

The Texas Commission on Environmental Quality (TCEQ or commission) proposes new §115.110 and amendments to §§115.112 - 115.117, 115.119, 115.541 - 115.547, and 115.549.

The amendments will be submitted to the United States Environmental Protection Agency (EPA) as a revision to the state implementation plan (SIP).

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

On June 15, 2004, the Houston-Galveston-Brazoria (HGB) ozone nonattainment area was classified as a moderate nonattainment area under the eight-hour national ambient air quality standard (NAAQS) under the Federal Clean Air Act (FCAA) Amendments of 1990 (42 United States Code (USC), §§7401 *et seq.*).

The HGB area is therefore required to attain the eight-hour ozone NAAQS of 0.08 parts per million (ppm) by the end of ozone season 2009, and to submit a SIP revision by June 15, 2007 (69 FR 23857).

Control strategies for this SIP revision must be in place by January 1, 2009. For the HGB area, defined by Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties, the TCEQ has developed this eight-hour ozone SIP revision in accordance with 42 USC, §7410. Hence, this rulemaking is part of the first HGB SIP revision under the eight-hour ozone standard.

The one-hour ozone NAAQS, which preceded the eight-hour ozone standard, was revoked June 15, 2005 (69 FR 23951). The one-hour ozone control strategies in the HGB area will remain in place. This set of strategies is extensive and will continue to reduce the amount of ozone precursors and ozone in the HGB airshed. On September 6, 2006 (71 FR 52656), EPA published approval of the HGB nonattainment area's one-hour ozone attainment demonstration and associated rules. The approval was published in six parts, covering the rules for the control of highly-reactive volatile organic compounds (HRVOC), the

HRVOC emission cap and trade (HECT) program, the mass emission cap and trade (MECT) program for nitrogen oxides (NO<sub>x</sub>), the one-hour ozone attainment plan, the emissions credit banking and trading program, and the discrete emission credit banking and trading program. For a more complete background on the one-hour ozone SIP revisions please see Chapter 1 of the eight-hour SIP revision that has been submitted for proposal concurrent with this rule package (Project Number 2006-027-SIP-NR).

The proposed rulemaking would subject owners or operators of volatile organic compound (VOC) storage tanks, transport vessels, and marine vessels located in the HGB eight-hour ozone nonattainment area to more stringent control, monitoring, testing, recordkeeping, and reporting requirements. The revised requirements have been developed to reduce VOC emissions that have previously been underreported in emissions inventories (EI).

The first Texas Air Quality Study (TexAQS 2000) measured ambient VOC concentrations in the Houston Ship Channel to be greater than estimates reported in the EI. Therefore, when TCEQ and its research partners began TexAQS II in May 2005, one of the study's primary goals was to identify VOC emission sources that have been historically unreported or underreported in the EI and could potentially be contributing to the discrepancy between measured and reported emissions.

TexAQS II remote sensing VOC project results indicate that certain types of storage tank emissions, including degassing, flash, and landing loss emissions, generally have been unreported in the EI. Recent data analysis, a landing loss emissions survey, and other TCEQ studies indicate that these unreported emissions could total several thousand tons per year (tpy); unreported or underreported landing loss emissions alone in the HGB area totaled approximately 7,250 tons in 2003. The proposed rulemaking

would reduce emissions from these sources as well as other sources of potentially unreported tank emissions, such as slotted guidepoles and other tank fittings.

#### SECTION BY SECTION DISCUSSION

Grammatical, style, and other non-substantive corrections are made throughout the rulemaking to be consistent with Texas Register requirements, to improve readability, and to conform to the drafting standards in the *Texas Legislative Drafting Manual*, August 2006. Such changes include appropriate and consistent use of acronyms, section references, and certain terminology such as “that” and “which” and “shall” and “must.” These changes are not discussed further.

#### *Subchapter B, General Volatile Organic Compound Sources*

##### *Division 1, Storage of Volatile Organic Compounds*

Proposed §115.110 would add two definitions used in proposed regulatory text. Proposed §115.110(1) would define *Incompatible liquid* as the term is used in proposed §115.112(d)(2)(H)(ii). The definition is intended to allow tank landings when necessary for change of service to a material that would be contaminated by the previously stored material. For example, a change in service to gasoline with a lower Reid vapor pressure that must be performed to comply with applicable fuel requirements is considered an incompatible liquid. The commission seeks comment on this definition. In particular, the commission seeks comment on how to address materials owned or produced by different entities.

Proposed §115.110(2) would define *Tank battery* as the term is used in §115.112(d)(4).

Proposed changes to §115.112 would amend §115.112(a) to specify that the existing requirements apply to the HGB area until January 1, 2009. Proposed changes would also add a subsection (d) to specify

additional requirements for storage vessels in the HGB area that will take effect on January 1, 2009.

Proposed §115.112(d)(1) would specify the tank size and vapor pressure criteria that determine control requirements for tanks. These are the same criteria and control requirements that are now effective in the HGB area. These requirements are being moved to proposed subsection (d) to be at the same location as new provisions that will apply to tanks in the HGB area.

Proposed §115.112(d)(2) would change the control requirements for tank fittings. Proposed §115.112(d)(2)(A) would specify that all openings in an internal or external floating roof except for automatic bleeder vents, rim space vents, and roof drains must provide a projection below the liquid surface and be equipped with a cover, seal, or lid. The cover, seal, or lid must be equipped with a working gasket and kept in a closed position at all times except when the opening is in actual use. The existing rule does not include roof drains in the list of exceptions. The existing rule allows the use of either a projection below the liquid surface or a cover, seal, or lid. The proposed new language would require both means of control, and would also specify that the cover, seal, or lid must be equipped with a working gasket. With only a projection below the liquid surface, fittings still have potential for VOC emissions. The use of a cover, seal, or lid equipped with a working gasket to effectively seal off the opening from the atmosphere will reduce the VOC emissions arising from fitting losses. Proposed §115.112(d)(2)(B) would specify that automatic bleeder vents (also known as vacuum breaker vents) must be gasketed and closed at all times except when the roof is being floated off or landed on the roof leg supports. The current rule requires only that the automatic bleeder vents be closed. The new language would also require that the vents be equipped with a working gasket to further limit VOC emissions. Proposed §115.112(d)(2)(C) would require rim vents to be gasketed and set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

The existing rule specifies the requirement for the rim vent settings; the new rule would add the requirement that the vents be equipped with a working gasket to further limit VOC emissions. Proposed §115.112(d)(2)(D) requires that any roof drain that empties into the stored liquid must be equipped with a slotted membrane fabric cover or equivalent control. The current rule specifies the use of the slotted membrane fabric cover; the proposed rule would allow the use of other controls. Controls other than slotted membrane fabric covers are allowed by EPA regulations and can provide equivalent or superior emission reduction performance. Examples include weighted ball or ball in cage type controls. The proposed rule would also specify that the requirement does not apply to stub drains on internal floating roof tanks. Stub drains are found on internal floating roof tanks that have bolted decks. Their purpose is to allow stored liquid that collects on the roof to drain back into the tank. Covers or other controls on these stub drains would provide minimal, if any, reduction in VOC emissions.

Proposed §115.112(d)(2)(E) states that there must be no visible holes, tears, or other openings in any seal or seal fabric. Proposed §115.112(d)(2)(F) states that secondary seals on external floating roof tanks must be rim-mounted and specifies a maximum allowable area of gaps between the secondary seal and the tank wall. These provisions are identical to current requirements in §115.112(a)(2)(E) and §115.112(a)(2)(F). Proposed §115.112(d)(2)(G) would require each slotted guidepole well to have a gasketed sliding cover or a flexible fabric sleeve seal, and a gasketed float or other device that closes off the liquid surface from the atmosphere. The amount of reduction achieved would depend on various factors including the tank size and material stored. As an example, a 100-foot diameter external floating roof tank with 4,000,000-gallon capacity that stores gasoline with a Reid vapor pressure of 9 and has 25 turnovers per year with an uncontrolled slotted guidepole would have 11.85 tons annual VOC emissions from the guidepole alone and 14 tons total annual tank VOC emissions. The same tank with a controlled slotted guidepole would

have 4.5 tons annual VOC emissions from the guidepole alone and 6.6 tons total annual tank VOC emissions. For this case, controlling the slotted guidepole would result in a 62% decrease in annual VOC emissions from the guidepole and a 53% decrease in total annual tank VOC emissions.

Proposed §115.112(d)(2)(H) would specify that a floating roof must be kept floating on the liquid surface at all times except when it must be supported by leg supports during initial fill and other limited circumstances. Times when the roof is supported by its legs are referred to as “landings.” Proposed §115.112(d)(2)(H) would limit the circumstances under which tank landings are allowed to times when the landing is necessary either to carry out required inspections or maintenance, or to support a change in service to a liquid that is incompatible with the previously stored liquid. Change in service to gasoline with a lower Reid vapor pressure that must be performed to comply with applicable fuel requirements is considered a change to a liquid that is incompatible with the previously stored liquid and would be allowed. Tank landings that are for the purposes of inventory control (also known as convenience landings) would not be allowed unless vapors are routed to a control device during the time that the roof is landed. Emissions from tank landings are higher than those that would occur while the roof is floating and have generally not been included in EI. A recent survey by the Air Quality Division’s Industrial Emissions Assessment Section indicates that an additional 7,250 tons from tank landings should have been reported in 2003. The proposed rule would reduce these previously unreported emissions. Tanks with a capacity less than 25,000 gallons and those storing material with a vapor pressure less than 1.5 pounds per square inch absolute (psia) are not subject to the prohibition because such tanks are not required to be equipped with floating roofs. As an alternative to the proposed requirements of §115.112(d)(2)(H)(i) - (iv), §115.112(d)(2)(H)(v) would provide a compliance option where a sitewide floating roof storage tank emissions cap could be established in Chapter 116 permits to control floating

roof tank landing emissions. The commission has recently established enforceable storage tank emission caps with several independent, for-hire petroleum and bulk liquid terminals in the HGB region, and is seeking comment on whether this is an appropriate mechanism for reducing emissions from tank landings.

The emission caps would enable these terminals to reduce landing emissions through a combination of measures, including operational roof landing restrictions where feasible, lowering of leg position to minimize vapor space, restricting landed tank refill rates, degassing with controls following landings, and new and emerging control techniques. The caps that would be established under §115.112(d)(2)(H)(v) could not include any increase in emissions due to tank landings that would otherwise be prohibited under proposed §115.112(d)(2)(H)(i) - (iv). The commission is seeking comment on other exemptions to the proposed prohibition on convenience landings and on other possible approaches to decreasing emissions from tank landings.

Proposed §115.112(d)(3) would specify that vapor recovery systems used as a control device must maintain a minimum control efficiency of 90%. This is the same requirement that currently applies.

Proposed §115.112(d)(4) would be added to specify that flash emissions from crude oil and condensate storage tanks must be controlled if uncontrolled VOC emissions from an individual tank or collectively from a tank battery would be greater than 25 tpy. Crude oil and condensate typically contain dissolved gases that flash as the pressure on the liquid is reduced. For example, flashing occurs when the liquids are routed from a separator or other pressurized vessel to an atmospheric storage tank. The flashed gases may contain VOC in addition to methane and ethane, and may also entrain VOC from the stored liquid.

In many cases, these gases can be economically routed to a vapor recovery device so that the energy content can be recovered for use at the production site or the gas can be compressed and routed to the sales line. If the volume of gas is sufficient, the capital cost for these vapor recovery devices can be

repaid in a short time because of the high value of the recovered gas. The 25 tpy threshold for control was chosen because it defines the major source level for severe nonattainment areas. The HGB area was classified as severe under the one-hour ozone standard before the one-hour standard was replaced with the eight-hour standard. The proposed 25 tpy threshold also represents the maximum emission rate at which a site would be authorized to operate under a permit by rule (PBR). The 25 tpy threshold would apply to an individual tank or to an aggregation of tanks in a tank battery. Because flash emissions could occur from any of the connected tanks, the proposed rule would require that the total emissions from all connected tanks be considered in comparison to the 25 tpy threshold. The commission seeks comment on the proposed 25 tpy threshold and on how the aggregate emissions from a tank battery should be considered. The proposed rule gives several options for estimating the uncontrolled flash emissions. The methods are based on estimating an emission factor in terms of pounds of VOC emitted per barrel (lb/bbl) of oil or condensate produced. Railroad Commission regulations in Title 16 §3.58(b) require producers to file a monthly report of the amount of oil, casing head gas, natural gas, and condensate produced during the month. Owners or operators can use these production records for the previous 12 months (rolling) along with the emission factor to estimate the total VOC emissions. The emission factor can be determined by direct measurement of the gas over a 24-hour period. Gas volume can be measured by manifolding all tanks and using a device such as a mass flow meter or positive displacement meter. A sample of the gas can be analyzed using Gas Processors Association Method 2286, Tentative Method of Extended Analysis for Natural Gas and Similar Mixtures by Temperature Programmed Gas Chromatography, to measure the composition of the flashed vapors. These measurements can be used to calculate the pounds of VOC emitted over the 24-hour measurement period. The pounds of VOC can then be divided by the oil or condensate production rate in barrels to determine the emission rate in pounds of VOC per barrel. Instead of making direct measurements, the owner or operator can use default

emission factors of 33.3 lb/bbl of condensate or 1.6 lb/bbl of crude. These factors were determined in a study titled *VOC Emissions from Oil and Condensate Storage Tanks*. This study, conducted in 2006, was sponsored by the Houston Advanced Research Center (HARC) and is identified as project H51C. For crude oil, owners or operators can use a chart found as Exhibit 2 of the EPA publication *Lessons Learned from Natural Gas STAR Partners: Installing Vapor Recovery Units on Crude Oil Storage Tanks*, October 2003, to estimate the volume of flash gas per barrel of oil. The VOC mass emission rate can then be determined by assuming that the hydrocarbon vapors have a molecular weight of 34 pounds per pound mole and are 48% by weight VOC. These values came from the HARC H51C study. Finally, the owner or operator can use an appropriate computer simulation or other method approved by the executive director. These options are specified to minimize the burden on owners and operators to make direct measurements or complex calculations. If direct measurements yield emission rates that are higher than those determined by the default emission factors, EPA chart, or simulation, or if computer simulation yields results higher than the default emission factors or chart, the higher rates must be used. The commission seeks comment on the proposed calculation methods.

Nothing in the proposed rule implies authorization of flash emissions. All emissions must be authorized according to a permit or other authorization under 30 TAC Chapters 106 or 116. The proposed rule would regulate flash emissions from crude oil and condensate storage whether these materials are stored at oil or gas production sites, pipeline terminals, petroleum refineries, or elsewhere. Crude oil and condensate are not the only sources of flash emissions. Processes in petroleum refineries and chemical plants can generate liquids containing dissolved gases that will flash when the liquid is routed from higher pressure equipment to an atmospheric storage tank. Although flash emissions from these other liquids would not be regulated under the proposed rule, the commission is not implying that these emissions are

authorized. Methods specified in the EPA *Compilation of Air Pollutant Emission Factors* (AP-42) to calculate emissions from storage tanks do not include emissions from flash. Unless these flash emissions have been separately estimated and included in best available control technology and health effects reviews during permitting, the emissions are not authorized even if they are not expressly prohibited by regulation in Chapter 115.

Proposed §115.115(c) would specify appropriate measuring instruments and test methods for determining flash emissions if the owner or operator chooses to demonstrate compliance with the 25 tpy limit by direct measurement. The use of a mass flow meter, positive displacement meter, or similar device is proposed for determining flash gas flow rate. Conventional pitot tube or orifice plate techniques may not be appropriate for the relatively low flow rates from oil and condensate storage tanks. Flow measurements would be made over a 24-hour period representative of normal operation while the producing well is operational to make sure that the measurements capture emissions during a typical working cycle including pumping into and out of the tanks. Gas composition would be determined using Gas Processors Association Method 2286, Tentative Method of Extended Analysis for Natural Gas and Similar Mixtures by Temperature Programmed Gas Chromatography. The commission is seeking comments on these proposed measuring instruments and test methods.

Proposed §115.116(c)(1) would specify that owners or operators of storage tanks that are not required to be equipped with a floating roof or vapor recovery system because the vapor pressure of the stored material is less than 1.5 psia shall keep records of the material stored and the vapor pressure. These records are necessary to document that material stored in fixed roof tanks meets the criteria for exemption from control requirements.

Proposed §115.116(c)(2) would specify that owners or operators of crude oil or condensate storage tanks with flash emissions shall keep records to verify that emissions from these tanks are below the 25 tpy criteria for exemption from control requirements. Records must be sufficient to allow investigators to determine whether flash emissions have been calculated by an appropriate method. If a computer simulation is used, records of the input and output must be retained.

The proposed amendment to §115.117(a)(2) would specify that in the HGB area, the storage of crude oil and condensate prior to custody transfer in tanks with capacity less than 210,000 gallons will no longer be exempt from the control requirements of Subchapter B, Division 1 after January 1, 2009. The VOC emissions from such tanks at oil and gas production sites (especially emissions arising from flashed gases) have been found to be a significant source of VOC emissions and have previously not been reported.

Proposed §115.119(c) would specify that compliance with the requirements of §§115.112(d), 115.115(c), and 115.116(c) must be achieved by January 1, 2009. Tanks with a nominal capacity less than 210,000 gallons (794,850 liters) storing crude oil and condensate prior to custody transfer that were previously exempt must achieve compliance by January 1, 2009. The HGB area is required to submit a SIP revision by June 15, 2007, and to attain the eight-hour ozone standard of 0.08 ppm by the end of the ozone season in 2009. Control strategies in support of the SIP revision must be in place by January 1, 2009. However, if compliance with the new requirements would necessitate emptying and degassing the tank, compliance would not be required until the next time the tank is emptied or degassed but not later than January 1, 2017. Additional emissions that would arise from emptying and degassing a tank could negate the benefit of the emission controls and so would not be required solely for the purpose of installing controls.

Because tanks are generally taken out of service at least once every ten years, the controls must be installed no later than ten years from the date these rules are adopted. The commission anticipates that most, if not all, of the required control equipment can be put into place without taking the tank out of service.

*Subchapter F, Miscellaneous Industrial Sources*

*Division 3, Degassing or Cleaning of Stationary, Marine, and Transport Vessels*

The proposed change to §115.541(a)(1) specifies that after January 1, 2009, the degassing control requirements would apply to storage tanks in the HGB area with a nominal capacity of 40,000 gallons or more. The current rule mandates degassing controls only to tanks with a nominal capacity of one million gallons or more. The EI database has records of more than 1,000 floating roof tanks between 40,000 and one million gallon capacity that could be required to employ vapor recovery during tank degassing under the proposed rule. There are also 4,000 fixed roof tanks in this size range, but an unknown number of these tanks store materials with a vapor pressure less than 0.5 psia and would not be subject to the proposed degassing requirement. Degassing emissions from these smaller tanks can be abated with technology similar to that used for larger tanks.

The proposed change to §115.542(a)(5) would specify that the current control requirements apply in the HGB area only until January 1, 2009. Proposed §115.542(a)(6) would specify new criteria for control of degassing vapors from storage tanks, transport vessels, and marine vessels in the HGB area. The change would require that vapors be vented to a control device until the VOC concentration of the vapors is reduced to less than 34,000 ppm by volume (ppmv) as methane. The current rules specify this concentration as one criterion for determining when vapors can be vented to the atmosphere but also

allow venting after a turnover of four vapor space volumes has occurred. If the tanks are drained dry and if the flow of displacement gases is measured properly, four turnovers would generally be sufficient to reduce VOC concentrations to less than 34,000 ppmv. If liquid remains in the bottom of the tank or transport vessel, as commonly occurs due to irregularities in the vessel surface, the remaining liquid would continue to be a source of VOC emissions after the four turnover criterion has been satisfied. Dilution from ventilation gas used to sweep the vapor space within the vessel could also cause a reading of 34,000 ppmv VOC to be reached temporarily, but if liquid remains in the tank the concentration could again rise when the flow of ventilation gas ceases. The proposed revision would require continued control of the vapors until the VOC concentration decreases to below 34,000 ppmv. The concentration must be rechecked periodically while the tank is vented to the atmosphere to ensure that it remains below 34,000 ppmv. If ventilation is continuous, the concentration must be measured at least once every 12 hours. If ventilation ceases for more than four hours, the concentration must be rechecked before the tank is reopened.

The proposed change to §115.542(b)(4) would specify that the stated control requirements apply in the HGB area only until January 1, 2009. Proposed §115.542(b)(5) would specify new criteria for control of degassing vapors from marine vessels in the HGB area. The change would require vapors to be vented to a control device until the VOC concentration of the vapors is reduced to less than 34,000 ppmv as methane. The current rules specify this concentration as one criterion for determining when vapors can be vented to the atmosphere but also allow venting after a turnover of four vapor space volumes has occurred. This change is being proposed for degassing vapors from marine vessels for the same reasons discussed for the proposed change to §115.542(a)(5) and proposed §115.542(a)(6) for storage vessels and transport vessels.

Proposed §115.545(11) would specify the use of an instrument with a flame ionization detector (FID) or a TCEQ-approved alternative detector to measure the VOC concentration of the storage vessels, transport vessels, or marine vessels to determine when the vapors can be vented to the atmosphere instead of to a control device. The instrument/FID must meet all requirements specified in Section 8.1 of EPA Method 21 (40 Code of Federal Regulations (CFR) Part 60, Appendix A). Requiring continuous monitoring of VOC concentration with a gas chromatograph (GC) or requiring that concentration measurements be made with Test Methods 25, 25A, or 25B would impose a disproportionate cost burden on the smaller vessels affected by the proposed rule. The instrument with an FID detector, such as that used to monitor for VOC leaks in EPA Method 21, is more readily available and provides an acceptable degree of accuracy for determining whether a vessel has been effectively degassed. The measurement should be made at the head space of the vessel, as close as possible to the tank bottom to ensure that the concentration measurement is representative of actual conditions. The commission is seeking comment on the proposed frequency and method for the concentration measurements.

Proposed §115.546(1)(D) would specify that records of the VOC concentration measurements required by §115.542(a)(6) and (b)(5) must be maintained. The records are necessary to document that degassing vapors are routed to a control device until they reach the criteria to be released to the atmosphere.

A change to §115.547(2) is proposed to state that after January 1, 2009, storage tanks in the HGB area with a nominal capacity of less than one million gallons but greater than or equal to 40,000 gallons will no longer be exempt from the requirements to control degassing emissions. As discussed earlier in this preamble, degassing emissions from these smaller tanks can be controlled with technology similar to that

used to control degassing emissions from the larger tanks. The commission seeks comment on the appropriate level for exemption.

The words “causes” and “prevents” would be added to §115.547(4) so that the text more clearly expresses the intended meaning of the exemption.

Proposed §115.549(d) would specify that compliance with the new and revised requirements must be achieved by January 1, 2009. The HGB area is required to submit a SIP revision by June 15, 2007, and to attain the eight-hour ozone standard of 0.08 ppm by the end of the ozone season in 2009. Control strategies in support of the SIP revision must be in place by January 1, 2009.

#### FISCAL NOTE: COSTS TO STATE AND LOCAL GOVERNMENT

Nina Chamness, Analyst, Strategic Planning and Assessment Section, has determined that, for the first five-year period the proposed rules are in effect, no fiscal implications are anticipated for the agency or other units of state or local governments as a result of administration or enforcement of the proposed rules. The proposed rules affect owners or operators of storage tanks, transport vessels, and marine vessels located in the HGB eight-hour ozone nonattainment area and have been developed to reduce VOC emissions that have been previously underreported or not reported in EI for HGB. Units of state or local governments do not typically own or operate these types of tanks and vessels, and the proposed rules are not expected to affect them.

The proposed rules would modify parts of Chapter 115 that pertain to VOC emissions in the HGB eight-hour ozone nonattainment area. The proposed rules are intended to reduce VOC emissions that have

previously been underreported or not reported. The proposed rules would require compliance by January 1, 2009, unless compliance would require the emptying and degassing of an affected storage tank. In those cases, compliance would be required the next time the tank is emptied and degassed but no later than January 1, 2017.

The proposed storage tank requirements would apply to tanks in petroleum refineries, chemical plants, gasoline storage terminals, bulk terminals storing VOCs, and oil and gas production sites in the HGB area. Storage tank rules would require upgrades to VOC emission controls on the fittings of floating roof storage tanks and require previously exempt floating roof storage tanks (those between 40,000 and 210,000 gallons storing crude oil and condensate at oil and natural gas production sites) to upgrade controls also. Flash emissions would also have to be controlled, and vapor recovery or other control equipment would have to be installed if VOC emissions from a single tank or tank battery exceed 25 tpy. The proposed changes to degassing rules for the HGB area would affect owners/operators of storage tanks, transport vessels, marine vessels, and facilities that clean transport and marine vessels. Currently, storage tanks with capacities between 40,000 and 1 million gallons are exempt from degassing control requirements. The proposed rules would change the criteria for determining when a tank or vessel can be vented to the atmosphere and could result in control equipment being used for a longer period of time, thus potentially increasing operating costs. The proposed rules would also add a requirement for measuring the VOC concentration of vented gases and for keeping records of those measurements.

#### PUBLIC BENEFITS AND COSTS

Ms. Chamness also determined that the public benefit anticipated from the changes seen in the proposed rules will be lower ozone levels and improved air quality in the HGB eight-hour ozone nonattainment

area.

Vapor recovery equipment to recover flash gases could be installed on crude oil or condensate storage tanks at a capital cost of \$60,000 - \$95,000. These would be one-time costs. Operating costs are expected to be more than offset by the value of the recovered gases.

According to the agency's EI database, there are almost 2,700 floating-roof tanks in the HGB area that might be affected by the proposed rule changes requiring more stringent control of VOC emissions from tank fittings. There are 86 storage terminals that are expected to be affected by the limitations on tank landings. The number of tanks storing crude oil and condensate that will be affected by the requirement to control flash emissions is unknown. According to Railroad Commission data there are 2,260 active oil wells and 1,091 natural gas wells in the HGB area as of September 2006. A tank battery may serve one or multiple wells. Tanks at petroleum refineries and at pipeline terminals may also be affected.

Costs associated with vessel degassing vary greatly depending on the size of the vessel, the concentration of VOC, and the quantity of residual liquid in the vessel. The maximum costs are associated with large stationary storage tanks or barges, estimated as \$25,000 per day. The cost of an instrument to make the concentration measurements could be up to \$13,000, but many facilities would already have the instrument for use in leak detection and repair programs.

There are more than 4,000 fixed roof and 1,000 floating roof tanks between 40,000 and one million gallon capacity that could be required to employ vapor recovery during tank degassing as a result of the proposed rule. There are 865 fixed roof and 1,250 floating roof tanks with capacities of one million

gallons or more that may have to use control equipment for a longer time period during degassing because of the proposed rule. Tanks are generally expected to be degassed once every five to ten years. The actual number of tanks that would be affected is unknown because the control requirement depends on the vapor pressure of the stored material. Most of the fixed roof tanks would not likely be subject to the control requirement because they generally store materials with vapor pressures below the 0.5 psia cutoff. Transport vessels are less likely to be impacted significantly by the proposed rules because they are less likely to have residual liquid prior to degassing. These vessels would thus be less likely to be required to degas for a longer time period to meet the VOC concentration limit under the proposed rule.

Costs for tank fittings on floating roof tanks to control VOCs are estimated to be \$900 per tank for an existing tank. Estimated costs for equipping slotted guidepoles on floating roof tanks with controls are \$10,000 per tank. These are one-time costs.

Costs for limiting tank landings will depend on whether the site chooses to revise operating practices to limit the use of landings or to employ add-on control devices to control emissions from tank landings. If convenience landings are eliminated, the net effect would be equivalent to a capacity loss of about 15%. The 15% loss of capacity could require the construction of one new tank for every six tanks that are required to limit convenience landings. Costs for a new tank would depend on the size and type of construction. A tank with a capacity of one million gallons would cost approximately \$610,400.

#### SMALL BUSINESS AND MICRO-BUSINESS ASSESSMENT

No adverse fiscal implications are anticipated for small or micro-businesses since they are not typically owners/operators of the affected tanks or vessels. If a small or micro-business in the HGB eight-hour

ozone nonattainment area does own or operate a tank, transport vessel, marine vessel, or a facility that cleans transport and marine vessels, then it will incur the same costs as those incurred by a large business.

#### LOCAL EMPLOYMENT IMPACT STATEMENT

The commission has reviewed this proposed rulemaking and determined that a local employment impact statement is not required because the proposed rules do not adversely affect a local economy in a material way for the first five years that the proposed rules are in effect.

#### DRAFT REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the proposed rulemaking action in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and determined that the rulemaking action does not meet the definition of a “major environmental rule” as defined in that statute. A “major environmental rule” is a rule the specific intent of which is to protect the environment or reduce risks to human health from environmental exposure and that may adversely affect in a material way the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state.

The primary purpose of this proposed rulemaking action is to subject owners or operators of VOC storage tanks, transport vessels, and marine vessels located in the HGB eight-hour ozone nonattainment area to revised control, monitoring, testing, recordkeeping, and reporting requirements. The proposed rules would assist in identifying previously unreported emissions, and reducing them appropriately. It is anticipated that this proposed rulemaking will positively affect human health and the environment, and not adversely affect the economy or productivity in any material manner. Moreover, the proposed rules would improve air quality and make positive progress towards attainment of the HGB eight-hour ozone standard. Therefore, the proposed rulemaking does not constitute a major environmental rule, and thus is

not subject to a formal regulatory analysis.

In addition, this proposed rulemaking does not meet any of the four applicability criteria of a “major environmental rule” as defined in the Texas Government Code. Texas Government Code, §2001.0225 applies only to a major environmental rule the result of which is to: 1) exceed a standard set by federal law, unless the rule is specifically required by state law; 2) exceed an express requirement of state law, unless the rule is specifically required by federal law; 3) exceed a requirement of a delegation agreement or contract between the state and an agency or representative of the federal government to implement a state and federal program; or 4) adopt a rule solely under the general powers of the agency instead of under a specific state law.

The rulemaking action, which is designed to reduce VOC emissions that have previously been underreported in EI, does not exceed an express requirement under federal or state law. Furthermore, there is no contract or delegation agreement that covers the topic that is the subject of this action. Finally, this rulemaking action was not developed solely under the general powers of the agency, but is authorized by specific sections of Texas Health and Safety Code, Chapter 382 (also known as the Texas Clean Air Act), and the Texas Water Code, which are cited in the STATUTORY AUTHORITY section of this preamble, including Texas Health and Safety Code, §§382.011, 382.012, and 382.017. Therefore, the proposed rulemaking does not exceed a standard set by federal law, exceed an express requirement of state law, exceed a requirement of a delegation agreement, nor is adopted solely under the general powers of the agency.

Based upon the foregoing, this rulemaking action is not subject to the regulatory analysis provisions of Texas Government Code, §2001.0225. The commission invites public comment on the draft regulatory

impact analysis determination.

#### TAKINGS IMPACT ASSESSMENT

Under Texas Government Code, §2007.002(5), “taking” means a governmental action that affects private real property, in whole or in part or temporarily or permanently, in a manner that requires the governmental entity to compensate the private real property owner as provided by the Fifth and Fourteenth Amendments to the United States Constitution or §17 or §19, Article I, Texas Constitution; or a governmental action that affects an owner's private real property that is the subject of the governmental action, in whole or in part or temporarily or permanently, in a manner that restricts or limits the owner's right to the property that would otherwise exist in the absence of the governmental action; and is the producing cause of a reduction of at least 25% in the market value of the affected private real property, determined by comparing the market value of the property as if the governmental action is not in effect and the market value of the property determined as if the governmental action is in effect.

The commission completed a takings impact assessment for the proposed rules. The proposed rules will not affect private real property in a manner that would require compensation to private real property owners under the United States Constitution or the Texas Constitution. The proposal also will not affect private real property in a manner that restricts or limits an owner's right to the property that would otherwise exist in the absence of the governmental action. Therefore, the proposed rules will not cause a taking under Texas Government Code, Chapter 2007.

#### CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission determined that this rulemaking action relates to an action or actions subject to the Texas

Coastal Management Program (CMP) in accordance with the Coastal Coordination Act of 1991, as amended (Texas Natural Resources Code, §§33.201 *et seq.*), and the commission rules in 30 TAC Chapter 281, Subchapter B, concerning Consistency with the Texas Coastal Management Program. As required by §281.45(a)(3) and 31 TAC §505.11(b)(2), relating to Actions and Rules Subject to the Coastal Management Program, commission rules governing air pollutant emissions must be consistent with the applicable goals and policies of the CMP. The commission reviewed this action for consistency with the CMP goals and policies in accordance with the rules of the Coastal Coordination Council, and determined the 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(l)). No new sources of air contaminants will be authorized and the proposed rules will maintain at least the same level of or increase the level of emissions control as the existing rules. The CMP policy applicable to this rulemaking action is the policy that commission rules comply with federal regulations in 40 CFR, to protect and enhance air quality in the coastal areas (31 TAC §501.32). This rulemaking action complies with 40 CFR Part 51, Requirements for Preparation, Adoption, and Submittal of Implementation Plans. Therefore, in accordance with 31 TAC §505.22(e), the commission affirms this rulemaking action is consistent with CMP goals and policies.

The commission solicits comments on the consistency of the proposed rulemaking with the CMP during the public comment period.

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

The requirements of Chapter 115 are applicable requirements of 30 TAC Chapter 122. Owners or operators of sites subject to the Federal Operating Permit Program will be required to obtain, revise,

reopen, and renew their Federal Operating Permits, as appropriate, in order to include the requirements of this proposed rulemaking, if it is adopted by the commission.

#### ANNOUNCEMENT OF HEARINGS

The commission will hold public hearings on this proposal at the following times and locations: January 29, 2007, 2:00 p.m. and 6:00 p.m., Houston-Galveston Area Council, 3555 Timmons Lane, Houston; January 31, 2007, 7:00 p.m., J. Erik Jonsson Central Library Auditorium, 1515 Young Street, Dallas; February 1, 2007, 2:00 p.m., Arlington City Hall Council Chambers, 101 W. Abrams Street, Arlington; February 1, 2007, 6:00 p.m., Midlothian Conference Center, 1 Community Circle, Midlothian; February 6, 2007, 2:00 p.m., Longview Public Library, 222 W. Cotton Street, Longview; and February 8, 2007, 2:00 p.m., Texas Commission on Environmental Quality, Building E, Room 201S, 12100 Park 35 Circle, Austin. The hearings will be structured for the receipt of oral or written comments by interested persons. Registration will begin 30 minutes prior to the hearings. Individuals may present oral statements when called upon in order of registration. A time limit may be established at each hearing to assure that enough time is allowed for every interested person to speak. There will be no open discussion during the hearings; however, commission staff members will be available to informally discuss the proposal 30 minutes before the hearings.

Persons planning to attend the hearings who have special communication or other accommodation needs, should contact Jennifer Stifflemire, Air Quality Division, at (512) 239-0573. Requests should be made as far in advance as possible.

#### SUBMITTAL OF COMMENTS

Comments may be submitted to Patricia Durón, MC 205, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087; or faxed to (512) 239-4808. Electronic comments may be submitted at <http://www5.tceq.state.tx.us/rules/ecomments/>. All comments should reference Rule Project Number 2006-038-115-EN. The comment period closes February 12, 2007. Copies of the proposed rules can be obtained from the commission's Web site at [http://www.tceq.state.tx.us/nav/rules/propose\\_adopt.html](http://www.tceq.state.tx.us/nav/rules/propose_adopt.html). For further information, please contact Teresa Hurley of the Air Quality Division at (512) 239-5316.

**SUBCHAPTER B: GENERAL VOLATILE ORGANIC COMPOUND SOURCES**

**DIVISION 1: STORAGE OF VOLATILE ORGANIC COMPOUNDS**

**§§115.110, 115.112 - 115.117, 115.119**

STATUTORY AUTHORITY

The amendments and new rule are proposed under Texas Water Code, §5.102, concerning General Powers, §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 Health and Safety Code, Chapter 382 (also known as the Texas Clean Air Act). The amendments and new rule 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 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 control of the state's air; §382.014, concerning Emission Inventory, which authorizes the commission to require the submission of information concerning the emission of air contaminants; and §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to require owners and operators of emission sources to maintain measuring and monitoring records and make such records available to the commission. The rules are proposed under federal mandates contained in 42 USC, §7410, that require states to introduce pollution control measures in order to reach specific air quality standards in particular areas of the state.

The proposed amendments and new rule implement Texas Health and Safety Code, §§382.002, 382.011, 382.012, 382.014, and 382.016.

**§115.110. Definitions.**

The following words and terms, when used in this division (relating to Storage of Volatile Organic Compounds), 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) **Incompatible liquid**--A liquid that is a different chemical compound or a fuel with different regulatory specifications.

(2) **Tank battery**--A collection of equipment used to separate, treat, store, and transfer crude oil, condensate, natural gas, and produced water. A tank battery typically receives crude oil, condensate, natural gas, or some combination of these extracted products from several production wells for accumulation and separation prior to transmission to a natural gas plant or petroleum refinery.

**§115.112. Control Requirements.**

(a) For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and until January 1,

2009, in the Houston/Galveston/Brazoria areas as defined in §115.10 of this title (relating to Definitions), the following requirements [shall] apply.

(1) No person shall place, store, or hold in any stationary tank, reservoir, or other container any volatile organic compound (VOC) unless such container is capable of maintaining working pressure sufficient at all times to prevent any vapor or gas loss to the atmosphere, or is equipped with at least the control device specified in Table I(a) of this paragraph for VOC other than crude oil and condensate, or Table II(a) of this paragraph for crude oil and condensate.

Figure: 30 TAC §115.112(a)(1)

[Figure: 30 TAC §115.112(a)(1)]

<b>Table I(a)</b>		
REQUIRED CONTROL FOR STORAGE TANKS FOR VOC OTHER THAN CRUDE OIL AND CONDENSATE		
<b>True Vapor Pressure of Compound at Storage Conditions</b>	<b>Nominal Storage Capacity</b>	<b>Emission Control Requirements</b>
$< 1.5 \text{ psia}^*$ ( $10.3 \text{ kPa}^*$ )  $\geq 1.5 \text{ psia}$ ( $10.3 \text{ kPa}$ ) and $< 11 \text{ psia}$ ( $75.8 \text{ kPa}$ )	Any	None
	$\leq 1,000 \text{ gal}^*$ ( $3,785 \text{ L}^*$ )	None
	$> 1,000 \text{ gal}$ ( $3,785 \text{ L}$ ) and $\leq 25,000 \text{ gal}$ ( $94,635 \text{ L}$ )	Submerged fill pipe or vapor recovery system
	$> 25,000 \text{ gal}$ ( $94,635 \text{ L}$ ) and $\leq 40,000 \text{ gal}$ ( $151,416 \text{ L}$ )	Internal or external floating roof (any type) or vapor recovery system
	$> 40,000 \text{ gal}$ ( $151,416 \text{ L}$ )	Internal floating roof or External floating roof with primary seal (any type)

		and secondary seal or vapor recovery system
≥ 11 psia (75.8 kPa)	≤ 1,000 gal (3,785 L)	None
	> 1,000 gal (3,785 L) and ≤ 25,000 gal (94,635 L)	Submerged fill pipe or vapor recovery system
	> 25,000 gal (94,635 L)	Submerged fill pipe and vapor recovery system
*psia=pounds per square inch absolute, *kPa=kilo Pascals, *gal=gallon, *L=Liter		

<b>Table II(a)</b>		
REQUIRED CONTROL DEVICES FOR STORAGE TANKS FOR CRUDE OIL AND CONDENSATE		
True Vapor Pressure of Compound at Storage Conditions	Nominal Storage Capacity	Emission Control Requirements
< 1.5 psia* (10.3 kPa*)	Any	None
≥ 1.5 psia (10.3 kPa) and < 11 psia (75.8 kPa)	≤ 1,000 gal* (3,785 L*)	None
	> 1,000 gal (3,785 L) and ≤ 40,000 gal (151,416 L)	Submerged fill pipe or vapor recovery system
	> 40,000 gal (151,416 L)	Internal floating roof or External floating roof with primary seal (any type) and secondary seal or vapor recovery system
	≤ 1,000 gal (3,785 L)	None
	> 1,000 gal (3,785 L) and	Submerged fill pipe or

≥ 11 psia (75.8 kPa)	≤ 40,000 gal (151,416 L)	vapor recovery system
	> 40,000 gal (151,416 L)	Submerged fill pipe and vapor recovery system
*psia=Pounds per square inch absolute, *kPa=kilo Pascals, *gal=Gallon, *L=Liter		

(2) For floating roof storage tanks subject to the provisions of paragraph (1) of this subsection, the following requirements [shall] apply.

(A) All openings in an internal or external floating roof except for automatic bleeder vents (vacuum breaker vents) and rim space vents must provide a projection below the liquid surface or be equipped with a cover, seal, or lid. Any cover, seal, or lid must be in a closed (i.e., no visible gap) position at all times except when the device is in actual use.

(B) Automatic bleeder vents (vacuum breaker vents) must [are to] be closed at all times except when the roof is being floated off or landed on the roof leg supports.

(C) Rim vents, if provided, must [are to] be set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

(D) Any roof drain that empties into the stored liquid must [shall] be equipped with a slotted membrane fabric cover that covers at least 90% of the area of the opening.

(E) There must [shall] be no visible holes, tears, or other openings in any seal or seal fabric.

(F) For external floating roof storage tanks, secondary seals must [shall] be the rim-mounted type (the seal must [shall] be continuous from the floating roof to the tank wall). The accumulated area of gaps that exceed 1/8 inch (0.32 centimeter [cm]) in width between the secondary seal and tank wall must [shall] be no greater than 1.0 square inch [in<sup>2</sup>] per foot (21 square centimeters per [cm<sup>2</sup>/]meter) of tank diameter.

(3) Vapor recovery systems used as a control device on any stationary tank, reservoir, or other container must [shall] maintain a minimum control efficiency of 90%.

(b) For all persons in Gregg, Nueces, and Victoria Counties, the following requirements shall apply:

(1) No person shall place, store, or hold in any stationary tank, reservoir, or other container any volatile organic compound (VOC), unless such container is capable of maintaining working pressure sufficient at all times to prevent any vapor or gas loss to the atmosphere, or is equipped with at least the control device specified in Table I(a) for VOC other than crude oil and condensate or Table II(a) for crude oil and condensate.

(2) For floating roof storage tanks subject to the provisions of paragraph (1) of this subsection, the following requirements shall apply.

(A) All openings in an internal or external floating roof, except for automatic bleeder vents (vacuum breaker vents) and rim space vents, must provide a projection below the liquid surface or be equipped with a cover, seal, or lid. Any cover, seal, or lid must be in a closed (i.e., no visible gap) position at all times, except when the device is in actual use.

(B) Automatic bleeder vents (vacuum breaker vents) are to be closed at all times except when the roof is being floated off or landed on the roof leg supports.

(C) Rim vents, if provided, are to be set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

(D) Any roof drain that empties into the stored liquid shall be equipped with a slotted membrane fabric cover that covers at least 90% of the area of the opening.

(E) There shall be no visible holes, tears, or other openings in any seal or seal fabric.

(F) For external floating roof storage tanks, secondary seals shall be the rim-mounted type (the seal shall be continuous from the floating roof to the tank wall). The accumulated area of gaps that exceed 1/8 inch (0.32 centimeter) in width between the secondary seal and tank wall shall be no greater than 1.0 square inch per foot (21 square centimeters/meter) of tank diameter.

(c) For all persons in Aransas, Bexar, Calhoun, Matagorda, San Patricio, and Travis Counties, the following requirements shall apply.

(1) No person may place, store, or hold in any stationary tank, reservoir, or other container any VOC, other than crude oil or condensate, unless such container is capable of maintaining working pressure sufficient at all times to prevent any vapor or gas loss to the atmosphere, or is designed and equipped with at least the control device specified in Table I(b) for VOC other than crude oil and condensate.

Figure: 30 TAC §115.112(c)(1)

<b>Table I(b)</b>		
<b>REQUIRED CONTROL DEVICES FOR STORAGE TANKS FOR VOC OTHER THAN CRUDE OIL AND CONDENSATE</b>		
<b>True Vapor Pressure of Compound at Storage Conditions</b>	<b>Nominal Storage Capacity</b>	<b>Emission Control Requirements</b>
$< 1.5$ psia (10.3 kPa)	Any	None
	$\leq 1,000$ gal (3,785 L*)	None
	$> 1,000$ gal (3,785 L)	None
	$> 1,000$ gal (3,785 L) and $\leq 25,000$ gal (94,635 L)	Submerged fill pipe or vapor recovery system
	$\geq 1.5$ psia (10.3 kPa) and $< 11$ psia (75.8 kPa)	$> 25,000$ gal (94,635 L)
	$\leq 1,000$ gal (3,785 L)	None
	<del><math>&gt; 1,000</math> gal (3,785 L)</del>	<del>Submerged fill pipe</del>

$\geq 11$ psia (75.8 kPa)	and $\leq 25,000$ gal (94,635 L)	or vapor recovery system
	$> 25,000$ gal (94,635 L)	Submerged fill pipe and vapor recovery system
*L=Liter		

(2) For floating roof storage tanks subject to the provisions of paragraph (1) of this subsection, the following requirements shall apply.

(A) There shall be no visible holes, tears, or other openings in any seal or seal fabric.

(B) All tank gauging and sampling devices shall be vapor-tight except when gauging and sampling is taking place.

(3) No person in Matagorda or San Patricio Counties shall place, store, or hold crude oil or condensate in any stationary tank, reservoir, or other container, unless such tank, reservoir, or other container is a pressure tank capable of maintaining working pressures sufficient at all times to prevent vapor or gas loss to the atmosphere or is equipped with one of the following vapor-loss control devices, properly maintained and operated:

(A) an internal floating cover or external floating roof as defined in §115.10 of this title (relating to Definitions). This control equipment shall not be permitted if the VOC has a true

vapor pressure of 11.0 psia (75.8 kPa) or greater. All tank-gauging and tank-sampling devices shall be vapor-tight, except when gauging or sampling is taking place; or

(B) a vapor recovery system as defined in §115.10 of this title (relating to Definitions).

(d) For all persons in the Houston/Galveston/Brazoria area the following requirements apply.

(1) No person shall place, store, or hold in any stationary tank, reservoir, or other container any VOC unless such container is capable of maintaining working pressure sufficient at all times to prevent any vapor or gas loss to the atmosphere, or is equipped with at least the control device specified in either Table I(a) of subsection (a)(1) of this section for VOC other than crude oil and condensate, or Table II(a) of subsection (a)(1) of this section for crude oil and condensate.

(2) For floating roof storage tanks subject to the provisions of paragraph (1) of this subsection, the following requirements apply.

(A) All openings in an internal or external floating roof except for automatic bleeder vents (vacuum breaker vents), rim space vents, and roof drains must provide a projection below the liquid surface and be equipped with a cover, seal, or lid. Any cover, seal, or lid must be equipped with a working gasket and kept in a closed (i.e., no visible gap) position at all times except when the device is in actual use.

(B) Automatic bleeder vents (vacuum breaker vents) must be equipped with a working gasket and closed at all times except when the roof is being floated off or landed on the roof leg supports.

(C) Rim vents, if provided, must be equipped with a working gasket and be set to open only when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.

(D) Any roof drain that empties into the stored liquid must be equipped with a slotted membrane fabric cover that covers at least 90% of the area of the opening or an equivalent control that must be kept in a closed (i.e., no visible gap) position at all times except when the drain is in actual use. Stub drains on internal floating roof tanks are not subject to this requirement.

(E) There must be no visible holes, tears, or other openings in any seal or seal fabric.

(F) For external floating roof storage tanks, secondary seals must be the rim-mounted type (the seal must be continuous from the floating roof to the tank wall). The accumulated area of gaps that exceed 1/8 inch (0.32 centimeter) in width between the secondary seal and tank wall must be no greater than 1.0 square inch per foot (21 square centimeters per meter) of tank diameter.

(G) Each slotted guidepole well must have a gasketed sliding cover or a flexible fabric sleeve seal, and a gasketed float or other device that closes off the liquid surface from the

atmosphere.

(H) The floating roof must be floating on the liquid surface at all times except when the floating roof is supported by the leg supports during the initial fill or as allowed under the following circumstances:

(i) when necessary for required maintenance or inspection;

(ii) when necessary for supporting a change in service to a liquid that is incompatible with the previously stored liquid (including change in service to a gasoline with a lower Reid vapor pressure to comply with applicable requirements);

(iii) when the tank has a capacity of less than 25,000 gallons or the vapor pressure of the material stored is less than 1.5 psia;

(iv) when the vapors are routed to a control device from the time the roof is landed until it is refloated; or

(v) when all emissions from the tank, including emissions from roof landings, have been included in a sitewide floating roof storage tank emissions cap approved under Chapter 116 of this title (relating to Control of Air Pollution by Permits for New Construction or Modification) and the cap value is not increased to account for emissions from landings that would otherwise be prohibited.

(3) Vapor recovery systems used as a control device on any stationary tank, reservoir, or other container must maintain a minimum control efficiency of 90%.

(4) Tanks storing crude oil or condensate must route flashed gases to a vapor recovery system or control device if the uncontrolled VOC emissions from an individual tank, or from the aggregate of tanks in a tank battery, have the potential to equal or exceed 25 tons per year on a rolling 12-month basis. Uncontrolled emissions must be estimated by one of the following methods:

(A) direct measurement using the measuring instruments and methods specified in §115.115 of this title (relating to Approved Test Methods) with the flow measurement made over a 24-hour period typical of normal operation while the producing well is operating;

(B) using a factor of 33.3 pounds of VOC per barrel of condensate produced or 1.6 pounds of VOC per barrel of oil produced;

(C) for crude oil storage only, using the chart in Exhibit 2 of the United States Environmental Protection Agency publication *Lessons Learned from Natural Gas STAR Partners: Installing Vapor Recovery Units on Crude Oil Storage Tanks*, October 2003, and assuming that the hydrocarbon vapors have a molecular weight of 34 pounds per pound mole and are 48% by weight VOC;

(D) using an appropriate computer simulation; or

(E) other method approved by the executive director.

**§115.113. Alternate Control Requirements.**

Alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division (relating to Storage of Volatile Organic Compounds) may be approved by the executive director in accordance with §115.910 of this title (relating to Availability of Alternate Means of Control) if emission reductions are demonstrated to be substantially equivalent.

**§115.114. Inspection Requirements.**

(a) For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas, the following inspection requirements [shall] apply.

(1) For internal floating roof storage tanks, the internal floating roof and the primary seal or the secondary seal (if one is in service) must [shall] be visually inspected through a fixed roof inspection hatch at least once every 12 months. If the internal floating roof is not resting on the surface of the volatile organic compounds (VOC) inside the storage tank and is not resting on the leg supports; or liquid has accumulated on the internal floating roof; or the seal is detached; or there are holes or tears in the seal fabric; or there are visible gaps between the seal and the wall of the storage tank, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank in accordance with §§115.541 - 115.547 of this title (relating to Degassing or Cleaning of Stationary,

Marine, and Transport Vessels). If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60 days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension must [shall] include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed as soon as possible.

(2) For external floating roof storage tanks, the secondary seal gap must [shall] be physically measured at least once every 12 months to insure compliance with §115.112(a)(2)(F) and §115.112(d)(2)(F) of this title (relating to Control Requirements). If the secondary seal gap exceeds the limitations specified by §115.112(a)(2)(F) or §115.112(d)(2)(F) of this title, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank in accordance with §§115.541 - 115.547 of this title. If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60 days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension must [shall] include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed as soon as possible.

(3) If the tank is equipped with a mechanical shoe or liquid-mounted primary seal, compliance with §115.112(a)(2)(F) and §115.112(d)(2)(F) of this title can be determined by visual inspection.

(4) For external floating roof storage tanks, the secondary seal must [shall] be visually inspected at least once every six months to ensure compliance with §115.112(a)(2)(E) and (F) [§115.112(a)(2)(E) - (F)] and §115.112(d)(2)(E) and (F) of this title. If the external floating roof is not resting on the surface of the VOC inside the storage tank and is not resting on the leg supports; or liquid has accumulated on the external floating roof; or the seal is detached; or there are holes or tears in the seal fabric; or there are visible gaps between the seal and the wall of the storage tank, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank in accordance with §§115.541 - 115.547 of this title. If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60 days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension must [shall] include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed as soon as possible.

(b) For all persons in Gregg, Nueces, and Victoria Counties, the following inspection requirements shall apply.

(1) If during an inspection of an internal floating roof storage tank, the internal floating roof is not resting on the surface of the VOC inside the storage tank and is not resting on the leg supports; or liquid has accumulated on the internal floating roof; or the seal is detached; or there are holes or tears in the seal fabric; or there are visible gaps between the seal and the wall of the storage tank, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank. If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60

days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension shall include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed as soon as possible.

(2) For external floating roof storage tanks, the secondary seal gap shall be physically measured at least once every 12 months to insure compliance with §115.112(b)(2)(F) of this title. If the secondary seal gap exceeds the limitations specified by §115.112(b)(2)(F) of this title, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank. If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60 days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension shall include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed as soon as possible.

(3) If the tank is equipped with a mechanical shoe or liquid-mounted primary seal, compliance with §115.112(b)(2)(F) of this title can be determined by visual inspection.

(4) For external floating roof storage tanks, the secondary seal shall be visually inspected at least once every 12 months to insure compliance with §115.112(b)(2)(E) - (F) of this title. If the external floating roof is not resting on the surface of the VOC inside the storage tank and is not resting on

the leg supports; or liquid has accumulated on the external floating roof; or the seal is detached; or there are holes or tears in the seal fabric; or there are visible gaps between the seal and the wall of the storage tank, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank. If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60 days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension shall include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed as soon as possible.

(c) For all persons in Aransas, Bexar, Calhoun, Matagorda, San Patricio, and Travis Counties, the following inspection requirements shall apply.

(1) If during an inspection of an internal floating roof storage tank, the internal floating roof is not resting on the surface of the VOC inside the storage tank and is not resting on the leg supports; or liquid has accumulated on the internal floating roof; or the seal is detached; or there are holes or tears in the seal fabric; or there are visible gaps between the seal and the wall of the storage tank, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank. If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60 days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension shall include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed

as soon as possible.

(2) If during an inspection of an external floating roof storage tank, the external floating roof is not resting on the surface of the VOC inside the storage tank and is not resting on the leg supports; or liquid has accumulated on the external floating roof; or the seal is detached; or there are holes or tears in the seal fabric; or there are visible gaps between the seal and the wall of the storage tank, within 60 days of the inspection the owner or operator shall repair the items or shall empty and degas the storage tank. If a failure cannot be repaired within 60 days and if the storage tank cannot be emptied within 60 days, the owner or operator may submit written requests for up to two extensions of up to 30 additional days each to the appropriate regional office. The owner or operator shall submit a copy to any local air pollution control program with jurisdiction. Each request for an extension shall include a statement that alternate storage capacity is unavailable and a schedule that will assure that the repairs will be completed as soon as possible.

**§115.115. Approved Test Methods.**

(a) For the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas, compliance with §115.112(a) and (d) of this title (relating to Control Requirements) must [shall] be determined by applying the following test methods, as appropriate:

(1) Test Methods 1-4 (40 Code of Federal Regulations (CFR) Part 60, Appendix A) for determining flow rates, as necessary;

(2) Test Method 18 (40 CFR [Code of Federal Regulations] Part 60, Appendix A) for determining gaseous organic compound emissions by gas chromatography;

(3) Test Method 22 (40 CFR [Code of Federal Regulations] Part 60, Appendix A) for visual determination of fugitive emissions from material sources and smoke emissions from flares;

(4) Test Method 25 (40 CFR [Code of Federal Regulations] Part 60, Appendix A) for determining total gaseous nonmethane organic emissions as carbon;

(5) Test Methods 25A or 25B (40 CFR [Code of Federal Regulations] Part 60, Appendix A) for determining total gaseous organic concentrations using flame ionization or nondispersive infrared analysis;

(6) test method described in 40 CFR §60.113a(a)(1)(ii) (effective April 8, 1987) for measurement of storage tank seal gap;

(7) determination of true vapor pressure using American Society for Testing and Materials (ASTM) Test Methods D323-89, D2879, D4953, D5190, or D5191 for the measurement of Reid vapor pressure; or

(8) minor modifications to these test methods approved by the executive director.

(b) For Gregg, Nueces, and Victoria Counties, compliance with §115.112(b) of this title shall be determined by applying the following test methods, as appropriate:

(1) Test Methods 1-4 (40 Code of Federal Regulations 60, Appendix A) for determining flow rates, as necessary;

(2) Test Method 18 (40 Code of Federal Regulations 60, Appendix A) for determining gaseous organic compound emissions by gas chromatography;

(3) Test Method 22 (40 Code of Federal Regulations 60, Appendix A) for visual determination of fugitive emissions from material sources and smoke emissions from flares;

(4) Test Method 25 (40 Code of Federal Regulations 60, Appendix A) for determining total gaseous nonmethane organic emissions as carbon;

(5) Test Methods 25A or 25B (40 Code of Federal Regulations 60, Appendix A) for determining total gaseous organic concentrations using flame ionization or nondispersive infrared analysis;

(6) test method described in 40 CFR 60.113a(a)(1)(ii) (effective April 8, 1987) for measurement of storage tank seal gap;

(7) determination of true vapor pressure using ASTM Test Methods D323-89, D2879, D4953, D5190, or D5191 for the measurement of Reid vapor pressure; or

(8) minor modifications to these test methods approved by the executive director.

(c) For the Houston/Galveston/Brazoria area, compliance with §115.112(d)(4) of this title may be determined by using the following measurement instruments or applying the following test methods, as appropriate:

(1) mass flow meter, positive displacement meter, or similar device over a 24-hour period representative of normal operation while the producing well is operational for flow measurements of flash gases; and

(2) Gas Processors Association Method 2286, Tentative Method of Extended Analysis for Natural Gas and Similar Mixtures by Temperature Programmed Gas Chromatography, to measure the composition of the flashed gases; or

(3) minor modifications to these test methods approved by the executive director.

**§115.116. Monitoring and Recordkeeping Requirements.**

(a) For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas, the following recordkeeping requirements [shall] apply.

(1) The owner or operator of any storage vessel with an external floating roof that

[which] is exempted from the requirement for a secondary seal as specified in §115.117(a)(1), (6), and (7) of this title (relating to Exemptions) and is used to store volatile organic compounds (VOC) with a true vapor pressure greater than 1.0 pounds per square inch absolute (psia) [psia] (6.9 kilo Pascals (kPa) [kPa]) at storage conditions shall maintain records of the type of VOC stored and the average monthly true vapor pressure of the stored liquid.

(2) The results of inspections required by §115.114(a) of this title (relating to Inspection Requirements) must [shall] be recorded. For secondary seal gaps that are required to be physically measured during inspection, these records must [shall] include a calculation of emissions for all secondary seal gaps that exceed 1/8 inch (0.32 centimeter [cm]) where the accumulated area of such gaps is greater than 1.0 square inch per foot (21 square centimeters per meter) of tank diameter. These calculated reportable emissions (Tr) must [shall] be reported in the annual emissions inventory submittal required by §101.10 of this title (relating to Emissions Inventory Requirements). The emissions must [shall] be calculated using the following methodology:

(A) Allowable Seal Gap (greater than 1/8 inch wide):  $A_s$  (square inches) = 1 square inch per tank diameter foot x tank diameter.

(B) Measured Seal Gap:  $M_s$  (square inches).

(C) Reportable Seal Gap Area:  $R_s = M_s - A_s$  in square inches.

(D) Reportable Seal Gap/Allowable Ratio:  $RR_s = R_s$  divided by  $A_s$ .

(E) Tank Circumference:  $T_c$  (feet).

(F) Reportable Seal Gap Length (total linear feet of seal gap greater than 1/8 inch gap width):  $R_l$ .

(G) Reportable Seal Gap Length/Tank Circumference Ratio:  $RRI = R_l/T_c$ .

(H) Tank Emissions (with good single seal):  $T_s =$  Compilation of Air Pollutant Emission Factors (AP-42) [AP-42] Calculation (convert to pounds/day).

(I) Tank Emissions (with two good seals):  $T_{ss} =$  AP-42 Calculation (convert to pounds/day). Note: Use maximum local monthly average ambient temperature as reported by the National Weather Service to calculate true vapor pressure.

(J) Reportable emissions:  $T_r$  (pounds) =  $(T_s - T_{ss}) \times RRs \times RRI \times 90$  days.

Note: In no case should  $T_r$  be greater than  $(T_s - T_{ss})$ .

(3) Affected persons shall install and maintain monitors to continuously measure and record operational parameters of any of the following emission control devices installed to meet applicable control requirements. Such records must be sufficient to demonstrate proper functioning of those devices to design specifications, including:

(A) the exhaust gas temperature immediately downstream of a direct-flame

incinerator;

(B) the inlet and outlet gas temperature of a chiller or catalytic incinerator; and

(C) the exhaust gas VOC concentration of any carbon adsorption system, as defined in §115.10 of this title (relating to Definitions), to determine if breakthrough has occurred.

(4) The results of any testing conducted in accordance with the provisions specified in §115.115(a) of this title (relating to Approved Test Methods [Testing Requirements]) must [shall] be maintained at an affected facility.

(5) All records must [shall] be maintained for two years and be made available for review upon request by authorized representatives of the executive director, United States Environmental Protection Agency (EPA) [EPA], or local air pollution control agencies with jurisdiction.

(b) For all persons in Gregg, Nueces, and Victoria Counties, the following recordkeeping requirements shall apply.

(1) The owner or operator of any storage vessel with an external floating roof which is exempted from the requirement for a secondary seal as specified in §115.117(b)(1), (6), and (7) of this title and used to store VOC with a true vapor pressure greater than 1.0 psia (6.9 kPa) at storage conditions shall maintain records of the type of VOC stored and the average monthly true vapor pressure of the stored liquid.

(2) The results of inspections required by §115.114(b) of this title shall be recorded.

(3) In Victoria County, affected persons shall install and maintain monitors to continuously measure and record operational parameters of any of the following emission control devices installed to meet applicable control requirements. Such records must be sufficient to demonstrate proper functioning of those devices to design specifications, including:

(A) the exhaust gas temperature immediately downstream of a direct-flame incinerator;

(B) the inlet and outlet gas temperature of a chiller or catalytic incinerator; and

(C) the exhaust gas VOC concentration of any carbon adsorption system, as defined in §115.10 of this title, to determine if breakthrough has occurred.

(4) The results of any testing conducted in accordance with the provisions specified in §115.115(b) of this title shall be maintained at an affected facility.

(5) All records shall be maintained for two years and be made available for review upon request by authorized representatives of the executive director, EPA, or local air pollution control agencies.

(c) For all persons in the Houston/Galveston/Brazoria areas, the following recordkeeping

requirements apply in addition to those specified in subsection (a) of this section.

(1) The owner or operator of any storage vessel with a fixed roof that is not required to be equipped with a floating roof or vapor recovery system, as specified in either Table I(a) or Table II(a) of §115.112(a)(1) of this title (relating to Control Requirements), shall maintain records of the type of VOC stored, the length of time the material is stored, and the true vapor pressure at the average monthly storage temperature of the stored liquid. This requirement does not apply to tanks with nominal storage capacity of 25,000 gallons or less storing volatile organic liquids other than crude oil or condensate, or to tanks with nominal storage capacity of 40,000 gallons or less storing crude oil or condensate.

(2) The owner or operator of any storage vessel that stores crude oil or condensate and is not equipped with vapor recovery shall maintain records of the estimated annual emissions from the tank to document that the uncontrolled emissions are less than 25 tons per year. The records must be updated annually and must be made available for review within 72 hours upon request by authorized representatives of the executive director, EPA, or local air pollution control agencies with jurisdiction. Projected emissions for the next year must be calculated within 30 days of the request by authorized representatives of the executive director, EPA, or local air pollution control agencies with jurisdiction.

**§115.117. Exemptions.**

(a) For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas, the following exemptions apply.

(1) Except as provided in §115.116 of this title (relating to Monitoring and Recordkeeping Requirements), any volatile organic compound (VOC) with a true vapor pressure less than 1.5 pounds per square inch absolute (psia) (10.3 kilo Pascals (kPa) [kPa]) at storage conditions is exempt from the requirements of this division (relating to [the] Storage of Volatile Organic Compounds).

(2) Crude oil and condensate stored in tanks with a nominal capacity less than 210,000 gallons (794,850 liters), prior to custody transfer, is exempt from the requirements of this division. After January 1, 2009, this exemption no longer applies in the Houston/Galveston/Brazoria area.

(3) Storage containers that [which] have a capacity of less than 25,000 gallons (94,625 liters) located at motor vehicle fuel dispensing facilities are exempt from the requirements of this division.

(4) A welded tank with a mechanical shoe primary seal that [which] has a secondary seal from the top of the shoe seal to the tank wall (a shoe-mounted secondary seal) is exempt from the requirement for retrofitting with a rim-mounted secondary seal if the shoe-mounted secondary seal was installed or scheduled for installation before August 22, 1980.

(5) External floating roof tanks storing waxy, high pour point crude oils are exempt from any secondary seal requirements of §115.112(a) of this title (relating to Control Requirements).

(6) Any welded tank storing VOC having a true vapor pressure less than 4.0 psia (27.6 kPa) is exempt from any external floating roof secondary seal requirement if any of the following types of primary seals have been installed before August 22, 1980:

- (A) a mechanical shoe seal;
- (B) a liquid-mounted foam seal; or
- (C) a liquid-mounted liquid filled type seal.

(7) Any welded tank storing crude oil having a true vapor pressure equal to or greater than 4.0 psia (27.6 kPa) and less than 6.0 psia (41.4 kPa) at storage conditions is exempt from any external floating roof secondary seal requirement if any of the following types of primary seals have been installed before December 10, 1982:

- (A) a mechanical shoe seal;
- (B) a liquid-mounted foam seal; or
- (C) a liquid-mounted liquid filled type seal.

(8) Storage containers that [which] have a capacity of no more than 1,000 gallons are exempt from the requirements of this division.

(b) For all persons in Gregg, Nueces, and Victoria Counties, the following exemptions apply.

(1) Except as provided in §115.116 of this title, any VOC with a true vapor pressure less

than 1.5 psia (10.3 kPa) at storage conditions is exempt from the requirements of this division.

(2) Crude oil and condensate stored in tanks with a nominal capacity less than 210,000 gallons (794,850 liters), prior to custody transfer, is exempt from the requirements of this division.

(3) Storage containers which have a capacity of less than 25,000 gallons (94,625 liters) located at motor vehicle fuel dispensing facilities are exempt from the requirements of this division.

(4) A welded tank with a mechanical shoe primary seal which has a secondary seal from the top of the shoe seal to the tank wall (a shoe-mounted secondary seal) is exempt from the requirement for retrofitting with a rim-mounted secondary seal if the shoe-mounted secondary seal was installed or scheduled for installation before August 22, 1980.

(5) External floating roof tanks storing waxy, high pour point crude oils are exempt from any secondary seal requirements of §115.112(b) of this title.

(6) Any welded tank storing VOC having a true vapor pressure less than 4.0 psia (27.6 kPa) is exempt from any external secondary seal requirement if any of the following types of primary seals have been installed before August 22, 1980:

(A) a mechanical shoe seal;

(B) a liquid-mounted foam seal; or

(C) a liquid-mounted liquid filled type seal.

(7) Any welded tank storing crude oil having a true vapor pressure equal to or greater than 4.0 psia (27.6 kPa) and less than 6.0 psia (41.4 kPa) at storage conditions is exempt from any external secondary seal requirement if any of the following types of primary seals have been installed before December 10, 1982:

(A) a mechanical shoe seal;

(B) a liquid-mounted foam seal; or

(C) a liquid-mounted liquid filled type seal.

(8) Storage containers which have a capacity of no more than 1,000 gallons are exempt from the requirements of this division.

(c) For all persons in Aransas, Bexar, Calhoun, Matagorda, San Patricio, and Travis Counties, the following exemptions apply.

(1) Any VOC with a true vapor pressure less than 1.5 psia (10.3 kPa) at storage conditions is exempt from the requirements of this division.

(2) Slotted sampling and gauge pipes installed in any floating roof storage tank are

exempt from the provisions of §115.112(c) of this title.

(3) Storage tanks with nominal capacities between 1,000 gallons (3,785 liters) and 25,000 gallons (94,625 liters) are exempt from the requirements of §115.112(c)(1) of this title if construction began before May 12, 1973.

(4) Storage tanks with a nominal capacity of 420,000 gallons (1,589,700 liters) or less are exempt from the requirements of §115.112(c)(3) of this title.

(5) Storage containers which have a capacity of no more than 1,000 gallons are exempt from the requirements of this division.

**§115.119. Counties and Compliance Schedules.**

(a) The owner or operator of each stationary tank, reservoir, or other container in which any volatile organic compound (VOC) is placed, stored, or held in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, Tarrant, and Waller Counties shall continue to comply with this division (relating to Storage of Volatile Organic Compounds) as required by §115.930 of this title (relating to Compliance Dates).

(b) The owner or operator of each stationary tank, reservoir, or other container in which any VOC is placed, stored, or held in Ellis, Johnson, Kaufman, Parker, and Rockwall Counties shall comply with this division as soon as practicable, but no later than March 1, 2009.

(c) The owner or operator of each stationary tank, reservoir, or other container in which any VOC is placed, stored, or held in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall comply with the requirements of §§115.112(d), 115.115(c), and 115.116(c) of this title (relating to Control Requirements; Approved Test Methods; and Monitoring and Recordkeeping Requirements) as soon as practicable, but no later than January 1, 2009. If compliance with these requirements would require emptying and degassing of the storage vessel, compliance is not required until the next time the vessel is emptied or degassed but no later than January 1, 2017. The owner or operator of each stationary tank with a nominal capacity less than 210,000 gallons (794,850 liters) storing crude oil and condensate prior to custody transfer in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall comply with the requirements of this division as soon as practicable but no later than January 1, 2009.

**SUBCHAPTER F: MISCELLANEOUS INDUSTRIAL SOURCES**

**DIVISION 3: DEGASSING OR CLEANING OF STATIONARY, MARINE, AND TRANSPORT**

**VESSELS**

**§§115.541 - 115.547, 115.549**

**STATUTORY AUTHORITY**

The amendments are proposed under Texas Water Code, §5.102, concerning General Powers, §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 Health and Safety Code, Chapter 382 (also known as the Texas Clean Air Act). The amendments 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 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 control of the state's air; §382.014, concerning Emission Inventory, which authorizes the commission to require the submission of information concerning the emission of air contaminants; and §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to require owners and operators of emission sources to maintain measuring and monitoring records and make such records available to the commission. The rules are proposed under federal mandates contained in 42 USC, §7410, that require states to introduce

pollution control measures in order to reach specific air quality standards in particular areas of the state.

The proposed amendments implement Texas Health and Safety Code, §§382.002, 382.011, 382.012, 382.014, and 382.016.

**§115.541. Emission Specifications.**

(a) For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas as defined in §115.10 of this title (relating to Definitions), the following emission specifications [shall] apply to degassing during or in preparation of cleaning.

(1) For all stationary volatile organic compound (VOC) storage tanks with a nominal storage capacity of one million gallons or more and after January 1, 2009, storage tanks in the Houston/Galveston/Brazoria area with a nominal storage capacity of 40,000 gallons or more.

(A) No person shall permit VOC emissions with a vapor space partial pressure greater than or equal to 0.5 pounds per square inch absolute (psia) (3.4 kilo Pascals (kPa) [kPa]) under actual storage conditions unless the vapors are processed by a vapor control system.

(B) The vapor control system must [shall] maintain a control efficiency of at least 90%.

(C) When conducting degassing or cleaning operations, no avoidable liquid or

gaseous leaks, as detected by sight or sound, may [shall] originate from the degassing or cleaning operations.

(D) The intentional bypassing of a vapor control device used during degassing or cleaning is prohibited. Any visible VOC leak originating from the vapor control device or other associated product recovery device must [shall] be repaired as soon as practical.

(2) For all transport vessels, as defined in §115.10 of this title, with a nominal storage capacity of 8,000 gallons or more.

(A) No person shall permit VOC emissions with a vapor space partial pressure greater than or equal to 0.5 psia (3.4 kPa) under actual storage conditions unless the vapors are processed by a vapor control system.

(B) The vapor control system must [shall] maintain a control efficiency of at least 90%.

(C) When conducting degassing or cleaning operations, no avoidable liquid or gaseous leaks, as detected by sight or sound, may [shall] originate from the degassing or cleaning operations.

(D) The intentional bypassing of a vapor control device used during degassing or cleaning is prohibited. Any visible VOC leak originating from the vapor control device or other

associated product recovery device must [shall] be repaired as soon as practical.

(E) All transport vessels, as defined in §115.10 of this title, must [shall] be kept vapor-tight at all times until the VOC vapors remaining in the vessel are discharged to a vapor control system.

(b) For all persons in the Beaumont/Port Arthur and Houston/Galveston/Brazoria areas, the following emission specifications [shall] apply to degassing during or in preparation of cleaning for all marine vessels, as defined in §101.1 of this title (relating to Definitions), that [which] have a nominal storage capacity of 10,000 barrels (420,000 gallons) or more and contain VOCs.

(1) No person shall degas or clean a tank that carried a VOC with a vapor partial pressure greater than or equal to 0.5 psia [pounds per square inch absolute] (3.4 kPa) unless the vapors are processed by a vapor control system.

(2) The vapor control system must [shall] maintain a control efficiency of at least 90%.

(3) When conducting degassing or cleaning operations, no avoidable liquid or gaseous leaks, as detected by sight or sound, may [shall] originate from the degassing or cleaning operations.

(4) The intentional bypassing of a vapor control device used during degassing or cleaning is prohibited. Any visible VOC leak originating from the vapor control device or other associated product recovery device must [shall] be repaired as soon as possible.

(5) All marine vessels, as defined in §101.1 of this title, containing VOCs must [shall] have all cargo tank closures properly secured, or maintain a negative pressure within the tank when a closure is opened, and must [shall] have all pressure/vacuum relief valves operating within certified limits as specified by classification society or flag state until the vapors are discharged to a vapor control system if the vessel is degassed or cleaned.

**§115.542. Control Requirements.**

(a) For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas as defined in §115.10 of this title (relating to Definitions), the following control requirements [shall] apply to stationary storage tanks and transport vessels.

(1) No person shall permit the degassing or cleaning of volatile organic compounds (VOC) from a stationary storage tank or transport vessel unless the vapors are processed by a vapor control system.

(2) When degassing or cleaning is effected through the hatches of a transport vessel with a loading arm equipped with a vapor collection adapter, then pneumatic, hydraulic, or other mechanical means must [shall] be provided to force a vapor-tight seal between the adapter and the hatch. A means must [shall] be provided to minimize liquid drainage from the degassing or cleaning device when it is removed from the hatch of any transport vessel or to accomplish drainage before such removal.

(3) When degassing or cleaning is effected through the hatches or manways of stationary VOC storage tanks, all lines must [shall] be equipped with fittings that [which] make vapor-tight connections and that [which] are closed when disconnected; or equipped to permit residual VOC in the line to discharge into a recovery or disposal system after degassing or cleaning is complete.

(4) Degassing and cleaning equipment must [shall] be designed and operated to prevent avoidable VOC leaks.

(5) In the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and until January 1, 2009, in the Houston/Galveston/Brazoria areas, vapors must [Vapors shall] be routed to the control device until a turnover of at least four vapor space volumes has occurred, or four turnovers of the vapor space under a floating roof, or the partial vapor pressure is less than 0.5 pounds per square inch absolute (psia) [psia] (19,000 parts per million by weight (ppmw) [ppmw], or 34,000 parts per million by volume (ppmv) [ppmv] expressed as methane). After one of these conditions has been satisfied, the storage vessel may be vented to the atmosphere for the remainder of the degassing or cleaning process.

(6) After January 1, 2009, in the Houston/Galveston/Brazoria area, vapors must be routed to the control device until the VOC measured concentration before dilution or inlet to the control device is less than 34,000 ppmv as methane. After this condition has been satisfied, the storage or transport vessel may be vented to the atmosphere for the remainder of the degassing or cleaning process provided that the VOC concentration remains below 34,000 ppmv as methane. The VOC concentration must be measured once every 12 hours if the vessel is ventilated continuously, and upon startup if

ventilation has been suspended for more than four hours. If the VOC concentration exceeds 34,000 ppmv as methane, the vessel must be routed to the control device until the concentration is below 34,000 ppmv as methane.

(b) For all persons in the Beaumont/Port Arthur and Houston/Galveston/Brazoria areas, the following control requirements [shall] apply to marine vessels.

(1) No person shall permit the degassing or cleaning of a marine vessel containing VOCs unless the vapors are processed by a vapor control system.

(2) When degassing or cleaning is effected through the hatches of a marine vessel containing VOCs with a loading arm equipped with a vapor collection adapter, then pneumatic, hydraulic, or other mechanical means must [shall] be provided to force a vapor-tight seal between the adapter and the hatch, or a negative pressure inside the cargo tank must [shall] be maintained. A means must [shall] be provided to minimize liquid drainage from the degassing or cleaning device and line when they are removed from the hatch of any marine vessel containing VOCs or to accomplish drainage before such removal.

(3) Degassing and cleaning equipment must be designed and operated to prevent avoidable VOC leaks.

(4) In the Beaumont/Port Arthur area and until January 1, 2009, in the Houston/Galveston/Brazoria area, vapors must [Vapors shall] be routed to the control device until the marine vessel is stripped VOC liquid-free and a turnover of at least four vapor space volumes has

occurred, the partial vapor pressure is less than 0.5 psia (19,000 ppmw, or 34,000 ppmv expressed as methane), or the concentration of VOC is less than 20% of the lower explosive limit [(LEL)]. After one of these conditions has been satisfied, the marine vessel may be vented to the atmosphere for the remainder of the degassing or cleaning process.

(5) After January 1, 2009, in the Houston/Galveston/Brazoria area, vapors must be routed to the control device until the measured VOC concentration before dilution or inlet to the control device is less than 34,000 ppmv as methane. After this condition has been satisfied, the marine vessel may be vented to the atmosphere for the remainder of the degassing or cleaning process provided that the VOC concentration remains below 34,000 ppmv as methane. The VOC concentration must be measured once every 12 hours if the vessel is ventilated continuously, and upon startup if ventilation has been suspended for more than four hours. If the VOC concentration exceeds 34,000 ppmv as methane, the marine vessel must be routed to the control device until the concentration is below 34,000 ppmv as methane.

**§115.543. Alternate Control Requirements.**

For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas, alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division (relating to Degassing or Cleaning of Stationary, Marine, and Transport Vessels) may be approved by the executive director in accordance with §115.910 of this title (relating to Availability of Alternate Means of Control) if emission reductions are demonstrated to be substantially equivalent.

**§115.544. Inspection Requirements.**

For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas, the following inspection requirements [shall] apply.

(1) Inspection for visible liquid leaks, visible fumes, or significant odors resulting from volatile organic compound (VOC) transfer operations must [shall] be conducted during each degassing or cleaning operation by the owner or operator of the VOC degassing and cleaning facility.

(2) VOC degassing or cleaning through the affected transfer lines must [shall] be discontinued when a leak is observed and the leak cannot be repaired within a reasonable length of time. The intentional bypassing of a vapor control device during cleaning or degassing is prohibited.

**§115.545. Approved Test Methods.**

For the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas, compliance with §115.541 and §115.542 of this title (relating to Emission Specifications and Control Requirements) must [shall] be determined by applying the following test methods, as appropriate:

(1) Test Methods 1-4 (40 Code of Federal Regulations (CFR) Part 60, Appendix A) for determining flow rates;

(2) Test Method 18 (40 CFR Part 60, Appendix A) for determining gaseous organic compound emissions by gas chromatography;

(3) Test Method 25 (40 CFR Part 60, Appendix A) for determining total gaseous nonmethane organic emissions as carbon;

(4) Test Methods 25A or 25B (40 CFR Part 60, Appendix A) for determining total gaseous organic concentrations using flame ionization or nondispersive infrared analysis;

(5) additional test procedures described in 40 CFR §60.503(b), (c), and (d) [§60.503 b, c, and d] (effective February 14, 1989) for determining compliance for bulk gasoline terminals;

(6) Test Method 21 (40 CFR Part 60, Appendix A) for determining volatile organic compound (VOC) leaks;

(7) determination of true vapor pressure using American Society for Testing and Materials (ASTM) [ASTM] Test Method D323-89, D2879, D4953, D5190, or D5191 for the measurement of Reid vapor pressure, adjusted for actual storage temperature in accordance with API Publication 2517, Third Edition, 1989;

(8) Test Method 27 (40 CFR Part 60, Appendix A) for determining tank-truck leaks;

(9) 40 CFR §63.565(c) (effective September 19, 1995) or 40 CFR §61.304(f) (effective

October 17, 2000) for determination of marine vessel vapor tightness; [or]

(10) minor modifications to these test methods approved by the executive director; or [.]

(11) VOC concentration measurements required by §115.542(a)(6) and (b)(5) of this title must be performed using an instrument with a flame ionization detector (FID), or an alternative detector approved by the executive director. The instrument/FID must meet all requirements specified in §8.1 of United States Environmental Protection Agency Method 21 (40 CFR Part 60, Appendix A).

**§115.546. Monitoring and Recordkeeping Requirements.**

For facilities in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas affected by §115.541 and §115.542 of this title (relating to Emission Specifications and Control Requirements), the owner or operator of any volatile organic compound (VOC) degassing or cleaning facility shall maintain the following information at the facility for at least two years and shall make such information available upon request to representatives of the executive director, United States Environmental Protection Agency [EPA], or any local air pollution control agency having jurisdiction in the area:

(1) for vessel degassing or cleaning operations:

(A) a record of the type and number of all transport vessels, stationary VOC

storage tanks, and marine vessels that [which] are degassed or cleaned at the affected facility;

(B) the chemical name and estimated liquid quantity of VOC contained in each vessel prior to degassing or cleaning; [and]

(C) the chemical name and estimated liquid quantity of VOC removed from each vessel; and

(D) after January 1, 2009, in the Houston/Galveston/Brazoria area, a record of the measurements of VOC concentration from the storage vessel, transport vessel, or marine vessel being degassed while the vessel is vented to the atmosphere;

(2) for vapor control systems:

(A) continuous monitoring and recording of the exhaust gas temperature immediately downstream of a direct-flame incinerator;

(B) continuous monitoring and recording of the inlet and outlet gas temperature of a catalytic incinerator; and

(C) continuous monitoring and recording of the exhaust gas VOC concentration for carbon adsorption systems that contain facilities to regenerate the carbon bed directly, as defined in §115.10 of this title (relating to Definitions); or periodic monitoring of the exhaust gas VOC as specified by 40 Code of Federal Regulations §61.354(d) (effective October 17, 2000), of any carbon adsorption

system that does not regenerate the carbon bed directly, to determine breakthrough;

(3) the results of any leak inspection and repair conducted in accordance with the provisions specified in §115.544 of this title (relating to Inspection Requirements);

(4) the results of any testing conducted in accordance with the provisions specified in §115.545 of this title (relating to Approved Test Methods).

**§115.547. Exemptions.**

For all persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston/Brazoria areas as defined in §115.10 of this title (relating to Definitions), the following exemptions apply.

(1) Degassing or cleaning any vessel with a vapor space partial pressure less than 0.5 pounds per square inch absolute (3.4 kilo Pascals [kPa]) of volatile organic compound (VOC) under actual storage conditions is exempt from the requirements of this division (relating to Degassing or Cleaning of Stationary, Marine, and Transport Vessels).

(2) Degassing or cleaning any transport vessel with a nominal storage capacity of less than 8,000 gallons, or any stationary VOC storage tank with a nominal storage capacity of less than 1 million gallons, or any marine vessel with a nominal storage capacity of less than 10,000 barrels (420,000

gallons), is exempt from the requirements of this division. After January 1, 2009, stationary VOC storage tanks in the Houston/Galveston/Brazoria area with a nominal storage capacity greater than or equal to 40,000 gallons but less than 1 million gallons are no longer exempt from the requirements of this division.

(3) Any stationary VOC storage tank during preventative maintenance, roof repair, primary seal inspection, or removal and installation of a secondary seal, if product is not moved in or out of the storage tank, emissions are minimized, and the repair is completed within seven calendar days, is exempt from the requirements of this division.

(4) Any marine vessel that [which] has sustained damage that [which] prevents a cargo tank's opening from being properly secured, causes the onboard vapor recovery system to be inoperative, or prevents the pressure/vacuum relief valves from operating within certified limits as specified by classification society or flag state is exempt from §115.541(b) and §115.542(b) of this title (relating to Emission Specifications and Control Requirements); however, all reasonable measures must [shall] be taken to minimize VOC emissions.

(5) Any oceangoing, self-propelled marine vessel is exempt from the degassing or cleaning requirements of this division.

**§115.549. Counties and Compliance Schedules.**

(a) All affected persons in the Brazoria, Chambers, Fort Bend, Galveston, Hardin, Harris,

Jefferson, Liberty, Montgomery, Orange, and Waller Counties shall continue to comply with this division (relating to Degassing or Cleaning of Stationary, Marine, and Transport Vessels) as required by §115.930 of this title (relating to Compliance Dates).

(b) All affected persons in Collin, Dallas, Denton, and Tarrant Counties shall be in compliance with this division as soon as practicable, but no later than one year, after the commission publishes notification in the Texas Register of its determination that this contingency rule is necessary as a result of failure to attain the national ambient air quality standard (NAAQS) for ozone by the attainment deadline or failure to demonstrate reasonable further progress as set forth in the 1990 Amendments to the Federal Clean Air Act (FCAA), §172(c)(9).

(c) All affected persons in El Paso County shall be in compliance with this division as soon as practicable, but no later than one year, after the commission publishes notification in the Texas Register of its determination that this contingency rule is necessary as a result of failure to attain the NAAQS for ozone by the attainment deadline or failure to demonstrate reasonable further progress as set forth in the 1990 Amendments to the FCAA, §172(c)(9).

(d) All affected persons in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall comply with the requirements in §115.542(a)(6) and (b)(5), and §115.546(1)(D) of this title (relating to Control Requirements and Monitoring and Recordkeeping Requirements) as soon as practicable but no later January 1, 2009.