</b>	<b>7 gallons</b>
<b>1,001-2,000 gallons</b>	<b>36 hours</b>	<b>26 gallons</b>	<b>13 gallons</b>

(d) Automatic tank gauge systems.

1. Automatic tank gauge systems that do not analyze data in a continuous manner shall be placed in a test mode at least once every 30 days.

2. Automatic tank gauge systems that continuously analyze the data collected by the system shall be operated in continuous test mode at all times and shall provide test results daily.

(e) Statistical Inventory Reconciliation (SIR). SIR shall be conducted according to the following requirements:

1. Data submitted for SIR analysis must be gathered in accordance with the requirements of subparagraphs 62-761.640(3)(e)1.-5., F.A.C.;

2. Results of each monthly analyses must include the calculated results from the data set for leak threshold, the minimum detectable leak rate, the calculated leak rate, and a determination of whether the result of the test was "Pass," "Fail," or "Inconclusive." For the purposes of this section, the "leak threshold" is defined as the specific leak threshold of the SIR method approved in accordance with subsection 62-761.850(2), F.A.C., to meet the release detection level specified in paragraph 62-761.640(1)(a), F.A.C.;

3. "Pass" means that the calculated leak rate for the data set is less than the leak threshold and the minimum detectable leak rate is less than or equal to the certified performance standard (0.2 gph);

4. "Fail" means that the calculated leak rate for the data set is equal to or greater than the leak threshold;

5. "Inconclusive" means that the minimum detectable leak rate exceeds the certified performance standard (0.2 gph) and the calculated leak rate is less than the leak threshold. If for any other reason the test result is not a "pass" or "fail," the result is "inconclusive";

6. An Incident Notification Form shall be submitted to the County when a monthly SIR report of "Fail" is received;

7. An Incident Notification Form shall be submitted to the County after the receipt of two consecutive monthly SIR reports of "Inconclusive." An investigation shall be performed in accordance with the Incident Response requirements specified in Rule 62-761.820, F.A.C. However, if at the end of the fourteen day investigation period provided in subsection 62-761.820(1), F.A.C., the SIR data from the previous month is still inconclusive, a tightness test of the system shall be performed;

8. A data set shall consist of at least one month of valid data gathered over a time period not exceeding 35 days. A minimum of 20 data points over this 35 day period shall be used to calculate the leak rate unless the vendor of the SIR system approved under subsection 62-761.850(2), F.A.C., has provided a third party determination that a lesser number of data points is capable of detecting a release of 0.2 gph or 150 gallons within 30 days with a probability of detection of 0.95 and a probability of false alarm of 0.05; and

9. Results of monthly evaluations shall be recorded on Form 62-761.900(7), or on another similar form that provides the same information. These forms shall be kept as records in accordance with Rule 62-761.710, F.A.C.

(f) Tightness testing.

1. Tightness testing for all tanks shall be capable of detecting a 0.1 gph leak rate with a probability of detection of 0.95 and a probability of false alarm of 0.05 from any portion of the tank. Tightness testing shall account for the effects of thermal expansion or contraction of the regulated substance, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.

2. If any volumetric tank tightness test is conducted at a level lower than the overfill protection device set point, a non-volumetric test shall also be used to test the ullage portion of the tank. When volumetric tests are conducted, there must be a minimum pressure differential of plus or minus one psig (pounds per square inch gauge), measured at the bottom of the tank, between the product hydrostatic pressure inside the tank and the hydrostatic pressure due to the external water table. When using this method, positive field verification of the depth of the water table must be performed, and the minimum liquid level of product in the tank shall be at least 30% of tank capacity, provided that the third party evaluation for the test method verifies detection capability at this level. If the water table depth cannot be verified, the minimum liquid level for volumetric tank testing shall be 65% of tank capacity.

3. Tank and line tightness testing shall be performed in accordance with Chapter 4 of NFPA 329.

4. Overfill protection and spill containment devices shall be inspected before a tightness test is performed to ensure that these devices do not interfere with the test, and after the test to ensure that the devices are operating properly.

(4) Small diameter integral piping in contact with the soil.

(a) Line leak detectors for USTs. Line leak detectors shall:

1. Be capable of detecting a discharge of 3.0 gph with a probability of detection of 0.95 and a probability of false alarm of 0.05 at a line pressure of 10 psi within one hour;

2. Have an annual test of the operation of the leak detector conducted in accordance with the manufacturer's requirements by an individual certified or trained by the manufacturer to determine whether the device is functioning as designed. Remote testing of the leak detector can be performed by the manufacturer if the remote test is approved under subsection 62-761.850(2), F.A.C.;

3. Restrict flow within one hour if designed with mechanical flow restriction;

4. When a discharge of 3.0 gph is detected, shut off power to the pump if designed with automatic electronic shutoff. When in test mode, line leak detectors with automatic electronic shutoff shall also be able to detect a discharge of 0.2 gph at a line pressure of 150% of operating pressure, or an equivalent leak rate, with a probability of detection within a one month period of at least 0.95 and a probability of false alarm of no more than 0.05. When a discharge of 0.2 gph is detected, the leak detector shall provide audible or visual alarms that can be clearly heard or seen by the operator of the facility, or if monitored remotely on a real time basis, the alarm condition must be immediately transmitted from the remote location to the facility operator; and

5. Instead of using a line leak detector as a method of release detection for pressurized small diameter piping associated with double-walled integral piping, a continuously operating interstitial monitoring device can be used. Continuously operating interstitial monitoring devices shall be capable of detecting a release of 10 gallons within one hour and shutting off the pump.

(b) Tightness testing. Tightness testing for pressurized piping in contact with the soil shall be capable of detecting a 0.1 gallon per hour leak rate at one and one-half times the operating pressure with a probability of detection of 0.95 and a probability of false alarm of 0.05.

(5) Bulk product piping.

(a) An annual test shall be performed of single-walled bulk product piping in contact with the soil. Prior to testing the piping system, a leak tightness evaluation of all exposed components shall be performed through visual inspection, or by another method approved by the Department in accordance with Rule 62-761.850, F.A.C. The evaluation shall be verified and recorded. One of the following methods shall be used for the annual test:

1. A bulk product piping test method approved in accordance with subsection 62-761.850(2), F.A.C.;

2. An API RP 1110 hydrostatic test; or

3. An ASME B31.4 hydrostatic test.

(b) Double-walled bulk product and hydrant piping, and other bulk piping equipped with secondary containment shall have methods of release detection and testing for a breach of integrity that meet the requirements of subparagraph 62-761.640(3)(a)2. or 4., F.A.C., as applicable.

(c) Records of all test results shall be maintained in accordance with the Appendix-Test Records of API RP 1110, or Chapter VI of ASME B31.4, as applicable, pursuant to subsection 62-761.710(1), F.A.C.

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