

The Texas Commission on Environmental Quality (commission) proposes new §§115.800, 115.802, 115.805 - 115.807, 115.809, 115.810, 115.815 - 115.817, and 115.819; and corresponding revisions to the state implementation plan (SIP). The new rules and revised SIP narrative will be submitted to the United States Environmental Protection Agency (EPA) as proposed revisions to the SIP.

#### BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE PROPOSED RULES

The proposed new rules in Chapter 115 would provide more volatile organic compounds (VOC) data to further assist the commission with the continued analysis and review of the science of ozone formation in the Houston/Galveston ozone nonattainment area (HGA).

The commission conducted a scientific evaluation largely based on aircraft data collected by the Texas 2000 Air Quality Study (TexAQS). The TexAQS, a comprehensive research project conducted in August and September 2000 involving more than 40 research organizations and more than 200 scientists, studied ground-level ozone air pollution in the HGA and East Texas regions. The study revealed that while nitrogen oxide (NO<sub>x</sub>) emissions from industrial sources were generally correctly accounted for, industrial VOC emissions were likely significantly understated in earlier emissions inventories. The study also showed that surface monitors were insufficient in capturing the phenomenon of ozone plumes downwind of industrial facilities. On four separate days, ozone levels exceeding 125 parts per billion (ppb) were recorded by aircraft instruments that were missed by surface monitoring equipment.

Preliminary results from the scientific evaluation of TexAQS data were summarized in a memorandum, dated February 28, 2002, which is available at

[ftp://ftp.tceq.state.tx.us/pub/AirQuality/AirQualityPlanningAssessment/Modeling/HGAQSE/Reports\\_2002Feb/TNRCC/exsummary\\_20020228.pdf](ftp://ftp.tceq.state.tx.us/pub/AirQuality/AirQualityPlanningAssessment/Modeling/HGAQSE/Reports_2002Feb/TNRCC/exsummary_20020228.pdf). Analysis showed that plumes stemming from HGA's industrial areas produce ozone very rapidly due to the collocation of large NO<sub>x</sub> and VOC emissions from industrial facilities. Initial efforts were focused on the most remarkable findings which were that a select number of highly reactive VOCs - ethylene, propylene, butene, and 1, 3 butadiene - contributed to very large portions of reactivity observed in airborne samples, and were previously underreported in the emissions inventory used in the December 2000 HGA SIP. As scientists complete more detailed analyses, other VOCs, including isobutane, n-butane, isopentane, n-pentane, propane, isoprene, formaldehyde, acetaldehyde, toluene, pentenes, trimethylbenzenes, xylenes, and ethyltoluenes may be found to possibly contribute to ozone production in HGA.

## SECTION BY SECTION DISCUSSION

### *SUBCHAPTER I, SELECTED VOLATILE ORGANIC COMPOUNDS*

#### *Division 1, Vent Gas Emissions*

##### *Section 115.800, Applicability and Definitions*

Proposed new §115.800(a) would specify that the rule applies to both controlled and uncontrolled vent gas streams containing selected volatile organic compounds (selected VOC) A definition for “degassing safety device” is proposed in §115.800(b) to address low-flow pilots that are typically permitted as flares, but used only at geologic storage facilities during emergency releases. In Harris County, selected VOCs are one or more of the following VOCs: acetaldehyde; all ethyltoluenes; formaldehyde; isoprene; all pentenes; toluene; all trimethylbenzenes; all xylenes; isobutane; n-butane; isopentane; n-pentane; and propane. In Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, and Waller Counties, selected VOCs are the same as for Harris County plus 1,3-

butadiene; and all isomers of butene (e.g., isobutene (2-methylpropene or isobutylene), alpha-butylene (ethylethylene), and beta-butylene (dimethylethylene, including both cis- and trans- isomers)).

Supplementary fuel is natural gas or fuel gas added to the gas stream to increase the net heating value to the minimum required value. Pilot gas is the gas used to ignite or continually ignite flare gas.

*Section 115.802, Flare Requirements*

Proposed new §115.802 would require that flares subject to this division meet the requirements of 40 Code of Federal Regulations (CFR) §60.18(c)(2) - (6) and (d), which establish operating parameters to ensure the destruction of waste gas streams. Two new paragraphs are proposed to specify the averaging time to demonstrate compliance with the minimum net heating value requirements and the maximum exit velocity requirements.

*Section 115.805, Monitoring and Testing Requirements*

Proposed new §115.805(a) would specify that each vent gas stream that is not a pressure relief valve and is not controlled by a flare must be tested. The proposed new §115.805(a)(1) and (2) would require that owners or operators select operational parameters for uncontrolled and controlled vents, monitor those parameters, and establish operating limits based on averages during the tests required by §115.805(a). The process parameter monitoring requirements are necessary to help quantify emissions of selected VOC. The proposed new §115.805(a)(3) would require that selected VOC emissions during emissions events and scheduled startup, shutdown, and maintenance activities be determined using either testing or process knowledge and engineering calculations. This requirement is necessary to correctly quantify emissions of selected VOC. Proposed new §115.805(a)(4) would require the owner or operator to develop, implement, and follow written monitoring plans for the continuous monitoring

of the operational parameters required under §115.805(a)(1) and (2). Proposed new §115.805(a)(5) would specify that additional testing may be performed to update emission data after the initial selected VOC emission test has been performed, and that test plans for additional testing must be submitted to the executive director at least 45 days prior to testing. Proposed new §115.805(a)(6) would allow the use of testing performed prior to approval of the test plans, and proposed new §115.805(a)(7) would allow the executive director to waive testing for one half of the vents that are identical in design and operation if emissions from the vents are expected to be identical. Proposed new §115.805(a)(7)(A)(i) - (vi) would state that a request for a waiver must be submitted that includes: identification of each vent expected to be identical; each specific vent to be tested; a detailed technical explanation demonstrating that the measured emissions from the selected vents can be expected to be representative of emissions for all vents; 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; maintenance records for each vent and associated process demonstrating the vents and associated processes have been maintained in a similar manner; and 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. Proposed new §115.805(7)(B) would state that the executive director 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 45 days after the date of written authorization of the temporary waiver. The executive director would determine if any further testing is required based on the review of the test results.

Proposed new §115.805(b) would specify alternatives that may be used in lieu of the testing requirements in subsection (a), but would state that these alternatives may not be applied to pressure

relief valves or a vent gas stream controlled by a flare. Proposed new §115.805(b)(1) would specify that a continuous emission monitoring system (CEMS) may be used provided that the CEMS meets the monitoring requirements of 40 CFR §60.13(b) and (d) - (f); that cylinder gas audits be performed quarterly at a minimum, after the initial cylinder gas audit; and that the measured concentration be used in combination with the flow rate estimated through process knowledge to determine the hourly selected VOC emission rate. Proposed new §115.805(b)(2) would specify as another alternative to subsection (a) that process data, “sufficient to demonstrate compliance status” may be used to determine maximum potential selected VOC hourly emissions. The types of processes that may use this alternative are analyzer vents, steam system vents, vent gas streams where there is no selected VOC present except during emission events, and degassing safety devices.

Proposed new §115.805(c) would provide monitoring requirements for pressure relief valves not controlled by a flare, and proposed new §115.805(c)(1) would specify the requirements of the pressure relief valve monitoring system. Proposed new §115.805(c)(2) would specify that the owner or operator may use process knowledge to determine the selected VOC emission rates during events when the pressure relief valves open. Proposed new §115.805(c)(3) would require written monitoring plans for the pressure relief valve monitoring systems, and would specify the requirements of the plans. Finally, proposed new §115.805(c)(4) would specify that the written monitoring plans must be submitted within 30 days upon written request by the executive director, and that the executive director may require additional or alternative monitoring requirements.

Proposed new §115.805(d) would specify that except for subsections (e) - (i), the owner or operator shall perform continuous monitoring in accordance with the requirements of §115.805(d) to quantify

emissions of selected VOC. Proposed new §115.805(d)(1) would require that a continuous monitor measure the flow rate of an affected flare. Proposed new §115.805(d)(1)(A) - (C) would specify the calibration requirements for the temperature monitor, pressure monitor, and flow monitor. Proposed new §115.805(d)(2) would require an onstream analyzer capable of determining selected VOC at least once every 15 minutes. The proposed language specifies that the 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 October 17, 2000. Proposed new §115.805(d)(2)(A)(i) would specify that for selected VOC constituents, the owner or operator shall follow the procedures and requirements of 40 CFR Part 60, Appendix B, §10 of Performance Specification 9, except as provided for in §115.805(d)(2)(A)(i). Proposed new §115.805(d)(2)(A)(ii) would specify that for the constituents monitoring to determine net heating value and molecular weight, the owner or operator may elect to follow the calibration requirements in §115.805(d)(2)(A)(i), or the manufacturer recommended procedures. Proposed new §115.805(d)(2)(A)(ii)(I) would require that if the manufacturer recommended procedures are selected, those procedures must include, at a minimum, weekly calibration checks of the top two non-selected VOC constituents affecting molecular weight and net heating value to meet the performance criteria of §10.2 of Performance Specification 9. Proposed new §115.805(d)(2)(A)(ii)(II) would require that manufacturer information and data be submitted with a quality assurance plan (QAP) for those constituents that routine calibration is not performed. Proposed new §115.805(d)(2)(A)(iii) would specify that the range of calibration standards required for calibration of the on-line analyzer may be based on the typical concentrations instead of the full potential range of concentrations. Proposed new §115.805(d)(2)(A)(iii) would also specify that data must be submitted with the QAP to demonstrate the accuracy of the analyzer at the maximum concentrations outside the proposed calibration range. Proposed new §115.805(d)(2)(A)(iv) would state that the executive director may specify calibration

requirements in the approval of the QAP. Finally, proposed new §115.805(d)(2)(B) would specify that the owner or operator may install an on-line calorimeter to determine net heating value instead of monitoring for individual constituents to determine net heating value.

Proposed new §115.805(d)(3) would specify that the monitoring system required by this section must be continuously operated at least 95% of the time when the flare is operational, and would specify the calculation methodology for determining the percent measurement data availability. Proposed new §115.805(d)(4) would require the start of daily sampling from within ten hours of initial on-line analyzer malfunction, and would specify that the samples collected during periods of monitor downtime must be used to calculate emissions of selected VOC. Proposed new §115.805(d)(5) would require that the net heating value of gas combusted in the flare be calculated every 15 minutes. Proposed new §115.805(d)(6) would require that the actual velocity of the flare be calculated every 15 minutes based on continuous flow rate, temperature, and pressure monitor data, according to 40 CFR §60.18(f)(4). Proposed new §115.805(d)(7) would specify that selected VOC emission rates must be calculated from data gathered according to paragraphs (1) - (6), and specifies the destruction efficiency to be used in emission calculations. Proposed new §115.805(d)(7) also specifies that the heating value requirement is based on net heating value.

Proposed new §115.805(e) would state that flares used solely for abatement of emissions from loading operations for marine vessels or transport vessels are not required to comply with the monitoring requirement of §115.805(d) provided specific requirements are satisfied. The proposed new §115.805(e) would specify that this subsection would only apply to flares used solely for abatement of selected VOC emissions, would apply to loading operations from marine vessels or transport vessels,

and would not apply to temporary portable flares used solely for scheduled startup, shutdown, or maintenance activities. The proposed new §115.805(e)(1) - (3) would specify the requirements to demonstrate compliance with the minimum net heating value requirements and the exit velocity requirements of §115.802. Proposed new §115.805(e)(4) would specify that the owner or operator may use process knowledge to determine net heating value and selected VOC emissions for flares that receive greater than 98% of an individual selected VOC at all times.

Proposed new §115.805(f) would specify monitoring requirements for flares used solely for abatement of emissions from scheduled startup, shutdown, and maintenance activities. Proposed new §115.805(f)(1) would require that a single flare must not be operated in selected VOC service for more than 14 days at an account in any 12 consecutive months. Proposed new §115.805(f)(2) would limit the total number of days to 28 days in 12 consecutive months for which an account may temporarily send selected VOC to multiple flares under the provisions of §115.725(f). Proposed new §115.805(f)(3) would require that a calorimeter 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 order to demonstrate compliance with the minimum net heating value requirements of §115.802. Proposed new §115.805(f)(4) would specify that the flow rate of the gas routed to the flare must be determined by either complying with the monitoring requirements of §115.805(d)(1), or using process knowledge and engineering calculations. Proposed new §115.805(f)(5) would require that the flare's actual exit velocity for each activity must be calculated on a block 15-minute average basis. The selected VOC hourly average mass emission rates from the flare must be calculated using total selected VOC sent to the flare that is calculated based on process knowledge or actual measurement. Proposed new §115.805(f)(6) would state that the owner or operator may use process knowledge to determine net

heating value and selected VOC emissions for flares that receive greater than 98% of an individual selected VOC at all times.

Proposed new §115.805(g) would specify monitoring requirements for emergency flares as proposed to be defined in §115.10. Proposed new §115.805(g)(1) and (2) would provide the option of complying with the monitoring requirements of §115.805(d) or using process knowledge and engineering calculations to quantify emissions of selected VOC. Proposed new §115.805(g)(2) would specify additional requirements for emergency flares for which process knowledge and engineering calculations are used. Proposed new §115.805(g)(2)(A) would specify parameter monitoring for emergency flares with physical seals, such as water seals, to monitor the status of the physical seals, record the time and duration of each event when emissions are sent to the flare, and verify that the seals have been restored after an event. Proposed new §115.805(g)(2)(B) would specify parameter monitoring for emergency flares without physical seals to monitor flow to the emergency flare with a flow monitor or flow indicator to determine the time and duration of each event when emissions are sent to the flare, and to determine the minimum flow rate that indicates when emissions are sent to the flare. Proposed new §115.805(g)(2)(C) would specify that any owner or operator electing to use process knowledge for emergency flares, shall develop, implement, and follow a written monitoring plan for the parameter monitoring under §115.805(g)(2)(A) or (B). Proposed new §115.805(g)(2)(D) would specify that the written monitoring plans must be submitted within 30 days upon written request by the executive director. Proposed new §115.805(g)(2)(E) would specify the calculation methods for the actual exit velocity and the selected VOC hourly average mass emission rate from the flare, and the destruction efficiencies for various situations.

Proposed new §115.805(h) would specify requirements for flares other than emergency flares that temporarily receive selected VOC emissions from activities other than scheduled startup, shutdown, and maintenance. Proposed new §115.805(h)(1) and (2) would limit the total number of days that selected VOC may be temporarily sent to an individual flare, or to multiple flares at an account under the provisions of this subsection. Proposed new §115.805(h)(3) would allow options to determine flow rate to the flare in lieu of monitoring in accordance with §115.805(d)(2), including process knowledge, actual measurement, or for flares that temporarily receive selected VOC emissions from flare systems that are monitored according to §115.805(d) allowing data substitution. Proposed new §115.805(h)(4) would specify options to determine net heating value and selected VOC constituents in lieu of monitoring in accordance with §115.805(d)(2), including daily sampling according to §115.805(d)(4) or, for flares that temporarily receive selected VOC emissions from flare systems that are monitored according §115.805(d), data substitution for time periods up to 72 consecutive hours. Finally, proposed new §115.805(h)(5) would specify that, if an emissions event occurs while selected VOC emissions are sent temporarily to a flare under this subsection, then process knowledge may be used to quantify emissions of selected VOC.

Proposed new §115.805(i) would specify that process knowledge must be used to quantify emissions of selected VOC for flares that are specifically designed to receive and control liquid or dual-phase streams. Since the monitoring provisions in §115.805 are not applicable to flares designed to control liquid streams, the current state of monitoring technology is not sufficient to allow continuous monitoring of dual-phase streams.

Proposed new §115.805(j) would specify that minor modifications to either test methods or monitoring methods may be approved by the executive director.

Finally, proposed new §115.805(k) would specify that when process information and engineering calculations are used to quantify emissions of selected VOC, the process information and engineering calculations must be submitted within 30 days upon written request by the executive director.

The commission is seeking comment on alternative methods of determining the emissions of selected VOC through alternative monitoring systems or technologies not proposed by this rule. The commission also seeks comments on alternatives to the speciation requirements for selected VOC, and specifically if there are selected VOC subgroups that could be measured in total that would reduce the cost of monitoring while still providing data regarding these emissions.

*Section 115.806, Recordkeeping and Reporting Requirements*

Proposed new §115.806(a) would specify that the owner or operator of each affected flare or vent gas stream shall submit to the executive director for approval a test plan for testing and a QAP for the monitoring requirements of this division and subsequently comply with the conditions outlined in the approved test plan or QAP. Proposed new §115.806(a)(1) would specify that the paragraph applies to the monitoring requirements in §115.805(d), and proposed new §115.806(a)(1)(A) would specify that the QAP must be submitted no later than April 30, 2005. Proposed new §115.806(a)(1)(B) would require owners or operators to submit QAP for flares and vents that become subject to the requirements of this division after the compliance date. Proposed new §115.806(a)(1)(B) would require that the QAP be submitted prior to the flare or vent being placed in selected VOC service. Proposed new

§115.806(a)(1)(C) would require that the executive director issue written approval of, or detail deficiencies and/or direct additional requirements to be added to, each QAP within 180 days of receipt of a QAP detailing the plans for installation, calibration, operation, and maintenance of the flare/vent gas stream monitoring. A corrected QAP would be required within 60 days of the date of the deficiency and/or an additional requirements letter. The QAP would be approved by default if a written deficiency or an additional requirements letter is not received within 180 days of receipt of the test plan by the executive director. Proposed new §115.806(a)(2) would specify that the paragraph only applies to the testing requirements in §115.805(a). Proposed new §115.806(a)(2)(A) would specify that the test plans for compliance with §115.805(a) must be submitted no later than April 30, 2005. For flares and vent gas streams that become subject to the requirements of this division after December 31, 2005, proposed new §115.806(a)(2)(B) would require that the test plan be submitted at least 60 days prior to being placed in selected VOC service. Proposed new §115.806(a)(2)(C) would require that the executive director issue written approval of, or detail deficiencies and/or direct additional requirements to be added to, each test plan within 45 days of receipt of a test plan for a vent gas stream to be tested as required by §115.805(a). A corrected test plan would be required within 45 days of the date of the deficiency and/or an additional requirements letter. The test plan would be approved by default if a written deficiency or additional requirements letter is not received within 45 days of receipt of the test plan by the executive director. Proposed new §115.806(a)(2)(D) would specify that the operation parameters required in proposed new §115.805(a)(1) and (2) must be identified in the test plan.

Proposed new §115.806(b) would specify what recordkeeping requirements for a vent gas stream must be conducted as required by §115.805(a) and (b). Proposed new §115.806(b)(1) - (3) would include the addition of recordkeeping requirements for the process parameter monitoring and monitoring plans

required under proposed new §115.805(a)(1), (2), and (4). Additionally, proposed new §115.806(b)(4) - (7) would provide more specific recordkeeping requirements for vent gas streams monitored using a CEMS in accordance with §115.805(b)(1), and for vent gas streams for which alternatives to testing have been allowed under §115.806(b)(2).

Proposed new §115.806(c) would specify recordkeeping requirements for affected pressure relief valves monitored in accordance with proposed new §115.805(c). The proposed additional recordkeeping requirements would include records of the date, time, duration, volumetric flow rate, and speciated and total selected VOC emissions for each pressure relief event. The proposed recordkeeping requirements for affected pressure relief valves would include records of the parameters monitored in accordance with §115.805(c)(1), all process information, data, and calculations used to determine flow and emission data as specified in §115.805(c)(2), and the monitoring plans required under §115.805(c)(3).

Proposed new §115.806(d) would specify that the recordkeeping requirements are for flares monitored in accordance with §115.805. Proposed new §115.806(d)(4) would specify that the records maintained for the calculated net heating values and exit velocities must be recorded on a 15-minute average basis rather than instantaneous values.

Proposed new §115.806(d)(5) would specify recordkeeping requirements specific to flares used solely for loading operations under §115.805(e), in addition to the general flare recordkeeping requirements in §115.806(d)(1) - (4).

Proposed new §115.806(d)(6) would specify recordkeeping requirements specific to flares used solely for scheduled startup, shutdown, and maintenance activities under §115.805(f), in addition to the general flare recordkeeping requirements in §115.806(d)(1) - (4). Similarly, proposed new §115.806(d)(7) would specify recordkeeping requirements specific to emergency flares subject to §115.805(g), in addition to the general flare recordkeeping requirements in §115.806(d)(1) - (4). Finally, proposed new §115.806(d)(8) would specify recordkeeping requirements specific to flares subject to the requirements of §115.725(h) or (i), in addition to the general flare recordkeeping requirements in §115.806(d)(1) - (4).

The proposed new §115.806(e) would specify the records required that correspond to the exemptions listed in §115.807(a) - (e). Proposed new §115.806(e)(1) would specify the records that apply to vent gas streams that are routed to flares and that contain less than 5.0% by weight selected VOC, and to vent gas streams that are not routed to flares that do not exceed 100 parts per million by volume (ppmv) selected VOC.

Proposed new §115.806(f) would specify that an owner or operator claiming an exemption under §115.807(e) submit written notification at least 15 days prior to permanently removing a flare from service, but no later than December 31, 2005.

Proposed new §115.806(g) would specify the hourly records of emissions from pressure relief valves in addition to all flares and vents subject to §115.805.

The proposed new §115.806(h) would specify that records must be maintained on site and made available upon request. Emissions of selected VOC as quantified under this subchapter must be reported in the annual emission inventory update as required by 30 TAC Chapter 101, Subchapter A.

Proposed new §115.806(i) would require that the owner or operator maintain records necessary to demonstrate continuous compliance and records of periodic measurements for at least five years and make them available upon request by authorized representatives of the executive director, EPA, or any local air pollution control agency having jurisdiction.

*Section 115.807, Exemptions*

Proposed new §115.807(a) exempts from the requirements of this division any account for which all gas streams routed to the flare contain less than 5.0% by weight of selected VOC at all times, and all individual gas streams not routed to a flare contain less than 100 ppmv selected VOCs at all times.

Proposed new §115.807(b)(1) and (2) would allow a flare to be treated as a vent gas stream for the purposes of quantifying selected VOC emissions if the flare receives no more than 5.0% or greater selected VOCs at any time. The flare would also be exempt from the continuous monitoring requirements of §115.805(d) and recordkeeping requirements of §115.806(d).

Proposed new §115.807(c) would provide exemptions for vent gas streams that are not routed to a flare. The exemptions are proposed in §115.807(c)(1) - (3). A vent gas stream would be exempt from all the requirements of this division with the exception of the recordkeeping requirements of §115.806(e)(3)(A) if the stream has no potential to emit selected VOCs. Proposed new §115.807(c)(2) would provide an exemption for vent gas streams with either a selected VOC concentration of less than 100 ppmv or with

low volumetric rates equal to or less than 100 dry standard cubic feet per hour. A vent gas stream would be exempt if the stream results from the combustion of less than 5.0% by selected VOC in boilers, furnaces, engines, turbines, incinerators, and heaters or if the stream comes from one of the following sources: pressure tanks that maintain a working pressure sufficient to prevent vapor or gas loss to the atmosphere; laboratory vent hoods; instrumentation air systems; atmospheric storage tanks; wastewater system vents; cooling towers; or 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.

Proposed new §115.807(d) would exempt any flare that does not receive a gas stream of greater than 100 ppmv selected VOC from the requirements of this division with the exception of the recordkeeping requirements of §115.806(c)(3)(B).

Proposed new §115.807(e) would specify that any flares that will be permanently out of service by April 1, 2006 are exempt from the requirements of this division except for the recordkeeping requirements of §115.806(f).

*Section 115.809, Counties and Compliance Schedules*

Proposed new §115.809(1) would require that the testing and monitoring requirements must be completed by December 31, 2005 for existing vent gas streams and pressure relief valves and that the results must be submitted to the commission's regional office in Houston. Proposed new §115.809(1) would also specify that for vent gas streams and pressure relief valves 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 selected VOC service. Proposed new §115.809(2) would specify that for flares 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 selected VOC service.

*Division 2, Cooling Towers*

*Section 115.810, Applicability and Cooling Tower Heat Exchange System Definitions*

Proposed new §115.810 would state that this division applies to any cooling tower heat exchange system in the Houston/Galveston area that emits or has the potential to emit a selected VOC as defined in §115.800 of this subchapter. A cooling tower heat exchange system is defined as cooling towers, associated heat exchangers, pumps, and ancillary equipment where water is used as a cooling medium and heat from process fluids is transferred to cooling water. This term does not include fin-fan coolers or comfort cooling tower heat exchange systems which are used exclusively in cooling heating, ventilation, and air conditioning systems.

*Section 115.815, Monitoring and Testing Requirements*

Proposed new §115.815(a) would specify monitoring and testing requirements for cooling tower heat exchange systems with a design capacity to circulate 8000 gallons per minute or greater of cooling water. Proposed new §115.815(a)(1) would require the installation, calibration, operation, and maintenance of a continuous flow monitor on each inlet of each cooling tower. The monitor must be calibrated on an annual basis to within 5% accuracy. Proposed new §115.815(a)(2) would require that the total strippable VOC concentration be continuously monitored at each inlet of each cooling tower.

The 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. This paragraph would require that calibration be checked weekly or more frequently in order to maintain a monitor drift of less than 5.0%. During periods where the VOC monitor is out of service, collection of a sample would be required according to Appendix P of the Texas Commission on Environmental Quality Sampling Procedures Manual. The sample would be required to be collected three times per calendar week. Proposed new §115.815(a)(3) would specify that the monitoring system required by this section must continuously operate 95% of the time when the cooling tower is operational. Proposed new §115.815(a)(3) would also specify the calculation methodology to determine the percent measurement data availability, would provide consistency for the calculation of monitor uptime, and would specify that the time needed for normal calibrations required by the rule is not counted as downtime. Proposed new §115.815(a)(4) would require that the speciated strippable selected VOC concentration be determined 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. Proposed new §115.815(a)(5) would require additional sampling to determine speciated and total selected VOC on a daily basis when the concentration of VOC exceeds 50 ppb in the cooling tower water for more than a one-hour block of time.

Proposed new §115.815(a)(6) would allow a continuous on-line monitor capable of providing total selected VOC and speciated selected VOCs in parts per billion by weight (ppbw) to replace the monitoring requirements of §115.815(a)(2) and the sampling requirements of §115.815(a)(4) and (5). Proposed new §115.815(a)(6) would specify the performance specifications to be met by such a system and the frequency of a multi-point calibration procedure that must be performed. During periods where the on-line selected VOC monitor is out-of-order, sampling must be performed for total and speciated

selected VOC analysis according to the air-stripping method in Appendix P. Finally, proposed new §115.815(a)(6) would specify that periodic sampling during downtime of the continuous on-line analyzer will continue until the on-line analyzer is properly operating and within the required performance specifications.

Proposed new §115.815(b) would specify the monitoring requirements for cooling tower heat exchange systems with a design capacity to circulate less than 8,000 gallons per minute of cooling water.

Proposed new §115.815(b)(1) would require the installation, calibration, operation, and maintenance of a continuous flow monitor on each inlet of each cooling tower. The monitor must be calibrated on an annual basis to within 5% accuracy. Proposed new §115.815(b)(2) would require that the total strippable VOC concentration be determined by collecting samples from each inlet of each cooling tower at least twice per week. Proposed new §115.815(b)(3) would specify that the monitoring system required by this section must continuously operate 95% of the time when the cooling tower is operational. Proposed new §115.815(b)(3) would also specify the calculation methodology to determine the percent measurement data availability, would provide consistency for the calculation of monitor uptime, and would specify that the time needed for normal calibrations required by the rule is not counted as downtime. Proposed new §115.815(b)(4) would require that the speciated strippable selected VOC concentration be determined 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. Proposed new §115.815(b)(5) would require additional sampling to determine speciated and total selected VOC on a daily basis when the concentration of VOC exceeds 50 ppb in the cooling tower water for more than a one-hour block of time.

Proposed new §115.815(b)(6) would allow a continuous on-line monitor capable of providing total selected VOC and speciated selected VOCs in ppbw to replace the monitoring requirements of §115.815(b)(2) and the sampling requirements of §115.815(b)(4) and (5). Proposed new §115.815(b)(6) would specify the performance specifications to be met by such a system and the frequency of a multi-point calibration procedure that must be performed. During periods where the on-line selected VOC monitor is out-of-order, sampling must be performed for total and speciated selected VOC analysis according to the air-stripping method in Appendix P. Finally, proposed new §115.815(b)(6) would specify that periodic sampling during downtime of the continuous on-line analyzer will continue until the on-line analyzer is properly operating and within the required performance specifications.

Proposed new §115.815(c) would specify that when periodic sampling is required, the speciated selected VOC concentration must be determined as soon as this information is available but no later than seven days after the sample(s) have been collected. Proposed new §115.815(c) would specify that 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)," EPA Document Number 625/R96/010B.

Proposed new §115.815(d) would allow the owner or operator of a cooling tower heat exchange system in which no individual heat exchange has 5.0% or greater selected VOC in the process-side fluid to determine the total strippable VOC and selected VOC concentration in the cooling water at least once a month in place of the requirements of subsections (a)(2) - (5) and (b)(2) - (5). If the total strippable VOC concentration in the cooling tower water is 50 ppbw or greater, the owner or operator would be

required to determine the total strippable VOC weekly and selected VOC concentration weekly until the total strippable VOC concentration and selected VOC concentration drops below 50 ppbw.

Proposed new §115.815(e) would provide alternatives to the use of a continuous flow monitor as described in subsections (a)(1) and (b)(1). Proposed new §115.815(e)(1) would allow the use of the maximum potential flow rate based on the manufacturer's pump performance data. Proposed new §115.815(e)(2) would allow the owner or operator to install, calibrate, operate, and maintain 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 calculation methodology would be required to be a part of the QAP and must provide on a continuous basis the cooling water circulation flow rate based on the cooling water discharge pressure for each pump, the manufacturer's certified pump performance data, and the number of pumps in operation. The hourly emission rate in pounds per hour (lb/hr), required by §115.816(a)(3), would be calculated using the calculated flow rate.

Proposed new §115.815(f) would allow the executive director to approve minor modifications to the monitoring and testing methods in this section.

Proposed new §115.815(g) would specify that alternative monitoring locations may be used for cooling tower heat exchange systems in which a single cooling tower services both selected VOC and non-selected VOC process units. The proposed new provisions would allow the owner or operator to monitor from locations that represent the flow and concentrations from selected VOC processes.

*Section 115.816, Recordkeeping and Reporting Requirements*

Proposed new §115.816(a) would specify the recordkeeping requirements for cooling tower heat exchange systems subject to this division. Proposed new §115.816(a)(1) would require that the owner or operator 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. Proposed new §115.816(a)(2) would require that records be maintained of all monitoring, testing, and calibrations performed in accordance with the provisions of §115.815. Proposed new §115.816(a)(3) would require that all hourly records be maintained that document the emission rate in pounds per hour for each hour for speciated selected VOCs and total selected VOC from the cooling water for each cooling tower heat exchange system as required by §115.815(a), (b), or (d). The most recently monitored concentration of speciated selected VOC or total selected VOC would be used in conjunction with the flow rate of the cooling water to calculate the emission rate in lb/hr. Proposed new §115.816(a)(3) would require owners or operators to use half of the minimum detection limit for total strippable VOC when concentrations are below detection.

Proposed new §115.816(a)(4) would specify recordkeeping requirements for the concentration of total strippable VOC in the cooling water for cooling tower heat exchange systems monitored in accordance with §115.815(b)(2) or (d). Proposed new §115.816(a)(4) would further specify that if the concentration results for total strippable VOC are below the minimum detection limit, then the full detection limit will be used to calculate the average total strippable VOC concentration in the cooling water.

Proposed new §115.816(a)(5) would require that hourly records of the cooling water flow rate be kept.

Proposed new §115.816(a)(6) would require records for all corrective actions and any delay in corrective action taken by documenting the dates, reasons, and durations of the occurrences and the estimated quantity of all selected VOC emissions during such activities.

Proposed new §115.816(b) would specify the recordkeeping requirements for any cooling tower heat exchange system claiming an exemption under §115.817. Proposed new §115.816(b)(1) and (2) would require that either records of the heat exchanger pressure differential or of the content of the process side fluid in each heat exchanger be kept to demonstrate compliance with the exemption criteria of §115.817(1) or (2), respectively.

Proposed new §115.816(c) would require that the owner or operator maintain records necessary to demonstrate continuous compliance and records of periodic measurements for at least five years and make them available upon request by authorized representatives of the executive director, EPA, or any local air pollution control agency having jurisdiction.

Proposed new §115.816(d) would incorporate the recordkeeping requirements for testing performed in accordance with §115.815(d) in order to demonstrate that no individual heat exchanger has 5.0% or greater selected VOC in the process-side fluid.

Proposed new §115.816(e) would require the following records in order to determine the maximum potential flow rate using the manufacturer's pump performance data, as specified in §115.815(e)(1): the manufacturer's certified pump performance test; the operating status of each pump; the motor

manufacturer, model number, size, and design; 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 the effect of any change on the maximum potential flow rate. Proposed new §115.816(f) would require specific records to be kept for any cooling tower 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 §115.815(e)(2). Proposed new §115.816(f)(1) - (7) would specify that the records to be kept are: the continuous measurement of cooling water pump discharge pressure; the manufacturer's certified pump performance test; the operating status of each pump; the motor manufacturer, model number, and rated brake horsepower; the impeller manufacturer, model number, size and design; any change to the cooling tower heat exchange system pump or pumping system in which the change would modify the design pumping capacity; and the effect of any change on the maximum potential flow rate.

Proposed new §115.816(g) would require the maintenance of hourly records for each account subject to this division in order to quantify emissions of selected VOC from all cooling towers subject to the requirements of §115.815.

Finally, proposed new §115.816(h) would establish a deadline of April 30, 2005 for submitting QAPs for monitoring performed in accordance with §115.815. In addition, proposed new §115.816(h)(2) would require that the QAP must be submitted prior to the system being placed into selected VOC service. Finally, proposed new §115.816(i) would specify that an owner or operator claiming exemption under §115.817(4) shall submit written notification at least 15 days prior to permanently removing a flare from service, but no later than December 31, 2005.

*Section 115.817, Exemptions*

Proposed new §115.817(1) and (2) would specify that the exemptions apply to heat exchangers with greater than 100 parts per million by weight selected VOC in the process side fluid. Proposed new §115.817(3) would exempt any account for which no stream directed to a cooling tower heat exchange system has a concentration of 5.0% or greater selected VOC by weight. Proposed new §115.817(4) would specify that cooling tower heat exchange systems that will be permanently out of service by April 1, 2006, are exempt from the requirements of this division, except for the recordkeeping requirements of §115.816(j).

*Section 115.819, Counties and Compliance Schedules*

Proposed new §115.819(a) would specify that the compliance date for cooling tower heat exchange systems in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties is December 31, 2005. Proposed new §115.819(b) would require that cooling tower heat exchange systems that become subject to the requirements of this division after December 31, 2005 must conduct testing and monitoring no later than 60 days after being brought into selected VOC service.

FISCAL NOTE: COSTS TO STATE AND LOCAL GOVERNMENT

PUBLIC BENEFITS AND COSTS

SMALL BUSINESS AND MICRO-BUSINESS ASSESSMENT

LOCAL EMPLOYMENT IMPACT STATEMENT

DRAFT REGULATORY IMPACT ANALYSIS DETERMINATION [if full RIA **not** required]

**OR**

DRAFT REGULATORY IMPACT ANALYSIS [if full RIA required]

TAKINGS IMPACT ASSESSMENT

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the proposed rulemaking and found that the proposal is an action identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11, or will affect an action/authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11, and therefore will require that applicable goals and policies of the Texas Coastal Management Program (CMP) be considered during the rulemaking process.

The commission prepared a preliminary consistency determination for the proposed rules under 31 TAC §505.22 and found that the proposed rulemaking action is consistent with the applicable CMP goals and policies. The CMP goal applicable to this rulemaking action is the goal to protect, preserve, and enhance the diversity, quality, quantity, functions, and values of coastal natural resource areas (31 TAC §501.12(1)). No new sources of air contaminants will be authorized and ozone levels will be reduced as a result of these proposed new rules. The CMP policy applicable to this rulemaking action is the policy that commission rules comply with regulations in 40 CFR, to protect and enhance air quality in the coastal area (31 TAC §501.14(q)). This rulemaking action complies with 40 CFR. Therefore, in

compliance with 31 TAC §505.22(e), this rulemaking action is consistent with CMP goals and policies.

Interested persons may submit comments on the consistency of the proposed rules with the CMP during the public comment period.

#### EFFECT ON SITES SUBJECT TO THE FEDERAL OPERATING PERMIT PROGRAM

Chapter 115 is an applicable requirement under 30 TAC Chapter 122; therefore, owners or operators subject to the federal operating permit program must, consistent with the revision process in Chapter 122, revise their operating permits to include the revised Chapter 115 requirements for each emission unit affected by the revisions to Chapter 115 at their sites.

#### ANNOUNCEMENT OF HEARINGS

A public hearing for this proposed rulemaking has been scheduled for the following times:

XXXXXXXXXXXXX The hearing will be structured for the receipt of oral or written comments by interested persons. Registration will begin 30 minutes prior to the hearing. Individuals may present oral statements when called upon in order of registration. A time limit may be established at the hearing to assure that enough time is allowed for every interested person to speak. There will be no open discussion during the hearing; however, commission staff members will be available to discuss the proposal 30 minutes before the hearing and will answer questions before and after the hearing.

Persons with disabilities who have special communication or other accommodation needs, who are planning to attend the hearing, should contact the Office of Environmental Policy, Analysis, and Assessment at (512) 239-4900. Requests should be made as far in advance as possible.

**SUBMITTAL OF COMMENTS**

Written comments may be submitted to Joyce Spencer, MC 205, Office of Environmental Policy, Analysis, and Assessment, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087 or faxed to (512) 239-4808. All comments should reference Rule Project Number 2004-070-115-AI. Comments must be received by 5:00 p.m., XXXXXXXX. For further information, please contact Debra Barber of the Policy and Regulations Division, at (512) 239-0412.

**SUBCHAPTER I: SELECTED VOLATILE ORGANIC COMPOUNDS**

**DIVISION 1: VENT GAS EMISSIONS**

**§§115.800, 115.802, 115.805 - 115.807, 115.809**

**STATUTORY AUTHORITY**

The new sections are proposed under Texas Water Code, §5.103, concerning Rules, and §5.105, concerning General Policy, that authorize the commission to adopt rules necessary to carry out its powers and duties under the Texas Water Code; and under Texas Health and Safety Code, §382.017, concerning Rules, that authorizes the commission to adopt rules consistent with the policy and purposes of the Texas Clean Air Act. The new sections are also proposed under Texas Health and Safety Code, §382.002, concerning Policy and Purpose, that establishes the commission's purpose to safeguard the state's air resources, consistent with the protection of public health, general welfare, and physical property; §382.011, concerning General Powers and Duties, that authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, that authorizes the commission to prepare and develop a general, comprehensive plan for the proper control of the state's air; and §382.016, concerning Monitoring Requirements – Examination of Records, that authorizes the commission to prescribe reasonable requirements for measuring and monitoring the emissions of air contaminants.

The proposed new sections Texas Health and Safety Code, §§382.002, 382.011, 382.012, and 382.017.

**§115.800. Applicability and Definitions.**

(a) Applicability. In the Houston/Galveston area, as defined in §115.10 of this title (relating to Definitions), any account with a controlled or uncontrolled vent gas stream containing selected volatile organic compounds (selected VOC), as defined in this division, or a flare that emits or has the potential to emit selected VOC is subject to this division 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) **Selected volatile organic compounds (selected VOC)** - As follows.

(A) In Harris County, one or more of the following volatile organic compounds (VOCs): acetaldehyde; all ethyltoluenes; formaldehyde; isoprene; all pentenes; toluene; all trimethylbenzenes; all xylenes; isobutane; n-butane; isopentane; n-pentane; and propane.

(B) In Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, and Waller Counties, one or more of the following VOCs: 1,3-butadiene; all isomers of butene (e.g., isobutene (2-methylpropene or isobutylene), alpha-butylene (ethylethylene), and beta-butylene (dimethylethylene, including both cis- and trans- isomers)); acetaldehyde; all ethyltoluenes; formaldehyde; isoprene; all pentenes; toluene; all trimethylbenzenes; all xylenes; isobutane; n-butane; isopentane; n-pentane; and propane.

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

(3) **Pilot gas** - Gas that is used to ignite or continually ignite flare gas.

**§115.802. Flare Requirements.**

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 volatile organic compounds 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.

**§115.805. 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 an account 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 selected volatile organic compound (selected VOC) 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).

(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 correlates to the selected VOC emissions from the vent;

(B) install, calibrate, maintain, and operate according to the 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 selected VOC 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 correlates to the selected VOC emissions directed to the control device;

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

(C) install, calibrate, maintain, and operate according to the manufacturer's 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 selected VOC emission test required under this subsection.

(3) To quantify emissions of selected VOC during emission events and scheduled startup, shutdown, and maintenance activities, the owner or operator shall determine the selected VOC 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 selected VOC 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 selected VOC 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 must be submitted within 30 days for review. The executive director may require additional or alternative monitoring requirements. At a minimum, monitoring plans must 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 ensure proper operation.

(5) After the initial selected VOC emission test required under this subsection, the owner or operator may perform additional emission testing to update the data used to determine the quantity of selected VOC emissions. Test plans for additional testing must be submitted to the executive director at least 45 days prior to testing.

(6) Testing using the appropriate reference methods and procedures specified in §115.125 of this title that was conducted before approval of the test plan required under §115.806(a) of this title (relating to Recordkeeping and Reporting Requirements) 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;

(B) the testing establishes maximum potential selected VOC 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) if the monitoring system required under paragraphs (1) or (2) of this subsection was not installed at the time of testing, the monitoring plan required under subsection (a)(4) of this section must include sufficient documentation to demonstrate that the monitoring system accurately reflects the parameter operating limits established during testing. If the executive director approves the prior testing under this paragraph, 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 §115.809 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 must be submitted with the test plan required under §115.806(a) of this title. Information required to support the waiver request must 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 a 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 45 days after the date of written authorization of the temporary waiver. The executive director will determine if any further testing is required based on the review of the test results.

(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.

(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 must, initially and at a minimum quarterly thereafter, be subjected to a cylinder gas audit in accordance with 40 CFR Part 60, Appendix B, Performance Specification 2, §16 to assess system bias and ensure accuracy; and

(C) the measured concentration must be used in combination with the flow rate estimated by process knowledge to determine the hourly selected VOC emission rate.

(2) Process knowledge, including scientific calculations and other process monitoring data sufficient to demonstrate compliance status, may be used to determine maximum potential selected VOC hourly emission data. Types of processes that may use process knowledge in lieu of testing are:

(A) analyzer vents;

(B) steam system vents;

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

(D) degassing safety devices, as defined in §115.800 of this title (relating to Applicability and Definitions).

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

(1) The owner or operator shall install, calibrate, maintain, and operate according to the manufacturer's recommendations, a CEMS 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 the volumetric flow rate is not monitored directly, the owner or operator shall 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 shall assume the pressure relief valve is 100% open during a pressure relief event for purposes of calculating volumetric flow rate.

(2) For purposes of quantifying selected VOC emissions during pressure relief events, the owner or operator may use process knowledge, including scientific calculations and other process monitoring data, to determine selected VOC emission rates. The volumetric flow rate determined in accordance with paragraph (1)(C) of this subsection must be used in combination with the process knowledge to determine selected VOC 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 that support 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 selected VOC emissions as provided in paragraph (2) of this subsection;

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

(E) a list identifying all pressure relief valves in selected VOC 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) - (i) of this section, the owner or operator of an affected flare shall conduct continuous monitoring to determine the quantity of selected VOC emissions 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 must 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 calibrated annually to within  $\pm 2.0\%$  at absolute temperature;

(B) the pressure monitor calibrated annually to within  $\pm 5.0$  mm Hg; and

(C) the flow monitor or velocity monitor used to determine flow rate 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 the manufacturer's specifications;

(2) install, calibrate, maintain, and operate an on-line analyzer system capable of determining selected VOC 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 selected VOCs) 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, is 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 listed 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 (relating to Site-wide Cap and Control Requirements). 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 selected VOC constituents, the owner or operator shall follow the procedures and requirements of §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 §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 §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 §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 selected VOC constituents in clause (i) of this subparagraph or the calibration procedures recommended by the analyzer manufacturer. If the owner or operator elects to follow the 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 §10.2 of Performance Specification 9 with certified standards of the top two non-selected VOC constituents affecting molecular weight and net heating value; and

(II) the owner or operator shall submit with the quality assurance plan (QAP) required under §115.806(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 selected VOCs and other constituents may be based on the typical concentrations observed rather than the full potential range of concentrations. Data must be submitted with the QAP required under §115.726(a) of this title (relating to Recordkeeping and Reporting Requirements) 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)(C) of this title.

(B) In lieu of monitoring constituents for net heating value in accordance with this paragraph, the owner or operator shall 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.

(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 that exceeds eight consecutive hours of the on-line analyzer specified in paragraph (2) of this subsection, 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 selected VOC concentrations in the flare header gas, the samples must be analyzed for the concentrations of selected VOC 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 selected VOCs) 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 listed in 40 CFR §60.18(f)(3). During periods of monitor downtime, these samples must be used to quantify emissions of selected VOC;

(5) every 15 minutes, calculate the net heating value of the gas combusted in the flare according to the equation listed in 40 CFR §60.18(f)(3). Pilot gas must not be included in the determination of the net heating value;

(6) calculate the actual exit velocity of the flare every 15 minutes based on continuous flow rate, temperature, and pressure monitor data, according to 40 CFR §60.18(f)(4); and

(7) calculate the selected VOC 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 propane and a 98% destruction efficiency for all other selected VOCs when the flare meets the heating value and exit velocity requirements of 40 CFR §60.18. During each 15-minute 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% must be assumed to calculate selected VOC mass emission rates.

(e) Flares used solely for abatement of selected VOC emissions from loading operations for marine vessels or transport vessels 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 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.

(2) The flare's actual exit velocity for each loading activity must be calculated every 15 minutes, 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 of this title.

(3) The selected VOC hourly average mass emission rates from the flare must be calculated to quantify emissions of selected VOC, using total selected VOC sent to the flare based on loading emission calculations, and the speciated composition of the material being sent to the flare, assuming a 99% destruction efficiency for propane and a 98% destruction efficiency for all other selected VOCs when the flare meets the net heating value and exit velocity requirements of 40 CFR §60.18. During each 15-minute 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 selected VOC mass emission rates.

(4) For flares that receive greater than 98% of an individual selected VOC at all times, the owner or operator shall use process knowledge to determine net heating value and selected VOC concentration for quantifying emissions of selected VOC.

(f) Flares used solely for abatement of emissions from scheduled 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 selected VOC service for more than 14 days at an account in any 12 consecutive months.

(2) The total number of days for which an account may send selected VOCs temporarily to multiple flares as described in this subsection must not exceed 28 days in 12 consecutive months.

(3) To demonstrate compliance with the minimum net heating value requirements of §115.722 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 §115.725(d)(1) of this title (relating to Monitoring and Testing Requirements); or

(B) using process knowledge and engineering calculations.

(5) The flare's actual exit velocity for each activity must be calculated on a block 15-minute 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 selected VOC hourly average

mass emission rates from the flare must be calculated using total selected VOC sent to the flare calculated based on process knowledge or actual measurement, assuming a 99% destruction efficiency for propane and a 98% destruction efficiency for all other selected VOCs when the flare meets the net heating value and exit velocity requirements of 40 CFR §60.18. During each 15-minute 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 selected VOC mass emission rates.

(6) For flares that at all times receive greater than 98% of an individual selected VOC, the owner or operator shall use process knowledge to determine net heating value and selected VOC concentration for quantification of emissions of selected VOC.

(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 quantify selected VOC emissions during an upset event or unscheduled maintenance, startup, or shutdown activity. 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 or unscheduled

maintenance, startup, or shutdown activity, 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 or unscheduled maintenance, startup, or shutdown activity;

(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 or unscheduled maintenance, startup, or shutdown activity, the owner or operator shall:

(i) install, calibrate, operate, and maintain, according to manufacturer's 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 or unscheduled maintenance, startup, or shutdown activity.

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

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

(ii) the engineering calculations and process information used to determine volumetric flow rate, flare tip exit velocity, net heating value, and selected VOC emissions;  
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 must be submitted within 30 days for review. The executive director may require additional or alternative monitoring requirements.

(E) The flare's actual exit velocity for each activity must be calculated on a block 15-minute 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 selected VOC hourly average mass emission rates from the flare must be calculated, using total selected VOC sent to the flare calculated based on process knowledge or actual measurement, assuming a 99% destruction

efficiency for propane and a 98% destruction efficiency for all other selected VOCs when the flare meets the net heating value and exit velocity requirements of 40 CFR §60.18. During each 15-minute 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 selected VOC mass emission rates.

(h) Flares other than emergency flares that temporarily receive selected VOC emissions during any operation that is not a scheduled 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 selected VOC service for more than 14 days at the plant site in any 12 consecutive months.

(2) The total number of days for which an account may send selected VOCs temporarily to multiple flares as described in this subsection must not exceed 28 days in 12 consecutive months.

(3) In lieu of the flow monitoring requirements of subsection (d)(1) of this section, the owner or operator shall use one of the following to quantify emissions of selected VOC:

(A) process knowledge;

(B) actual measurement; or

(C) for flares that temporarily receive selected VOC emissions from flare systems that are monitored in accordance with subsection (d) of this section, the flow monitoring data from the monitored flare system. Maximum flow rate, excluding data from startups, shutdowns, maintenance, or emissions events, from the previous 30 operational days must be used to quantify emissions of selected VOC.

(4) In lieu of implementing the continuous monitoring requirements specified in subsection (d)(2) of this section, the owner or operator shall use one of the following to quantify emissions of selected VOC:

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

(B) for flares that temporarily receive selected VOC emissions for less than 72 consecutive hours from flare systems that are monitored in accordance with subsection (d) of this section, monitoring data from the monitored flare system. Maximum selected VOC concentrations and minimum net heating value, excluding data from scheduled startups, shutdowns, maintenance, or emissions events, from the previous 30 operational days must be used to quantify emissions of selected VOC.

(5) If an emissions event as defined in §101.1 of this title occurs while selected VOC emissions are being routed to a flare temporarily under this subsection, the owner or operator shall

quantify emissions of selected VOC 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 selected VOCs, process knowledge and engineering calculations must be used to quantify emissions of selected VOC.

(j) Minor modifications to either test methods or monitoring methods may be approved by the executive director. Test 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.”

(k) 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 selected VOC emissions for quantification of emissions of selected VOC where applicable under the requirements of this section. The information must be submitted within 30 days for review.

**§115.806. Recordkeeping and Reporting Requirements.**

(a) To satisfy the requirements of §115.805 of this title (relating to Monitoring and Testing Requirements), the owner or operator of each affected flare or vent gas stream shall submit to the

executive director for approval a test plan for testing and a quality assurance plan (QAP) for the monitoring requirements (including installation, calibration, operation, and maintenance of continuous emissions monitoring systems) of this division, and subsequently comply with the conditions outlined in the approved test plan or QAP as follows.

(1) For the monitoring requirements specified in §115.805(d) of this title:

(A) the QAP for flares and vent gas streams existing on or before December 31, 2005 must be submitted no later than April 30, 2005;

(B) the QAP for flare and vent gas streams that become subject to the requirements of this division after December 31, 2005 must be submitted prior to the flares or vent gas streams being placed in a selected volatile organic compound (selected VOC) service; and

(C) the executive director shall issue written approval of, or detail deficiencies and/or direct additional requirements to be added to, each QAP within 180 days of receipt of a QAP that details the owner or operator's plans for installation, calibration, operation, and maintenance of the flare and vent gas stream monitoring. The owner or operator shall submit a corrected QAP within 60 days of the date of the deficiency and/or an additional requirements letter. If an approval or detailed deficiency and/or directed additional requirements letter is not issued within 180 days of receipt by the executive director, then the QAP is approved by default.

(2) For the testing requirements specified in §115.805(a) of this title:

(A) the test plan for flares and vent gas streams existing on or before December 31, 2005 must be submitted no later than April 30, 2005;

(B) the test plan for flares and vent gas streams that become subject to the requirements of this division after December 31, 2005 must be submitted at least 60 days prior to being placed in selected VOC service;

(C) the executive director shall issue written approval of, or detail deficiencies and/or direct additional requirements to be added to, each test plan within 45 days of receipt of a test plan for a vent gas stream to be tested as required by §115.805(a) of this title. The owner or operator shall submit a corrected test plan within 45 days of the date of the deficiency and/or an additional requirements letter. If an approval or detailed deficiency and/or directed additional requirements letter is not issued within 45 days of receipt by the executive director, then the test plan is approved by default provided the testing is to be conducted in accordance with the appropriate reference methods and procedures specified in §115.125 of this title (relating to Testing Requirements) without deviation; and

(D) the operational parameters selected in accordance with §115.805(a)(1)(A) and (2)(A) and (B) of this title must be identified in the test plan.

(b) The owner or operator of a vent gas stream subject to the requirements of §115.805(a) of this title shall comply with the following recordkeeping requirements as applicable:

(1) maintain records of all testing conducted in accordance with §115.805(a) of this title to determine selected VOC 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 §115.805(a)(1) or (2) of this title;

(3) maintain records of the monitoring plans required in accordance with §115.805(a)(4) of this title;

(4) maintain hourly records of selected VOC emission rates on a pound-per-hour basis for each affected vent gas stream monitored in accordance with §115.805(b)(1) of this title;

(5) maintain records of all continuous emissions monitoring system calibrations and cylinder gas audits performed in accordance with §115.805(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 §115.805(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 §115.805(a) of this title under the alternatives to the testing requirements in §115.805(b)(2) of this title.

(c) The owner or operator of a pressure relief valve subject to the requirements of §115.805(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 selected VOC emission rates on a pounds-per-hour basis for each pressure relief event;

(2) maintain hourly records of the parameter monitoring in accordance with §115.805(c)(1) of this title;

(3) maintain records of all process information, monitored data, and calculations used to determine volumetric flow rate and selected VOC hourly emission data as specified in §115.805(c)(2) of this title; and

(4) maintain records of the monitoring plans required in accordance with §115.805(c)(3) of this title.

(d) The owner or operator of a flare at an account that is subject to this subchapter must comply with the following recordkeeping requirements:

(1) maintain hourly records of the speciated and total selected VOC emission rates on a pounds-per-hour basis for each affected flare;

(2) maintain records of all monitoring, testing, and calibrations performed in accordance with the provisions of §115.805 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 the occurrences;

(4) maintain records of each 15-minute average calculated net heating value of the gas stream routed to the flare and each 15-minute average calculated exit velocity at the flare tip, determined in accordance with §115.805 of this title; and

(5) for flares subject to the monitoring requirements of §115.805(e) of this title, maintain records of each loading activity including, but not limited to:

(A) the size of vessel being loaded;

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

(C) the compounds loaded, in addition to the compounds 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 selected VOC hourly emission data;

(6) for flares used solely for the abatement of emissions from scheduled maintenance, startup, or shutdown activities in §115.805(f) of this title, maintain records, including, but not limited to:

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

(B) the flow rate of the gas routed to the flare, in standard cubic feet per minute; and

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

(7) for emergency flares subject to the requirements of §115.805(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 of the gas routed to the flare, in standard cubic feet per minute;

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

(D) hourly records of the parameter monitoring in accordance with §115.805(g)(2)(A) or (B) of this title; and

(E) records of the monitoring plans required in accordance with §115.805(g)(2)(C) of this title;

(8) for flares subject to the requirements of §115.805(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 of the gas routed to the flare, in standard cubic feet per minute; and

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

(e) Records for exemptions in §115.807(a) - (e) of this title (relating to Exemptions) must include the following.

(1) The owner or operator of any account claiming an exemption under §115.807(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 selected VOC at all times and each vent gas stream not routed to a flare does not exceed 100 parts per million by volume selected VOC at any time.

(2) The owner or operator of any flare claiming an exemption under §115.807(b) of this title shall maintain records that document that the selected VOC 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 an exemption under §115.807 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 §115.807(c) of this title; or

(B) for flares, maintain records that demonstrate continuous compliance with the exemption criteria of §115.807(d) of this title.

(f) The owner or operator claiming an exemption under §115.807(e) of this title shall submit written notification to the executive director at least 15 days prior to permanently removing a flare from service, but no later than December 31, 2005.

(g) The owner or operator of each account subject to this subchapter shall maintain hourly records, from all emissions from flares, vents, and pressure relief valves subject to the requirements of §115.725 of this title.

(h) The owner or operator shall maintain on site, all records required in this division and other records as necessary to quantify emissions of selected VOC 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, the United States Environmental Protection Agency , or any local air pollution control agency having jurisdiction. Emissions of selected VOC as quantified under this subchapter must be reported in the annual emissions inventory update as a required by Chapter 101, Subchapter A, of this title (relating to the General Rules.)

**§115.807. Exemptions.**

(a) Any account for which all individual gas streams routed to a flare contain less than 5.0% by weight of selected volatile organic compounds (selected VOCs) at all times, and all individual vent gas streams not routed to a flare contain less than 100 parts per million by volume (ppmv) selected VOCs at all times is exempt from the requirements of this division.

(b) For a flare that at no time receives a gas stream containing 5.0% or greater selected VOCs:

(1) the gas stream directed to the flare must be treated as a vent gas stream for purposes of quantifying emissions of selected VOC; and

(2) the flare is exempt from the continuous monitoring requirements of §115.725(c) of this title (relating to Monitoring and Testing Requirements) and §115.726(d) of this title (relating to Recordkeeping and Reporting 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 selected VOCs 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 selected VOCs, but that has an selected VOC 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.

(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 selected VOC 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 selected VOC is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.726(c)(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 recordkeeping requirements in §115.726(f) of this title.

**§115.809. Counties and Compliance Schedules.**

Each owner or operator in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall demonstrate compliance with the requirements of this division in accordance with the following schedule.

(1) For vent gas and pressure relief valves, the testing and monitoring required by §115.805 of this title (relating to Monitoring and Testing Requirements) must be completed and the results submitted to the commission's regional office in Houston and any local air pollution control agency having jurisdiction as soon as practicable, but no later than December 31, 2005 for existing vent gas streams and pressure relief valves. For vent gas streams and pressure relief valves 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 selected volatile organic compound (selected VOC) service.

(2) The owner or operator of each flare shall demonstrate compliance with all sections of this division as soon as practicable, but no later than December 31, 2005. For flares 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 selected VOC service.

**SUBCHAPTER I: HIGHLY-REACTIVE VOLATILE ORGANIC COMPOUNDS**

**DIVISION 2: COOLING TOWER HEAT EXCHANGE SYSTEMS**

**§§115.810, 115.815 - 115.817, 115.819**

STATUTORY AUTHORITY

The new sections are proposed under Texas Water Code, §5.103, concerning Rules, and §5.105, concerning General Policy, that authorize the commission to adopt rules necessary to carry out its powers and duties under the Texas Water Code; and under Texas Health and Safety Code, §382.017, concerning Rules, that authorizes the commission to adopt rules consistent with the policy and purposes of the Texas Clean Air Act. The new sections are also proposed under Texas Health and Safety Code, §382.002, concerning Policy and Purpose, that establishes the commission's purpose to safeguard the state's air resources, consistent with the protection of public health, general welfare, and physical property; §382.011, concerning General Powers and Duties, that authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, that authorizes the commission to prepare and develop a general, comprehensive plan for the proper control of the state's air; and §382.016, concerning Monitoring Requirements – Examination of Records, that authorizes the commission to prescribe reasonable requirements for measuring and monitoring the emissions of air contaminants.

The proposed new sections implement Texas Health and Safety Code, §§382.002, 382.011, 382.012, and 382.017.

**§115.810. Applicability and Cooling Tower Heat Exchange System Definitions.**

(a) Applicability. Any account with a cooling tower heat exchange system in the Houston/ Galveston area, as defined in §115.10 of this title (relating to Definitions), that emits or has the potential to emit a selected volatile organic compound, as defined in this subchapter, is subject to the requirements of this division in addition to the applicable requirements of any other division in this subchapter or any other subchapter in this chapter.

(b) Definitions. The following term, when used in this division, has the following meaning, 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). **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).

**§115.815. 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 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 must be calibrated on an annual basis to within + 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) 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 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), 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 selected VOC 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 parts per billion by weight (ppbw) in the cooling tower water for more than a one-hour block of time, collect an additional sample to determine speciated and total selected VOC in accordance with the air-stripping method in Appendix P from each inlet of the affected cooling tower at least once daily. The additional sampling to determine speciated and total selected VOC 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 selected VOC in paragraphs (4) and (5) of this subsection, install a continuous on-line monitor capable of providing total selected VOC and speciated Selected VOCs in ppbw. The continuous on-line monitor system must satisfy the requirements of §§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 §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 selected VOC monitor(s), sampling must be performed for total and speciated selected VOC 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.

(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 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 §115.764(b) of this title (relating to Monitoring Requirements) is not considered downtime for purposes of this calculation;

(4) determine the speciated strippable selected VOC 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 selected VOC, and total selected VOC 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 and total selected VOC 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 selected VOC in paragraphs (4) and (5) of this subsection, install a continuous on-line monitor capable of providing total selected VOC and speciated selected VOCs in ppbw. The continuous on-line monitor system must satisfy the requirements of §§8.3,10,13.1, and 13.2 of 40 CFR Part 60, Appendix B, Performance Specification 9. The multi-point calibration procedure in §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 selected VOC monitor(s), sampling must be performed for total and speciated selected VOC 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.

(c) When periodic sampling is required, the owner or operator of the cooling tower heat exchange system shall determine the speciated selected VOC 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),” EPA 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 selected VOC in the process-side fluid, shall determine total strippable VOC and the selected VOC 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 selected VOC concentration weekly. The additional sampling for the total strippable VOC concentration and selected VOC 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 shall:

(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 shall establish, use, and demonstrate in the quality assurance plan required in §115.816(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: 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 §115.816(a)(3) of this title.

(f) Minor modifications to the monitoring and testing methods in this section shall be approved by the executive director. Monitoring and testing methods other than those specified in subsections (a) - (e) of 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) and (b) of this section, the owner or operator of cooling tower heat exchange systems in which a single cooling tower services both selected VOC and non-selected VOC process units shall:

(1) install a flow monitor, 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 selected VOC-containing process units; and

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

**§115.816. Recordkeeping and Reporting Requirements.**

(a) The owner or operator of any cooling tower heat exchange system subject to this division 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 §115.815 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 selected volatile organic compounds (selected VOC) and total selected VOC from the cooling water for each cooling tower heat exchange system as required by §115.815(a), (b), or (d) of this title. The flow rate of the cooling water in conjunction with the most recently monitored concentration of the speciated selected VOC or total selected VOC in the cooling tower water, must be used to calculate the respective emission rate in lb/hr. If the concentration results of the speciated

selected VOC or total selected VOC analyses are below the minimum detection limit (i.e., non-detected), then one half of the detection limit(s) must be used to calculate selected VOC emissions;

(4) maintain hourly records of the total strippable VOC concentration in the cooling water for cooling tower heat exchange systems monitored in accordance with §115.815(a)(2) of this title, and maintain records of each test for total strippable VOC concentration performed in accordance with §115.815(b)(2) or (d) of this title. If the concentration results of the total strippable VOC testing or monitoring are below the minimum detection limit, then the full detection limit must be used to calculate average total strippable VOC concentration;

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

(6) maintain records on a weekly basis that detail all corrective actions and any delay in corrective action taken by documenting the dates, reasons, and durations of such occurrences and the estimated quantity of all selected VOC emissions during such activities.

(b) The owner or operator of any cooling tower heat exchange system claiming an exemption under §115.817 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 §115.817(1) of this title; or

(2) maintain records of the content of the process side fluid in each heat exchanger to demonstrate continuous compliance with the exemption criteria of §115.817(2) 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, the United States Environmental Protection Agency, or any local air pollution control agency having jurisdiction.

(d) The owner or operator of any cooling tower heat exchange system using the alternate periodic monitoring available under §115.815(d) of this title shall maintain sufficient records to demonstrate that no individual heat exchanger has 5.0% or greater selected VOC in the process-side fluid.

(e) The owner or operator of any cooling tower heat exchange system using the manufacturer's pump performance data to determine the maximum potential flow rate, as specified in §115.815(e)(1) of this title, shall maintain the following records for each pump:

(1) the manufacturer's certified pump performance test;

(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 §115.815(e)(2) of this title, shall maintain the following records for each pump:

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

(2) the manufacturer's certified pump performance test;

(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 account subject to this division shall maintain hourly records to quantify emissions of selected VOC from all cooling towers subject to the requirements of §115.815 of this title.

(h) The owner or operator of an affected cooling tower heat exchange system shall submit for review and approval by the executive director a quality assurance plan (QAP) for the installation, calibration, operation, and maintenance for the monitoring equipment required by this division as follows:

(1) for cooling towers existing on or before December 31, 2005, the QAP must be submitted no later than April 30, 2005;

(2) for cooling tower heat exchange systems that become subject to the requirements of this division after December 31, 2005, the QAP must be submitted prior to being placed in Selected VOC service; and

(3) the executive director shall issue written approval of, or detail deficiencies and/or direct additional requirements to be added to, each QAP within 180 days of receipt of a complete QAP that details the owner or operator's plans for installation, calibration, operation, and maintenance of the cooling tower heat exchange system monitoring. The owner or operator shall submit a corrected QAP within 60 days of the date of the deficiency and/or an additional requirements letter. If an approval or

detailed deficiency and/or directed additional requirements letter is not issued within 180 days of receipt by the executive director, then the QAP is approved by default.

(i) The owner or operator claiming an exemption under §115.817(4) of this title shall submit written notification to the executive director at least 15 days prior to permanently removing a cooling tower heat exchange system from service, but not later than December 31, 2005.

**§115.817. 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) selected volatile organic compounds (selected VOC) 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 selected VOC in the process side fluid, is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.816(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 selected VOCs in the process side fluid is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.816(b) and (c) of this title.

(3) Any account for which no stream directed to a cooling tower heat exchange system contains 5.0% or greater by weight selected VOC is exempt from this division.

(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 recordkeeping requirements in §115.816(j) of this title.

**§115.819. 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 as soon as practicable, but no later than December 31, 2005.

(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 selected volatile organic compound service.