

SUBCHAPTER H: HIGHLY-REACTIVE VOLATILE ORGANIC COMPOUNDS
DIVISION 1: VENT GAS CONTROL

§§115.720, 115.722, 115.725 - 115.727, 115.729
Effective December 23, 2004

§115.720. Applicability and Definitions.

(a) **Applicability.** In the Houston/Galveston/Brazoria area, as defined in §115.10 of this title (relating to Definitions), any site with a controlled or uncontrolled vent gas stream containing highly-reactive volatile organic compounds (HRVOC), as defined in §115.10 of this title, or a flare that emits or has the potential to emit HRVOC is subject to this division (relating to Vent Gas Control) in addition to the applicable requirements of Subchapter B, Divisions 2 and 6 of this chapter (relating to Vent Gas Control; and Batch Processes) and Subchapter D, Division 1 of this chapter (relating to Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries).

(b) **Definitions.** The following terms, when used in this division, have the following meanings, unless the context clearly indicates otherwise. Additional definitions for terms used in this division are found in §§3.2, 101.1, and 115.10 of this title (relating to Definitions).

(1) **Degassing safety device** - A device other than a flare used to prevent the release of unburned organic vapors from a geologic storage facility resulting from either equipment or containment failure.

(2) **Supplementary fuel** - Natural gas or fuel gas added to the gas stream to increase the net heating value.

(3) **Pilot gas** - Natural gas or fuel gas that does not contain greater than 5% by weight highly-reactive volatile organic compounds that is directed to the combustion point of a flare to maintain a continuous ignition source.

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§115.722. Site-wide Cap and Control Requirements.

(a) The owner or operator of a site subject to this division shall additionally comply with the requirements of Chapter 101, Subchapter H, Division 6 of this title (relating to Highly-Reactive Volatile Organic Compound Emissions Cap and Trade Program).

(b) All sites subject to this division or Division 2 of this subchapter (relating to Cooling Tower Heat Exchange Systems) that are exempt from the highly-reactive volatile organic compound (HRVOC) emissions cap and trade program, in accordance with §101.392(a) of this title (relating to Exemptions), are limited to ten tons of HRVOC emissions per calendar year.

(c) Each site subject to this division is subject to the following emission limitations.

(1) HRVOC emissions at each site located in Harris County that is subject to this division or Division 2 of this subchapter must not exceed 1,200 pounds of HRVOC per one-hour block period from any flare, vent, pressure relief valve, cooling tower, or any combination.

(2) HRVOC emissions at each site located in the Houston/Galveston/Brazoria area as defined in §115.10 of this title (relating to Definitions), excluding Harris County, that is subject to this division or Division 2 of this subchapter must not exceed 1,200 pounds of HRVOC per one-hour block period from any flare, vent, pressure relief valve, cooling tower, or any combination.

(3) For any exceedance of the HRVOC emission limits specified in paragraph (1) or (2) of this subsection, the emission limits specified in paragraph (1) or (2) of this subsection must be used to determine compliance with subsection (a) or (b) of this section instead of the total amount of actual emissions.

(d) All flares must continuously meet the requirements of 40 Code of Federal Regulations §60.18(c)(2) - (6) and (d) as amended through October 17, 2000 (65 FR 61744) when vent gas containing HRVOC is being routed to the flare.

(1) Average net heating value over a one-hour block period will be used to demonstrate compliance with the minimum net heating value requirements.

(2) The exit velocity averaged over a one-hour block period must be used to demonstrate compliance with the maximum exit velocity requirements.

(e) An owner or operator may not use emission reduction credits or discrete emission reduction credits in order to demonstrate compliance with this division.

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§115.725. Monitoring and Testing Requirements.

(a) Except for pressure relief valves as defined in §115.10 of this title (relating to Definitions), each vent gas stream that is not controlled by a flare at a site must be tested by applying the appropriate reference method tests and procedures specified in §115.125 of this title (relating to Testing Requirements) to establish maximum potential highly-reactive volatile organic compound (HRVOC) hourly emission data expected during any operation not defined as an emissions event or a scheduled maintenance, startup, or shutdown activity under §101.1 of this title (relating to Definitions). The data shall be used in accordance with the test plan required under §115.726 of this title (relating to Recordkeeping and Reporting Requirements) to demonstrate compliance with the control requirement of §115.722(a) - (c) of this title (relating to Site-wide Cap and Control Requirements). For cyclic or batch processes, the HRVOC emissions shall be considered as zero during non-operational periods other than startup, shutdown, or maintenance activities.

(1) For each uncontrolled vent subject to the requirements of this subsection, the owner or operator shall:

(A) select an operational parameter or parameters that directly affects the HRVOC emissions from the vent;

(B) install, calibrate, maintain, and operate according to manufacturer's recommendations, a continuous monitoring system to monitor and record the parameter or parameters selected under subparagraph (A) of this paragraph; and

(C) establish operating limits for the selected parameter or parameters as the hourly average of the parameter or parameters during the HRVOC emission test required under this subsection.

(2) For each vent subject to the requirements of this subsection that is controlled by a control device other than a flare, the owner or operator shall:

(A) select an operational parameter or parameters that directly affects the HRVOC emissions directed to the control device;

(B) select an operational parameter or parameters of the control device that directly affects the control efficiency of the control device;

(C) install, calibrate, maintain, and operate according to manufacturer recommendations, continuous monitoring systems to monitor and record the parameters selected under subparagraphs (A) and (B) of this paragraph; and

(D) establish operating limits for the selected parameters required under subparagraphs (A) and (B) of this paragraph as the hourly averages of the parameters during the HRVOC emission test required under this subsection.

(3) To demonstrate compliance with the control requirements of §115.722(a) - (c) of this title during emission events and scheduled startup, shutdown, and maintenance activities, the owner or operator shall determine the HRVOC emissions from each vent using one of the following:

(A) testing using the appropriate reference methods and procedures specified in this section; or

(B) process knowledge and engineering calculations. If process knowledge and engineering calculations are used to determine HRVOC emissions during emission events and scheduled startup, shutdown, and maintenance activities, the monitoring plans required under paragraph (4) of this subsection must also include all process information and calculations used to calculate the HRVOC emissions.

(4) The owner or operator shall develop, implement, and follow a written monitoring plan for the continuous monitoring systems required in paragraphs (1) and (2) of this subsection prior to performing the monitoring and testing under this subsection. Upon written request by the executive director, the monitoring plans shall be submitted within 30 days for review. The executive director may require additional or alternative monitoring requirements. At a minimum, monitoring plans shall include:

- (A) specifications for all monitors used in the continuous monitoring systems;
- (B) process and control device information supporting the selection of parameters;
- (C) actual testing or manufacturer data documenting the control efficiency of the control device; and
- (D) schedule of quarterly inspections of the continuous monitoring systems to insure proper operation.

(5) After the initial HRVOC emission test required under this subsection, the owner or operator may perform additional emission testing to update the data used to demonstrate compliance with the control requirements of §115.722(a) - (c) of this title. Written notification of the testing must be submitted to the Houston Regional Office as specified in §115.726(a)(2) of this title.

(6) Testing using the appropriate reference methods and procedures specified in §115.125 of this title that was conducted prior to December 31, 2004, may be used in lieu of conducting the testing specified in this subsection, provided that:

(A) the owner or operator of the affected source obtains approval for the testing report and data from the executive director if the prior testing was not performed as a demonstration of compliance with an applicable state permit, other state rule, or federal regulation, and the test report submitted to the commission; and

(B) the testing establishes maximum potential HRVOC emissions data expected during any operation that is not defined as an emissions event or a scheduled maintenance, startup, or shutdown activity under §101.1 of this title.

(C) the operational parameters selected as required under paragraphs (1) or (2) of this subsection were monitored at the time of testing with a monitoring system meeting the requirements of this subsection or an equivalent monitoring system. If the prior testing meets all provisions under this paragraph and is used to satisfy the testing requirement of this subsection, then the owner or operator shall comply with the monitoring system and written monitoring plan requirements of this subsection by no later than the compliance schedule in §115.729 of this title (relating to Counties and Compliance Schedules) instead of the time required in paragraph (4) of this subsection.

(7) The executive director may waive testing for no more than one-half of the vents that are identical in design and operation if the owner or operator demonstrates that all the vents are identical in design and operation, and the emissions from all of the vents can be expected to be identical.

(A) The request for a waiver shall be submitted with the test plan required under §115.726(a) of this title. Information required to support the waiver request shall include, but is not limited to, the following:

- (i) identification of each vent expected to be identical;
- (ii) each specific vent to be tested;
- (iii) a detailed technical explanation demonstrating that the measured emissions from the selected vents can be expected to be representative of emissions from all vents;
- (iv) specific technical information for each vent and the process associated with each vent demonstrating that the vents and associated processes are identical in design and operation;
- (v) maintenance records for each vent and associated process demonstrating the vents and associated processes have been maintained in a similar manner; and
- (vi) any additional information or data requested by the executive director necessary to demonstrate that the emissions from the vents can be expected to be identical.

(B) The executive director shall review the request for waiver and may provide a temporary waiver authorizing testing of no more than one-half of the vents. The results of the tests must be submitted to the executive director no later than 60 days after completion of testing. The executive director will determine if any further testing is required based on the review of the test results. If further testing is required, the owner or operator must perform the additional testing no later than 60 days after receiving written notification from the executive director.

(C) To demonstrate compliance with the control requirements of §115.722(a) - (c) of this title, the HRVOC emission test results from the vent gas stream with the maximum HRVOC emission rate of those vents tested under this paragraph must be used for those vent gas streams for which a waiver of testing, temporary or permanent, has been authorized.

(b) The following alternatives may be used in lieu of the testing requirements of subsection (a) of this section, for vent gas streams that are not controlled by a flare or are not pressure relief valves. The vent gas stream must comply with the process parameter monitoring requirements of subsection (a) of this section, except as specified in paragraph (1)(D) of this subsection.

(1) The vent gas stream may be equipped with a continuous emissions monitoring system (CEMS), provided that:

(A) the CEMS meets the monitoring requirements of 40 Code of Federal Regulations (CFR) §60.13(b) and (d) - (f);

(B) the monitor shall initially and at a minimum quarterly thereafter be subjected to a cylinder gas audit per 40 CFR Part 60, Appendix B, Performance Specification 2, Section 16 to assess system bias and ensure accuracy;

(C) the measured concentration shall be used in combination with flow rate determined in accordance with subparagraph (D) of this paragraph to determine the hourly HRVOC emission rate;

(D) the following parameter monitoring requirements are used in lieu of the requirements of subsection (a)(1) or (2) of this section:

(i) the owner or operator must install, calibrate, maintain, and operate according to manufacturer's recommendations, a continuous monitoring system on the vent or in the associated process systems sufficient to determine the volumetric flow; and

(ii) if volumetric flow rate is not monitored directly, the owner or operator must determine through engineering calculations, manufacturer's information, or actual testing the correlation between the monitored parameter and the volumetric flow rate; and

(E) the owner or operator complies with the requirements for a written monitoring plan specified in subsection (a)(4) of this section.

(2) Process knowledge, including scientific calculations and other process monitoring data sufficient to demonstrate compliance status, may be used to determine maximum potential HRVOC hourly emission data. Types of vent gas streams for which process knowledge may be used in lieu of testing are:

(A) analyzer vents;

(B) steam system vents;

(C) vent gas streams where there is no HRVOC present except during emissions events; or

(D) degassing safety devices, as defined in §115.720 of this title (relating to Applicability and Definitions).

(c) Affected pressure relief valves not controlled by a flare shall be monitored as follows.

(1) Install, calibrate, maintain, and operate according to manufacturer's recommendations, a continuous monitoring system on the pressure relief valve or in the associated process systems sufficient to determine:

(A) the time and duration of each pressure relief event;

(B) the status of the pressure relief valve as either:

(i) open or closed to the atmosphere; or

(ii) the percentage the valve is open to the atmosphere; and

(C) the volumetric flow rate during a pressure relief event.

(i) If volumetric flow rate is not monitored directly, the owner or operator must determine through engineering calculations, manufacturer's information, or actual testing the correlation between the monitored parameter and the percentage the pressure relief valve is open to the atmosphere to the volumetric flow rate.

(ii) If the monitoring system only indicates an open or closed status as specified in subparagraph (B)(i) of this paragraph, the owner or operator must assume the pressure relief valve is 100% open during a pressure relief event for purposes of calculating volumetric flow rate.

(2) For purposes of determining compliance with the control requirement of §115.722(a) - (c) of this title during pressure relief events, the owner or operator may use process knowledge, including scientific calculations and other process monitoring data, to determine HRVOC emission rates. The volumetric flow rate determined in accordance with paragraph (1)(C) of this subsection shall be used in combination with the process knowledge to determine HRVOC emission rates.

(3) The owner or operator shall develop, implement, and follow a written monitoring plan to satisfy the requirements of paragraphs (1) and (2) of this subsection. The monitoring plan must include:

(A) specifications for all monitors used to satisfy the requirements of paragraphs (1) and (2) of this subsection;

(B) all engineering calculations, manufacturer's information, or actual testing supporting the correlation of the monitored parameters to actual volumetric flow rate specified in paragraph (1)(C)(i) of this subsection;

(C) supporting documentation of the actual testing or process knowledge used to determine HRVOC emissions as provided in paragraph (2) of this subsection;

(D) at a minimum, quarterly inspections of all pressure relief valves and associated monitors to insure proper operation per the manufacturer's specifications; and

(E) a list identifying all pressure relief valves in HRVOC service subject to the requirements of this subsection.

(4) Upon written request by the executive director, the monitoring plan required under paragraph (3) of this subsection must be submitted within 30 days for review. The executive director may require additional or alternative monitoring requirements.

(d) Except as specified in subsections (e) - (k) of this section, the owner or operator of an affected flare must conduct continuous monitoring, to demonstrate compliance with §115.722(a) - (d) of this title as follows:

(1) install, calibrate, maintain, and operate a continuous flow monitoring system capable of measuring the flow rate over the full potential range of operation. The executive director may approve alternative means of determining the flare flow rate for a period of time not to exceed 1.0% of the annual operating time of the flare. The monitoring system must be capable of measuring the entire gas stream flow to the flare (i.e., all vent gas and supplemental fuel sources) and may consist of one or more flow measurements at one or more header locations. For correcting flow rate to standard conditions (defined as 68 degrees Fahrenheit and 760 millimeters of mercury (mm Hg)), temperature and pressure in the main flare header must be monitored continuously. The monitors must be calibrated to meet accuracy specifications as follows:

(A) the temperature monitor must be calibrated annually to within $\pm 2.0\%$ at absolute temperature;

(B) the pressure monitor must be calibrated annually to within ± 5.0 mm Hg; and

(C) the flow monitor, or velocity monitor used to determine flow rate, must be initially calibrated, prior to installation, to demonstrate accuracy to within 5.0% at flow rates equivalent to 30%, 60%, and 90% of monitor full scale. After installation, the flow monitor or velocity monitor must be calibrated annually according to manufacturer's specifications;

(2) install, calibrate, maintain, and operate an on-line analyzer system capable of determining HRVOC at least once every 15 minutes. The on-line analyzer system must also be capable of measuring, at least once every 15 minutes, other potential constituents (e.g., hydrogen, nitrogen, methane, and carbon dioxide, and volatile organic compounds (VOC) other than HRVOCs) sufficient to determine the molecular weight and net heating value of the gas combusted in the flare to within 5.0%. Samples must be collected from a location on the main flare header such that the measured constituents, including any supplementary fuel, are representative of the combined gas combusted in the flare system. Net heating value of the gas combusted in the flare must be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744). The samples must be used to demonstrate continuous compliance with the requirements of §115.722(a) - (d) of this title. Pilot gas may not be included in the determination of the net heating value.

(A) Calibration of the on-line analyzer shall be as follows:

(i) for the HRVOC constituents, follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 must be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 must be performed at least once every calendar week instead of once every 24 hours. The calibration gases used for calibration procedures must be in accordance with Section 7.1 of Performance Specification 9;

(ii) for the constituents monitored to determine net heating value and molecular weight, the owner or operator may elect to follow either the calibration procedures specified for HRVOC constituents in clause (i) of this subparagraph or the calibration procedures recommended by the

analyzer manufacturer. If the owner or operator elects to follow manufacturer's recommended procedures:

(I) those calibration procedures must include, at a minimum, single point calibration checks at least once every calendar week to meet the acceptance criteria specified in Section 10.2 of Performance Specification 9 with certified standards of the top two non-HRVOC constituents affecting molecular weight and net heating value; and

(II) the owner or operator shall include in the quality assurance plan (QAP) required under §115.726(a) of this title, manufacturer's information and data to demonstrate the accuracy and reliability of the analyzer for those monitored constituents for which routine calibration checks are not performed;

(iii) the range of calibration standards for the HRVOCs and other constituents may be based on the typical concentrations observed rather than the full potential range of concentrations. Data must be included in the QAP required under §115.726(a) of this title to demonstrate the accuracy of the analyzer at maximum potential concentrations outside of the proposed calibration range; and

(iv) the executive director may specify additional calibration requirements during approval of the QAP under §115.726(a)(1)(B) of this title.

(B) If the on-line analyzer, required in this paragraph, measures concentrations on a dry basis, the results must be corrected for moisture when determining net heating value according to the requirements in 40 CFR §60.18(f)(3) or when determining mass rates using volumetric flow rates that are on a wet basis. The following methods may be used to determine moisture for this correction:

(i) a continuous moisture analyzer installed, calibrated, maintained, and operated according to the manufacturer's recommendations;

(ii) assume saturated moisture conditions for the temperature and pressure at the sample extraction point in the flare header for conditions up to 20% moisture by volume;

(iii) assume 0% moisture for flare systems where moisture is not expected to be present due to the process nature of the vent streams routed to the flare; or

(iv) process information and engineering calculations for conditions, such as steaming operations, where moisture is expected to be greater than 20% by volume;

(3) continuously operate each monitoring system as required by this section at least 95% of the time when the flare is operational, averaged over a calendar year. The percent measurement data availability must be calculated as the total flare operating hours for which valid quality-assured data was recorded divided by the total flare operating hours. Time required for normal calibration checks required under paragraphs (1) and (2) of this subsection is not considered downtime for purposes of this calculation;

(4) during any period of monitor downtime of the on-line analyzer specified in paragraph (2) of this subsection exceeding eight consecutive hours, take a sample daily, starting within ten hours of the initial on-line analyzer malfunction. The sampling location must be such that the measured constituents, including any supplementary fuel, is representative of all of the major constituents going to the flare system. For determining the HRVOC concentrations in the flare header gas, the samples must be analyzed for the concentrations of HRVOC according to the procedures in 40 CFR Part 60, Appendix A, Method 18 as amended through October 17, 2000 (65 FR 61744). Samples must also be analyzed by American Standard of Testing Materials Standard D1946-77 to determine other potential constituents (e.g., hydrogen, nitrogen, methane, and carbon dioxide, and VOCs other than HRVOCs) sufficient to determine the molecular weight and net heating value of the gas combusted in the flare to within 5.0%. Net heating value of the gas combusted in the flare must be calculated according to the equation given in 40 CFR §60.18(f)(3). During periods of monitor downtime, these samples must be used to demonstrate that continuous compliance with the requirements of §115.722(a) - (d) of this title is met;

(5) for each one-hour block period, calculate the average net heating value of the gas combusted in the flare according to the equation given in 40 CFR §60.18(f)(3). Pilot gas must not be included in the determination of the net heating value;

(6) for each one-hour block period, calculate the average actual exit velocity of the flare based on continuous flow rate, temperature, and pressure monitor data, according to 40 CFR §60.18(f)(4); and

(7) calculate the HRVOC hourly average mass emission rates from the flare using the data gathered according to paragraphs (1) - (6) of this subsection, assuming a 99% destruction efficiency for ethylene and propylene and a 98% destruction efficiency for all other HRVOCs when the flare meets the heating value and exit velocity requirements of 40 CFR §60.18. During each one-hour block period when the flare is not in compliance with the net heating value or exit velocity requirements of 40 CFR §60.18, a destruction efficiency of 93% shall be assumed to calculate HRVOC mass emission rates.

(e) Flares used solely for abatement of emissions from marine loading operations or transport vessel loading and unloading operations are not required to comply with the monitoring requirements of subsection (d) of this section, provided the following specific requirements are satisfied.

(1) To demonstrate compliance with the minimum net heating value requirements of §115.722(d) of this title, a calorimeter must be calibrated, installed, operated, and maintained, in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

(2) The flare's actual exit velocity for each loading activity must be calculated on a one-hour block average basis, based on the maximum loading rate and the supplemental fuel rate corrected to standard temperature and pressure and the unobstructed (free) cross-sectional area of the flare tip, according to 40 CFR §60.18(f)(4) to demonstrate compliance with the exit velocity requirements of §115.722(d) of this title.

(3) The HRVOC hourly average mass emission rates from the flare must be calculated to demonstrate compliance with the site-wide cap in §115.722 of this title, using total HRVOC sent to the

flare calculated based on loading emission calculations, and the speciated composition of the material being sent to the flare, assuming a 99% destruction efficiency for ethylene and propylene and a 98% destruction efficiency for all other HRVOCs when the flare meets the net heating value and exit velocity requirements of 40 CFR §60.18. During each one-hour block period when the flare does not meet the net heating value or exit velocity requirements of 40 CFR §60.18, a destruction efficiency of 93% must be assumed to calculate HRVOC mass emission rates.

(4) For flares that receive greater than 95% of an individual HRVOC at all times, the owner or operator may use process knowledge to determine net heating value for demonstrating compliance with §115.722(d) of this title.

(f) Flares used solely for abatement of emissions from scheduled or unscheduled maintenance, startup, or shutdown activities must comply with the continuous monitoring requirements in subsection (d) of this section, or satisfy all of the following requirements.

(1) A single flare must not be operated in HRVOC service for more than 720 hours at a site in any 12 consecutive months.

(2) The total number of hours for which a site may send HRVOCs temporarily to multiple flares as described in this subsection must not exceed 1,440 hours in 12 consecutive months.

(3) To demonstrate compliance with the minimum net heating value requirements of §115.722(d) of this title, a calorimeter must be calibrated, installed, operated, and maintained, in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units per standard cubic foot of the gas.

(4) The flow rate of the gas routed to the flare, in standard cubic feet per minute must be determined by either:

(A) complying with the monitoring requirements of subsection (d)(1) of this section; or

(B) using process knowledge and engineering calculations.

(5) The flare's actual exit velocity for each activity must be calculated on a one-hour block average basis, corrected to standard temperature and pressure and the unobstructed (free) cross-sectional area of the flare tip, according to 40 CFR §60.18(f)(4). The HRVOC hourly average mass emission rates from the flare must be calculated to demonstrate compliance with §115.722(a) - (c) of this title, using total HRVOC sent to the flare calculated based on process knowledge or actual measurement, assuming a 99% destruction efficiency for ethylene and propylene and a 98% destruction efficiency for all other HRVOCs when the flare meets the net heating value and exit velocity requirements of 40 CFR §60.18. During each one-hour block period when the flare does not meet the net heating value or exit velocity requirements of 40 CFR §60.18, a destruction efficiency of 93% must be assumed to calculate HRVOC mass emission rates.

(6) For flares that at all times receive greater than 95% of an individual HRVOC, the owner or operator may use process knowledge to determine net heating value for demonstrating compliance with §115.722(d) of this title.

(g) For an emergency flare, as defined in §115.10 of this title, subject to the requirements of this division, the owner or operator shall:

(1) comply with the continuous monitoring requirements in subsection (d) of this section; or

(2) use process knowledge and engineering calculations to determine compliance with the requirements of §115.722(a) - (d) of this title during an upset event. If this option is selected the owner or operator shall comply with the following:

(A) for emergency flares equipped with a physical seal (e.g., a water seal) that prevents emissions from being sent to the flare except during an upset event, the owner or operator shall install, calibrate, operate, and maintain, according to manufacturer's specifications, a continuous monitoring system that:

(i) monitors the status of the physical seal to ensure that emissions are not directed to the flare except during an upset event;

(ii) automatically records the time and duration of each event when emissions are sent to the flare; and

(iii) verifies that the physical seal has been restored after each event;

(B) for emergency flares not equipped with a physical seal that prevents emissions from being sent to the flare except during an upset event, the owner or operator shall:

(i) install, calibrate, operate, and maintain, according to manufacturers' specifications, a flow monitoring or indicating system to determine and record the time and duration of each event when emissions are sent to the flare; and

(ii) determine through process knowledge, engineering calculations, or actual testing, the baseline flow rate from any purge/sweep gas and the minimum flow rate indicative of an upset event;

(C) the owner or operator shall develop, implement, and follow a written monitoring plan to satisfy the requirements of subparagraph (A) or (B) of this paragraph. The monitoring plan must include:

(i) specifications for all monitors used to satisfy the requirements of subparagraph (A) or (B) of this paragraph;

(ii) the engineering calculations, process information, and actual testing used to determine volumetric flow rate, flare tip exit velocity, net heating value, and HRVOC emissions for compliance with §115.722(a) - (d) of this title; and

(iii) at a minimum, quarterly inspections of the continuous monitoring system to ensure proper operation;

(D) upon written request by the executive director, the monitoring plans required in accordance with subparagraph (C) of this paragraph shall be submitted within 30 days for review. The executive director may require additional or alternative monitoring requirements; and

(E) the flare's actual exit velocity for each activity must be calculated on a one-hour block average basis, corrected to standard temperature and pressure and the unobstructed (free) cross-sectional area of the flare tip, according to 40 CFR §60.18(f)(4). The HRVOC hourly average mass emission rates from the flare must be calculated, using total HRVOC sent to the flare calculated based on process knowledge or actual measurement, assuming a 99% destruction efficiency for ethylene and propylene and a 98% destruction efficiency for all other HRVOCs when the flare meets the net heating value and exit velocity requirements of 40 CFR §60.18. During each one-hour block period when the flare does not meet the net heating value or exit velocity requirements of 40 CFR §60.18, a destruction efficiency of 93% must be assumed to calculate HRVOC mass emission rates.

(h) Flares other than emergency flares that temporarily receive HRVOC emissions during any operation that is not a scheduled or unscheduled maintenance, startup, or shutdown activity as defined in §101.1 of this title must satisfy the following requirements.

(1) The flare must not be operated in HRVOC service for more than 336 hours at the plant site in any 12 consecutive months.

(2) The total number of hours for which a site may send HRVOCs temporarily to multiple flares as described in this subsection must not exceed 672 hours in 12 consecutive months.

(3) In lieu of the flow monitoring requirements of subsection (d)(1) of this section, the owner or operator may use one of the following to demonstrate compliance with §115.722(a) - (d) of this title:

(A) process knowledge;

(B) actual measurement; or

(C) for flares that temporarily receive HRVOC emissions from flare systems that are monitored in accordance with subsection (d) of this section, the flow monitoring data from the monitored flare system may be used as data substitution. Maximum one-hour average flow rate, excluding data from startups, shutdowns, maintenance, or emissions events, from the previous 30 operational days must be used to determine compliance with §115.722(a) - (d) of this title.

(4) In lieu of implementing the continuous monitoring requirements specified in subsection (d)(2) of this section, the owner or operator may use one of the following to demonstrate compliance with §115.722(a) - (d) of this title:

(A) for all flares in temporary HRVOC service, daily sampling in accordance with subsection (d)(4) of this section to determine net heating value and HRVOC concentrations; or

(B) for flares that temporarily receive HRVOC emissions for less than 72 consecutive hours from flare systems that are monitored in accordance with subsection (d) of this section, the monitoring data from the monitored flare system may be used as data substitution to satisfy compliance with §115.722(a) - (d) of this title. Maximum one-hour average total HRVOC concentrations and minimum one-hour average net heating value, excluding data from scheduled startups, shutdowns, maintenance, or emissions events, from the previous 30 operational days shall be used to determine compliance with §115.722(a) - (d) of this title.

(5) If an emissions event as defined in §101.1 of this title occurs while HRVOC emissions are being routed to a flare temporarily under this subsection, the owner or operator shall demonstrate compliance with the requirements of §115.722(a) - (d) of this title using process knowledge and engineering calculations in accordance with subsection (g)(2)(E) of this section.

(i) For flares specifically designed to receive and control liquid or dual phase streams containing HRVOCs, process knowledge and engineering calculations must be used to determine compliance with the requirements of §115.722(a) - (d) of this title in accordance with subsection (g)(2)(E) of this section.

(j) Flares that are used to control vent gases from metal alkyl production processes must comply with the continuous monitoring requirements in subsection (d) of this section, or satisfy the following requirements.

(1) The flow rate of the gas routed to the flare, in standard cubic feet per minute, must be determined by complying with the monitoring requirements of subsection (d)(1) of this section, for demonstrating compliance with the site cap and exit velocity requirements in §115.722(a) - (d) of this title, in accordance with subsection (g)(2)(E) of this section. The owner or operator may submit a request to the executive director for alternative operational parameter monitoring in lieu of the flow monitoring specified in this paragraph for situations in which direct flow monitoring is not possible.

(2) Process knowledge and engineering calculations may be used to determine net heating value and HRVOC concentrations for demonstrating compliance with §115.722(a) - (d) of this title in accordance with subsection (g)(2)(E) of this section.

(k) For flares that are in multi-purpose service (e.g., an emergency flare that is also used to control emissions from emissions events and scheduled startup, shutdown, and maintenance activities), the owner or operator shall:

(1) comply with all continuous monitoring requirements in subsection (d) of this section;

or

(2) comply with the most stringent requirements of each applicable subsection of this section. For the purposes of this paragraph:

(A) only flares subject to the monitoring requirements of subsections (e), (f), or (g) of this section can be considered as multi-purpose flares;

(B) the requirements of the applicable subsections that shall apply are as follows:

(i) for determining minimum net heating value for demonstrating compliance with §115.722(d) of this title, the requirements in subsections (e)(1) or (f)(3) of this section apply;

(ii) to determine volumetric flow rate and HRVOC emissions for demonstrating compliance with the exit velocity requirements and the site-wide cap requirements in §115.722(a) - (d) of this title, the following requirements shall apply:

(I) the requirements in subsection (e)(2) and (3) of this section during any loading operation, as specified in subsection (e) of this section; and

(II) the requirements in subsection (f)(4) and (5) of this section during any emissions event or scheduled startup, shutdown, or maintenance activity;

(iii) for flares used for scheduled or unscheduled startup, shutdown, or maintenance activities, as specified in subsection (f) of this section, the operational time limits in subsection (f)(1) and (2) of this section apply for time periods involving those specified activities; and

(iv) for flares used as emergency flares, as specified in §115.725(g), the requirements in subsection (g)(2)(A) - (D) of this section apply; and

(C) multiple clauses under subparagraph (B) of this paragraph apply. For example, a flare used for emergencies and startup, shutdown, and maintenance activities is subject to subparagraph (B)(i), (ii)(II), (iii), and (iv) of this paragraph.

(I) The owner or operator shall continuously operate each monitoring system as required by this section at least 95% of the operational time of the applicable flare, vent gas stream, or pressure relief valve, averaged over a calendar year. The percent measurement data availability must be calculated as the total operating hours for which valid quality-assured data was recorded divided by the total operating hours. Time required for normal calibration checks required by the provisions of this section is not considered downtime for purposes of this calculation. For the purposes of this calculation, the following apply:

(1) the operational time of an affected flare is any time the flare has the potential to receive HRVOCs;

(2) the operational time of an affected vent gas stream is any time the vent gas stream has the potential to emit HRVOCs; and

(3) the operational time of an affected pressure relief valve is any time HRVOCs are present upstream of the pressure relief valve.

(m) Minor modifications to either test methods or monitoring methods may be approved by the executive director. Test methods or monitoring methods other than those specified in this section may be used if approved by the executive director and validated by 40 CFR Part 63, Appendix A, Test Method 301 (December 29, 1992). For the purposes of this subsection, substitute "executive director" in each place that Test Method 301 references "administrator." The owner or operator does not require prior approval from the executive director for the following alternative monitoring approaches.

(1) In lieu of monitoring constituents for net heating value in accordance with subsection (d)(2) of this section, the owner or operator may install an online calorimeter to determine the net heating value. The calorimeter must be calibrated, installed, operated, and maintained, in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas; and

(2) The owner or operator may elect to demonstrate compliance with the minimum net heating value requirements of §115.722(d) of this title using the following procedure:

(A) install, calibrate, operate, and maintain a continuous flow monitor to monitor the supplementary fuel used to increase the net heating value of the gas stream sent to the flare; and

(B) continuously maintain sufficient supplementary fuel flow to meet the minimum net heating value requirements specified in §115.722(d) of this title while assuming zero net heating value contribution from all vent gas streams routed to the flare.

(3) The owner or operator of a flare in dedicated service for storage tanks with 95% or greater of an individual HRVOC may elect to determine net heating value and HRVOC concentrations using process knowledge and engineering calculations in lieu of the on-line analyzer required in subsection (d)(2) of this section.

(n) Upon written request by the executive director, the owner or operator shall submit the engineering calculations and process information used to determine volumetric flow rate, flare tip exit velocity, net heating value, and HRVOC emissions for compliance with the requirements of §115.722(a) - (d) of this title where applicable under the requirements of this section. The information must be submitted within 30 days for review.

Adopted December 1, 2004

Effective December 23, 2004

§115.726. Recordkeeping and Reporting Requirements.

(a) To satisfy the requirements of §115.725 of this title (relating to Monitoring and Testing Requirements), the owner or operator of each affected flare or vent gas stream shall, as applicable:

(1) develop, implement, and follow a written quality assurance plan (QAP) for the monitoring requirements (including installation, calibration, operation, and maintenance of continuous emissions monitoring systems) of this division (relating to Vent Gas Control) for each flare monitored in accordance with §115.725(d) of this title.

(A) The owner or operator shall maintain records on-site of the QAP and any revisions to the QAP.

(B) Upon written request by the executive director, the QAP required in this paragraph shall be submitted within 30 days for review. The executive director may specify revisions to the QAP;

(2) develop, implement, and follow a written test plan for flares and vent gas streams required to be tested in accordance with §115.725(a) of this title. The owner or operator must submit written notification to the Houston regional office at least 45 days prior to conducting any flare and vent gas stream testing required by §115.725(a) of this title to provide the commission opportunity to request a pretest meeting and observe the testing. The written notification must include, at a minimum, the following:

(A) the proposed test date; and

(B) the written test plan required by this paragraph.

(b) The owner or operator of a vent gas stream subject to the requirements of §115.725(a) of this title shall comply with the following recordkeeping requirements as applicable:

(1) maintain records of all testing conducted in accordance with §115.725(a) of this title to determine highly-reactive volatile organic compound (HRVOC) emission rates on a pounds-per-hour basis for each affected vent gas stream;

(2) maintain hourly records of the parameter monitoring in accordance with §115.725(a)(1) or (2) of this title;

(3) maintain records of the monitoring plans required under §115.725(a)(4) of this title;

(4) maintain hourly records of HRVOC emission rates on a pound-per-hour basis for each affected vent gas stream monitored in accordance with §115.725(b)(1) of this title;

(5) maintain records of all continuous emissions monitoring system calibrations and cylinder gas audits performed in accordance with §115.725(b)(1)(A) and (B) of this title;

(6) maintain records of all process information and calculations used to determine vent gas flow rate as specified in §115.725(b)(1)(C) of this title; and

(7) maintain records of all process information, actual testing, process monitoring data, and calculations used to comply with §115.725(a) of this title under the alternatives to the testing requirements in §115.725(b)(2) of this title;

(c) The owner or operator of a pressure relief valve subject to the requirements of §115.725(c) of this title shall comply with the following recordkeeping requirements:

(1) maintain records of the date, time, duration, volumetric flow rate, and speciated and total HRVOC emission rates on a pounds-per-hour basis for each pressure relief event;

(2) maintain hourly records of the parameter monitoring in accordance with §115.725(c)(1) of this title;

(3) maintain records of all process information, monitored data, and calculations used to determine volumetric flow rate and HRVOC hourly emission data as specified in §115.725(c)(2) of this title; and

(4) maintain records of the monitoring plans required under §115.725(c)(3) of this title.

(d) The owner or operator of a flare at a site that is subject to §115.722 of this title (relating to Site-wide Cap and Control Requirements) or the continuous monitoring requirements of §115.725 of this title shall comply with the following recordkeeping requirements:

(1) maintain hourly records of the speciated and total HRVOC emission rates on a pounds-per-hour basis for each affected flare in order to demonstrate compliance with §115.722 of this title;

(2) maintain records of all monitoring, testing, and calibrations performed in accordance with the provisions of §115.725 of this title;

(3) maintain records on a weekly basis that detail all corrective actions made to the continuous monitoring systems during monitor downtimes, and any delay in corrective action taken by documenting the dates, reasons, and durations of such occurrences;

(4) maintain records of each one-hour block average calculated net heating value of the gas stream routed to the flare and each one-hour block average calculated exit velocity at the flare tip, determined in accordance with the provisions of §115.725 of this title; and

(5) for flares subject to the monitoring requirements of §115.725(e) of this title, maintain records of each loading activity including, but not limited to:

(A) the nominal size of vessel being loaded;

(B) the start time and the end time for each vessel loaded;

(C) any compounds loaded at a concentration greater than 1% by weight, in addition to the compounds at a concentration greater than 1% by weight loaded into the vessel immediately previous to the current loading operation, if the vessel being loaded is not clean;

(D) the quantity of material loaded;

(E) the loading rate in gallons per minute;

(F) the method of loading, such as submerged fill, bottom fill, or splash loading;

and

(G) all process information, monitored data, and calculations used to determine volumetric flow rate and HRVOC hourly emission data;

(6) for flares used solely for the abatement of emissions from scheduled or unscheduled maintenance, startup, or shutdown activities in §115.725(f) of this title, the owner or operator shall maintain records, including, but not limited to:

(A) the date, time, and duration for each flaring event;

(B) the volumetric flow rate, in standard cubic feet per minute, of the gas routed to the flare recorded in 15-minute block average periods, or portion thereof, for each flaring event; and

(C) all process information, monitored data, and calculations used to determine volumetric flow rate and HRVOC hourly emission data;

(7) for emergency flares subject to the requirements of §115.725(g) of this title, maintain records including, but not limited to:

(A) the date, time, and duration for each flaring event;

(B) the volumetric flow rate, in standard cubic feet per minute, of the gas routed to the flare recorded in 15-minute block average periods, or portion thereof, for each flaring event;

(C) all process information, monitored data, and calculations used to determine net heating value, volumetric flow rate, and HRVOC hourly emission data;

(D) hourly records of the parameter monitoring in accordance with §115.725(g)(2)(A) or (B) of this title; and

(E) records of the monitoring plans required under §115.725(g)(2)(C) of this title;

(8) for flares subject to the requirements of §115.725(h) or (i) of this title, maintain records including, but not limited to:

(A) the date, time, and duration for each flaring event;

(B) the volumetric flow rate, in standard cubic feet per minute, of the gas routed to the flare recorded in 15-minute block average periods, or portion thereof, for each flaring event; and

(C) all process information, monitored data, and calculations used to determine net heating value, volumetric flow rate, and HRVOC hourly emission data;

(9) for flares subject to the requirements of §115.725(j) of this title, the owner or operator shall maintain records including, but not limited to:

(A) the volumetric flow rate, in standard cubic feet per minute, of the gas routed to the flare recorded in 15-minute block average periods, or portion thereof, for each flaring event;

(B) all process information, monitored data, and calculations used to determine net heating value and HRVOC hourly emission data; and

(C) hourly records of parameter monitoring, if alternative parameter monitoring is approved by the executive director as specified in §115.725(j)(1)(A) of this title; and

(10) for flares considered to be multi-purpose flares, as specified in §115.725(k) of this title, the owner or operator shall maintain all applicable records as required in paragraphs (5) - (7) of this subsection.

(e) Records for exemptions in §115.727(a) - (e) of this title (relating to Exemptions) shall include the following.

(1) The owner or operator of any site claiming exemption under §115.727(a) of this title shall maintain records to document that each vent gas stream that is routed to a flare contains less than 5.0% by weight HRVOC at all times and each vent gas stream not routed to a flare does not exceed 100 parts per million by volume HRVOC at any time.

(2) The owner or operator of any flare claiming exemption under §115.727(b) of this title shall maintain records that document that the HRVOC content of the gas stream that is routed to the flare does not exceed 5.0% by weight at any time.

(3) The owner or operator of any vent gas stream or flare claiming exemption under §115.727 of this title shall comply with the following recordkeeping requirements:

(A) for vent gas streams, maintain records that demonstrate continuous compliance with the exemption criteria of §115.727(c) of this title; or

(B) for flares, maintain records that demonstrate continuous compliance with the exemption criteria of §115.727(d) of this title.

(f) The owner or operator claiming an exemption under §115.727(e) of this title shall submit written notification to the executive director no later than December 31, 2005.

(g) The owner or operator of each site subject to §115.722 of this title shall maintain daily records to demonstrate compliance with the tons per calendar year emissions limits specified in §115.722(a) and (b) of this title, including:

(1) cooling tower emissions from cooling towers that are subject to Division 2 of this subchapter (relating to Cooling Tower Heat Exchange Systems); and

(2) all emissions from flares, vents, and pressure relief valves subject to the requirements of §115.725 of this title.

(h) The owner or operator of each site subject to §115.722 of this title shall maintain hourly records to demonstrate compliance with the one-hour block emissions limits specified in §115.722(c) of this title, including:

(1) cooling tower emissions from cooling towers that are subject to Division 2 of this subchapter; and

(2) all emissions from flares, vents, and pressure relief valves subject to the requirements of §115.725 of this title.

(i) The owner or operator shall maintain on-site, all records required in this division and other records as necessary to demonstrate continuous compliance and records of periodic measurements for at least five years and make them available for review upon request by authorized representatives of the executive director, United States Environmental Protection Agency, or any local air pollution control agency with jurisdiction.

(j) The owner or operator of an affected flare, vent gas stream, or pressure relief valve subject to the requirements of this division that is reclassified as to the applicable requirements of the division or the exemption status, shall comply with the following:

(1) for affected flares, vent gas streams, or pressure relief valves that become exempt from the requirements of this division, maintain records of the date that the exemption became applicable as well as the recordkeeping requirements of subsection (e) of this section; and

(2) for affected flares, vent gas streams, or pressure relief valves that are reclassified as to operational status and the applicable requirements of the division (i.e., a continuous operation flare monitored in accordance with §115.725(d) of this title reclassified as an emergency flare and monitored according to §115.725(g) of this title), maintain records of the date of change in operational status and reclassification.

Adopted December 1, 2004

Effective December 23, 2004

§115.727. Exemptions.

(a) Any site for which all individual gas streams routed to a flare contain less than 5.0% by weight of highly-reactive volatile organic compounds (HRVOC) at all times, and all individual vent gas streams not routed to a flare contain less than 100 parts per million by volume (ppmv) HRVOC at all times, is exempt from the requirements of §115.722(a) - (c) of this title (relating to Site-wide Cap and Control Requirements).

(b) For a flare that at no time receives a gas stream containing 5.0% or greater HRVOC by weight:

(1) the gas stream directed to the flare shall be treated as a vent gas stream for purposes of determining compliance with §115.722(a) - (c) of this title; and

(2) the flare is exempt from the continuous monitoring requirements of §115.725(d) - (k) of this title (relating to Monitoring and Testing Requirements) and §115.726(d) of this title (relating to Recordkeeping and Recording Requirements) and is therefore not required to submit a quality assurance plan under §115.726(a) of this title.

(c) For vent gas streams that are not routed to a flare, the following exemptions may apply.

(1) A vent gas stream that has no potential to emit HRVOCs is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.726(e)(3)(A) of this title.

(2) A vent gas stream that has the potential to emit HRVOCs, but that has an HRVOC concentration less than 100 ppmv at all times or has a maximum potential flow rate equal to or less than 100 dry standard cubic feet per hour is exempt from this division with the exception of the recordkeeping requirements of §115.726(e)(3)(A) of this title. The maximum potential HRVOC emissions for the sum of all vent gas streams claimed under this exemption, must be less for the account specified in §115.722(a) or (b) of this title than 0.5 tons per year.

(3) Vent gas streams from the following sources are exempt from the requirements of this division with the exception of the recordkeeping requirements of §115.726(e)(3)(A) of this title:

(A) vent gas streams resulting from the combustion of less than 5.0% by weight HRVOC in boilers, furnaces, engines, turbines, incinerators, and heaters;

(B) pressure tanks that maintain working pressure sufficient at all times to prevent any vapor or gas loss to the atmosphere;

(C) laboratory vent hoods;

(D) instrumentation air systems;

(E) atmospheric storage tanks;

(F) wastewater system vents;

(G) cooling towers; and

(H) equipment leak fugitive components, except for vents from pressure relief valves occurring when the process pressure is sufficient to overcome the preset pressure relief point of the pressure relief valve and emissions are either released directly to the atmosphere or routed to a control device.

(d) Any flare that at no time receives a total gas stream with greater than 100 ppmv HRVOC is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.726(e)(3)(B) of this title.

(e) Any flare that will be permanently out of service by April 1, 2006, is exempt from the requirements of this division, with the exception of the notification and recordkeeping requirements in §115.726(f) of this title.

(f) All sites that are subject to this division and that are located in the Houston/Galveston/Brazoria area as defined in §115.10 of this title (relating to Definitions), excluding Harris County, are exempt from §115.722(b) and (c)(2) of this title, except as provided in §115.729(a)(3) of this title (relating to Counties and Compliance Schedules).

Adopted December 1, 2004

Effective December 23, 2004

§115.729. Counties and Compliance Schedules.

(a) The owner or operator of each vent gas stream, pressure relief valve, and flare in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall demonstrate compliance with the requirements of this division (relating to Vent Gas Control) as soon as practicable, but no later than December 31, 2005, with the exception of the following:

(1) §115.722(a) and (c)(2) of this title (relating to Site-wide Cap and Control Requirements) for which the owner or operator shall demonstrate compliance as soon as practicable, but not later than January 1, 2007;

(2) §115.722(b) and (c)(1) of this title for which the owner or operator shall demonstrate compliance as soon as practicable, but no later than April 1, 2006; and

(3) the exemption in §115.727(f) of this title (relating to Exemptions) will no longer apply upon public notice of revocation by the commission. Upon revocation of §115.727(f) of this title, sites subject to this division located in the Houston/Galveston/Brazoria area, as defined in §115.10 of this title (relating to Definitions), excluding Harris County, shall comply with paragraphs (1) and (2) of this subsection by the dates specified in those paragraphs, or within 180 days of public notice, whichever is later.

(b) For vent gas streams, flares, and pressure relief valves that become subject to the requirements of this subdivision after December 31, 2005, testing and monitoring must be conducted as soon as practicable, but no later than 60 days after being brought into highly-reactive volatile organic compound service.

Adopted December 1, 2004

Effective December 23, 2004

SUBCHAPTER H: HIGHLY-REACTIVE VOLATILE ORGANIC COMPOUNDS
DIVISION 2: COOLING TOWER HEAT EXCHANGE SYSTEMS
§§115.760, 115.761, 115.764, 115.766, 115.767, 115.769
Effective December 23, 2004

§115.760. Applicability and Cooling Tower Heat Exchange System Definitions.

(a) **Applicability.** Any site with a cooling tower heat exchange system in the Houston/Galveston/Brazoria area, as defined in §115.10 of this title (relating to Definitions), that emits or has the potential to emit a highly-reactive volatile organic compound, as defined in §115.10 of this title, is subject to the requirements of this division (relating to Cooling Tower Heat Exchange Systems) in addition to the applicable requirements of any other division in this subchapter or any other subchapter in this chapter.

(b) **Definitions.** The following terms, when used in this division, have the following meanings, unless the context clearly indicates otherwise. Additional definitions for terms used in this division are found in §§3.2, 101.1, and 115.10 of this title (relating to Definitions).

(1) **Cooling tower heat exchange system** - Cooling towers, associated heat exchangers, pumps, and ancillary equipment where water is used as a cooling medium and the heat from process fluids is transferred to cooling water. This does not include fin-fan coolers. This also does not include comfort cooling tower heat exchange systems (i.e., those used exclusively in cooling, heating, ventilation, and air conditioning systems).

(2) **Jacketed reactor** - A heat exchange system where water is used as a cooling medium around a heavy walled reactor rather than a conventional heat exchanger tube design. For the purposes of this definition, a reactor is a device or vessel in which one or more chemicals or reactants, other than air, are combined or decomposed in such a way that the molecular structure of one or more chemicals are altered and one or more new organic compounds are formed.

(3) **Finite volume system** - A system in which a fixed amount of highly-reactive volatile organic compounds is contained or circulated, and changes in the amount of highly-reactive volatile organic compound in the system can only occur through transfers into the system to maintain the system level, transfers out of the system for maintenance purposes, or leakage out of the system (e.g., a propylene refrigeration system).

Adopted December 1, 2004

Effective December 23, 2004

§115.761. Site-wide Cap.

(a) The owner or operator of a site subject to this division shall additionally comply with the requirements of Chapter 101, Subchapter H, Division 6 of this title (relating to Highly-Reactive Volatile Organic Compound Emissions Cap and Trade Program).

(b) All sites subject to this division or Division 1 of this subchapter (relating to Vent Gas Control) that are exempt from the highly-reactive volatile organic compound (HRVOC) emissions cap and trade program, in accordance with §101.392(a) of this title (relating to Exemptions), are limited to ten tons of HRVOC emissions per calendar year.

(c) Each site subject to this division is subject to the following emission limitations.

(1) HRVOC emissions at each site located in Harris County that is subject to this division or Division 1 of this subchapter must not exceed 1,200 pounds of HRVOCs per one-hour block period from any flare, vent, pressure relief valve, cooling tower, or any combination.

(2) HRVOC emissions at each site located in the Houston/Galveston/Brazoria area as defined in §115.10 of this title (relating to Definitions), excluding Harris County, that is subject to this division or Division 1 of this subchapter must not exceed 1,200 pounds of HRVOCs per one-hour block period from any flare, vent, pressure relief valve, cooling tower, or any combination.

(3) For any exceedance of the HRVOC emission limits specified in paragraph (1) or (2) of this subsection, the emission limits specified in paragraph (1) or (2) of this subsection must be used to determine compliance with subsection (a) or (b) of this section instead of the total amount of actual emissions.

(d) An owner or operator may not use emission reduction credits or discrete emission reduction credits in order to demonstrate compliance with this division.

Adopted December 1, 2004

Effective December 23, 2004

§115.764. Monitoring and Testing Requirements.

(a) The owner or operator of a cooling tower heat exchange system with a design capacity to circulate 8,000 gallons per minute (gpm) or greater of cooling water shall:

(1) install, calibrate, operate, and maintain a continuous flow monitor on each inlet of each cooling tower. Each monitor shall be calibrated on an annual basis to within $\pm 5.0\%$ accuracy. When the cooling tower flow monitor is down, flow measurements shall be used for the most recent 24-hour period in which the flow measurements are representative of cooling tower operations during monitor downtime;

(2) install, calibrate, operate, and maintain a system to continuously determine the total strippable volatile organic compound (VOC) concentration at each inlet of each cooling tower. The continuous monitoring system must have a minimum detection limit capability of no more than 25 parts per billion by weight (ppbw) of strippable VOC in the cooling water. The continuous monitor must be calibrated with methane or a VOC that best represents potential leakage into the cooling tower system and the emissions from the system. Calibration must be checked weekly or more frequently, as necessary, to maintain a monitor drift of less than 5.0%. During out-of-order periods of the VOC monitor(s) of 24 hours or greater, a sample must be collected for total VOC analysis according to the air-stripping method in Appendix P of the Texas Commission on Environmental Quality Sampling Procedures Manual

(January 2003). This sample must be collected at least three times per calendar week, with an interval of no less than 36 hours between samples;

(3) continuously operate each monitoring system as required by this section at least 95% of the time when the cooling tower is operational, averaged over a calendar year. The percent measurement data availability must be calculated as the total operating hours of the cooling tower heat exchange system for which valid quality-assured data was recorded divided by the total operating hours of the cooling tower heat exchange system. Time required for normal calibration checks required under this subsection is not considered downtime for purposes of this calculation;

(4) determine the speciated strippable highly-reactive volatile organic compound (HRVOC) concentration by collecting samples from each inlet of each cooling tower at least once per month in accordance with the air-stripping method in Appendix P;

(5) if the concentration of total strippable VOC is equal to or greater than 50 ppbw in the cooling tower water for more than a one-hour block of time, collect an additional sample to determine speciated and total HRVOC in accordance with the air-stripping method in Appendix P from each inlet of the affected cooling tower at least once daily, beginning on the next calendar day. The additional sampling to determine speciated and total HRVOC shall continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw; and

(6) in lieu of the monitoring in paragraph (2) of this subsection and the sampling for speciation of strippable HRVOC in paragraphs (4) and (5) of this subsection, a continuous on-line monitor capable of providing total HRVOC and speciated HRVOCs in ppbw may be installed. The sampling system for the continuous on-line monitoring system must be demonstrated equivalent to the air-stripping apparatus used in Appendix P for determining strippable HRVOC concentrations in the water as specified in subsection (f) of this section. The continuous on-line monitor system must satisfy the requirements of Sections 8.3, 10, 13.1, and 13.2 of 40 Code of Federal Regulations (CFR) Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744). The multi-point calibration procedure in Section 10.1 of Performance Specification 9 must be performed at least once every calendar quarter instead of once every month. During out-of-order periods of the on-line HRVOC monitor(s) of 24 hours or greater, sampling must be performed for total and speciated HRVOC analysis according to the air-stripping method in Appendix P. Sampling must be performed at least three times per calendar week, with an interval of no less than 36 hours between sampling times, until the continuous on-line monitor is properly operating and within the required performance specifications.

(A) During out-of-order periods of the monitoring system, data should be handled as follows for purposes of recordkeeping and demonstrating compliance:

(i) For each out-of-order period less than 24 hours, the maximum one-hour average HRVOC concentrations from the 24-hour period immediately prior to the out-of-order period must be used; and

(ii) For each out-of-order period of 24 hours or greater, the maximum one-hour average HRVOC concentrations from the 24-hour period immediately prior to the out-of-order period must be used for the time period from the initial outage of the monitoring system to time of

collection of the first manual sample required by this paragraph. The results of each manual sample must be used for the time period from collection of that sample to the collection of the subsequent sample, or to the time that the continuous monitoring system is on-line and within the required performance specifications.

(B) For periods that only the analyzer system is out of order and the sampling system (i.e., HRVOC sparging or stripping system) is still functioning within normal specifications, the owner or operator may elect to collect the manual samples required by this paragraph using the sampling system of the continuous HRVOC monitoring system.

(b) The owner or operator of a cooling tower heat exchange system with a design capacity to circulate less than 8,000 gpm of cooling water or a cooling tower heat exchange system in dedicated service to a jacketed reactor, as defined in §115.760(b) of this title (relating to Applicability and Cooling Tower Heat Exchange System Definitions), shall:

(1) install, calibrate, operate, and maintain a continuous flow monitor on each inlet of each cooling tower. Each monitor must be calibrated on an annual basis to within $\pm 5.0\%$ accuracy. When the cooling tower flow monitor is down, flow measurements must be used for the most recent 24-hour period in which the flow measurements are representative of cooling tower operations during monitor downtime;

(2) determine the total strippable VOC concentration by collecting samples from each inlet of each cooling tower at least twice per week in accordance with the air-stripping method in Appendix P with an interval of not less than 48 hours between samples;

(3) operate each monitoring system as required by this section at least 95% of the time when the cooling tower is operational, averaged over a calendar year. The percent measurement data availability must be calculated as the total operating hours of the cooling tower heat exchange system for which valid quality-assured data was recorded divided by the total operating hours of the cooling tower heat exchange system. Time required for normal calibration checks required under this subsection is not considered downtime for purposes of this calculation;

(4) determine the speciated strippable HRVOC concentration by collecting samples from each inlet of each cooling tower at least once per month in accordance with the air-stripping method in Appendix P;

(5) if the concentration of total strippable VOC is equal to or greater than 50 ppbw in the cooling tower water, collect an additional sample to determine total strippable VOC, speciated HRVOC, and total HRVOC from each inlet of the affected cooling tower at least once daily, beginning on the next calendar day, in accordance with the air-stripping method in Appendix P. The additional sampling to determine total strippable VOC, speciated HRVOC, and total HRVOC must continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw; and

(6) in lieu of the monitoring in paragraph (2) of this subsection and the sampling for speciation of strippable HRVOC in paragraphs (4) and (5) of this subsection, a continuous on-line monitor capable of providing total HRVOC and speciated HRVOCs in ppbw may be installed. The sampling system for the continuous on-line monitoring system must be demonstrated equivalent to the

air-stripping apparatus used in Appendix P for determining strippable HRVOC concentrations in the water as specified in subsection (f) of this section. The continuous on-line monitor system must satisfy the requirements of Sections 8.3, 10, 13.1, and 13.2 of 40 CFR Part 60, Appendix B, Performance Specification 9. The multi-point calibration procedure in Section 10.1 of Performance Specification 9 must be performed at least once every calendar quarter instead of once every month. During out-of-order periods of the on-line HRVOC monitor(s) of 24 hours or greater, sampling must be performed for total and speciated HRVOC analysis according to the air-stripping method in Appendix P. Sampling must be performed at least twice per calendar week, with an interval of no less than 72 hours between sampling times, until the continuous on-line monitor is properly operating and within the required performance specifications.

(A) During out-of-order periods of the monitoring system, data should be handled as follows for purposes of recordkeeping and demonstrating compliance.

(i) For each out-of-order period less than 24 hours, the maximum one-hour average HRVOC concentrations from the 24-hour period immediately prior to the out-of-order period must be used.

(ii) For each out-of-order period of 24 hours or greater, the maximum one-hour average HRVOC concentrations from the 24-hour period immediately prior to the out-of-order period must be used for the time period from the initial outage of the monitoring system to time of collection of the first manual sample required by this paragraph. The results of each manual sample must be used for the time period from collection of that sample to the collection of the subsequent sample, or to the time that the continuous monitoring system is on-line and within the required performance specifications.

(B) For periods that only the analyzer system is out of order and the sampling system (i.e., HRVOC sparging or stripping system) is still functioning within normal specifications, the owner or operator may elect to collect the manual samples required by this paragraph using the sampling system of the continuous HRVOC monitoring system.

(c) When periodic sampling is required, the owner or operator of the cooling tower heat exchange system shall determine the speciated HRVOC concentration as soon as this information is available, but no later than seven days after the sample(s) have been collected. Samples collected in a Tedlar™ bag must be analyzed no later than 72 hours after the samples have been collected. The samples must be analyzed according to the procedures in Test Method 18, 40 CFR Part 60, Appendix A, and/or Method TO-14A, published in "U.S. EPA Compendium for Determination of Toxic Organic Compounds in Ambient Air (1996)," United States Environmental Protection Agency Document Number 625/R96/010B.

(d) In lieu of subsections (a)(2) - (5) and (b)(2) - (5) of this section, the owner or operator of cooling tower heat exchange systems in which no individual heat exchanger has 5.0% or greater HRVOC in the process-side fluid, shall determine total strippable VOC and the HRVOC concentration in the cooling tower water at least once per month, with an interval of not less than 20 days between samples, according to the air-stripping method in Appendix P. If the total strippable VOC concentration in the cooling tower water is 50 ppbw or greater, the owner or operator shall determine the total strippable VOC

weekly and the HRVOC concentration weekly. The additional sampling for the total strippable VOC concentration and HRVOC concentration continue until the total strippable VOC concentration drops below 50 ppbw.

(e) In lieu of using a continuous flow monitor as described in subsections (a)(1) and (b)(1) of this section, the owner or operator of a cooling tower heat exchange system may:

(1) use the maximum potential flow rate based on manufacturer's pump performance data, assuming no back pressure; or

(2) install, calibrate, operate, and maintain, in accordance with the manufacturer's recommendations, a monitor to continuously measure and record each cooling water pump discharge pressure to establish the total dynamic head of the cooling water system. The owner or operator of the cooling water system must establish, use, and demonstrate in the QAP required in §115.766(i) of this title (relating to Recordkeeping and Reporting Requirements), a calculation methodology that will provide, on a continuous basis, the cooling water circulation flow rate (in gpm) based on the following: cooling water discharge pressure for each pump; the manufacturer's certified pump performance data; and the number of pumps in operation. This calculated flow rate will then be used to determine the hourly emission rate in pounds per hour, as required by §115.766(a)(3) of this title.

(f) Minor modifications to the monitoring and testing methods in this section may be approved by the executive director. Monitoring and testing methods other than those specified in this section may be used if approved by the executive director and validated by 40 CFR Part 63, Appendix A, Test Method 301 (December 29, 1992). For the purposes of this subsection, substitute "executive director" in each place that Test Method 301 references "administrator."

(g) In lieu of using the monitor location described in subsections (a), (b), and (h) of this section:

(1) the owner or operator of cooling tower heat exchange systems in which a single cooling tower services both HRVOC and non-HRVOC process units, or a single cooling tower that services multiple types of heat exchange systems (i.e., jacketed reactor or finite volume system), may:

(A) install a flow monitor or monitors, meeting the requirements of subsections (a)(1) and (b)(1) of this section at a point that represents the flow of cooling water from only the HRVOC-containing process units; and

(B) monitor the total strippable VOC or HRVOC concentration, in accordance with subsection (a), (b), (d), or (h) of this section at a point leaving the HRVOC-containing process unit and prior to mixing with cooling tower water from other units; or

(2) the owner or operator of cooling tower heat exchange systems may elect to monitor cooling water flow rate at a location that is representative of the total flow rate to the cooling tower.

(h) In lieu of the requirements of subsection (a) of this section, the owner or operator of a cooling tower heat exchange system in dedicated service to a finite volume system, as defined in §115.760(b) of

this title, with HRVOC and with a design capacity to circulate 8,000 gallons gpm or greater of cooling water may elect to comply with the following requirements:

- (1) install, calibrate, operate, and maintain a continuous flow monitor on each inlet of each cooling tower. Each monitor must be calibrated on an annual basis to within $\pm 5.0\%$ accuracy. When the cooling tower flow monitor is down, flow measurements must be used for the most recent 24-hour period in which the flow measurements are representative of cooling tower operations during monitor downtime;
- (2) determine the speciated strippable HRVOC concentration by collecting samples from each inlet of each cooling tower at least once per month in accordance with the air-stripping method in Appendix P;
- (3) determine the total strippable VOC concentration by collecting samples from each inlet of each cooling tower at least twice per week in accordance with the air-stripping method in Appendix P with an interval of not less than 48 hours between samples;
- (4) if the concentration of total strippable VOC is equal to or greater than 50 ppbw in the cooling tower water, collect an additional sample to determine total strippable VOC, speciated HRVOC, and total HRVOC from each inlet of the affected cooling tower at least once daily in accordance with the air-stripping method in Appendix P. The additional sampling to determine total strippable VOC, speciated HRVOC, and total HRVOC must continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw;
- (5) install, calibrate, operate, and maintain a continuous monitoring system to monitor the inventory level of the HRVOC in the finite volume system;
- (6) develop, implement, and follow a written monitoring plan to satisfy the requirements of paragraph (5) of this subsection. The monitoring plan must include:
 - (A) specifications for all monitors used to satisfy the requirements of paragraph (5) of this subsection;
 - (B) the normal hourly variation in the inventory level for the continuous monitoring system;
 - (C) all process information, design specifications, and engineering calculations, used to establish the normal hourly variation in the inventory level; and
 - (D) at a minimum, quarterly inspections of the continuous monitoring system to ensure proper operation;
- (7) if the hourly inventory level monitored in accordance with paragraphs (5) and (6) of this subsection is not within the normal hourly variation in the inventory level established as required in paragraph (5) of this subsection, except during maintenance activities, then the owner or operator must perform sampling for total strippable VOC as specified in paragraph (3) of this subsection within 24

hours. If the concentration of total strippable VOC is equal to or greater than 50 ppbw in the cooling tower water, then the owner or operator shall perform daily sampling to determine total strippable VOC, speciated HRVOC, and total HRVOC in accordance with paragraph (4) of this subsection until the concentration of total strippable VOC drops below 50 ppbw; and

(8) upon written request by the executive director, the monitoring plan required in accordance with paragraph (6) of this subsection must be submitted within 30 days for review. The executive director may require additional or alternative monitoring requirements.

Adopted December 1, 2004

Effective December 23, 2004

§115.766. Recordkeeping and Reporting Requirements.

(a) The owner or operator of any cooling tower heat exchange system subject to §115.761 of this title (relating to Site-wide Cap) shall comply with the following recordkeeping requirements:

(1) establish and maintain a process diagram of the cooling tower heat exchange system, including the locations at which the system will be monitored and sampled such that the cooling water is not exposed to the atmosphere prior to sampling;

(2) maintain records of all monitoring, testing, and calibrations performed in accordance with the provisions of §115.764 of this title (relating to Monitoring and Testing Requirements);

(3) maintain hourly records that document the emission rate in pounds per hour (lb/hr) for each hour for speciated highly-reactive volatile organic compounds (HRVOC) and total HRVOC from the cooling water for each cooling tower heat exchange system as required by §115.764(a), (b), (d), or (h) of this title. The flow rate of the cooling water in conjunction with the most recently monitored concentration of the speciated HRVOC or total HRVOC in the cooling tower water, shall be used to calculate the respective emission rate in lb/hr. If the concentration results of the speciated HRVOC or total HRVOC analyses are below the minimum detection limit (i.e., non-detected), then half the detection limit(s) must be used to calculate HRVOC emissions;

(4) maintain hourly records of the total strippable VOC concentration in the cooling water for cooling tower heat exchanger systems monitored in accordance with §115.764(a)(2) of this title, and maintain records of each test for total strippable VOC concentration performed in accordance with §115.764(b)(2), (d), or (h) of this title. If the concentration results of the total strippable VOC testing or monitoring are below the minimum detection limit, then one-half the detection limit must be used to calculate average total strippable VOC concentration;

(5) maintain hourly records of the cooling water flow rate;

(6) maintain records on a weekly basis that detail all corrective actions made to the continuous monitoring systems during monitor downtimes, and any delay in corrective action taken by documenting the dates, reasons, and durations of such occurrences; and

(7) for cooling tower heat exchange systems that comply with §115.764(h) of this title, maintain records including, but not limited to:

(A) the monitoring plan required by §115.764(h)(6) of this title;

(B) hourly records of the inventory level of the finite volume system from the continuous monitoring system required by §115.764(h)(6) of this title; and

(C) the date, time, purpose, and amount of all transfers of HRVOC into and out of the finite volume system;

(b) The owner or operator of any cooling tower heat exchange system claiming an exemption under §115.767 of this title (relating to Exemptions) shall comply with the following recordkeeping requirements:

(1) maintain records of the heat exchanger pressure differential to document continuous compliance with the exemption criteria of §115.767(1) of this title; or

(2) maintain records of the content of the process side fluid or intervening fluid in each heat exchanger to demonstrate continuous compliance with the exemption criteria of §115.767(2) and (5) of this title.

(c) The owner or operator shall maintain all records necessary to demonstrate continuous compliance and records of periodic measurements for at least five years and make them available for review upon request by authorized representatives of the executive director, United States Environmental Protection Agency, or any local air pollution control agency with jurisdiction.

(d) The owner or operator of any cooling tower heat exchange system using the alternate periodic monitoring available under §115.764(d) of this title shall maintain sufficient records to demonstrate that no individual heat exchanger has 5.0% or greater HRVOC in the process-side fluid.

(e) The owner or operator of any cooling tower heat exchange system using manufacturer's pump performance data to determine the maximum potential flow rate, as specified in §115.764(e)(1) of this title, shall maintain the following records for each pump:

(1) certified pump performance information from the manufacturer. If manufacturer's certified information is unavailable, then pump performance information that is generated by a qualified independent third-party organization using a code or standard of practice acceptable to the executive director may be used;

(2) the operating status of each pump;

(3) the motor manufacturer, model number, and rated brake horsepower;

(4) the impeller manufacturer, model number, size, and design;

(5) any change to a cooling tower heat exchange system pump or pumping system in which the change would modify the basis for design pumping capacity; and

(6) the effect of any change on the maximum potential flow rate.

(f) The owner or operator of any cooling tower heat exchange system using a system to monitor cooling water pump discharge pressure to determine the continuous flow rate for each cooling tower, as specified in §115.764(e)(2) of this title, shall maintain the following records for each pump:

(1) the continuous measurement of cooling water pump discharge pressure;

(2) certified pump performance information from the manufacturer. If manufacturer's certified information is unavailable, then pump performance information that is generated by a qualified independent third-party organization using a code or standard of practice acceptable to the executive director may be used;

(3) the operating status of each pump;

(4) the motor manufacturer, model number, and rated brake horsepower;

(5) the impeller manufacturer, model number, size, and design;

(6) any change to a cooling tower heat exchange system pump or pumping system in which the change would modify the basis for design pumping capacity; and

(7) the effect of any change on the maximum potential flow rate.

(g) The owner or operator of each site subject to §115.761 of this title shall maintain daily records to demonstrate compliance with the tons per calendar year emissions limits specified in §115.761(a) and (b) of this title, including:

(1) flare, vent gas, and pressure relief valve emissions that are subject to Division 1 of this subchapter (relating to Vent Gas Control); and

(2) all cooling towers subject to the requirements of §115.764 of this title.

(h) The owner or operator of each site subject to §115.761 of this title shall maintain hourly records to demonstrate compliance with the one-hour block emissions limits specified in §115.761(c) of this title, including:

(1) flare, vent gas, and pressure relief valve emissions that are subject to Division 1 of this subchapter; and

(2) all cooling towers subject to the requirements of §115.764 of this title.

(i) The owner or operator of an affected cooling tower heat exchange system shall develop, implement, and follow a written quality assurance plan (QAP) for the installation, calibration, operation, and maintenance for the monitoring equipment required by this division as follows.

(1) The owner or operator shall maintain records of the QAP and any revisions to the QAP on site.

(2) Upon written request by the executive director, the QAP required in this paragraph shall be submitted within 30 days for review. The executive director may specify revisions to the QAP.

(j) The owner or operator claiming an exemption under §115.767(4) of this title shall submit written notification to the executive director no later than December 31, 2005.

Adopted December 1, 2004

Effective December 23, 2004

§115.767. Exemptions.

The following exemptions apply.

(1) Any cooling tower heat exchange system in which each individual heat exchanger with greater than 100 parts per million by weight (ppmw) highly-reactive volatile organic compounds (HRVOC) in the process side fluid is operated with the minimum pressure on the cooling water side at least five pounds per square inch, gauge (psig) greater than the maximum pressure on the process side, as demonstrated by continuous pressure monitoring and recording at all heat exchangers with greater than 100 ppmw HRVOC in the process side fluid, is exempt from the requirements of this division (relating to Cooling Tower Heat Exchange Systems), with the exception of the recordkeeping requirements of §115.766(b) and (c) of this title (relating to Recordkeeping and Reporting Requirements).

(2) Any cooling tower heat exchange system in which no individual heat exchanger has greater than 100 ppmw HRVOCs in the process side fluid is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.766(b) and (c) of this title.

(3) Any site for which no stream directed to a cooling tower heat exchange system contains 5.0% or greater by weight HRVOC is exempt from the requirements of §115.761 of this title (relating to Site-wide Cap).

(4) Any cooling tower heat exchange system that will be permanently out of service by April 1, 2006, is exempt from the requirements of this division, with the exception of the notification and recordkeeping requirements in §115.766(j) of this title.

(5) Any cooling tower heat exchange system with an intervening cooling fluid containing less than 100 ppmw of HRVOC between the process and the cooling water is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.766(b) and (c) of this title. For purposes of this exemption:

(A) intervening fluid is a fluid that serves to isolate the cooling water from the process fluid and is not sent through a cooling tower or discharged; and

(B) discharge does not include emptying for maintenance purposes.

(6) All sites that are subject to this division and that are located in the Houston/Galveston/Brazoria area as defined in §115.10 of this title (relating to Definitions), excluding Harris County, are exempt from §115.761(b) and (c)(2) of this title, except as provided in §115.769(a)(3) of this title (relating to Counties and Compliance Schedules).

Adopted December 1, 2004

Effective December 23, 2004

§115.769. Counties and Compliance Schedules.

(a) The owner or operator of each cooling tower heat exchange system in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall demonstrate compliance with this division (relating to Cooling Tower Heat Exchange Systems) as soon as practicable, but no later than December 31, 2005, with the exception of the following:

(1) §115.761(a) and (c)(2) of this title (relating to Site-wide Cap) for which the owner or operator shall demonstrate compliance as soon as practicable, but no later than January 1, 2007;

(2) §115.761(b) and (c)(1) of this title for which the owner or operator shall demonstrate compliance as soon as practicable, but no later than April 1, 2006; and

(3) the exemption in §115.767(6) of this title (relating to Exemptions) will no longer apply upon public notice of revocation by the commission. Upon revocation of §115.767(6) of this title, sites subject to this division located in the Houston/Galveston/Brazoria area, as defined in §115.10 of this title (relating to Definitions), excluding Harris County, shall comply with paragraphs (1) and (2) of this subsection by the dates specified in those paragraphs, or within 180 days of public notice, whichever is later.

(b) For cooling tower heat exchange systems that become subject to the requirements of this division after December 31, 2005, testing and monitoring must be conducted as soon as practicable, but no later than 60 days after being brought into highly-reactive volatile organic compound service.

Adopted December 1, 2004

Effective December 23, 2004

SUBCHAPTER H: HIGHLY-REACTIVE VOLATILE ORGANIC COMPOUNDS
DIVISION 3: FUGITIVE EMISSIONS
§§115.780 - 115.784, 115.786 - 115.789
Effective June 24, 2010

§115.780. Applicability.

(a) Any process unit or process within a petroleum refinery; synthetic organic chemical, polymer, resin, or methyl-tert-butyl ether manufacturing process; or natural gas/gasoline processing operation in the Houston/Galveston/Brazoria area, as defined in §115.10 of this title (relating to Definitions), in which a highly-reactive volatile organic compound, as defined in §115.10 of this title, is a raw material, intermediate, final product, or in a waste stream is subject to the requirements of this division (relating to Fugitive Emissions) in addition to the applicable requirements of Subchapter D, Division 3 of this chapter (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas).

(b) An owner or operator may not use emission reduction credits or discrete emission reduction credits in order to demonstrate compliance with this division.

Adopted December 1, 2004

Effective December 23, 2004

§115.781. General Monitoring and Inspection Requirements.

(a) The owner or operator shall identify the components of each process unit in highly-reactive volatile organic compound (HRVOC) service that is subject to this division (relating to Fugitive Emissions). Such identification must allow for ready identification of the components, and distinction from any components that are not subject to this division. The components must be identified by one or more of the following methods:

- (1) a plant site plan;
- (2) color coding;
- (3) a written or electronic database;
- (4) designation of process unit boundaries;
- (5) some form of weatherproof identification; or

(6) process flow diagrams that exhibit sufficient detail to identify major pieces of equipment, including major process flows to, from, and within a process unit. Major equipment includes, but is not limited to, columns, reactors, pumps, compressors, drums, tanks, and exchangers.

(b) Each component in the process unit must be monitored according to the requirements of Subchapter D, Division 3 of this chapter (relating to Fugitive Emission Control in Petroleum Refining,

Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas), except that the following additional requirements apply.

(1) The exemptions of §115.357(1) - (12) of this title (relating to Exemptions) do not apply.

(2) The leak-skip provisions of §115.354(7) and (8) of this title (relating to Monitoring and Inspection Requirements) do not apply.

(3) The emissions from blind flanges, caps, or plugs at the end of a pipe or line containing HRVOC; connectors; heat exchanger heads; sight glasses; meters; gauges; sampling connections; bolted manways; hatches; agitators; sump covers; junction box vents; covers and seals on volatile organic compound water separators; and process drains must be monitored each calendar quarter (with a hydrocarbon gas analyzer).

(4) All components for which a repair attempt was made during a shutdown must be monitored (with a hydrocarbon gas analyzer) and inspected for leaks within 30 days after startup is completed following the shutdown.

(5) All process drains equipped with water seal controls, as defined in §115.140 of this title (relating to Industrial Wastewater Definitions), must be inspected weekly to ensure that the water seal controls are effective in preventing ventilation, except that daily inspections are required for those seals that have failed three or more inspections in any 12-month period. Upon request by the executive director, United States Environmental Protection Agency, or any local program with jurisdiction, the owner or operator shall demonstrate (e.g., by visual inspection or smoke test) that the water seal controls are properly designed and restrict ventilation.

(6) All process drains not equipped with water seal controls must be inspected monthly to ensure that all gaskets, caps, and/or plugs are in place and that there are no gaps, cracks, or other holes in the gaskets, caps, and/or plugs. In addition, all caps and plugs must be inspected monthly to ensure that they are tightly fitting.

(7) An unsafe-to-monitor or difficult-to-monitor component for which quarterly monitoring is specified may instead be monitored as follows.

(A) An unsafe-to-monitor component is a component that the owner or operator determines is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of conducting the monitoring. Components that are unsafe to monitor must be identified in a list made immediately available upon request. If an unsafe-to-monitor component is not considered safe to monitor within a calendar year, then it must be monitored as soon as possible during safe-to-monitor times.

(B) A difficult-to-monitor component is a component that cannot be inspected without elevating the monitoring personnel more than two meters above a permanent support surface or that requires a permit for confined space entry as defined in 29 Code of Federal Regulations (CFR) §1910.146. A difficult-to-monitor component for which quarterly monitoring is specified may instead be

monitored annually.

(8) All pressure relief valves in gaseous service that are not equipped with a rupture disk upstream of the relief valve with a pressure-sensing device between the rupture disk and the pressure relief valve must be monitored for fugitive leaks each calendar quarter (with a hydrocarbon gas analyzer).

(9) A leak is defined as a screening concentration greater than 500 parts per million by volume above background as methane for all components. If the owner or operator elects to use the alternative work practice in §115.358 of this title (relating to Alternative Work Practice), a leak is defined as specified in §115.358 of this title, including any leak detected using the alternative work practice on a component that is subject to the requirements of this division but not specifically selected for alternative work practice monitoring.

(10) Monitored screening concentrations must be recorded for each component in gaseous or light liquid service. Notations such as "pegged," "off scale," "leaking," "not leaking," or "below leak definition" may not be substituted for hydrocarbon gas analyzer results. For readings that are higher than the upper end of the scale (i.e., pegged) even when using the highest scale setting or a dilution probe, record a default pegged value of 100,000 parts per million by volume. This requirement does not apply to monitoring using an optical gas imaging instrument in accordance with §115.358 of this title.

(c) Pumps, compressors, and agitators must be:

- (1) inspected visually each calendar week for liquid dripping from the seals; or
- (2) equipped with an alarm that alerts the operator of a leak.

(d) If securing the bypass line valve in the closed position to comply with §115.783(1)(B) of this title (relating to Equipment Standards), the seal or closure mechanism must be visually inspected to ensure the valve is maintained in the closed position and the vent stream is not diverted through the bypass line:

- (1) on a monthly basis; and
- (2) after any maintenance activity that requires the seal to be broken.

(e) For any pressure relief device that has vented directly to the atmosphere (uncontrolled), the associated vent must be monitored (with a hydrocarbon gas analyzer) and inspected within 24 hours after actuation and the results recorded in accordance with §115.786 of this title (relating to Recordkeeping Requirements). If the associated vent is considered unsafe to monitor, then the vent must be monitored as soon as possible during safe-to-monitor times. If the associated vent is considered difficult to monitor, it must be monitored within 15 days after a release. This requirement does not supersede any monitoring requirements found in §115.725 of this title (relating to Monitoring and Testing Requirements).

(f) As an alternative to the requirements of subsection (b)(3) of this section for blind flanges, caps, or plugs at the end of a pipe or line containing HRVOC, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers, the owner or operator may elect to

monitor all of these components in a process unit by April 1, 2006, and then conduct subsequent monitoring at the following frequencies.

(1) The owner or operator may monitor the components once per year (i.e., 12-month period), if the percent leaking blind flanges, caps, or plugs at the end of a pipe or line containing HRVOC, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers in the process unit was 0.5% or greater, but less than 2.0%, during the last required annual or biennial monitoring period.

(2) The owner or operator may monitor the components once every two years, if the percent leaking blind flanges, caps, or plugs at the end of a pipe or line containing HRVOC, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers was less than 0.5% during the last required monitoring period. An owner or operator may comply with this paragraph by monitoring at least 40% of the components in the first year and the remainder of the components in the second year. The percent leaking connectors, bolted manways, heat exchanger heads, hatches, and sump covers will be calculated for the total of all monitoring performed during the two-year period.

(3) If the owner or operator of a process unit in a biennial leak detection and repair program calculates less than 0.5% leaking blind flanges, caps, or plugs at the end of a pipe or line containing HRVOC, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers from the two-year monitoring period, the owner or operator may monitor the components one time every four years. An owner or operator may comply with the requirements of this paragraph by monitoring at least 20% of the components each year until all connectors, bolted manways, heat exchanger heads, hatches, and sump covers have been monitored within four years.

(4) If a process unit complying with the requirements of paragraph (3) of this subsection using a four-year monitoring interval program has greater than or equal to 0.5% but less than 1.0% leaking blind flanges, caps, or plugs at the end of a pipe or line containing HRVOC, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers, the owner or operator shall increase the monitoring frequency to one time every two years. An owner or operator may comply with the requirements of this paragraph by monitoring at least 40% of the components in the first year and the remainder of the components in the second year. The owner or operator may again elect to use the provisions of paragraph (3) of this subsection when the percent leaking components decreases to less than 0.5%.

(5) If a process unit complying with requirements of paragraph (3) of this subsection using a four-year monitoring interval program has greater than or equal to 1.0% but less than 2.0% leaking blind flanges, caps, or plugs at the end of a pipe or line containing HRVOC, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers, the owner or operator shall increase the monitoring frequency to one time per year. The owner or operator may again elect to use the provisions of paragraph (3) of this subsection when the percent leaking components decreases to less than 0.5%.

(6) If a process unit complying with requirements of paragraph (3) of this subsection using a four-year monitoring interval program has 2.0% or greater leaking blind flanges, caps, or plugs at

the end of a pipe or line containing HRVOC, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers, the owner or operator shall increase the monitoring frequency to quarterly. The owner or operator may again elect to use the provisions of paragraph (3) of this subsection when the percent leaking components decreases to less than 0.5%.

(g) Except as provided in paragraph (2) of this subsection, the owner or operator shall use dataloggers and/or electronic data collection devices during all monitoring required by this section. The owner or operator shall transfer electronic data from electronic datalogging devices to an electronic or hard copy database within seven days of monitoring.

(1) For all monitoring events in which an electronic data collection device is used, the collected monitoring data must include the identification of each component and each calibration run, the maximum screening concentration detected, the time of monitoring (i.e., the time that the organic vapor concentration is read or recorded for each component), a date stamp, an operator identification, an instrument identification, and calibration gas concentrations and certification dates.

(2) The owner or operator may use paper logs where necessary or more feasible (e.g., small rounds (less than 100 components), re-monitoring following component repair, or when dataloggers are broken or not available), and shall record, at a minimum, the information required in paragraph (1) of this subsection. The owner or operator shall transfer any manually recorded monitoring data to the electronic or hard copy database within seven days of monitoring.

(3) Each change to the database regarding the monitored concentration, date and time read, repair information, addition or deletion of components, or monitoring schedule must be detailed in a log or inserted as a notation in the database. All such changes must include the name of the person who made the change, the date of the change, and an explanation to support the change.

(h) For any components that the owner or operator elects to use the alternative work practice in §115.358 of this title, the following provisions apply.

(1) The frequency for monitoring any components listed in this section must be the frequency determined according to §115.358 of this title, except as specified in paragraph (3) of this subsection.

(2) The alternative monitoring schedules allowed under subsection (f) of this section are not allowed.

(3) If the owner or operator elects to use the alternative work practice in §115.358 of this title to satisfy the hydrocarbon gas analyzer monitoring requirements of subsections (b)(4) or (e) of this section, the time limitations specified in subsections (b)(4) and (e) of this section on performing the monitoring continue to apply.

(4) If the component is within a class of equipment (e.g., valves, flanges, etc.) that the owner or operator has elected to monitor using the alternative work practice in §115.358 of this title and the component meets all other conditions specified in §115.358 of this title for acceptable use of the alternative work practice, then the component may not be classified as difficult-to-monitor under

subsection (b)(7)(B) of this section unless in order to image the component as required by §115.358 of this title the monitoring personnel would have to be elevated more than two meters above a permanent support surface or would require a permit for confined space entry as defined in 29 CFR §1910.146 (December 1, 1998). If the component does qualify as difficult-to-monitor using the alternative work practice in §115.358 of this title, the owner or operator may use either Method 21 in 40 CFR Part 60, Appendix A-7 (October 17, 2000) or the alternative work practice at the monitoring frequency specified in subsection (b)(7)(B) of this section.

(5) An owner or operator electing to use the alternative work practice in §115.358 of this title may still classify a component as unsafe-to-monitor as allowed under subsection (b)(7)(A) of this section if the component cannot be safely monitored using either a hydrocarbon gas analyzer or the alternative work practice.

(6) For any components subject to subsection (b)(3) of this section that are not subject to Method 21 monitoring under 40 CFR Parts 60, 61, 63, or 65, but the owner or operator is using the alternative work practice in §115.358 of this title to satisfy a Method 21 monitoring requirement under this chapter, the owner or operator may choose to comply with the following in lieu of the annual Method 21 monitoring in §115.358(f) of this title.

(A) For any leak detected using the alternative work practice in §115.358 of this title, the owner or operator must perform a Method 21 test on the component to determine the leak concentration. The Method 21 test must be performed no later than one business day after the leak is detected using the alternative work practice in §115.358 of this title.

(B) To qualify for this option, the percent leaking components of all the components selected for this option must be less than 2.0%.

(C) The owner or operator shall perform a Method 21 test on each component selected for this option according to the frequencies specified in subsection (f) of this section. If the Method 21 test required under subparagraph (A) of this paragraph for any leak detected is within the same calendar year as the normally scheduled Method 21 test required under this subparagraph, the owner or operator may use the Method 21 test performed for subparagraph (A) of this paragraph to satisfy the requirements of this subparagraph.

(D) If the owner or operator elects to follow the alternative schedules for annual Method 21 testing under this paragraph, the owner or operator shall provide notice of electing this option with the notification required under §115.358(g) of this title.

Adopted June 2, 2010

Effective June 24, 2010

§115.782. Procedures and Schedule for Leak Repair and Follow-up.

(a) Tagging. Upon the detection or designation of a leaking component, a weatherproof and readily visible tag, bearing the component identification and the date the leak was detected, must be affixed to the leaking component. The tag must remain in place until the leaking component is repaired.

(b) General rule - time to repair.

(1) For leaks detected over 10,000 parts per million by volume (ppmv), a first attempt at repairing the leaking component must be made no later than one business day after the leak is detected, and the component must be repaired no later than seven calendar days after the leak is detected.

(2) For all other leaks, a first attempt at repairing the leaking component must be made no later than five calendar days after the leak is detected, and the component must be repaired no later than 15 calendar days after the leak is detected.

(3) Except as specified in paragraph (4) of this subsection, for any leak detected using the alternative work practice in §115.358 of this title (relating to Alternative Work Practice), a first attempt at repairing the leaking component must be made no later than one business day after the leak is detected, and the component must be repaired no later than seven calendar days after the leak is detected. If the owner or operator measures the leak concentration using Method 21 in 40 Code of Federal Regulations Part 60, Appendix A-7 (October 17, 2000) and demonstrates the leak concentration is 10,000 ppmv or less, then the time to repair is as specified in paragraph (2) of this subsection. The Method 21 test must be performed no later than the next business day after the leak was detected using the alternative work practice in §115.358 of this title .

(4) For any leak detected using the alternative work practice in §115.358 of this title from a component classified as difficult to monitor using Method 21, but not classified as difficult to monitor using the alternative work practice, the time to repair is as specified in paragraph (2) of this subsection.

(c) Delay of repair.

(1) For all components (except valves specified in paragraph (2) of this subsection), repair may be delayed beyond the period designated in subsection (b) of this section for any of the following reasons.

(A) The component is isolated from the process and does not remain in highly-reactive volatile organic compound (HRVOC) service.

(B) If the repair of a component within seven or 15 days (as specified in subsection (b) of this section) after the leak is detected would require a process unit shutdown that would create more emissions than the repair would eliminate, the repair may be delayed until the next scheduled process unit shutdown, provided that the owner or operator meets the conditions in both clause (i) and (ii) of this subparagraph, or meets the conditions of either clause (iii) or (iv) of this subparagraph.

(i) The owner or operator maintains documentation of the following calculations, and makes the documentation available upon request to authorized representatives of the United States Environmental Protection Agency (EPA), the executive director, and any local air pollution control agency with jurisdiction.

(I) The owner or operator shall calculate the expected mass emissions resulting from the next scheduled process unit shutdown, clearing, and subsequent startup of

the unit, including the basis for the calculation and all assumptions made.

(II) The owner or operator shall calculate the mass emission rates from each leaking component in the process unit for which delay of repair is sought as determined by using the methods in the EPA correlation approach in Section 2.3.3 of the EPA guidance document *Protocol for Equipment Leak Emission Estimates* (EPA-453/R-95-017, November 1995) alone or in combination with the mass emission sampling approach in Chapter 4 of the guidance document (EPA-453/R-95-017, November 1995). To use the EPA correlation approach, the estimated hourly mass emission rate for each component shall be based on the component's current screening concentration using Method 21. The initial calculation must be performed within 30 days after the leak is detected. Where the monitoring instrument is not calibrated to read past the leak definition or 100,000 ppmv, the pegged emission rate values in Tables 2-13 and 2-14 in Section 2.3.3 of the EPA guidance document *Protocol for Equipment Leak Emission Estimates* must be used as appropriate. If the mass emission sampling approach is used, it replaces the estimated emissions rate of the EPA correlation approach in the calculation. For any leak detected using the alternative work practice in §115.358 of this title that a corresponding Method 21 or mass emission sampling test was not performed on that specific leak, the owner or operator shall use the 100,000 ppmv pegged emission rate values in Tables 2-13 and 2-14 in Section 2.3.3 of the EPA guidance document *Protocol for Equipment Leak Emission Estimates*, as appropriate.

(III) The owner or operator shall calculate the daily mass emissions from each leaking component in HRVOC service in the process unit for which delay of repair is sought calculated as 24 times the hourly mass emission rate determined as required by subclause (II) of this clause.

(IV) The owner or operator shall calculate the total daily mass emissions in the process unit from the calculations made in subclause (III) of this clause for leaking components in HRVOC service in the unit for which delay of repair is sought.

(ii) The total daily mass emissions from leaking components in HRVOC service in the process unit for which delay of repair is sought as determined in clause (i)(IV) of this subparagraph will be less than the daily mass emissions resulting from shutdown, clearing, and subsequent startup of the unit as determined in clause (i)(I) of this subparagraph or 500 pounds, whichever is greater.

(iii) As an alternative to the requirements of clause (i) and (ii) of this subparagraph, delay of repair is allowed for each leaking component for which the owner or operator has chosen to undertake extraordinary efforts to repair the leak. For purposes of this subparagraph, extraordinary efforts is defined as nonroutine repair methods (e.g., sealant injection) or utilization of a closed-vent system to capture and control the leaks by at least 90%.

(I) For leaks detected over 10,000 ppmv, extraordinary efforts must be undertaken within 22 calendar days after the leak is found. The owner or operator may keep the leaking component on the shutdown list only after two unsuccessful attempts to repair the leaking component through extraordinary efforts, provided that the second extraordinary effort attempt is made within 37 calendar days after the leak is found.

(II) For all other leaks, extraordinary efforts must be undertaken within 30 calendar days after the leak is found, and a second extraordinary effort attempt is not required to keep the component on the shutdown list.

(III) For any leak detected from a component using the alternative work practice in §115.358 of this title, extraordinary efforts must be performed as specified in subclause (I) of this clause. If the owner or operator measures the leak concentration using Method 21 and demonstrates the leak concentration is 10,000 ppmv or less, then extraordinary efforts must be as specified in subclause (II) of this clause. The Method 21 test must be performed no later than one business day after the leak was detected using the alternative work practice screening.

(iv) The component is repaired or replaced at the next scheduled shutdown. The executive director may require an early process unit shutdown, or other appropriate action, based on the number and severity of leaks awaiting a shutdown.

(C) The components are pumps, compressors, or agitators, and:

(i) repair requires replacing the existing seal design with:

(I) a dual mechanical seal system that includes a barrier fluid system;

(II) a system that is designed with no externally actuated shaft penetrating the housing; or

(III) a closed-vent system and control device that meets the requirements of §115.783 of this title (relating to Equipment Standards); and

(ii) repair is completed as soon as practicable, but no later than six months after the leak was detected.

(2) For valves that are not pressure relief valves or automatic control valves, repair may only be delayed beyond the period designated in subsection (b) of this section if the conditions of either subparagraphs (A) or (B) of this paragraph are met.

(A) The valves are repaired or replaced at the next scheduled process unit shutdown. The owner or operator shall also do one of the following.

(i) The owner or operator undertakes extraordinary efforts to repair the leaking valve. For purposes of this subparagraph, extraordinary efforts is defined as nonroutine repair methods (e.g., sealant injection) or utilization of a closed-vent system to capture and control the leaks by at least 90%.

(I) For leaks detected over 10,000 ppmv, extraordinary efforts must be undertaken within 14 calendar days after the leak is found. The owner or operator may keep the

leaking valve on the shutdown list only after two unsuccessful attempts to repair a leaking valve through extraordinary efforts, provided that the second extraordinary effort attempt is made within 15 days of the first extraordinary effort attempt.

(II) For all other leaks, extraordinary efforts must be undertaken within 30 calendar days after the leak is found, and a second extraordinary effort attempt is not required to keep the valve on the shutdown list.

(III) For any leak detected from a component using the alternative work practice in §115.358 of this title, extraordinary efforts must be performed as specified in subclause (I) of this clause. If the owner or operator measures the leak concentration using Method 21 and demonstrates the leak concentration is 10,000 ppmv or less, then extraordinary efforts must be as specified in subclause (II) of this clause. The Method 21 test must be performed no later than one business day after the leak was detected using the alternative work practice screening.

(ii) The owner or operator maintains, and makes available upon request, documentation to authorized representatives of EPA, the executive director, and any local air pollution control agency having jurisdiction that demonstrates that there is a safety, mechanical, or major environmental concern posed by repairing the leak by using extraordinary efforts and emissions from the leaking valves are included in the calculation of total daily mass emissions required by paragraph (1)(B)(i)(IV) of this subsection.

(B) The valve is isolated from the process and does not remain in HRVOC service.

(d) Demonstration of repair. For the purposes of this section, a component is considered repaired:

(1) for any component that the owner or operator monitors using the alternative work practice in §115.358 of this title, when the component is demonstrated to no longer have a leak after adjustments or alterations to the component by either screening using an optical gas imaging instrument as specified in §115.358 of this title or by using Method 21 at the leak definition in §115.781(b)(9) of this title (relating to General Monitoring and Inspection Requirements); and

(2) for all other components, when the component is demonstrated to no longer have a leak after adjustments or alterations to the component by the normal monitoring method required under this division.

Adopted June 2, 2010

Effective June 24, 2010

§115.783. Equipment Standards.

The following equipment standards apply.

(1) Closed-vent systems containing bypass lines (excluding low-leg drains, high-point bleeds, analyzer vents, open-ended valves or lines, and pressure relief valves needed for safety purposes) that could divert a vent stream away from the control device and to the atmosphere, must have either:

(A) a flow indicator that determines whether vent stream flow is present in the bypass line at least once every 15 minutes; or

(B) the bypass line valve secured in the closed position with a car-seal or a lock-and-key type configuration.

(2) Whenever highly-reactive volatile organic compound emissions are vented to a closed-vent system, control device, or recovery device used to comply with the provisions of this chapter, the system or control device is subject to the requirements of Division 1 of this subchapter (relating to Vent Gas Control).

(3) Pumps, compressors, and agitators installed on or after July 1, 2003, shall be equipped with a shaft sealing system that prevents or detects emissions of volatile organic compounds from the seal.

(A) Acceptable shaft sealing systems include:

(i) seals equipped with piping capable of transporting any leakage from the seal(s) back to the process;

(ii) seals with a closed-vent system capable of transporting to a control device any leakage from the seal or seals;

(iii) dual seals with a heavy liquid or non-volatile organic compounds barrier fluid or gas at higher pressure than process pressure; and

(iv) seals with an automatic seal failure detection and alarm system.

(B) The executive director may approve shaft sealing systems different from those specified in subparagraph (A) of this paragraph. The executive director:

(i) shall consider on a case-by-case basis the technological circumstances of the individual pump, compressor, or agitator; and

(ii) must determine that the alternative shaft sealing system will result in the lowest emissions level that the pump, compressor, or agitator is capable of meeting after the application of best available control technology before approving the alternative shaft sealing system.

(C) Any owner or operator affected by the executive director's decision to deny a request for approval of an alternative shaft sealing system may file a motion to overturn the executive director's decision. The requirements of §50.139 of this title (relating to Motion to Overturn Executive Director's Decision) apply. Executive director approval does not necessarily constitute satisfaction of all federal requirements nor eliminate the need for approval by the United States Environmental Protection Agency in cases where specified criteria for determining equivalency have not been clearly identified in this section.

(4) The following equipment standards shall apply to process drains.

(A) If water seal controls, as defined in §115.140 of this title (relating to Industrial Wastewater Definitions), are used:

(i) the only acceptable alternative to water as the sealing liquid in a water seal is the use of ethylene glycol, propylene glycol, or other low vapor pressure antifreeze, that may be used only during the period of November through February; and

(ii) as an alternative to the weekly water seal inspections of §115.781(b)(5) of this title (relating to General Monitoring and Inspection Requirements), the owner or operator may choose to equip the process drain with:

(I) an alarm that alerts the operator if the water level in the vertical leg of the drain falls below 50% of the maximum level, and a device that continuously records the status of the water level alarm, including the time period for which the alarm has been activated; or

(II) a flow-monitoring device indicating either positive flow from a main to a branch water line supplying a trap or water being continuously dripped into the trap; and a device that continuously records the status of water flow into the trap.

(B) For process drains not equipped with water seal controls, the process drain shall be equipped with:

(i) a gasketed seal; or

(ii) a tightly-fitting cap or plug.

(5) No valves shall be installed or operated at the end of a pipe or line containing highly-reactive volatile organic compounds unless the pipe or line is sealed with a second valve, a blind flange, or a tightly-fitting plug or cap. The sealing device may be removed only while a sample is being taken or during maintenance operations, and when closing the line, the upstream valve shall be closed first.

Adopted December 1, 2004

Effective December 23, 2004

§115.784. Alternate Control Requirements.

(a) The executive director may approve alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division (relating to Fugitive Emissions) in accordance with §115.910 of this title (relating to Availability of Alternate Means of Control) if emission reductions are demonstrated to be substantially equivalent.

(b) The owner or operator of a site subject to the requirements of this division may use the alternative work practice in §115.358 of this title (relating to Alternative Work Practice) as an optional alternative to hydrocarbon gas analyzer monitoring required under this division.

Adopted June 2, 2010

Effective June 24, 2010

§115.786. Recordkeeping Requirements.

(a) If using a flow indicator to comply with §115.783(1)(A) of this title (relating to Equipment Standards), the owner or operator shall:

(1) maintain hourly records of whether the flow indicator was operating and whether a diversion was detected at any time during the hour; and

(2) record all periods when:

(A) the vent stream is diverted from the control stream; or

(B) the flow indicator is not operating.

(b) If securing the bypass line valve in the closed position to comply with §115.783(1)(B) of this title, the owner or operator shall:

(1) maintain a record of the dates that the monthly visual inspection of the seal or closure mechanism has been performed;

(2) record the date and time of all periods when:

(A) the seal mechanism is broken;

(B) the bypass line valve position has changed; or

(C) the key for a lock-and-key type lock has been checked out; and

(3) maintain a record of each time the bypass line valve was opened, including:

(A) the date and time the valve was opened;

(B) the date and time the valve was closed;

(C) the reason(s) the valve was opened;

(D) the estimated flow rate through the valve; and

(E) the resulting emissions, including the basis for the emissions estimate.

(c) Records of all non-repairable components subject to §115.782(c) of this title (relating to Procedures and Schedule for Leak Repair and Follow-up) must be maintained. Reports must be submitted by January 31 for the previous July 1 through December 31 and July 31 for the previous January 1

through June 30 of each year to the Houston regional office and any local air pollution control agency having jurisdiction. The report must contain:

- (1) the component identification code;
- (2) the component type;
- (3) the leak concentration measurement and date, if a hydrocarbon gas analyzer was used to determine the leak;
- (4) if the owner or operator used the alternative work practice in §115.358 of this title (relating to Alternative Work Practice), indication that the leak was determined according to the alternative work practice and the date the leak was detected;
- (5) the date of the last scheduled process unit shutdown; and
- (6) the total number of non-repairable components awaiting repair or replacement.

(d) The owner or operator shall maintain records in accordance with §115.356 of this title (relating to Recordkeeping Requirements), including records identifying, by one or more of the methods specified in §115.781(a)(1) - (6) of this title (relating to General Monitoring and Inspection Requirements), and justifying each exemption claimed exempt under §115.787 of this title (relating to Exemptions). The following additional requirements also apply:

(1) the calculation showing the estimated volatile organic compound (VOC) emission rates of the component as required by §115.782(c)(1)(B)(i)(II) of this title if extraordinary efforts are not going to be initiated; and

(2) records for each process unit with leaking components, updated within five business days after a leaking component is determined to require a process unit shutdown to repair and where extraordinary efforts to repair the component will not be pursued, including the following:

(A) the date, calculations, and estimated daily VOC emissions as required by §115.782(c)(1)(B)(i)(III) of this title;

(B) the date, calculations, and comparison of daily VOC emissions as required by §115.782(c)(1)(B)(i)(IV) and (ii) of this title; and

(C) the date of each process unit shutdown required due to VOC emissions of leaking components exceeding the expected VOC emissions from the shutdown.

(e) The owner or operator shall maintain a record of the results of all monitoring and inspections conducted in accordance with §115.781 of this title.

(f) If the owner or operator elects to use the alternative work practice in §115.358 of this title, the following records must be maintained in addition to the records required by subsections (a) - (e) of this

section.

(1) The owner or operator shall maintain a list of each component that is monitored according to the alternative work practice in §115.358 of this title.

(2) The owner or operator shall maintain records of the detection sensitivity level selected from the table in §115.358(e)(1) of this title.

(3) The owner or operator shall maintain records of the analysis to determine the component in contact with the lowest mass fraction of chemicals that are detectable, as required by the daily instrument check procedure referenced in §115.358(c)(2) of this title.

(4) The owner or operator shall maintain records of the technical basis for the mass fraction of detectable chemicals used for the daily instrument check procedure referenced in §115.358(c)(2) of this title.

(5) The owner or operator shall maintain records of each daily instrument check required by §115.358(c)(2) of this title. These records include:

(A) the flow meter reading of the leak used in the daily instrument check and the distance from which the leak was imaged;

(B) a video record, with a date and time stamp, of the daily instrument check for each configuration and operator of the optical gas imaging instrument used during monitoring; and

(C) the name of each operator performing the daily instrument check.

(6) The owner or operator shall maintain records of the leak survey results as follows for all components that the owner or operator monitors using the alternative work practice in §115.358 of this title.

(A) A video record must be used to document the leak survey results and the results of the recheck to verify the leak has been repaired, if the alternative work practice in §115.358 of this title is used to perform the recheck. The video record must meet the following requirements.

(i) The video record must include a time and date stamp for each monitoring event.

(ii) Each component must be identifiable in the video record.

(B) The records must include the name of each operator performing the leak survey for each monitoring event.

(7) The owner or operator shall maintain records of the annual Method 21 screening required by §115.358(f) of this title, including:

- (A) the components screened according to Method 21;
- (B) the concentration measured according to Method 21;
- (C) the date and time of the Method 21 screening; and
- (D) the calibrations required by Method 21.

(8) The owner or operator shall maintain records of the training required by §115.358(h) of this title.

(9) If the owner or operator elects to use the alternative frequencies for the annual Method 21 specified in §115.781(h)(6) of this title, the following additional records must be maintained:

(A) a list of each component that the owner or operator is using the alternative frequencies allowed under §115.781(h)(6) of this title; and

(B) the percent leaking components for the specific population of components included in the alternative frequency schedule.

(10) The owner or operator shall maintain records of the optical gas imaging instrument manufacturer's operating parameters.

(g) The owner or operator shall maintain all records for at least five years and make them available for review upon request by authorized representatives of the executive director, United States Environmental Protection Agency, or local air pollution control agencies with jurisdiction.

Adopted June 2, 2010

Effective June 24, 2010

§115.787. Exemptions.

(a) Components that contact a process fluid containing less than 5.0% highly-reactive volatile organic compounds by weight on an annual average basis are exempt from the requirements of this division (relating to Fugitive Emissions), except for §115.786(e) and (g) of this title (relating to Recordkeeping Requirements).

(b) The following are exempt from the shaft sealing system requirements of §115.783(3) of this title (relating to Equipment Standards):

(1) submerged pumps or sealless pumps (e.g., diaphragm, canned, or magnetic-driven pumps); and

(2) pumps, compressors, and agitators installed before July 1, 2003.

(c) The following components are exempt from the requirements of this division:

(1) conservation vents or other devices on atmospheric storage tanks that are actuated either by a vacuum or a pressure of no more than 2.5 pounds per square inch gauge (psig);

(2) components in continuous vacuum service;

(3) valves that are not externally regulated (such as in-line check valves);

(4) any site as defined in §122.10 of this title (relating to General Definitions) with less than 250 components in volatile organic compound (VOC) service;

(5) components that are insulated, making them inaccessible to monitoring with a hydrocarbon gas analyzer;

(6) sampling connection systems, as defined in 40 Code of Federal Regulations (CFR) §63.161 (January 17, 1997), that meet the requirements of 40 CFR §63.166(a) and (b) (June 20, 1996); and

(7) instrumentation systems, as defined in 40 CFR §63.161 (January 17, 1997), that meet the requirements of 40 CFR §63.169 (June 20, 1996).

(d) All pumps, compressors, and agitators that are equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal are exempt from the monitoring requirement of §115.781(b) and (c) of this title (relating to General Monitoring and Inspection Requirements). These seal systems may include, but are not limited to, dual seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned, or magnetic driven pumps) may be used to satisfy the requirements of this subsection.

(e) Each pressure relief valve equipped with an upstream rupture disk is exempt from the requirements of §115.781(b)(8) of this title, provided that the pressure relief valve complies with §115.725(c) of this title (relating to Monitoring and Testing Requirements). The rupture disk must be replaced as soon as practicable, but no later than 30 calendar days after a failure is detected.

(f) The following valves are exempt from the requirements of §115.783(5) of this title:

(1) pressure relief valves;

(2) open-ended valves or lines in an emergency shutdown system that are designed to open automatically in the event of an emissions event;

(3) open-ended valves or lines containing materials that would autocatalytically polymerize or would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system; and

(4) valves rated greater than 10,000 psig.

(g) Any site as defined in §122.10 of this title with less than 100 valves in highly-reactive volatile organic compound service is exempt from §115.788 of this title (relating to Audit Provisions).

Adopted June 2, 2010

Effective June 24, 2010

§115.788. Audit Provisions.

(a) At least once every calendar year, the owner or operator of a site as defined in §122.10 of this title (relating to General Definitions) that is subject to the highly-reactive volatile organic compound (HRVOC) fugitive monitoring requirements of this division (relating to Fugitive Emissions) shall retain the services of an independent third-party organization to conduct an audit of the process units subject to HRVOC monitoring in this division. The field survey conducted as part of the audit must be based on a random sampling of the affected valves at the site. The random sample must be such that each valve has an equal chance of being selected from the total number of valves being sampled. The valves to be considered in this random sampling are all of the valves at the site in HRVOC service that are not exempted from quarterly monitoring by §115.787 of this title (relating to Exemptions) and are not listed on either the difficult-to-monitor or the unsafe-to-monitor lists.

(1) The independent third-party organization shall verify that all affected valves are properly tagged in accordance with §115.782(a) of this title (relating to Procedures and Schedule for Leak Repair and Follow-up).

(2) The independent third-party organization shall perform a field survey to determine the representative percentage of leaking valves determined from the random sampling of the affected units at the site as follows.

(A) The field survey must begin after the owner or operator's contracted or usual monitoring service has completed monitoring the valves for that monitoring period. The field survey must be completed by the end of the next monitoring period.

(B) The following table must be used to determine the number of valves required to be monitored in the field survey. The total valve population count is all of the valves in HRVOC service that are not exempted from quarterly monitoring by §115.787 of this title and are not listed on either the difficult-to-monitor or the unsafe-to-monitor lists based on the average of the previous four quarters of monitoring. The company claimed leaker rate is the number of leaking valves found in the total valve population count based on the previous four quarters of monitoring divided by the total valve population count.

Figure: 30 TAC §115.788(a)(2)(B) (No change.)

Table 1: Minimum Number of Valves to Sample based on Total Valve Population Count and Company Determined Leaker Rate

Note: Values based on a hypergeometric distribution, $\alpha=0.05$, $\beta=0.20$

Null Hypothesis = company claim leaker rate is correct Alternate Hypothesis = greater than or equal to company claimed leaker rate plus 2%											
Total Valve Population Count	Company Claimed Leaker Rate (number of leaking valves/total population valve count)										
	0.000 up to 0.005	0.006 up to 0.010	0.011 up to 0.015	0.016 up to 0.020	0.021 up to 0.025	0.026 up to 0.030	0.031 up to 0.035	0.036 up to 0.040	0.041 up to 0.045	0.046 up to 0.050	0.051 or greater
100 to 150	87	101	110	110	116	120	124	124	127	129	131
151 to 300	139	159	165	173	193	200	213	218	226	233	236
301 to 400	152	167	183	204	228	265	278	284	290	296	305
401 to 500	155	172	201	234	250	278	280	295	300	312	328
501 to 600	158	207	220	263	281	295	343	349	354	359	362
601 to 700	159	211	238	266	303	319	343	353	370	391	402
701 to 800	161	223	253	268	310	362	386	389	392	408	422
801 to 900	162	234	272	297	331	385	385	392	422	439	462
901 to 1,000	163	245	278	298	337	387	391	411	443	456	481
1,001 to 1,500	165	254	280	330	386	414	451	486	526	551	567
1,501 to 2,000	167	256	316	359	392	460	495	525	565	599	629
2,001 to 2,500	214	258	316	361	416	462	515	562	598	613	671
2,501 to 3,000	216	258	316	390	443	485	557	581	634	660	703
3,001 to 6,000	218	260	320	393	471	532	600	639	704	742	806
6,001 to 10,000	219	261	354	422	472	555	622	676	738	790	850
10,001 to 25,000	219	262	355	423	498	557	643	696	773	823	894

25,001 to 100,000	220	262	356	424	499	579	644	715	790	854	924
100,001 or greater	220	301	356	424	499	579	644	715	791	855	924

(C) The following alternatives may be used in lieu of subparagraph (B) of this paragraph to determine the number of valves required to be monitored in the field survey. The required sample size must be calculated using a hypergeometric distribution that characterizes sampling from a given finite population of valves without replacement and reported leaker rate. Commercially available statistical software programs may be used. The sample size must be determined according to the following requirements.

(i) The total valve population count is all of the valves in HRVOC service that are not exempted from quarterly monitoring by §115.787 of this title and are not listed on either the difficult-to-monitor or the unsafe-to-monitor lists based on the average of the previous four quarters of monitoring. The company claimed leaker rate is the number of leaking valves found in the total valve population count based on the previous four quarters of monitoring divided by the total valve population count.

(ii) Type I error rate must be less than or equal to 0.05. A Type I error occurs when the company claimed leaker rate accurately reflects the true proportion of leakers, yet the test falsely indicates that the true percentage of leakers is greater than reported (false positive).

(iii) Type II error rate must be less than or equal to 0.20, when the minimum difference between the company's claimed leaker rate and the true population leaker rate is at least 2%. A Type II error occurs when the true leaker rate is in fact greater than the reported rate, but the test fails to so indicate (false negative).

(D) The independent third-party organization shall perform the field survey in accordance with Method 21 in 40 Code of Federal Regulations Part 60, Appendix A-7 (October 17, 2000) if the majority of valves in HRVOC service are monitored according to Method 21. The independent third-party organization shall follow subsection (h) of this section if the majority of valves in HRVOC service are monitored according to the alternative work practice in §115.358 of this title.

(3) The independent third-party organization shall conduct a review of all data generated by monitoring technicians in the previous quarter. This review must include:

(A) identification of data patterns indicative of failure to properly implement Method 21 including, but not limited to, a review of the number of valves monitored per technician and the time between monitoring events to validate that the sampling procedures accurately reflect the requirements of Method 21 including identification of specific instances in which a monitoring technician recorded data faster than was physically possible due to the hydrocarbon gas analyzer response time and/or the time required for the technician to move to the next component; and

(B) a review of records to verify that the calibration requirements of Method 21 have been properly implemented.

(b) For purposes of this section, an independent third-party organization is an organization in which the owner or operator (including any subsidiary, parent company, sister company, or joint venture) of the petroleum refinery; synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation has no ownership or other financial interest. If the owner or operator's routine monitoring is done by a contractor rather than by in-house monitoring, then the independent third-party organization must be a different contractor from that ordinarily used for those services.

(c) The owner or operator shall submit a verbal notification to the Houston regional office and any local air pollution control agency having jurisdiction that provides the date that the independent third-party organization is scheduled to begin the audit. The notification must be submitted at least 30 days prior to the start date of the audit. The notification must also identify whether the audit will be conducted using Method 21 or the alternative work practice in §115.358 of this title.

(d) The owner or operator shall furnish the Houston regional office and any local air pollution control agency having jurisdiction a copy of the results of the audit authored by the independent third-party organization within 30 days after completion of the audit requirements listed in subsection (a) of this section. The report must include:

(1) the number of valves that were not tagged, but should have been tagged in accordance with §115.782(a) of this title;

(2) the number of valves monitored during the field survey, the number of leaking valves found during the field survey, the percentage of leaking valves identified by the independent third-party organization during the field survey, and a detailed description of the sampling scheme used to ensure that a random sample of valves was selected so that each valve had an equal chance of being selected from the total number of valves being sampled;

(3) the total number of valves in HRVOC service that are not exempted from quarterly monitoring by §115.787 of this title and are not listed on either the difficult-to-monitor or the unsafe-to-monitor lists monitored based on the average of the previous four quarters of monitoring, the total number of leaking valves found at the site by the owner or operator's contracted or usual monitoring service based on the average of the previous four quarters of monitoring, and the percentage of leaking valves based on the average of the previous four quarters of monitoring;

(4) the methodology used to select the field survey sample size, and if the alternative provided in subsection (a)(2)(C) of this section was used to determine the number of valves to be sampled in the field survey, documentation must include:

(A) the actual Type I and Type II error rates associated with the sample size used;
and

(B) a detailed description of the methodology used to calculate the sample size;
and

(5) a summary of the independent third-party organization's review of all data generated by monitoring technicians in the previous quarter by the owner or operator's contracted or usual monitoring service for each of the categories specified in subsection (a)(3)(A) and (B) of this section.

(e) If the results of the independent third-party audit indicate deficiencies in the implementation of Method 21 or in the implementation of the alternative work practice in §115.358 of this title, the owner or operator shall submit a corrective action plan with the audit report to the Houston regional office and any local air pollution control agency having jurisdiction.

(f) Authorized representatives of the executive director, United States Environmental Protection Agency, or any local air pollution control agency with jurisdiction may conduct an audit of the owner or operator's leak detection and repair program.

(g) In lieu of complying with subsections (a) - (d) of this section, an owner or operator may request approval from the executive director of an alternative method that demonstrates equivalency with the independent third-party audit, provided that the request:

(1) includes a detailed explanation of how the equivalency will be demonstrated, including the appropriate recordkeeping and reporting requirements that will be implemented that are sufficient to demonstrate compliance with the alternative method; and

(2) demonstrates that it is a replicable procedure and details how the equivalency will be demonstrated.

(h) If the owner or operator of a site subject to the third-party audit requirements of this section elects to use the alternative work practice in §115.358 of this title to monitor valves in HRVOC service, the following additional provisions will apply.

(1) The field survey must be conducted as specified in subsection (a)(2) of this section, except that the independent third-party organization shall perform the field survey according to the alternative work practice in §115.358 of this title.

(2) In lieu of the data review specified under subsection (a)(3) of this section, the independent third-party organization shall conduct a review of all data and video generated by the monitoring personnel in the previous monitoring interval as specified in §115.358 of this title. For example, if the frequency for performing the alternative work practice is monthly, the review includes data from the monitoring event in the prior calendar month.

(A) The review must include a review of records to verify:

(i) the optical gas imaging instrument meets the requirements referenced in §115.358(c)(1) of this title;

(ii) the daily instrument check was performed as required by §115.358(c)(2) of this title; and

(iii) monitoring personnel performing the alternative work practice have satisfied the training requirements specified in §115.358(h) of this title.

(B) The review must also include identification of any:

(i) instances that components were imaged at a distance greater than demonstrated during the daily instrument check;

(ii) instances that the optical gas imaging instrument was not operated in accordance with the instrument manufacturer's operating parameters; and

(iii) leaking components in the video records that were not identified as leaking by the routine monitoring personnel.

(C) In lieu of the categories specified in subsection (a)(3)(A) and (B) of this section, the report contents specified in subsection (d)(5) of this section must include a summary of the independent third-party organization's review based on the categories specified in subparagraphs (A) and (B) of this paragraph.

(3) If the owner or operator is performing a combination of Method 21 hydrocarbon gas analyzer monitoring according to §115.781 of this title (relating to General Monitoring and Inspection Requirements) and the alternative work practice according to §115.358 of this title on different valves in HRVOC service, the field survey and data review must be performed based on how the majority of valves in HRVOC service were monitored in the evaluation period of the third party audit (e.g., if greater than 50% of valves in HRVOC service were monitored according to the alternative work practice, then the field survey and data review must be conducted according to this subsection). The population of valves used for the field survey in subsection (a)(2) of this section must only include those valves monitored according to the method (i.e., Method 21 or alternative work practice) that will be used in the field survey.

(i) Upon review of the audit results, the executive director may specify additional corrective actions beyond any potential corrective actions submitted in the documentation required under subsection (e) of this section.

Adopted June 2, 2010

Effective June 24, 2010

§115.789. Counties and Compliance Schedules.

The owner or operator of each petroleum refinery; synthetic organic chemical, polymer, resin, or methyl-tert-butyl ether manufacturing process; or natural gas/gasoline processing operation in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall demonstrate compliance with the requirements of this division (relating to Fugitive Emissions) in accordance with the following schedule.

(1) The initial monitoring of all components for which monitoring is required under this division, but are not required to be monitored under Subchapter D, Division 3 of this chapter (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas), must occur as soon as practicable, but no later than March 31, 2004, except that:

(A) the schedule in §115.781(f) of this title (relating to General Monitoring and Inspection Requirements) applies to blind flanges, caps, or plugs at the end of a pipe or line containing highly-reactive volatile organic compounds, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers for which the owner or operator has notified the appropriate regional office and any local air pollution control program with jurisdiction that §115.781(f) of this title will be used to establish the monitoring schedule for these components; and

(B) on or before March 31, 2004, the owner or operator shall notify the appropriate regional office and any local air pollution control program with jurisdiction that §115.781(f) of this title will be used to establish the monitoring schedule for blind flanges, caps, or plugs at the end of a pipe or line containing highly-reactive volatile organic compounds, sight glasses, meters, gauges, connectors, bolted manways, heat exchanger heads, hatches, and sump covers. The owner or operator shall monitor all of these components at least one time in each process unit by April 1, 2006, and then conduct subsequent monitoring at the frequencies noted in §115.781(f) of this title. For those process units with an initial start-up date after March 31, 2004, the notification of the intent to use §115.781(f) of this title shall be made within 60 days after the initial start-up date. In this case, the owner or operator shall monitor all of these components at least one time in each process unit within one year of the initial start-up date, and then conduct subsequent monitoring at the frequencies noted in §115.781(f) of this title.

(2) All requirements in §115.782 of this title (relating to Procedures and Schedule for Leak Repair and Follow-up) and all equipment upgrades required by §115.783 of this title (relating to Equipment Standards) must be made as soon as practicable, but no later than March 31, 2004, except that control devices used to comply with the requirements of §115.783(2) of this title must be in compliance in accordance with §115.729 of this title (relating to Counties and Compliance Schedules).

(3) The initial independent third-party audit required by §115.788 of this title (relating to Audit Provisions) shall be completed and the results of the audit submitted to the executive director as soon as practicable, but no later than December 31, 2005.

(4) Compliance with the recordkeeping required by §115.786 of this title (relating to Recordkeeping Requirements) must be implemented and made available upon request to authorized representatives of the executive director, United States Environmental Protection Agency, or any local air pollution control agency having jurisdiction as soon as practicable, but no later than March 31, 2004.

(5) The initial monitoring of pump seals and compressor seals using a leak definition of 500 parts per million by volume, as required by §115.781(b)(9) of this title, must begin as soon as practicable, but no later than March 31, 2004.