CHAPTER 60 RELEASE DETECTION

Sees.

6000 GENERAL PROVISIONS

6000.1 Each owner or operator of a new or existing UST system shall provide a method, or combination of methods, of release detection that meets the requirements of this section.

6000.2 In choosing a release detection method, the owner or operator shall consult the manufacturer's certification of performance data to ensure the suitability of the chosen methods.

6000.3 The owner or operator of each UST system shall comply with the release detection requirements for all pressurized piping set forth in §6004.

6000.4 If the owner or operator of any existing UST system cannot apply a method of release detection that complies with the requirements of this chapter, the owner or operator shall complete the closure requirements of Chapter 61.

6000.5 In complying with the requirements of this chapter, owners and operators may use a code of practice developed by a nationally recognized association or independent testing laboratory, as specified by the Director.

6000.6 Each release detection system shall be capable of detecting a release from any portion of the tank and the connected underground piping that contains or conveys a regulated substance.

6000.7 Each release detection system shall be installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance and service checks for operability or running condition.

6000.8 Each release detection system shall meet the applicable performance requirements for the particular system set forth in §§6004 through 6013.

6000.9 Any performance claims made for a release detection system shall be stated in writing by the equipment manufacturer or installer. Each claim shall include a description of the manner in which the claim was derived or tested.

6000.10 Each release detection method or system, except for systems permanently installed on or before December 22, 1990, shall be capable of detecting the leak rate or quantity specified for the applicable method in §6006, 6007, 6008, or 6013, with a probability of detection of ninety-five one-hundredths (0.95) and a probability of false alarm of five one-hundredths (0.05).

6000.11 The Director shall not approve a leak detection method or system that does not meet the requirements of this section, that presents a safety hazard, or for which there has been no performance data submitted proving the reliability of the testing method under normal installation and operating conditions.

6000.12 When a release detection system does not perform in accordance with the manufacturer's performance requirements or in accordance with the requirements of this Chapter, the owner or operator shall repair or replace the release detection system within forty-five (45) days in accordance with the provisions of this Chapter, unless an alternate release detection system that complies with the requirements of this Chapter is in use.

6000.13 The owner or operator shall notify the Director within twenty-four (24) hours of the expiration of the forty-five (45) day period set forth in §6000.l2 if the release detection system is not repaired or replaced and comply with the temporary closure requirements set forth in §6100, unless an alternate release detection system that complies with the requirements of this Chapter is in use.

6000.14 When a release detection method operated in accordance with the performance standards of §§6004 through 6012 indicates that a release may have occurred, the owner or operator shall notify the Director, in accordance with the provisions of Chapter 62.

6000.15 An owner or operator of a heating oil tank having a capacity of one-thousand-one-hundred (1,100) gallons or more shall be required to provide release detection only for a UST which is fifteen (15) years old or older as set forth in §5503.

6000.16 An owner or operator of a UST system that stores fuel for use by an emergency generator and is fifteen (15) years or older shall provide release detection for the UST system as set forth in §5505.

6001 RELEASE DETECTION RECORDKEEPING

6001.1 The owner or operator of each UST system shall maintain records, in accordance with this section and §5602 of this Subtitle, demonstrating compliance with all applicable requirements of this chapter.

6001.2 All written performance claims pertaining to any release detection system that is in use, including the manner in which those claims have been justified or tested by the equipment manufacturer or installer, shall be maintained for at least ten (10) years after the date of installation. Owners or operators shall retain any written performance claims that were in their possession on January I, 1996 or thereafter and that are currently in their possession in accordance with the times set forth in this section.

6001.3 The results of any sampling, testing, or monitoring of an UST system shall be maintained for at least three (3) years, except as provided in §6001.4 of this section.

6001.4 The results of tank tightness testing conducted in accordance with §6007 of this chapter shall be retained until the next test of the UST system is conducted.

6001.5 Written documentation of all calibration, maintenance, and repair of release detection equipment permanently located at the UST system facility shall be maintained for at least three (3) years after the servicing work is completed.

6001.6 All schedules of required calibration and maintenance provided by the release detection equipment manufacturer shall be retained for at least ten (10) years from the date of installation of the release detection system. Owners or operators shall maintain all calibration and maintenance schedules that were in their possession on January I, 1996 or thereafter and are currently in their possession.

6002 HAZARDOUS SUBSTANCES

6002.1 Each owner or operator of a hazardous substance UST system shall provide release detection that meets the requirements of this section.

6002.2 Release detection for new hazardous substance UST systems shall meet the requirements set forth in §§6003 and 6004 of this Chapter.

6002.3 Secondary containment systems shall be checked for evidence of a release at least every thirty (30) days.

6002.4 An alternative method of release detection for a hazardous substance system may be approved if the owner or operator does the following:

(a) Demonstrate to the satisfaction of the Director that the proposed alternative method can detect a release of the stored substance as effectively as any of the methods allowed in §§6006 through 6012 can detect a release of petroleum; and

(b) Provide information satisfactory to the Director on effective corrective action technologies, known and potential health risks, the chemical and physical properties of the stored substance, and the characteristics of the UST site.

6002.5 The owner or operator shall obtain approval of the Director to use an alternate release detection method prior to the installation and operation of the new UST system.

6002.6 All existing hazardous substance systems shall meet the release detection requirements for new petroleum UST systems as set forth in §§6003 and 6004.

6003 PETROLEUM UST SYSTEM TANKS

6003.1 Each owner or operator of a petroleum UST system shall provide release

detection for tanks in accordance with the provisions of this section, except as provided elsewhere in Chapter 60.

6003.2 Each release detection method used to meet the requirements of this section shall be conducted in accordance with the applicable requirements for that method set forth in §§6005 through 6012 of this chapter.

6003.3 At least once every thirty (30) days, all tanks shall be monitored for releases using one of the methods listed in §§6008 through 6012, except heating oil USTs and tanks with a capacity of 550 gallons or less, may use either tank tightness testing, manual tank gauging or inventory control (statistical inventory reconciliation (SIR)) or any combination of these methods to meet the requirements of this section.

6003.4 A tank with a capacity of five hundred fifty (550) gallons or less may be tested by manual tank gauging, conducted weekly in accordance with §6006.

6003.5 New or replaced underground storage tank systems, or systems repaired in accordance with the requirements of § 5902, including all piping, shall be constructed to include secondary containment and interstitial monitoring as set forth in §§5701.4, 5701.5, and 5701.6.

6003.6 Secondary containment systems on underground tanks installed or replaced after February 8, 2007 shall be checked for evidence of a release at least once every thirty (30) days using interstitial monitoring.

6004 PETROLEUM UST SYSTEM PIPING

6004.1 The owner or operator of a petroleum UST system shall regularly monitor all underground piping that contains or conveys regulated substances for releases, in accordance with the provisions of this section.

6004.2 Each method of release detection for petroleum UST system piping, excluding heating oil tanks, shall meet the requirements of this section

6004.3 Underground piping that conveys regulated substances under pressure shall be equipped with an automatic line leak detector.

6004.4 Automatic line leak detectors which 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 three gallons per hour (3 gal/hr) at ten pounds per square inch (10 lbs/in2) line pressure within one (1) hour. The owner or operator shall conduct an annual test of the operation of the leak detector, in accordance with the manufacturer's requirements.

6004.5 Underground piping that conveys regulated substances under pressure shall have an annual line tightness test conducted in accordance with §6004.7 or have monthly monitoring conducted in accordance with §6004.9.

6004.6 Underground piping that conveys regulated substances under suction except those covered under 6004.8 shall either have a line tightness test conducted at least every three (3) years, in accordance with §6004.7, or use a monthly monitoring method conducted in accordance with §6004.9

6004.7 Periodic line tightness testing of piping may be conducted only if it can detect a one-tenth gallon per hour (0.1 gal/hr) leak rate at one and one-half (1.5) times the operating pressure and includes testing of return lines as applicable.

6004.8 No release detection shall be required for suction piping that is designed and constructed to meet the following standards:

(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 (1) 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, satisfactory to the Director, is provided that allows compliance with the provisions of subparagraphs (b) through (d) of this subsection to be readily determined.

6004.9 Any of the methods for release detection for tanks set forth in §§6005 through 6011 of this chapter may be used for piping, in accordance with the provisions of the applicable section, if the method used is designed to detect a release from any portion of the underground piping that contains or conveys regulated substances.

6004.10 Secondary containment systems on underground piping installed or replaced after February 7, 2008 shall be checked for evidence of a release at least once every thirty (30) days using interstitial monitoring.

6005 INVENTORY CONTROL [STATISTICAL INVENTORY RECONCILIATION (SIR)]

6005.1 Inventory Control [Statistical Inventory Reconciliation (SIR)], shall be conducted monthly to detect release of at least two-tenths gallons per hour (0.2 gal/hr) with a minimum probability of detection of ninety-five one-hundredths (0.95) and a minimum probability for false alarm of five one-hundredths (0.05).

6005.2 Owners or operators shall evaluate the accuracy of the selected SIR method by using a separate test procedure to confirm that SIR method can detect leaks at the required level and with the appropriate probabilities of detection and probability of false alarm stated in §6005.1. Owners or operators may have the accuracy of the selected SIR method evaluated and verified through independent third-party certification. Owners or operators shall maintain these evaluation records for a period often years.

6005.3 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 inch (1/8").

6005.4 Each delivery shall be made through a drop tube that extends to within six inches

(6") of the tank bottom.

6005.5 The dispensing of regulated substances shall be metered and recorded within District of Columbia standards for meter calibration or an accuracy of six cubic inches (6 cu.") for every five (5) gallons of regulated substance withdrawn.

6005.6 The water level at the bottom of the tank shall be measured at least once each month. The measurement of any water level in the bottom of the tank shall be made to the nearest one-eighth inch (1/8").

6006 MANUAL TANK GAUGING

6006.1 Manual tank gauging, conducted weekly, may be used as the sole method of release detection only for tanks with a nominal capacity of five hundred fifty (550) gallons or less. Owners or operators of tanks with a nominal capacity of greater than five-hundred-fifty-one (551) gallons shall not use this method to meet the requirements of this chapter.

6006.2 Manual tank gauging shall be conducted in accordance with the provisions of this section.

6006.3 Each tank liquid level measurement shall be taken at the beginning and end of a period of at least thirty-six (36) hours during which no liquid is added to or removed from the tank. The level measurements shall be based on an average of two (2) consecutive stick readings taken at both the beginning and the end of the period. The measurements shall be recorded on a form approved by the Director.

6006.4 The equipment used for manual tank gauging shall be capable of measuring the level of product over the full range of the height of the tank to the nearest one-eighth inch (1/8").

6006.5 The owner or operator shall suspect a release and follow the applicable requirements of Chapter 62 if the variation between beginning and ending measurements taken in accordance with this section exceeds ten (10) gallons or more between weekly test measurements, or an average variation of five (5) gallons or more over four (4) consecutive weekly tests.

6007 TANK TIGHTNESS TESTING

6007.1 Tank tightness testing shall be capable of detecting a one-tenth of a gallon per hour (0.1 gal/hr) leak rate from any portion of the tank that regularly contains or conveys a regulated substance and shall account for the effects of the following factors when detecting a leak rate:

(a) Thermal expansion or contraction of the regulated substance;
(b) Vapor pockets;
(c) Tank deformation;
(d) Evaporation or condensation; and
(e) The location of the water table.

6007.2 Owners or operators shall conduct a tightness test to satisfy the installation,

upgrade and repair requirements as set forth in Chapter 57, 58 and 59 of this Subtitle before the operation of the UST system.

6007.3 Owners or operators may use tightness testing as the sole method of release detection for heating oil tanks only.

6007.4 Owners or operators may use tightness testing for confirming a suspected release to satisfy the requirements set forth in §6203.

6008 AUTOMATIC TANK GAUGING

6008.1 Automatic tank gauging equipment that tests for the loss of product and conducts inventory control shall meet the requirements of this section.

6008.2 The owner or operator shall ensure that the tank-gauging probe is installed as close as possible to the middle of the tank and not adjacent to the fill pipe or submersible pump.

6008.3 An automatic product level monitor test shall be capable of detecting a two-tenths gallon per hour (0.2 gal/hr) leak rate from any portion of the tank that routinely contains a regulated substance.

6008.4 For tanks installed after November 12, 1993, if automatic tank gauging is to be used as a method of release detection, the tank must be installed horizontally without tank tilt.

6009 VAPOR MONITORING

6009.1 A release detection method that monitors or tests for vapors within the soil gas of the excavation zone shall meet the requirements of this section.

6009.2 The owner or operator shall assess the excavation zone to ensure compliance with the requirements set forth in this section.

6009.3 The materials used as backfill (such as gravel, sand, crushed rock, or similar materials) shall be sufficiently porous to readily allow diffusion of vapors from releases into the excavation zone.

6009.4 The stored regulated substance, or a tracer compound placed in the tank system, shall have a volatility that is sufficient 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.

6009.5 The measurement of vapors by the monitoring device shall not be reduced in effectiveness or rendered inoperative by ground water, rainfall, soil moisture, or any other known interference to the point that a release could go undetected for more than fifteen (15) days.

6009.6 The level of background contamination in the excavation zone shall not interfere with the vapor monitoring method used to detect releases from the tank.

6009.7 The vapor monitor used shall be designed and operated to detect any significant increase in concentration above the background concentrations in the excavation zone of anyone (1) of the following:

(a) The regulated substance stored in the tank system;
(b) A component or components of the regulated substance; or
(c) A tracer compound placed in the tank system.

6009.8 Before using vapor monitoring, the owner or operator shall assess the excavation zone to ensure compliance with §§6009.3 through 6009.6 of this section, 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.

6009.9 Monitoring wells shall be clearly marked and secured to avoid unauthorized access and tampering. Monitoring wells shall not be marked in any way that could be associated with a regulated substance stored at the facility.

6010 GROUNDWATER MONITORING

6010.1 Testing or monitoring for regulated substances on the ground water or in the tank excavation zone shall meet the requirements of this section.

6010.2 The regulated substance stored shall be immiscible in water and have a specific gravity of less than one (1).

6010.3 If testing or monitoring for regulated substances on ground water, the ground water shall never be more than twenty feet (20') from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the monitoring wells or devices shall not be less than one one-hundredth of a centimeter per second (0.01 cm/sec). The soil should consist of gravel, coarse to medium sand, coarse silt, or other permeable materials.

6010.4 The slotted 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 ground water conditions.

6010.5 Monitoring wells shall be sealed from the ground surface to the top of the filter pack.

6010.6 Monitoring wells or devices shall intercept the excavation zone or shall be as close to the excavation zone as is technically feasible.

6010.7 Before using ground-water monitoring, the owner or operator shall assess the excavation zone to ensure compliance with §§60 I0.2 through 60 I0.6, and to establish the number and position of monitoring wells or devices that will detect releases within the excavation zone from any portion of the tank that routinely contains product. A minimum of two (2) wells shall be required in each excavation zone.

6010.8 The continuous monitoring devices or manual methods used shall be capable of detecting the presence of at least one-eighth inch (1/8") of free regulated substance on top of the ground water in a monitoring well.

6010.9 Each monitoring well shall be clearly marked and secured to avoid unauthorized access and tampering.

6011 INTERSTITIAL MONITORING

6011.1 Interstitial monitoring between an UST system and a secondary barrier immediately around or beneath the UST system may be used, but only if the system is designed, constructed, and installed to detect a leak from any portion of the tank or piping that routinely contains product and also meets the requirements of this section which are applicable to the particular UST system.

6011.2 For double-walled UST systems, the sampling or testing method shall be capable of detecting a release through the inner wall in any portion of the tank that routinely contains a regulated substance.

6011.3 Where vacuum monitoring is utilized, the vacuum must be maintained at not less than five inches (5") of mercury and shall not exceed manufacturer's instructions. If the vacuum falls below five inches (5") of mercury, the owner or operator shall report a suspected release to the Director. A vacuum shall not be re-instituted more frequently than once every three (3) months without prior approval of the Director.

6011.4 For tanks with an internally fitted liner, an automated device shall be used that is capable of detecting a release between the inner wall of the tank and the liner. The liner shall be compatible with the substance stored.

6011.5 For UST systems with a secondary barrier within the excavation zone, the secondary barrier shall meet the following requirements:

(a) The barrier, around or beneath the UST system, shall consist of synthetic constructed material that is sufficiently thick and impermeable to direct a release to the monitoring point and permit its detection. The permeability shall be not greater than one millionth of a centimeter per second (10^{-6} cm/sec) for the regulated substance stored;

(b) The barrier shall be compatible with the regulated substance stored so that a release from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected; and

(c) If the tank is cathodically protected, the barrier shall be installed so that it does not interfere with the proper operation of the cathodic protection system.

6011.6 An UST system with a secondary barrier within the excavation zone shall use a sampling or testing method that is capable of detecting a release between the UST system and the secondary barrier. The testing or sampling method used

shall not be reduced in effectiveness or rendered inoperative by ground-water, rainfall, soil moisture, or any other known interference to the point that a release could go undetected for more than fifteen (15) days.

6011.7 The owner or operator of an UST system with a secondary barrier within the excavation zone shall assess the site to ensure that the secondary barrier is always above the ground water and not in a twenty-five (25) year flood plain, unless the barrier and monitoring designs are designed for use under those conditions.

6011.8 The monitoring wells for each UST system with a secondary barrier within the excavation zone shall be clearly marked and secured to avoid unauthorized access and tampering.

6011.9 Interstitial monitoring shall be used to check for evidence of a release at least once every thirty (30) days on secondary containment systems on underground tanks and piping installed or replaced after February 8, 2007.

6012 OTHER METHODS OF RELEASE DETECTION

6012.1 The Director may approve an application for the use of another method of release detection if the owner or operator can demonstrate that the method is capable of detecting a release as effectively as any of the methods allowed in §§6007 through 6011 of this chapter, and meets the requirements of this section.

6012.2 The alternative release detection method, or combination of methods, shall be capable of detecting either of the following:

(a) A leak rate of two-tenths gallon per hour (0.2 gal/hour); or

(b) A release of one hundred fifty (150) gallons within a month with a probability of detection of not less than ninety-five percent (95%) and a probability of false alarm not greater than five percent (5%).

6012.3 In comparing methods, the Director shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected.

6012.4 If an alternative method is approved, the owner or operator shall comply with any conditions imposed by the Director on its use to ensure the protection of human health and the environment.