

The Texas Commission on Environmental Quality (TCEQ or commission) adopts new §115.110 and amendments to §§115.112 - 115.117, 115.119, 115.541 - 115.547, and 115.549. New §115.110 and amendments to §§115.112, 115.115 – 115.117, 115.119, and 115.541 - 115.547 are adopted with changes to the proposed text as published in the December 29, 2006, issue of the *Texas Register* (31 TexReg 10525). Amendments to §§115.113, 115.114, and 115.549 are adopted without changes and will not be republished.

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 ADOPTED 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.*).

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 and HGB SIP revision is part of the first step in addressing the eight-hour ozone standard for the area.

The one-hour ozone NAAQS, which preceded the eight-hour ozone standard, was revoked June 15, 2005 (69 FR 23951). However, the one-hour ozone control strategies in the HGB area will remain in place.

This set of strategies 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 ( $\text{NO}_x$ ), 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 refer to Chapter 1 of the eight-hour SIP revision that has been submitted for adoption concurrent with this rule package (Project Number 2006-027-SIP-NR).

The rulemaking subjects 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 in greater proportions to  $\text{NO}_x$  emissions than what would be expected based on the reported point source emissions inventories. 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 ambient concentrations and reported point source emissions.

TexAQS II remote sensing VOC project results indicate that certain types of storage tank emissions, including degassing, flash, and floating roof landing loss emissions, generally have been unreported in the EI. Recent data analysis, a floating roof landing loss emissions survey, and other TCEQ studies indicate

that these unreported emissions could total several thousand tons per year (tpy); unreported or underreported floating roof landing loss emissions alone in the HGB area totaled approximately 7,250 tons in 2003. The rulemaking will help 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*

Adopted §115.110 adds ten definitions used in regulatory text. Adopted §115.110(3) defines *Incompatible liquid* as the term is used in §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 (RVP) that must be performed to comply with applicable fuel requirements is considered an incompatible liquid. The definition has been revised in response to comments to specify that different chemical mixtures and different grades of liquid material would also be considered incompatible liquids if the liquid being introduced into the tank would be made unusable for its intended purpose due to contamination from the previously stored liquid. Adopted §115.110(10) defines *Tank battery* as the term is used in

§115.112(d)(4) and (d)(5). In response to comments, the definition has been modified to clarify that a collection of tanks at a pipeline breakout station, petroleum refinery, or petrochemical plant is not considered to be a tank battery. In response to comments, definitions have been added for the terms deck cover, pole float, pole sleeve, pole wiper, slotted guidepole, internal sleeve emission control system, and flexible enclosure system. These definitions have been added to clarify additional options for controlling emissions from slotted guidepoles that have been incorporated into §115.112(d)(2)(G). The commission has also added a definition for pipeline breakout station because the term is used in clarifying the applicability of requirements for control of flash emissions in §115.112(d)(4) and (5).

Adopted changes to §115.112 amend §115.112(a) to specify that the existing requirements apply to the HGB area until January 1, 2009. Adopted changes also add subsection (d) to specify additional requirements for storage vessels in the HGB area that will take effect on January 1, 2009. In response to comment, the phrase “beginning January 1, 2009,” has been added to clarify when the new requirements take effect. Adopted §115.112(d)(1) specifies 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 subsection (d) to be at the same location as new provisions that will apply to tanks in the HGB area.

Adopted §115.112(d)(2) changes the control requirements for tank fittings. In response to comments, rule language has been changed to be more consistent with language in the EPA regulations in 40 CFR Part 63, Subpart WW, National Emission Standards for Storage Vessels (Tanks) Control Level 2.

The proposed requirement in §115.112(d)(2)(A) 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 has been modified. The requirements for all openings except automatic bleeder vents (vacuum breaker vents) and rim space vents to provide a projection below the liquid surface is separate from the requirement for all openings except automatic bleeder vents (vacuum breaker vents), rim space vents, leg sleeves, and roof drains to be equipped with a cover. The proposed wording would have incorrectly required the use of covers on fixed roof support columns. The proposed wording that the cover, seal, or lid must be equipped with a working gasket and kept in a closed position (with no visible gaps) at all times except when the opening is in actual use has been revised in response to comments to specify that required deck covers must be closed (with no gap of more than 1/8 inch) at all time, except when they must be opened for access.

Adopted §115.112(d)(2)(B) specifies that automatic bleeder vents (also known as vacuum breaker vents) and rim space vents must be equipped with a gasketed lid, pallet, flapper, or other closure device and must be closed at all times except when required to be open to relieve excess pressure or vacuum, in accordance with the manufacturer's design. The current rule requires only that the automatic bleeder vents and rim space vents be closed. In response to comments, the language has been changed to allow use of a gasketed lid, pallet, flapper, or other closure device instead of a working gasket. Also in response to comments, language allowing automatic bleeder vents to open in accordance with the manufacturer's design has been added. For convenience, the requirements for automatic bleeder vents and rim space vents have been combined in §115.112(d)(2)(B).

Section 115.112(d)(2)(C) has been revised in response to comments to allow openings for fixed roof support columns to be equipped with flexible fabric sleeve seals instead of deck covers. Adopted

§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 adopted rule allows the use of other controls. EPA regulations allow controls other than slotted membrane fabric covers. Other controls can provide equivalent or superior emission reduction performance. Examples include weighted ball or ball in cage type controls. The adopted rule also specifies 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. In response to comments, the phrase “no visible gap” has been changed to “no gap of more than 1/8 inch.”

Adopted §115.112(d)(2)(E) states that there must be no visible holes, tears, or other openings in any seal or seal fabric. Adopted §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. In response to comments, the phrase “with the exception of gaps that do not exceed the following specification” has been added to clarify that a limited gap area is allowed.

Adopted §115.112(d)(2)(G) requires each slotted guidepole well to be controlled. The quantities of emissions reduced 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 an RVP of 9 pounds per square inch absolute (psia) and has 25 turnovers per year with an uncontrolled slotted guidepole would emit 11.85 tpy VOC from the guidepole alone and 14 tpy total VOC from the tank. The same tank with a controlled slotted guidepole would have 4.5 tpy VOC from the guidepole alone and 6.6 tons tpy total 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. In response to comments, the wording has been changed to allow additional control options for slotted guidepoles consistent with the EPA regulations for tanks in 40 CFR Part 63, Subpart WW, and the Storage Tank Emissions Reduction Partnership Program (STERPP). These additional controls include a pole wiper and a pole float, a pole wiper and a pole sleeve, an internal sleeve emission control system, retrofit to a solid guidepole system, a flexible enclosure system, and a cover over the external floating roof. Emission calculations using the EPA TANKS program indicate that emissions from a slotted guidepole in a tank storing gasoline with an RVP of 10 psia could be reduced from 13.5 tpy down to 0.2 tpy by installing a cover over the roof. The language in §115.112(d)(2)(G) has also been revised to qualify that the controls for slotted guidepoles are only required for external floating roof tanks. Based on the emission calculations, emissions from slotted guidepoles in internal floating roof tanks or domed external floating roof tanks would be equivalent to emissions expected by installing slotted guidepole controls on external floating roof tanks.

Adopted §115.112(d)(2)(H) specifies 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. Instances when the roof is supported by its legs are referred to as “landings.” Adopted §115.112(d)(2)(H) limits the circumstances under which tank landings are allowed to times when the landing is necessary either to carry out 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 RVP 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. Different chemical mixtures and different grades of liquid material would also be considered incompatible liquids if the

liquid being introduced into the tank would be made unusable for its intended purpose due to contamination from the previously stored liquid. Tank landings 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, or landing emissions are within an emissions limit or cap established under a 30 TAC Chapter 116 permit. Convenience landings would also be allowed if sitewide landing emissions are less than 25 tpy. 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 adopted rule helps to reduce these previously unreported emissions. Storage tanks with a capacity less than 25,000 gallons and those storing material with a vapor pressure less than 1.5 psia are not subject to the control requirements because such tanks are not required to be equipped with floating roofs. As an alternative to the adopted requirements of §115.112(d)(2)(H)(i) - (iv), §115.112(d)(2)(H)(v) provides a compliance option where a floating roof storage tank emissions limit or cap could be established in permits issued under 30 TAC Chapter 116 to control floating roof tank landing emissions along with standing and working loss emissions from the tank. 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 will allow operation under these caps to demonstrate compliance with the rules for reducing emissions from tank landings. The emission limits or caps 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. In response to comments, the proposed restriction specifying the cap could not include any increase in emissions due to tank landings that would otherwise be prohibited

under §115.112(d)(2)(H)(i) - (iv) has been deleted. Also in response to comments, §115.112(d)(2)(H)(vi) has been added to allow facilities with sitewide landing emissions less than 25 tpy to be exempt from the restrictions on tank landings. The meaning of “initial fill” in §115.112(d)(2)(H) has been clarified in response to comments to indicate that refilling a tank that has been emptied, degassed, and cleaned according to the provisions of Chapter 115, Subchapter F, Division 3, is allowed. The word “required” has been deleted from §115.112(d)(2)(H)(i) in response to comments to clarify that landings are allowed for maintenance performed according to company or site maintenance plans and not just in response to regulatory requirements. The wording in §115.112(d)(2)(H)(ii) has been revised in response to comments to use the term “incompatible liquid” in §115.110. Also in response to comments, §115.112(d)(2)(H)(iv) has been changed to require control of VOC emissions until the roof is within 10% by volume of being refloated, instead of until the roof is completely refloated. Commenters expressed concern that requiring control until the roof was completely refloated could result in liquids being drawn into the control device and causing damage.

Adopted §115.112(d)(3) specifies 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.

Adopted §115.112(d)(4) specifies that flash emissions from condensate storage tanks must be controlled if condensate throughput for an individual tank or the collection of tanks in a tank battery prior to custody transfer is greater than 1,500 barrels (63,000 gallons) per year, unless the owner or operator demonstrates that the emissions from the individual tank or the collection of tanks in the tank battery are less than 25 tpy. Adopted §115.112(d)(5) specifies that flash emissions from crude oil or condensate storage tanks must be controlled if uncontrolled VOC emissions from an individual tank at an upstream oil or gas production site or a midstream pipeline breakout station, or collectively from a tank battery at an

upstream oil or gas production site, would be greater than 25 tpy. This limit was proposed as §115.112(d)(4). The throughput limit for condensate was added to the adopted rule as §115.112(d)(4) for ease of enforcement. Using default emission factors described later in this preamble, a throughput of 1,500 barrels per year of condensate would be expected to have 25 tpy of VOC emissions. If an owner or operator can demonstrate that a condensate tank with throughput greater than 1,500 barrels per year would have emissions less than 25 tpy, the tank would not be subject to the flash emission controls, as allowed under the new exemption in §115.117(a)(9). 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 economic 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 adopted 25 tpy threshold also represents the maximum emission rate that a site would be authorized to operate under a permit by rule (PBR). The 25 tpy threshold applies to an individual tank or to an aggregation of tanks in a tank battery at an oil and gas exploration and production site. Because flash emissions could occur from any of the connected tanks, the adopted rule requires that the total emissions from all connected tanks be considered in determining whether the 25 tpy threshold is met. In response to comments, the commission has specified that the requirements for controlling flash emissions apply only to tanks and tank batteries storing crude oil and

condensate prior to custody transfer at exploration and production sites and to individual tanks at midstream pipeline breakout stations. Crude oil and condensate stored at downstream sites such as pipeline terminals, refineries, or petrochemical plants may be a source of flash emissions, but in response to comments, the commission has decided not to subject these downstream sites to the new rule at this time because the test data and test methods in support of the rule were designed to be used at oil and gas production sites. The commission will continue to evaluate the extent of flash emissions at downstream sites and may regulate such emissions in the future. The adopted 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 crude oil or condensate produced. Railroad Commission regulations in 16 TAC §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 of the tanks together 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, or accepted EPA methods 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

TCEQ and 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 a computer simulation or other method approved by the executive director to estimate flash emissions. These options are specified to minimize the burden on owners and operators to make direct measurements or complex calculations. If the regulated entity chooses to make direct measurements and they 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. In response to comments, rule language has been added to §115.112(d)(5) to specify that the higher rates must be used. The proposed rule only noted this restriction in the preamble. The commission has deleted the proposed §115.112(d)(4)(E) and combined the option to use a computer simulation with the option to use another method approved by the executive director. This language was previously in §115.112(d)(4)(F). The accuracy of computer simulations is entirely dependent on the accuracy of the inputs and the use of appropriate model parameters. Regulated entities will still have the option to use a computer simulation to estimate flash emissions, but the use must be pre-approved by the executive director to ensure that the results are accurate. Staff of the Industrial Emissions Assessment Section who review such calculations for EI reporting will review the simulation use.

Nothing in the adopted 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 adopted rule regulates flash emissions from crude oil and condensate storage at oil or gas production sites and pipeline terminals. Flash emissions may also occur at storage terminals, refineries, and petrochemical plants, and 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 are not regulated under the adopted 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 (BACT) and health effects reviews during permitting, the emissions are not authorized even if they are not expressly prohibited by regulation in Chapter 115.

Adopted §115.115(c) specifies 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 must be used 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 must be made over a 24-hour period representative of normal operation to make sure that the measurements capture emissions during a typical working cycle including pumping into and out of the tanks. The language in §115.115(c) has been changed to specify that at oil and gas production sites, flow measurements must be made while the producing wells are operational. The proposed rule listed this requirement, but the adopted language has been changed to clarify that it applies to measurements made

at oil and gas production sites and not to measurements made at pipeline breakout stations that could be at some distance from the producing wells. Gas composition must be determined using Gas Processors Association Method 2286, Tentative Method of Extended Analysis for Natural Gas and Similar Mixtures by Temperature Programmed Gas Chromatography, or approved EPA test methods. The listed test methods have been changed since proposal to include standard EPA test methods for the determination of VOC composition in addition to the Gas Processors Association Method 2286.

In response to comments, the term “reportable emissions” in §115.116(a) has been replaced with the term “emissions inventory reportable emissions” to avoid confusion with the use of the term “reportable emissions” as used in the general air quality rules in 30 TAC Chapter 101.

Adopted §115.116(c)(1) specifies 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. In response to comments, the wording “length of time material is stored” has been replaced with the more precise wording “starting and ending dates when the material is stored.” Commenters had expressed confusion over the meaning of the phrase.

Adopted §115.116(c)(2) specifies 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. In response to comments, the wording has been changed to clarify that the requirements apply only to tanks or tank batteries at exploration and production sites or to tanks at pipeline breakout stations. Also in response to comments, the requirement to project emissions for the next year upon request has been deleted.

The adopted amendment to §115.117(a)(2) specifies 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.

A new exemption §115.117(a)(9) has been added to specify that if an owner or operator can demonstrate that a condensate tank with throughput greater than 1,500 barrels per year would have emissions less than 25 tpy, then the tank would not be subject to the flash emission controls in §115.112(d)(4).

Adopted §115.119(c) specifies that compliance with the requirements of §§115.112(d), 115.115(c), and 115.116(c) must occur by January 1, 2009, as part of the effort to address the eight-hour ozone standard for the HGB area. 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 delay in

compliance would apply only to the installation of equipment; monitoring and recordkeeping requirements must be observed beginning January 1, 2009. Regulated entities that use the delay of compliance provision should be prepared to justify why tank emptying and degassing was necessary to comply with the rules. 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 comply by January 1, 2009. Since proposal, wording has been added to clarify that these tanks must comply by January 1, 2009, regardless if compliance would require emptying and degassing the tank.

*Subchapter F, Miscellaneous Industrial Sources*

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

The adopted change to §115.541(a)(1) specifies that after January 1, 2009, the degassing control requirements will apply to storage tanks in the HGB area with a nominal capacity of 75,000 gallons or greater storing materials with a true vapor pressure greater than 2.6 psia or to storage tanks with a nominal capacity of 250,000 gallons or more storing material with a true vapor pressure of 0.5 psia or greater. The current rule mandates degassing controls only to storage tanks with a nominal capacity of one million gallons or more. The EI database has records of more than 950 floating roof storage tanks with capacity between 75,000 and one million gallon capacity that could be required to employ vapor recovery during tank degassing under the adopted rule. There are also more than 3,000 fixed roof storage tanks in this size range, but an unknown number of these storage tanks store materials with a vapor pressure less than 2.6 or 0.5 psia and will not be subject to the adopted degassing requirement. Degassing emissions from these smaller storage tanks can be abated with technology similar to that used for larger tanks. The size and vapor pressure criteria for determining which storage tanks are subject to the degassing control requirements were changed since proposal in response to comments and subsequent

cost effectiveness calculations by staff.

The adopted change to §115.542(a)(5) specifies that the current control requirements apply in the HGB area only until January 1, 2009. Adopted §115.542(a)(6) specifies new criteria for control of degassing vapors from storage tanks and transport vessels in the HGB area. The change requires 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 or to less than 50% of the lower explosive limit (LEL). The current rules specify the 34,000 ppmv 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 storage 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 storage 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. The adopted rules remove the option to vent to atmosphere after a turnover of four vapor space volumes has occurred. 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 storage tank the concentration could again rise when the flow of ventilation gas ceases. The adopted revision requires continued control of the vapors until the VOC concentration decreases to below 34,000 ppmv or a reading of less than 50% is obtained on an LEL meter. The concentration must be rechecked periodically while the tank is vented to the atmosphere to ensure that it remains below 34,000 ppmv or 50% LEL. 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 50% LEL criterion was added in response to

comments. The VOC concentration equivalent to 50% LEL is less than 34,000 ppmv and therefore is an acceptable criterion to determine when degassing vapors can be emitted to atmosphere. Also in response to comments, language has been added to specify that the concentration measurements are no longer required after five consecutive readings less than 34,000 ppmv or less than 50% LEL have been obtained.

The adopted change to §115.542(b)(4) specifies that the stated control requirements apply in the HGB area only until January 1, 2009. Adopted §115.542(b)(5) specifies new criteria for control of degassing vapors from marine vessels in the HGB area. The change requires 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 or 50% LEL. The current rules specify this concentration as one criterion for determining when vapors may be vented to the atmosphere but also allow venting after a turnover of four vapor space volumes has occurred. The adopted rules remove the option to vent to atmosphere after a turnover of four vapor space volumes has occurred. This change is being adopted for degassing vapors from marine vessels for the same reasons discussed for the adopted §115.542(a)(6) for storage tanks and transport vessels. The 50% LEL criterion has been added to the rule because the commission has specified that an equivalent LEL percentage can be used to determine when degassing need no longer be controlled for storage tanks. The current rule in §115.542(b)(4) uses 20% of the LEL as one of the criteria for when marine vessels may be vented to the atmosphere. This requirement was not changed because it applies to sources in the Beaumont-Port Arthur area as well as (until January 1, 2009) sources in the HGB area. The revised §115.542(b)(5) specifies 50% of the LEL to be consistent with the value used in §115.542(a)(6) for storage tanks and transport vessels. Because the LEL criterion is an option to allow flexibility in measurement methods, using 50% instead of 20% in §115.142(b)(5) will not allow an increase in VOC emissions over those allowed under §115.542(b)(4).

Adopted §115.545(11) specifies the methods that must be used 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. In response to comments, several additional analytical methods have been specified to allow flexibility for the concentration measurements. However, the large potential variability in chemical composition of stored liquids necessitates carefully selecting and implementing the analytical method according to the precise chemical and physical circumstances occurring at the time of the measurement. Thus, the commission requires that sufficient records and other information be maintained to show that the alternative method used completely meet the needs of the specific instance. Examples of such records are maintenance and calibration records of all equipment, training records of equipment operators, and a written sampling plan for each instance complete with data quality objectives and QA/QC measurement parameters. 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, but the measurements should be made at a safe location.

Adopted §115.546(1)(D) specifies 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 adopted 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 250,000 gallons or with a nominal capacity of greater than or equal to 75,000 gallons storing material with vapor pressure greater than 2.6 psia 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 revised the exemption level in response to public comments.

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

Adopted §115.549(d) specifies that compliance with the new and revised requirements must occur by January 1, 2009, as part of the effort to address the eight-hour ozone standard for the HGB area.

#### FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission reviewed the adopted 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 adopted rulemaking action is to require owners or operators of VOC storage tanks, transport vessels, and marine vessels located in the HGB eight-hour ozone nonattainment area to better control their storage and degassing operations, thereby reducing VOC emissions. The adopted rules assist in identifying previously unreported emissions, and reducing them appropriately. It is anticipated that this adopted rulemaking will positively affect human health and the environment, and not adversely affect the economy or productivity in any material manner. Moreover, the adopted rules will

improve air quality and make positive progress towards attainment of the HGB eight-hour ozone standard. Therefore, the adopted rulemaking does not constitute a major environmental rule, and thus is not subject to a formal regulatory analysis.

In addition, this adopted 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 adopted 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.

#### 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 adopted rules. The adopted 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 adoption 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 adopted 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 adopted 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.

#### 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 adopted rulemaking.

## PUBLIC COMMENT

The commission held 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 commission received comments from Baker Botts L.L.P. on behalf of the 8-Hour Ozone SIP Coalition (EOSIPC), Association of Electric Companies of Texas, Inc. (AECT), Celanese, Ltd., CEMA Solutions, Inc. (CEMA), Coalition of Manufacturers for Air Quality (COMAQ), Dow Chemical Company (Dow), Energy Business, Inc. (EBI), GEM Mobile Treatment Services, Inc. (GEM), Galveston-Houston Association for Smog Prevention (GHASP), Harris County Public Health & Environmental Services (HCPHES), Houston-Sierra Club (HSC), Marathon Pipe Line (MPL), Mothers for Clean Air (MFCA), Remediation Service, Int'l (RSI), Texas Chemical Council (TCC), Texas Oil & Gas Association (TxOGA), Baker Botts L.L.P. on behalf of Texas Terminal Operators Group (TTO), United States Environmental Protection Agency Region 6 (EPA), and one individual. State Representative Ana E. Hernandez of District 143, State Representative Jessica Farrar of District 148, and Mayor Bill White of Houston jointly with County Judge Robert Eckels of Harris County submitted comments on the SIP that did not have specific comments on the proposed rules.

The commenters suggested modifications to the proposed rules as stated in the RESPONSE TO COMMENTS section of this preamble.

#### RESPONSE TO COMMENTS

The EPA requested that the commission provide a legend or explanation that clarifies the symbols used to identify changes that will be made to the rule.

**The commission used *Texas Register* format to indicate changes to the rule. In the proposal, new rule language was shown in underline, and rule language to be deleted was in brackets.**

Celanese endorsed the comments provided by the TCC.

**The commission acknowledges Celanese's endorsement of the comments provided by the TCC.**

The AECT and EOSIPC expressed support for the process the agency has used to select the proposed control strategies and the conclusions reached. The EOSIPC and TxOGA also expressed support for the proposal with the technical corrections submitted by its members comments, and AECT, Dow, EOSIPC, and TCC stated that these control strategies will result in additional progress towards attainment of the eight-hour ozone standard in the HGB area.

**The commission appreciates the support.**

The EPA and RSI expressed support for the agency's efforts to expand controls and reduce VOC

emissions within the HGB area. EBI stated that accounting for storage and transport emissions sources is "very good stewardship."

**The commission appreciates the support.**

The EOSIPC expressed support for the commission's ongoing work to incorporate the findings of the TexAQS II field study into the development of new modeling episodes that occurred in 2005 and 2006. Both the TCC and Dow support the development of a new modeling episode that incorporates the TexAQS II field study results. Dow additionally suggested that the TCEQ should consider information resulting from industry-sponsored research projects that show point source emissions from the HGB perimeter counties have little effect on key air quality monitors in Harris County.

**The commission appreciates the support for the technical work completed to date. The TCEQ has, and will continue, to review and analyze other technical studies as it moves forward with development of a new modeling episode and development of appropriate control strategies for the HGB area.**

Both the AECT and COMAQ encouraged the agency to consider the primary reason the HGB area cannot attain the eight-hour ozone standard by the deadline is due to NO<sub>x</sub> and VOC emissions from on-road and off-road mobile sources, marine vessels, and other federally regulated sources. The COMAQ stated that NO<sub>x</sub> emissions from such sources are estimated to comprise about 54% of the 2009 NO<sub>x</sub> emissions inventory for the HGB area. The EOSIPC asserted that agency photochemical modeling demonstrates that on-road and non-road mobile source emissions reductions constitute the most effective path toward

the HGB area achieving attainment. The COMAQ and EOSIPC stated that significant progress towards attainment in the HGB area cannot be realized before substantial reductions are made in mobile source emissions. COMAQ further noted the TCEQ does not have the authority to regulate emissions from federally regulated sources. The TCC and Dow encouraged the commission to continue promoting voluntary programs like TERP to accelerate mobile source emission reductions. AECT and COMAQ expressed support for additional legislative funding for the TERP program. COMAQ additionally commented that the agency should emphasize that TERP has resulted in about 22 tpd of NO<sub>x</sub> and VOC emission reductions from on-road and non-road sources in the HGB area. The AECT suggested the commission continue to encourage the EPA to take all appropriate measures to accelerate reductions of NO<sub>x</sub> and VOC emissions from on-road and non-road mobile sources, marine vessels, and other federally regulated emission sources in the HGB area. The AECT suggested the commission encourage and support programs and initiatives that will reduce NO<sub>x</sub> and VOC emissions from on-road and non-road mobile sources in the HGB area even if the measures cannot be used for emission reduction credits in the SIP.

**The issues brought up in these comments are beyond the scope of this rulemaking. The purpose of this rule project is to decrease VOC emissions from industrial point sources that have been previously unreported or underreported to the TCEQ and to provide better recordkeeping and reporting to formulate a more accurate inventory and enable more accurate modeling for future SIP development.**

The COMAQ encouraged the TCEQ to continue to emphasize the following facts and to use these facts in the development of the HGB eight-hour ozone SIP rules: (1) emissions of NO<sub>x</sub> and VOC (including HRVOC) from industrial point sources have been significantly reduced since 2001; and (2) TCEQ

photochemical modeling indicates additional NO<sub>x</sub> and VOC (including HRVOC) emissions reductions from point and area sources in the HGB area will not bring the area into attainment with the eight-hour ozone standard. The EOSIPC stated that since 2001, its member companies have invested over two billion dollars in state-of-the-art emissions controls that have reduced ozone precursor emissions; the results of these investments are evident in the ambient air. Additionally, the EOSIPC asserts that independent scientific studies show that the current control strategies are reducing ozone. These decreases have occurred before the full implementation of the current point source NO<sub>x</sub> and HRVOC emissions control strategy that was adopted in 2004 and will be fully implemented in 2007.

**The commission acknowledges the efforts that have been made by industrial point sources in the HGB area to reduce emissions. The purpose of this rule package is to reduce emissions of VOC that have been previously unreported or underreported in the EI and therefore not considered in modeling exercises to determine the most effective control measures to reduce ozone. Additional emission reductions from across the broad spectrum of sources may be needed to reduce ozone levels enough to meet the eight-hour standard.**

The TTO requested that the commission make changes to the proposed rule to address market realities that for-hire terminals face. HSC noted that under “Potentially Controversial Matters” in the Executive Summary for the HGB VOC rules TCEQ stated, “Representatives of terminal operators oppose the prohibition of convenience tank landings.” HSC expressed objection that TCEQ was allowing the regulated community to “call the shots” about rule development.

**The commission has made some changes to the proposed rule as a result of the TTO comments, as**

**discussed in the Response to Comments section of this rulemaking. The reference to the opposition of terminal owners and operators to the prohibition of convenience landings was intended only to alert the commissioners to communications that had been received before the formal rule proposal. The prohibition was included in the proposed rule, but after further discussion and research, §115.112(d)(2)(H)(v) and (vi) allow for convenience landings if emissions are authorized under a permit limit or emission cap in a permit issued under 30 TAC Chapter 116 or if site-wide emissions from tank roof landings are less than 25 tpy.**

Both GHASP and HSC requested that the VOC rules be made more stringent because TCEQ has not been able to document sufficient VOC emission reductions to show attainment of the ozone standard by 2010. Similarly, an individual commenter encouraged the commission to place more stringent controls on storage tank emissions.

**Photochemical modeling has shown that VOC reductions alone would not be sufficient to allow the HGB area to attain the eight-hour ozone standard by 2010. The commission's responses to the commenters' specific suggestions for making the VOC rules more stringent are detailed elsewhere in this document.**

GHASP asserted that the only new control measures in the 8-hour ozone SIP are enhancements to on-road and non-road NO<sub>x</sub> emissions controls and encouraged the agency to adopt additional control measures.

GHASP specifically encouraged the agency to consider measures that would expand the monitoring network, track emissions events and predict future emissions event impacts, incorporate reactivity based strategies such as trading of HRVOC and/or other VOC emissions, and control wastewater and other industrial VOC sources. GHASP stated that the HGB area needs every possible emissions reduction to

achieve attainment and generally favors industrial controls first, followed by diesel source controls.

**The commission appreciates the comment but the suggestions are outside the scope of this rulemaking and therefore no changes were made to the Chapter 115 rules as a result of this comment. The commission considered developing rules to require more stringent controls for wastewater facilities, but concluded that more information is needed to quantify potentially underreported emissions before effective rules can be developed.**

MFCA specifically suggested increasing VOC reductions from large industrial sources in the HGB area by 95% or more, and both MFCA and GHASP suggested establishing controls on other VOC in addition to HRVOC in the HGB area. Additionally, GHASP encouraged the agency to consider measures that concomitantly reduce pollutants that pose additional risks, such as air toxics and particulates.

**The commission appreciates the comments but the suggestions are outside the scope of this rulemaking and therefore no changes were made to the Chapter 115 rules as a result of these comments.**

HCPHES expressed support for the amendments to Chapter 115 to reduce VOC emissions from storage and degassing operations in the HGB area. The HCPHES suggested adopting and/or implementing various rules adopted by other states to reduce VOC content in solvents, paints, and various household and cosmetic products. The HCPHES also suggested expanding the HRVOC regulations beyond Harris County and adding to the list of chemicals subject to the HRVOC rules.

**The commission appreciates the comment in support of the Chapter 115 rules and the suggestions for additional control measures to reduce VOC emissions. The rule sections associated with the HCPHES suggestions are beyond the scope of this rulemaking and therefore no changes have been made to the rule based on the comments. Furthermore, the EPA is scheduled to adopt more stringent VOC content limits in paints and various household and cosmetic products in November 2007.**

HSC commented that the rule changes for storage tanks, degassing, and flash emissions should be applied statewide.

**Extending coverage of these rules to the entire state is beyond the scope of this rulemaking.**

**Because the proposal only applied the rule changes to the HGB area, affected parties in other areas of the state have not received proper notice of the changes and would not have an opportunity to comment. The commission may consider extending coverage of the rule amendments in a future rulemaking.**

EBI objected to the adoption of the rule language prior to determining the resolution of the Texas Petrochemical situation with the city of Houston. EBI recommended the commission expressly notify the city of Houston of the intended purpose of the regulations and suggested adding a qualifier to the rule language specifying the rule does not apply to the foregoing situation.

**The city of Houston is aware of the proposed rule language, as evidenced by comments made by the mayor of Houston on the SIP proposal. The commission has made no changes to the rule as a result of this comment.**

HSC expressed disagreement with the statements in the Executive Summary for the HGB VOC rules concerning enforcement responsibilities. HSC further expressed concern that new TCEQ regulations in the past have created greatly increased workloads for investigators and requested that the commission document how many more investigations and investigator hours will be required to implement these rules. EBI expressed concerns about the commission's lack of enforcement of the regulations the commission promulgates.

**The proposed increased stringency of rules for tanks does not require additional inspections, just changes in compliance criteria. The changes to the degassing rules would affect additional sources, but degassing is done infrequently. The requirements for control of flash emissions would impose new requirements at sites that are already subject to other commission rules for permitting and emissions inventory reporting but may not be complying with these requirements due to underestimation of flash emissions. The recordkeeping requirements of the new rules could aid investigators in determining whether facilities are in compliance with existing rules.**

GEM suggested clarifying whether the term “storage vessel” used in the proposed rule text refers to “storage tanks.”

**The term “storage vessel” as used in the rule includes “storage tanks.” Most instances of the term “storage vessel” in the adopted rule have been changed to “storage tank.”**

EBI suggested the Chapter 115 rule language be revised to distinguish between VOC and NMVOC. EBI

recommended clarifying that the rule applies to storage for VOC and NMVOC or limit the rule solely to crude and natural gas tanks and then propose a separate rule for NMVOC.

**The definition of VOC in 30 TAC §101.1 (relating to Definitions) excludes methane and other compounds determined by the EPA to have a negligible contribution to tropospheric ozone formation. Therefore, the suggested change is not necessary.**

COMAQ, TCC, TTO, and Dow suggested including in §115.110 definitions of the following terms as they are defined by the EPA in 40 CFR §63.1061: pole float, pole sleeve, pole wiper, and slotted guidepole. The TTO suggested also adding the following definitions: deck cover, external floating roof tank cover, flexible enclosure system, internal sleeve emission control system.

**The commission has added definitions for the terms deck cover, pole float, pole sleeve, pole wiper, slotted guidepole, flexible enclosure system, and internal sleeve emission control system as requested. A definition for external floating roof tank cover was not added because it was not necessary.**

Dow suggested the TCEQ expand the definition of “incompatible liquid” in §115.110 to include (1) liquids that have different chemical mixtures and cannot be mixed due to product quality specifications and (2) different grades of liquid materials that cannot be mixed due to product quality specifications. In addition, Dow suggested that these definition changes should be considered acceptable in §115.112(d)(2)(H)(ii). Dow also suggested that any liquid or fuel with a different specification should be considered as an incompatible liquid for the purposes of the rule. The TTO suggested the rule language

in §115.110(1) be revised to read “incompatible liquid--a liquid that is a different chemical compound, a fuel with different regulatory specifications, or any liquid that is otherwise compatible but for commercial contractual reasons.” The TCC suggested the term “incompatible” should recognize the following additional scenarios: a liquid material that would contaminate or significantly change the quality of a future stored material, any liquid or fuel with different product specifications.

**The commission has revised the definition to include different chemical mixtures or different grades of liquid material that would be unusable for its intended purpose due to contamination from the previously stored liquid. Minor differences in product quality specifications or materials owned by different customers are not intended to be covered under the definition, or the definition of incompatible liquid would be so broad as to be practically unenforceable. The commission notes that facilities have the option to authorize landing emissions under a cap or emissions limit under a Chapter 116 permit or a 25 tpy exemption as allowed in §115.112(d)(2)(H)(v) and (vi).**

The TxOGA expressed support for the definition of “incompatible liquid” in §115.110(1). The TCC agreed with the concept of allowing floating roof landings to support a change in service to a liquid that is incompatible with the previously stored liquid.

**The commission appreciates the support.**

The TxOGA and TCC suggested the definition of “tank battery” in §115.110(2) be changed to read “Exploration and Production Tank Battery--A collection of equipment at an exploration and production site used to separate, treat, store, and transfer crude oil, condensate, natural gas, and produced water.”

**Instead of making the change as suggested, the commission is changing the definition to specify that a collection of tanks at a pipeline breakout station, petroleum refinery, or petrochemical plant is not considered to be a tank battery. The commission has also changed §115.112(d)(4) and (5) to specify that control of flash emissions is required only for crude oil or condensate storage prior to custody transfer or at a pipeline breakout station. With these changes, the flash emission control requirements would apply to individual tanks or the collection of tanks at an oil and gas exploration and production site and to individual tanks at a pipeline breakout station. The requirements would apply to upstream and midstream operations but not to downstream operations such as crude oil and condensate storage at pipeline terminals, petroleum refineries, or petrochemical plants. The commission will continue to evaluate the extent of flash emissions at the downstream operations and may take action to regulate these sources at a later time.**

HSC requested that the minimum control efficiency in §115.112(a)(3) and (d)(3) be increased from 90% to 95%.

**The commission made no changes to the rule as a result of this comment. The focus of the rulemaking project was to effect real reductions in VOC emissions. Although the rule only requires a control efficiency of 90%, many of the control devices in use in fact reduce emissions by 95% or more.**

HSC requested that the rules in §115.112(b) and (c) for Gregg, Nueces, Victoria, Aransas, Bexar, Calhoun, Matagorda, San Patricio, and Travis Counties be changed to be as stringent as those for the

HGB area. HSC also requested that all references in §115.112(c)(1), Table I(b), to 1.5 psia be changed to 0.5 psia and that all references to 25,000 gallons be changed to 10,000 gallons.

**Revising the rules for the listed counties is beyond the scope of this rulemaking. Because no changes were proposed to the referenced subsections, affected parties in these counties have not received proper notice of the changes and would not have an opportunity to comment. The commission may consider extending coverage of the rule amendments in a future rulemaking.**

HSC commented that rules in §115.112(d) should apply statewide.

**Extending coverage to the entire state is beyond the scope of this rulemaking. Because the proposed rule only applied the rule changes to the HGB area, affected parties in other areas of the state have not received proper notice of the changes and would not have an opportunity to comment. The commission may consider extending coverage of the rule amendments in a future rulemaking.**

MFCA suggested requiring the installation of control measures for storage tanks with VOC vapor pressure equal to or greater than 0.5 pounds per square inch absolute. GHASP commented that the Chapter 115 rules should be changed to reflect the best available control technology requirements that dictate storage tanks operating with a vapor pressure greater than 0.5 psia and a capacity of more than 25,000 gallons have a floating roof or vent to control device. HSC commented that all references to 1.5 psia in Tables I(a) and II(a) should be changed to 0.5 psia and that all references to 25,000 gallons and 40,000 gallons in Tables I(a) and II(a) should be changed to 10,000 gallons.

**The commission considered lowering the vapor pressure that would trigger control requirements during the development of the rule proposal. After reviewing data available in the EI, the commission concluded that emissions from fixed-roof tanks storing materials with vapor pressures between 0.5 and 1.5 psia represented a small portion of the total VOC emissions from fixed roof tanks and that requiring additional controls for these tanks would not provide a meaningful reduction in VOC emissions.**

**Controls for smaller tanks are less cost effective than controls for larger tanks. According to data in the EI, there are a total of 3,451 fixed roof tanks with a total capacity of 52.8 million gallons that have capacities greater than or equal to 10,000 gallons but less than 25,000 gallons in the HGB area. There are 1,073 tanks with total capacity of 32.6 million gallons that have capacities between 25,000 and 40,000 gallons. For comparison, there are 5,498 fixed roof tanks with a total capacity of over 14 billion gallons that have capacities of 40,000 gallons or more. There are an additional 2,259 floating roof tanks with combined capacity over 24 billion gallons. The relative capacity of tanks that would be affected by the requested change represent less than 1% of the total fixed roof tank capacity in the HGB and less than 0.3% of the total fixed and floating roof capacity. The commission decided not to pursue additional controls for tanks that represent such a small percentage of the total tank capacity. Controls for these small tanks would not result in meaningful emission reductions.**

The EPA requested confirmation that §115.112(d) specifying additional requirements for storage vessels in the HGB area will begin January 1, 2009. The EPA also noted that although the preamble makes this

clear, a start date of January 1, 2009, may need to be added to the rule.

**The commission has added the start date of January 1, 2009, to §115.112(d) as suggested.**

The TCC suggested incorporating the language in 40 CFR §63.1063(b)(1), (2), (3), and (5) into §115.112(d)(2) to address the operational requirements of floating roof tanks.

**The commission has revised §115.112(d)(2)(H) to include the language in 40 CFR §63.1063(b)(1) regarding support of a floating roof by other devices (e.g., hangers from the fixed roof). Language in 40 CFR §63.1063(b)(3) requiring that covers be closed at all times except when they must be opened for access has been incorporated into §115.112(d)(2)(A). The commission declines to add the language in 40 CFR §63.1063(b)(2) and (5). The language in 40 CFR §63.1063(b)(2) would require that when the liquid depth is insufficient to float the floating roof, the process of filling to refloat the roof must be continuous and be performed as soon as practical. The restrictions on tank landings in §115.112(d)(2)(H) adequately address emissions from landed floating roofs. The requirement in 40 CFR §63.1063(b)(5) for each unslotted guidepole cap to be closed at all times except when gauging the liquid level or taking liquid samples is addressed in §115.112(d)(2)(A).**

The COMAQ and TCC suggested the rule language in §115.112(d)(2)(A) be revised to replace the phrase “no visible gap” with the phrase “no gap of more than 1/8 inch.” The requested change would make the TCEQ language consistent with the language in the EPA MACT standard 40 CFR §63.1063(d)(1)(v).

**The commission has made the suggested change.**

The TCC encouraged the agency to incorporate the language used in 40 CFR Part 63, Subpart WW and revise §115.112(d)(2)(A) to allow exemption for leg sleeves from the requirement to have a cover.

**The commission has made the suggested changes.**

TxOGA suggested the word “emergency” be added before “roof drains” in §115.112(d)(2)(A) and (D).

**The commission has not made the suggested change. The wording of §115.112(d)(2)(D) specifies that the requirement applies to roof drains that empty into the stored liquid. A roof drain system that uses a hose or piping to drain water from the roof to the side of the tank shell does not empty into the stored liquid and so would not be subject to the control requirement.**

Dow, COMAQ, and the TCC suggested replacing the phrase “working gasket” in §115.112(d)(2)(A)-(C) (and elsewhere in the proposed document) with the phrase “gasket in good operating condition” for clarity. Additionally, the TCC and COMAQ suggested revising §115.112(d)(2)(A) and (C) by changing the term “rim vent” to “rim space vent.”

**The commission has made the suggested changes.**

TTO suggested the rule language in §115.112(d)(2)(A) be deleted and replaced with language from 40 CFR §63.1063(a)(2)(i) and (ii) to read “each opening except for those for automatic bleeder vents (vacuum breaker vents) and rim space vents shall have its lower edge below the surface of the stored liquid. Each opening except for automatic bleeder vents (vacuum breaker vents), rim space vents, leg

sleeves, and deck (roof) drains shall be equipped with a deck cover. The deck cover shall be equipped with a gasket between the cover and the deck.”

**The commission has made the suggested changes, with slight differences in wording to correspond to the format of the existing rule as well as agency guidelines, *Texas Register* guidelines, and *Texas Legislative Drafting Manual*, August 2006.**

TTO suggested the rule language in §115.112(d)(2)(B) be deleted and replaced with language from 40 CFR §63.1063(b)(4) to read “each automatic bleeder vent (vacuum breaker vent) and rim space vent shall be closed at all times, except when required to be open to relieve excess pressure or vacuum, in accordance with the manufacturer’ s design.” TCC suggested revising §115.112(d)(2)(B) by adding the phrase “or at the manufacturer’ s recommended setting” so that §115.112(d)(2)(B) will be consistent with §115.112(d)(2)(C) and with 40 CFR §63.1063(b)(4).

**The commission has made the suggested changes.**

TxOGA suggested the rule language in §115.112(d)(2)(C) be clarified concerning the placement of gaskets on rim vents. TxOGA suggested that the language read “rim vent valves, if flanged, must be equipped with a working gasket and the valve be set to open only when the roof is being floated off the roof leg supports or at the manufacturer’ s recommended setting.”

**The commission has revised the language in §115.112(d)(2) to be consistent with language in 40 CFR §63.1063(a)(2)(iii). The new language applicable to rim vents is in §115.112(d)(2)(B). It**

**specifies that rim space vents must be equipped with a gasketed lid, pallet, flapper, or other closure device instead of specifying that each rim vent be equipped with a gasket.**

TTO expressed support for exempting stub drains from the requirements of §115.112(d)(2)(D) and agreed with the commission's assessment that controls on stub drains would provide minimal VOC reductions.

**The commission appreciates the support.**

TxOGA suggested the rule language in §115.112(d)(2)(E) be clarified to read “there must be no visible holes, tears, or other openings in a primary or secondary seal or seal fabric.” TxOGA expressed the opinion that the envelope on a mechanical shoe seal system is not part of the primary or secondary seal, and that the “no tear or hole” requirement should not be construed to apply to the envelope on a mechanical shoe seal system.

**The commission has not made the suggested change in the rule language because the language applies to fabrics used to seal deck fittings as well as primary and secondary seals. The commission acknowledges that inspecting the envelope would be difficult in a tank equipped with a secondary seal. The inspection requirements in §115.114 do not require moving the secondary seal to inspect the primary seal. If a hole or tear in the envelope of a mechanical shoe seal is found, it must be repaired if it would cause an increase in VOC emissions. Information available to commission staff indicates that the envelope is part of the vapor barrier and thus any holes or tears found in the envelope must be repaired.**

TxOGA suggested the rule language in §115.112(d)(2)(F) be clarified to read “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 with the exception of gaps that do not exceed the following specifications). The accumulated area of gaps that exceed 1/8 inch (0.32 centimeters) in width between the secondary seal and the tank wall must be no greater than 1.0 square inch per foot (21 square centimeters per meter) of tank diameter.”

**The commission has made the requested change.**

COMAQ, Dow, MPL, and TxOGA suggested that the TCEQ allow the use of a pole sleeve option, similar to the EPA option in 40 CFR §60.1063(a)(2)(viii), to control VOC emissions from slotted guidepoles as an alternative to a gasketed float as specified in §115.112(d)(2)(G). TTO suggested the rule language in §115.112(d)(2)(G) be deleted and replaced with language from both the EPA Storage Tank Emission Reduction Partnership Program (STERPP) (65 FR 19891, April 13, 2000) and 40 CFR §63.1063(a)(2)(viii) to read “each opening for a slotted guidepole shall be equipped with one of the following control device configurations: (i) a pole wiper and a pole float. The wiper or seal of the pole float shall be at or above the height of the pole wiper, (ii) a pole wiper and a pole sleeve, (iii) an internal sleeve emission control system, (iv) a flexible enclosure system, or (v) an external floating roof tank cover.” TCC and TxOGA suggested revising §115.112(d)(2)(G) to adopt the language of 40 CFR §63.1063 as well as all other control options provided in the EPA STERPP (65 FR 19891, April 13, 2000).

**The commission has revised §115.112(d)(2)(G) to include the suggested options.**

TTO suggested the language in §115.112(d)(2)(H) be revised to read “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 of a new floating roof storage tank or an existing floating roof storage tank that has been degassed and/or cleaned pursuant to Subchapter F of this chapter, or as allowed under the following circumstances.” TTO additionally requested clarification in preamble language concerning under which, if any, circumstances uncontrolled landing emissions would not be required to be routed to a control device in order to comply with proposed 30 TAC §115.112(d)(2)(H).

**The commission has revised the language in §115.112(d)(2)(H) to allow refill of a tank that has been degassed and cleaned according to the requirements of Chapter 115, Subchapter F, Division 3. The commission has also modified preamble language to clarify that uncontrolled landing emissions would be allowed under an emissions cap as specified in §115.112(d)(2)(H)(v) or when total landing emissions at a site are less than 25 tpy as specified in the new §115.112(d)(2)(H)(vi).**

Dow suggested that §115.112(d)(2)(H)(i) be clarified so that the phrase “when necessary for required maintenance or inspection” includes maintenance and inspection activities required by both environmental regulations and by company/individual site programs. COMAQ and TCC suggested removing the term “required” from §115.112(d)(2)(H)(i) since the term could be interpreted to mean the maintenance that is required by a particular rule.

**The commission has deleted the word “required” as requested. The intent of the rule language is to allow landings when needed for maintenance and inspection whether the activities are needed in**

**order to comply with environmental regulations or to satisfy company or individual site programs.**

COMAQ, TCC, and TTO suggested adding the phrase “but not limited to” after “including” in §115.112(d)(2)(H)(ii).

**The commission has not made the requested change. Legally, the term “including” is understood to mean “but not limited to.” The commission has changed the wording to use the definition of incompatible liquid in §115.110, so the wording no longer contains the word “including.”**

TTO requested that §115.112(d)(2)(H)(ii) be revised to read “when necessary for supporting a change in service to a liquid that is not compatible with the previously stored liquid, including but not limited to gasoline with a different RVP to comply with applicable requirements; a termination of a contract for the storage of a liquid; a new customer or owner of a liquid coming into a storage tank; or off-spec products.”

**The commission has revised the definition of “incompatible liquid” in §115.110 and has changed the wording of §115.112(d)(2)(H)(ii) to use the definition. Landings to replace off-spec products could be allowed under the revised definition if the product to be loaded into the tank would be contaminated with the previously stored off-spec product to the extent that the newly-loaded product would be unusable for its intended purpose. The commission declines to allow landings for commercial reasons such as termination of a contract or a new customer or owner of a liquid but notes that facilities have the option to authorize landing emissions under an emission limit or cap or a 25 tpy exemption as specified in §115.112(d)(2)(H)(v) and (vi).**

HSC requested that the proposed §115.112(d)(2)(H)(iii) be revised to change the reference to 25,000 gallons to 10,000 gallons and from 1.5 psia to 0.5 psia.

**The purpose of the proposed §115.112(d)(2)(H)(iii) was to exempt floating roof tanks that store materials that could be stored in fixed-roof tanks without controls under §115.112(d)(1) from the prohibition on tank landings. When a floating roof is landed, the tank functions essentially as a fixed roof tank, negating the emission reduction benefits of the floating roof. Because §115.112(d)(1) allows materials with a vapor pressure less than 1.5 psia to be stored in fixed roof tanks, restricting landings when the materials are stored in floating roof tanks would hold owners and operators who go beyond the requirements of the rule by storing such materials in floating roof tanks to an unnecessarily restrictive standard. As discussed in response to other comments, the commission has chosen not to require materials with a vapor pressure of less than 1.5 psia to be stored in a floating roof tank or a fixed roof tank with controls.**

TxOGA and TTO suggested the rule language in §115.112(d)(2)(H)(iv) be clarified to read “(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: (iv) when the vapors are routed to a control device from the time the roof is landed until it is within 10% of being refloated.” The commenters expressed concern that vapor abatement equipment may experience problems if liquids are accidentally injected.

**The commission has made the requested change.**

Dow expressed support for a floating roof storage tank emissions cap in §115.112(d)(2)(H)(v) and suggested that the cap does not have to be sitewide in order to be effective. Dow suggested a structure similar to the TCEQ flexible air permitting program, where the regulated entity defines the universe of the storage tanks at a given site that can be included in the emissions cap. Dow also suggested allowing a single plant site to have multiple caps to address floating roof tanks in different geographical areas of the site.

**The commission has removed the term “sitewide” from §115.112(d)(2)(H)(v) as requested.**

COMAQ suggested clarifying §115.112(d)(2)(H)(v) to indicate that emissions from the landing of floating roof tanks can be authorized by an emission limit in a permit or permit by rule (PBR), or included in an emissions cap approved under 30 TAC Chapter 116. TCC suggested removing the term “sitewide” from the preamble language and from §115.112(d)(2)(H)(v) and revising the rule language to read “tank landings that comply with established Chapter 116 emission limits or caps.” Both Dow and TCC suggested the rule include PBR §106.263 (which can be used for tank landings due to scheduled maintenance, startups, or shutdowns) as an authorization option for the landing of the floating roof tanks for a single tank.

**The commission has removed the term “sitewide” from §115.112(d)(2)(H)(v) and added language to clarify that landing emissions can be authorized by an emission limit or a cap under a Chapter 116 permit, as long as the limit expressly includes landing loss emissions. The commission does not agree to allow the use of a PBR to comply with the provisions of §115.112(d)(2)(H). Allowing use of PBR §106.263 to authorize emissions from convenience landings could allow a site to add up to 25**

**typy of VOC emissions in addition to landing loss emissions that have been authorized under an express permit limit or permit cap. The provisions of §115.112(d)(2)(H) would not prevent an owner or operator from authorizing a new tank or change of service to an existing tank under an applicable PBR, but floating roof tank landings from any such tanks would have to either meet the requirements of §115.112(d)(2)(H)(i) – (iv) or (vi) or be incorporated into an emission cap as referenced in §115.115(d)(2)(H)(v).**

TTO expressed support for the compliance option authorizing the approval of sitewide floating roof storage tank emission caps in permits issued under Chapter 116 but objected to the language that excludes an increase in caps from “otherwise prohibited roof landing emissions. TTO stated the language was vague, could be read to conflict with several existing cap agreements with the Executive Director, and the cap is more appropriately left to the commission’s permitting staff. TTO suggested the language “and the cap value is not increased to account for emission from landings that would otherwise be prohibited” be deleted from §115.112(d)(2)(H)(v).

**The purpose of rules in Chapter 115 requiring emission reductions or controls from specific types of sources is to reduce emissions of VOC that are contributing to ozone formation in ozone nonattainment areas. Requirements in Chapter 115 may thus be more stringent than would be required by the commission’s permitting staff. The requirements for monitoring and control of HRVOC in Chapter 115, Subchapter H, are an example. For the current rulemaking, however, the commission has deleted the suggested language.**

HSC requested that §115.112(d)(2)(H)(v) be deleted. HSC objects to the use of an emission cap in lieu of

a prohibition on convenience landings.

**For-hire terminals may have difficulty complying with a strict prohibition on convenience landings, since the terminals do not own the liquid in the tanks. Complying with individual emission limits or caps will require tank owners and operators to minimize landing loss emissions while allowing them operational flexibility.**

TTO suggested adding a new §115.112(d)(2)(H)(vi) and (vii) to read “(vi) when aggregate sitewide uncontrolled VOC emissions from all floating roof tank landings are less than 25 tons per year on a rolling 12-month basis using the methodology for landing emissions in the United States Environmental Protection Agency AP-42 “Compilation of Air Pollutant Emission Factors” (revised November 2006); (vii) when landing emissions are authorized under an applicable permit by rule in Chapter 106 of this title.”

**The commission agrees that an exemption from the prohibition on roof landings is appropriate for facilities with low landing loss emissions and has therefore added §115.112(d)(2)(H)(vi) to provide an exemption for facilities with sitewide emissions less than 25 tpy. As noted in response to a previous comment, the commission does not agree to allow the use of a PBR to comply with the provisions of §115.112(d)(2)(H).**

GHASP suggested that the vapor recovery system control efficiency requirements in §115.112(d)(3) be changed from 90% to 95% citing that the New Source Performance Standards specify a minimum control efficiency of 95%.

**The commission made no changes to the rule in response to this comment. The focus of the rulemaking project was to effect real reductions in VOC emissions. Although the rule only requires a control efficiency of 90%, many of the control devices in use in fact reduce emissions by 95% or more.**

HSC requested that §115.112(d)(4) be made more stringent by requiring control of flash emissions for tanks with emissions of greater than or equal to 10 tpy instead of the proposed level of 25 tpy.

**The cost effectiveness of controls decreases proportionally to a source's emissions rate. If no pipeline is available to transport recovered vapors, emissions and energy use from tanker trucks would counter some of the benefits from vapor recovery. Other states that explicitly require control of flash emissions include Wyoming and Colorado. Wyoming requires control if uncontrolled emissions are greater than or equal to 40 tpy. The state-wide Colorado rule requires control if uncontrolled emissions are greater than or equal to 20 tpy. The commenter gave no specific justification for the proposed level of 10 tpy. Furthermore, the EPA expressed support for the 25 tpy threshold.**

EPA endorsed the 25 tpy threshold for control because it defines the major source level for severe ozone nonattainment areas.

**The commission appreciates the support.**

The TCC commented that the vapor pressure of certain liquid streams at oil and gas exploration and production sites may be greater than 11 psia because of the presence of entrained gas. TCC further requested the commission clarify that tanks containing crude oil and condensate streams that have a true vapor pressure less than 11 psia and meet the control requirements of §115.112 Table 1(a), including storage in an external floating roof with a primary and secondary seal, are adequately controlled for the purposes of this rule.

**The commission does not agree that crude oil and condensate streams with a reported true vapor pressure less than 11 psia do not have flash emissions nor that storage in an external floating roof tank with primary and secondary seals provides adequate control if flash emissions are occurring. The commission acknowledges that the highest flash emissions would be expected to occur at upstream oil and gas exploration and production sites when the stream is first exposed to atmospheric pressure. Tanks at midstream pipeline breakout stations would also be expected to have higher potential for flash emissions than tanks at downstream petroleum refineries or petrochemical plants. For these reasons, the commission has revised the rule to require control of flash emissions only at the upstream oil and gas exploration and production sites and at midstream pipeline breakout stations.**

The TCC suggested the preamble (specifically pages 17 and 18) be revised to remove references to crude oil and condensate storage at all locations other than exploration and production facilities. Additionally, the TCC requested the commission clarify that the term “condensate” applies to the liquids produced from natural gas rather than those tanks at a petroleum plant that may receive condensate from a natural gas production site. TxOGA requested that the term “tanks” in §115.112(d)(4) be revised to the phrase

“exploration and production tanks.”

**The commission has changed §115.112(d)(4) and (5) to specify that control of flash emissions is required only for crude oil or condensate storage at upstream oil and gas exploration and production sites prior to custody transfer or at pipeline breakout stations. The requirements would not apply to downstream operations such as crude oil and condensate storage at petroleum refineries or petrochemical plants. Remote sensing projects carried out under TexAQS II found plumes from crude oil storage tanks at refineries. Crude oil and condensate transferred downstream may still contain dissolved gases; thus, flash emissions could still be occurring at these downstream locations. However, the H51C study that was used to determine default emission factors for crude oil and condensate storage tested tanks at upstream sites only, and the test methods that were used to measure the emissions would not be applicable to large external floating roof storage tanks such as those typically used at refineries. Tanks at midstream pipeline breakout stations are also regulated under the rule as adopted. Crude oil and condensate that have been transferred through pressurized pipelines are likely to flash when transferred to atmospheric storage tanks. The commission will continue to evaluate the extent of flash emissions at the downstream operations and may take action to regulate these sources at a later time.**

The TCC suggested consistency between the actual rule language in §115.112(d)(4) and the preamble for the rule with regards to estimating flash emissions using the method that yields the higher emission rate.

**The commission has moved the requirements that were proposed as §115.112(d)(4) to §115.112(d)(5) and has revised the language to state that if emissions determined using direct**

**measurements or other methods approved by the executive director under §115.112(d)(5)(A) or (D) are higher than emissions estimated using the default factors or charts in §115.112(d)(5)(B) or (C), the higher values must be used. The intent of allowing the use of default emission factors is to enable regulated entities to avoid the cost of performing measurements or complex computer simulations. However, if the regulated entity chooses to use one of the more accurate, site-specific emission determination methods, this information should be used in determining whether emissions exceed the 25 tpy threshold.**

The TCC requested clarification that simulation methods acceptable for use to estimate flash emissions include API E&P Tank Model and any other model as listed in the TCEQ EI guidance document (Technical Supplement 6, January, 2007).

**The EI guidance document lists a number of methods for estimating flash emissions and ranks them according to expected accuracy. These methods are used state-wide. Flash emissions have traditionally been under reported, and one goal of the current rulemaking is to obtain a better accounting of these emissions in the HGB area. Thus, some of the methods that may be acceptable for estimating flash emissions in ozone attainment areas in West Texas may not be accurate for sources in the HGB area. The use of any simulation method is problematic, because the model must be run correctly using proper input data in order to get accurate results. Because of these problems, the commission has revised §115.112(d)(5) to delete the proposed §115.112(d)(4)(D) that would have allowed the use of computer simulations. The new §115.112(d)(5)(D) allows the use of other test methods or computer simulations pre-approved by the executive director to estimate flash emissions. Computer simulations can still be used, but must be pre-approved by the executive director to make sure the simulation is used properly.**

HSC requested that §115.116(a)(1) and (b)(1) be made more stringent by changing the referenced vapor pressure from 1.0 psia to 0.5 psia.

**The requested change would affect tanks in other nonattainment areas than HGB. Because notice for the proposed rule indicated that the proposed changes would only apply to tanks in the HGB area, affected owners and operators in other areas of the state have not received proper notice of any changes that would affect their operations. Thus, the requested change is beyond the scope of the current rulemaking.**

Dow and COMAQ suggested the removal of the word “reportable” from §115.116(a)(2) since the term “reportable” has other meanings in other portions of Texas air pollution regulations. The removal of the word “reportable” will clarify that the additional emissions must be included in the emissions inventory report and then either recorded or reported per the applicable existing provisions in 30 TAC Chapter 101 (General Rules). TCC suggested revising §115.116(a)(2) to change the term “reportable” to “emission inventory reportable” to clarify that emissions from secondary seal gaps are not necessarily a reportable emission event as defined in Chapter 101, Subchapter F.

**The commission has changed the term “reportable” to “emissions inventory reportable” as suggested.**

CEMA suggested that language be added to the rule that acknowledges the option for facility operators to use internal combustion engine (ICE) based VOC oxidation systems to prevent an unfair market

advantage for the control technologies listed in Chapter 115 despite equal or better performance by ICE-based equipment. CEMA suggested revising the rule language in §115.116(a)(3) and (b)(3) and §115.546(2) to include a section that reads “the output voltage of the engine exhaust oxygen sensor and the inlet and outlet gas temperature of the catalytic converter on an internal combustion engine.”

**The language in the rules does not specify nor exclude the use of any particular control technology as long as it achieves the required 90% reduction. The referenced rule sections do not list monitoring requirements for all possible types of control. Moreover, the suggested monitoring language for ICE equipment would not be sufficient to insure that the ICE system is functioning properly. For example, PBR §106.533(g)(4) for remediation requires that owners or operators of ICE systems conduct an evaluation of engine effectiveness initially and at least weekly, using a photo ionization detector (PID) or flame ionization detector (FID) in conjunction with a flow meter to determine the quantity of carbon compounds in the inlet gas stream and the engine exhaust. The FID or PID instrument chosen must be capable of properly detecting the types of contaminants present. For these reasons, no changes have been made to the rule language in response to the comment, but the absence of specific mention in the rule does not exclude the use of ICE-based equipment.**

GHASP suggested that the owners and operators of facilities subject to the monitoring and recordkeeping requirements in §115.116 be required to report their performance parameters and efficiency calculations because the public needs the opportunity to monitor these facilities.

**Facilities with Title V operating permits under 30 TAC Chapter 122 are required to submit annual**

**reports stating whether they are in compliance with all applicable requirements, which would include rules in Chapter 115. Owners or operators must also submit deviation reports for each six-month period if there have been deviations in permit terms or conditions during the period. The public can obtain copies of these reports (minus any confidential data) from TCEQ. TCEQ investigators can also request that monitored data or calculations be reported.**

EPA recommended that each requirement for a two-year record retention time, including those in §115.116(a)(5) and (b)(5), be changed to require a five-year record retention time, consistent with Title V and 30 TAC Chapter 122 requirements.

**The commission has not made the suggested change. Facilities with Title V permits are required to retain records for five years under Title V and 30 TAC Chapter 122, regardless of the specified retention time in a specific rule. The requirements in §115.116(a)(5) and (b)(5) apply to sources outside the HGB nonattainment area. Thus, no changes can be made to these requirements at this time because public notice for the rulemaking indicated that the rule changes would apply only to sources in the HGB area.**

HSC requested that §115.116(c)(1) be made more stringent by changing 40,000 gallons and 25,000 gallons to 10,000.

**The purpose of the recordkeeping requirement in §115.116(c)(1) is to require owners and operators to maintain records documenting that the materials stored in tanks that are not equipped with controls as specified in Table I(a) or Table II(a) of §115.112(a)(1) have vapor pressures low enough**

**to be stored without controls. As noted in response to other comments, the commission has chosen not to change the size threshold at which tanks would be subject to controls to 10,000 gallons.**

Dow and TCC suggested deleting the recordkeeping requirements in §115.116(c)(1) since the regulated entity is already required to report this information through the Title V Operating Permits program. The TCC also suggested that if §115.116(c)(1) is not deleted, then the commission should clarify the phrase “length of time the material is stored” to indicate if the phrase refers to the date the tank is placed into service, the period of time it takes the tank to turnover, or the period of time that the liquid material lies in the tank while the roof is resting on its legs.

**The commission has maintained the referenced recordkeeping requirement to ensure that owners and operators have appropriate, current, readily available records to allow investigators to verify that materials stored in uncontrolled tanks have vapor pressures low enough to be stored without controls. Records in Title V operating permits may only refer to material safety data sheets that list a range of vapor pressures for an ill-defined material (such as bunker oil). The actual vapor pressure of such materials can vary with different suppliers, different shipments, or different production runs. Results of remote sensing studies have shown unexpected VOC emissions from fixed-roof storage tanks that store materials with reportedly low vapor pressures. The commission has revised the language in §115.116(c)(1) to specify that the “length of time the material is stored” refers to the starting and ending dates that a material is or has been in the tank.**

HSC requested that §115.116(c)(2) be made more stringent by changing the referenced emission level from 25 tpy to 10 tpy.

**The purpose of the recordkeeping requirement in §115.116(c)(2) is to document that emissions from tanks not equipped with controls for flash emissions are below the level at which control is required. As discussed in response to other comments, the commission has chosen not to change the level from 25 tpy to 10 tpy. Since the level has not changed, it would be inappropriate to revise this recordkeeping requirement.**

The TCC suggested revising §115.116(c)(2) to read “the owner or operator of any Exploration and Production storage vessel . . shall maintain records . . .The records must be updated annually and must be made available for review as soon as possible upon request.” The TCC suggested the commission use the “maximum authorized emission rate” to satisfy the “projected emissions” requirement, rather than requiring the owner or operator of an Exploration and Production storage vessel to speculate within the context of the rule on the projected tank emissions for the next year of operations.

**The commission has revised §115.116(c)(2) to specify that the recordkeeping requirement applies only to crude oil and condensate stored prior to custody transfer or at midstream pipeline breakout stations. The commission agrees that the maximum authorized emission rate, if calculated to correctly account for flash emissions, can be used to document that emissions are less than the 25 tpy threshold for control and has deleted the requirement to project emissions for the next year.**

HSC requested that the rule be made more stringent by changing 1.5 psia to 0.5 psia in §115.117(a)(1) and by changing 25,000 gallons to 10,000 gallons in §115.117(a)(3).

**As noted in response to earlier comments, the commission has decided to maintain the exemption levels at 1.5 psia and 25,000 gallons.**

HSC requested that the rule be made more stringent by changing 1.5 psia to 0.5 psia in §115.117(b)(1) and (c)(1), by eliminating the exemption in §115.117(b)(2), by changing 25,000 gallons to 10,000 gallons in §115.117(b)(3) and (c)(3), and changing 420,000 gallons to 10,000 gallons in §115.117(c)(4).

**The requested changes affect subsections that were not opened in the current rulemaking. These subsections affect sources outside the HGB eight-hour ozone nonattainment area. Owners and operators of these sources have not been given proper notice of proposed changes and would not have an opportunity to comment. Thus, making the suggested changes is beyond the scope of the current rulemaking.**

GHASP suggested eliminating the exemptions for tanks constructed prior to 1980 and 1982 and requiring the installation of appropriate rim mounted secondary seals for external floating roof tanks. In instances where upgrading the tanks is not technologically feasible, GHASP suggested that those tanks should be relegated to service with liquids with vapor pressures less than 0.5 psia, or service exempt from NSPS Subpart Kb.

**The commission did not propose substantive changes to the referenced exemptions in §115.117(4), (6), or (7). Making changes at this time is thus beyond the scope of the current rulemaking because it would impose controls on owners or operators who have not received proper notice of additional regulatory requirements and would not have an opportunity to comment. The commission may**

**consider eliminating these exemptions in a future rulemaking.**

The EPA requested confirmation that credit for this rule has been appropriately prorated to reflect the extended time period allowed for compliance.

**The purpose of the rule was to reduce VOC emissions that have been previously unreported or underreported in the EI. For this reason, the commission has not taken credit for emissions reductions from this rule.**

The EPA requested confirmation that the new rule includes all components needed for enforcement purposes. In particular, the EPA noted that if compliance with the rule would necessitate emptying and degassing the tank, compliance would not be required until the next time the tank is emptied and degassed but not later than January 1, 2017. The EPA asked the commission to consider whether existing reporting requirements are sufficient to allow inspectors to verify the most recent date a tank was emptied and degassed and to add reporting requirements if necessary to provide for enforceability of the rule.

**Commission general air quality rules in 30 TAC §101.201(b) require owners or operators to maintain records of scheduled maintenance activities, which would include tank degassing and cleaning. No changes were made to the rule as a result of this comment.**

COMAQ suggested that TCEQ reconsider its position in §115.119(c) that the required control equipment could be put into place without tanks having to be taken out of service, citing that COMAQ members' experience has been that any significant work on tank roof fittings and seal systems requires tank de-

inventory and degassing in order to prevent unacceptable LEL readings and personnel safety concerns.

**The commission maintains that certain types of roof fittings and controls for slotted guidepoles can be installed without taking the tank out of service. However, the rule language in §115.119(c) states that compliance can be delayed beyond January 1, 2009, until the next time the tank is emptied and degassed if compliant equipment cannot be installed without taking the tank out of service. The decision whether equipment can be safely installed without taking the tank out of service will be made by the owner or operator. The rule does not give specific requirements for proving that the installation cannot be safely performed while the tank is in service, but the owner or operator should document and maintain for inspection purposes the rationale for delayed compliance.**

Dow supports the TCEQ's consideration that storage vessels will have to be degassed and emptied to comply with §115.112(d) requirements, and suggested editing §115.119(c) to clarify that compliance with §§115.112(d), 115.115(c), and 115.116(c) is not required until the next scheduled emptying and degassing activity after January 1, 2009.

**The commission appreciates the support, but does not agree that compliance is not required until the next scheduled emptying and degassing activity after January 1, 2009. The reason for allowing the delay of compliance is to avoid requiring that a tank be taken out of service and degassed solely for the purpose of complying with the new requirements. In some cases, the emissions that would occur from the degassing activity (even when complying with the revised requirements for degassing in Chapter 115, Subchapter F) would be greater than emissions that would be reduced by installing compliant equipment. For tanks that will be emptied and degassed after the date the rule**

**becomes effective but prior to January 1, 2009, the commission expects that equipment required to comply with the revised rules can be installed at that time, even though compliance is not required until January 1, 2009. Owners and operators who are planning tank emptying and degassing activities should plan ahead to install compliant equipment at the next opportunity.**

EPA noted that the preamble discussion for §115.119(c) states, “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,” and requested that the commission consider modifying the rule to require that most, if not all, of the components in the rules be met by January 1, 2009.

**Industry commenters disagree with the commission’s statement that most required control equipment can be put into place without taking a tank out of service. The rule language states that compliance must be achieved by January 1, 2009, unless compliance would require emptying and degassing the storage tank. A further requirement that “most” of the components in the rules be met by January 1, 2009, would be unenforceable.**

HSC objected to delayed compliance for tanks that must be emptied and degassed to install controls, since degassing is controlled, and stated that exceptions to not emptying a tank for installation of controls should only be allowed based on a petition from a regulated entity that demonstrates that emissions from emptying and degassing cannot be controlled and that the tank must be emptied to install the controls. GHASP commented that the storage tank regulations in Chapter 115 should mandate compliance by all affected facilities by January 1, 2009. GHASP stated that operating practices can be modified to eliminate convenience landings and that if a facility chooses to install controls that require emptying the

tank, operating practices can be modified until the tank maintenance is undertaken.

**In some cases, the emissions that would occur from the degassing activity (even when complying with the revised requirements for degassing in Chapter 115, Subchapter F) would be greater than emissions that would be reduced by installing compliant equipment. Due to the high cost effectiveness of requiring degassing controls on small tanks, the commission has revised the new degassing control requirements to apply only to tanks with nominal capacity greater than or equal to 250,000 gallons or to tanks with nominal capacity greater than or equal to 75,000 gallons storing material with vapor pressure greater than 2.6 psia. If degassing is not controlled, emissions from taking the tank out of service to install controls could negate the environmental benefit of the controls. The provision for delayed compliance is not anticipated to affect the compliance date for tank landings, since facilities can comply with the requirements by changes in operational practices, as noted by the commenter.**

HSC requested that the control requirements for VOC loading operations in §115.212 be revised to require a control efficiency of 95% rather than 90%.

**The requested change is beyond the scope of the current rulemaking, since no changes were proposed to §115.212. Staff considered this change to loading requirements as the rule proposal was being developed. According to available data in the EI, most of the control devices in use were already reducing emissions by 95% or more. Also, emissions from controlled loading operations represent a small fraction of the total VOC from point sources in the HGB area. Thus, making this change would result in only minimal emissions reductions.**

RSI suggested the commission examine the upcoming South Coast Air Quality Management District (SCAQMD) tank degassing regulations.

**The commission has reviewed the existing SCAQMD regulations on tank degassing and commission staff has discussed upcoming changes with SCAQMD staff.**

GEM suggested degassing companies be required to provide notification of degassing activities if onsite inspections of tank degassing is going to be implemented.

**The commission requires notification of scheduled maintenance activities such as tank degassing if expected emissions will exceed a reportable quantity as defined in 30 TAC §101.1. A specific notification requirement may be considered in a future rulemaking.**

The TCC suggested the commission confirm in §115.541 that if a covered tank is flooded with a diluent that has a true vapor pressure of less than 0.50 psia then the control requirements of this subchapter are no longer applicable.

**The commission does not agree that flooding a tank with a low vapor pressure diluent automatically negates the applicability of control requirements of Subchapter F. Pockets of material with a higher vapor pressure may be present in sludge on the tank bottom and be unaffected by the use of the diluent. Use of a diluent would also create a mixture that would presumably be a waste that could cause additional VOC emissions when disposed.**

COMAQ suggested the emission specifications and control requirements for the degassing of storage tanks with a nominal capacity between 40,000 and 1 million gallons should not be included in §115.541(a)(1) and §115.547(2). COMAQ states that the 40,000 gallon threshold was arbitrarily chosen by the commission and does not take into account the quantity of emissions from the degassing process or the economic feasibility of installing the controls. TCC commented that the minimum cost for complying with the degassing requirements would be \$5,000 and suggested revising the degassing emission specifications applicability threshold in §115.541 from 40,000 gallons to 250,000 gallons. HSC requested that the rule be made more stringent by changing 40,000 gallons to 10,000 gallons in §115.541(a)(1) and §115.547(2).

**Emission reductions that can be realized by requiring controlled degassing decrease as the size of the tank (and, thus, the amount of vapor space saturated with VOC) decreases. Control of degassing emissions is generally carried out by outside contractors who bring equipment to the site. The charge for bringing in and operating the equipment is generally the same regardless of the size of the tank to be degassed. Thus, the cost effectiveness for controlling degassing emissions for tanks as small as 10,000 gallons is much higher than for larger tanks. The commission does not believe that the cost for controlling degassing emissions from these smaller tanks is justified. As noted by TCC, the cost effectiveness for controlling degassing emissions from a 40,000 gallon tank storing a material with a vapor pressure of 0.5 psia would be greater than \$60,000 per ton of VOC removed. The commission has estimated that the cost effectiveness of controlling degassing emissions from tanks with capacity of 250,000 gallons storing materials with a vapor pressure of 0.5 psia or higher would be less than \$12,000 per ton. The cost effectiveness for requiring degassing controls increases for smaller tanks and would exceed the \$12,000 per ton value that is used in evaluating**

**BACT. Thus, the commission has revised the applicability threshold to 250,000 gallons for tanks storing materials with vapor pressures down to 0.5 psia. However, smaller tanks storing more volatile materials would have higher emissions and lower cost effectiveness. Regulations applicable in the SCAQMD take the higher emission potential into account by requiring degassing controls for tanks as small as 19,815 gallons storing materials with a vapor pressure greater than 3.9 psia, and for tanks as small as 39,630 gallons storing materials with a vapor pressure greater than 2.6 psia. Commission staff estimated the cost effectiveness to control degassing emissions from tanks with a range of sizes and vapor pressures of stored liquid, and concluded that the cost effectiveness to control degassing emissions from tanks 75,000 gallons or larger storing materials with vapor pressure greater than 2.6 psia was approximately \$20,000 per ton or less. The commission has revised the rule to require degassing control for tanks with a capacity of 250,000 gallons or more, and for tanks with capacity of 75,000 gallons to 250,000 gallons storing material with vapor pressure greater than 2.6 psia.**

HSC additionally requested that the rule be made more stringent by changing 8,000 gallons to 5,000 gallons in §115.541(a)(2) and by changing 420,000 gallons to 10,000 gallons in §115.541(b) and §115.547(2).

**The commenter gives no basis to support the requested changes. The rule proposal did not include a change in the size of transport or marine vessel that would be required to control degassing emissions. Thus, the requested change is beyond the scope of the current rulemaking.**

HSC requested that the rule be made more stringent by changing 90% to 95% in §115.541(a)(1)(B) and (a)(2)(B) and in §115.541(b)(2).

**The commission made no changes to the rule in response to this comment. The focus of the rulemaking project was to effect real reductions in VOC emissions. Although the rule only requires a control efficiency of 90%, many of the control devices in use in fact reduce emissions by 95% or more.**

GEM suggested if the four vapor space turnover requirement remains part of the degassing rule then the commission should require that approved inlet vapor flow meters be installed at the inlet of the control device to help standardize the flow volume measurement.

**The commission has deleted the turnover requirement for affected sources in the HGB after January 1, 2009. The four vapor space turnover provision remains in effect for sources in the BPA nonattainment area, but changes that would affect sources in this area are beyond the scope of the current rulemaking since public notice indicated that rule changes were only being made for sources in the HGB area.**

HSC requested that the rule be made more stringent by changing 34,000 ppmv to 10,000 ppmv in §115.542(a)(2) and (b)(5).

**The purpose of the proposed rule was to change the method for demonstrating when sufficient degassing had occurred, not changing the required level. The 34,000 ppmv level is based on requiring degassing control down to an equivalent partial pressure of 0.5 psia:  $0.5/14.7 * 1,000,000 = 34,000$  ppmv. Because no change to this level was proposed, lowering it is beyond the scope of this**

**rulemaking.**

HSC requested that the rule be made more stringent by changing 34,000 ppmv to 10,000 ppmv in §115.542(b)(4) and by eliminating the words “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 the concentration of VOC is less than 20% of the lower explosive limit.”

**The requirements in §115.542(b)(4) apply to sources in the Beaumont-Port Arthur (BPA) and until January 1, 2009, in the HGB area. No changes affecting sources in BPA were proposed; thus, making the requested change is beyond the scope of the current rulemaking. The regulated community must have time to implement new rule requirements; thus, the current wording is necessary to maintain the applicability of the existing requirements in HGB until the compliance date for the new requirements.**

COMAQ requests that the TCEQ clarify whether “ventilated,” “ventilation,” and “vented” mean forced ventilation only, or both forced and passive ventilation as used in §115.542(a)(6). In this same section, the TCC suggested clarifying the intent of the phrase “before dilution.”

**The commission has revised the rule language to use the term “vented to the atmosphere” for clarity. The commission has removed the word “before dilution” from the rule language as requested. The intent of the phrase “before dilution” was to emphasize that vapors are not to be released to the atmosphere untreated because an excessive volume of ventilation gas is used. Depending on the type of control technology used to abate the degassing emissions, dilution gas is**

**sometimes necessary to maintain safe conditions in the abatement device. The concentration measurement should be made before the dilution gas is added.**

TxOGA expressed general support for §115.542 stating that the use of vapor concentration rather than turnover volume for determination of sufficient processing of vapors provides operational consistency during tank degassing. TxOGA suggested that the LEL is a better threshold for determining compliance than the ppmv or ppmw determination and suggested that §115.542(a)(5) and (6) be changed to add “50% LEL” as a criteria for determining when vapors can be released to atmosphere instead of the 34,000 ppmv concentration limit.

**The commission agrees that a VOC concentration equivalent to 50% LEL will be lower than the 34,000 ppmv concentration criteria and so has made the requested change in §115.542(6). The commission has not made the suggested change in §115.542(a)(5) because this provision applies to sources in the BPA nonattainment area as well as to the HGB area until January 1, 2009. Because notice for the current rulemaking indicated that changes were being made only for the HGB area, changing the provision applicable to BPA is beyond the scope of the current rulemaking.**

Dow, TCC, and COMAQ suggested revising the periodic measurements required to confirm that the VOC concentration is less than 34,000 ppmv in §115.542(a)(6) and (b)(5). The commenters suggested that three consecutive readings, each taken at a 12-hour interval, with a VOC concentration less than 34,000 ppmv during ventilation is adequate to confirm that the VOC concentration is not varying significantly and that further checks every 12 hours are not warranted.

**The commission agrees that concentration measurements can be ceased at some point in the degassing and cleaning process but is concerned that if sludge remains in the tank after the initial degassing, VOC concentrations could decrease to less than 34,000 ppmv but later increase when the sludge is disturbed during the cleaning process. The commission has changed the rule to specify that concentration measurements can be discontinued after five consecutive readings less than 34,000 ppmv. With readings taken every 12 hours, the five readings would provide that the concentration would remain below 34,000 ppmv for at least 48 hours. VOC emissions associated with the removal of sludge from the tank may need to be recorded and reported under the maintenance rules in 30 TAC Chapter 101.**

The TCC suggested revising §115.541(a)(1) and §115.542(a)(5) to allow a delay in compliance until the next time the vessel is emptied but no later than January 1, 2017, if compliance would require the installation of degassing nozzles or connections. However, if appropriate degassing nozzles can be added by changing out a manway, the TCC suggested the commission should consider revising §115.542(a)(5) to allow a manway to be opened for the short period of time necessary to change-out the manway to one with the appropriate nozzles.

**The commission does not agree that a delay in compliance is necessary for tanks that must have degassing nozzles or connections installed. Hatches with nozzles installed can be obtained for newly-affected tanks. The commission has not revised §115.542(a)(5) to specifically allow the manway opening. Maintenance activities such as manway opening are subject to an affirmative defense as long as they comply with the general rules for maintenance in 30 TAC Chapter 101.**

The TCC suggested that §115.542(b)(5) be revised by adding the phrase “of the degassing operation.”

**The commission has made the suggested change.**

TTO expressed support for the 34,000 ppmv trigger for controlling vapors during tank degassing but requested clarification that sampling to obtain VOC concentration measurements during degassing does not require tank entry and VOC concentration measurements can be taken from a tank’s manway.

TxOGA suggested that the preamble language regarding the frequency and method for measurement of VOC concentrations in §115.545(11) be modified to read “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. However, these measurements are to be taken at locations that do not endanger the safety of sampling personnel.”

**The commission did not intend that VOC measurements be made inside the tank or other location that would endanger the safety of sampling personnel.**

COMAQ, Dow, GEM, TCC, TTO, and TxOGA suggested the agency allow acceptable alternate test methods for VOC concentration measurements specified in §115.545(11). The suggested methods include EPA Method 25A; EPA Method 18, adjusted to allow for one bag sample to be collected; bag sampling; portable hydrocarbon gas analyzer; PID; chemical specific detection tubes; and LEL meters. COMAQ commented that FIDs are not appropriate for testing VOC in nitrogen-rich, oxygen-poor atmospheres because the FID will “flame out.” Dow suggested that measurement of the total organic carbon (TOC) content of the condensate stream be allowed for vessels that are degassed and cleaned via

steam.

**The commission agrees that additional methods for measuring the VOC concentration would be acceptable and has revised the rule accordingly. The commission does not agree that chemical specific detection tubes are appropriate because they are usually compound specific and could result in false negatives. Also, the detection tubes might be difficult to operate in the tank degassing environment. The commission does not agree that measurement of the TOC content of the condensate stream would be an appropriate indication of the VOC concentration of the vapor space. Even if an accurate correlation between the TOC concentration of the condensate and the VOC in the vapor space could be determined, use of this method would require the TCEQ staff to review and approve the correlation before it could be used. Tank degassing events are episodic and of short duration; approval of a correlation might not be possible in time for it to be used.**

Dow and TCC suggested that the TCEQ clarify that the instrument response factor criteria in §8.1 of EPA Method 21 be for the average composition of the liquid in the tank, transport vessel, or marine vessel and not for each individual VOC in the liquid. Dow noted that this approach is consistent with EPA's HON regulation in 40 CFR §63.180(b)(2)(i).

**The commission agrees that use of the average composition of the tank contents to determine the instrument response factor is appropriate and has revised the rule accordingly.**

RSI suggested that the protocol for sampling and analyzing must be clearly defined so that enforcement does not have to merely assume that measurements are being done correctly.

**The commission has listed approved testing methods in §115.545(11) in order to ensure that measurements are being performed correctly.**

COMAQ suggested including an exemption from the emissions specifications and control requirements if the tank owner or operator can demonstrate compliance would be economically unreasonable by revising §115.547(2) to read “degassing and cleaning .. any stationary VOC storage tank with a nominal storage capacity of less than one 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. In addition, a tank is exempt from the requirements of this division if its owner or operator can demonstrate to the satisfaction of the executive director that compliance with the requirements of this division would be economically unreasonable.”

**The commission does not agree that an exemption should be allowed for individual tanks based on whether control is “economically unreasonable.” The rules in Chapter 115 must meet the standards that the EPA has set for reasonably available control technology (RACT). The EPA definition of RACT is “the lowest emission limitation that a particular source can meet by applying a control technique that is reasonably available considering technological and economic feasibility.”**

**The standard is economic feasibility, not economic reasonableness. With the revised applicability levels in the adopted rule based on tank size and vapor pressure of stored material, the commission maintains that control of degassing emissions from all affected tanks is economically reasonable as well as technically and economically feasible.**

RSI commented that calculating the destruction rate efficiency of abatement devices used to control emissions from the tank degassing process is not easily defined. Knowing the influent concentration in ppmv makes logical sense for determining when a tank degassing event is finished but in order to determine the allowable emissions it is necessary to also know the flow rate of the effluent in cubic feet per minute.

**The degassing rules do not require a calculation of allowable emissions from abatement devices. Thus, no changes have been made to the rule in response to this comment.**

RSI expressed concern that their ICE technology, with destruction efficiency greater than 99.9%, will be priced out of the market in Texas because these rules only require a destruction efficiency of 90%.

**The commission has made no change to the rules as a result of this comment. Even though the rule only specifies 90% destruction efficiency, other concerns may drive regulated entities to use more efficient control equipment. When degassing operations are carried out as part of maintenance activities, emissions must be minimized under the requirements of the general air quality rules in 30 TAC Chapter 101. Emissions from planned maintenance activities must be authorized under 30 TAC Chapters 106 or 116 according to the schedule in 30 TAC §101.222. Authorization will require use of BACT, which could require more stringent control than the minimum specified in 30 TAC §115.541.**

TxOGA expressed support for a portable equipment registration or certification program for vendors or contractors who provide degassing equipment that would certify that the vendor degassing equipment

meets TCEQ emission standards and ensure that contractor providing the portable equipment understands TCEQ rules and documentation requirements.

**Establishing a registration or certification program for degassing vendors or contractors is beyond the scope of the current rulemaking, but the commission may consider such a program in the future.**

HSC requested that the exemption for oceangoing, self-propelled marine vessels in §115.547(5) be removed so that these vessels must be degassed and cleaned when they have emptied their VOC cargo.

**The commission did not provide notice of any change to the referenced exemption for oceangoing, self-propelled marine vessels. Thus, proper notice to the owners and operators of such vessels has not been given and making the requested change is beyond the scope of the current rulemaking.**

**The commission may consider a change to this exemption in future rulemaking.**

**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 adopted 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 adopted 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 adopted 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 adopted 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) **Deck cover**--A device that covers an opening in a floating roof deck. Some deck covers move horizontally relative to the deck (i.e., a sliding cover).

(2) **Flexible enclosure system**--A system that includes all of the following: a flexible device that completely encloses the slotted guidepole and eliminates the hydrocarbon vapor emission pathway from inside the tank through the guidepole slots to the outside air; a guidepole cover at the top of the guidepole; and a well cover positioned at the top of the guidepole well that seals any openings between the well cover and the guidepole (e.g. pole wiper), any openings between the well cover and any other objects that pass through the well cover, and any other openings in the top of the guidepole well.

(3) ~~(1)~~ **Incompatible liquid**--A liquid that is a different chemical compound, a different chemical mixture, a different grade of liquid material, or a fuel with different regulatory specifications provided that the chemical compound, chemical mixture, grade of liquid material, or fuel would be unusable for its intended purpose due to contamination from the previously stored liquid.

(4) **Internal sleeve emission control system**--An emissions control system that includes all of the following: an internal guidepole sleeve that eliminates the hydrocarbon vapor emission pathway from inside the tank through the guidepole slots to the outside air; a guidepole cover at the top of the guidepole; and a well cover positioned at the top of the guidepole well that seals any openings between the well cover and the guidepole (e.g. pole wiper), any openings between the well cover and any other objects that pass through the well cover, and any other openings in the top of the guidepole well.

(5) **Pipeline breakout station**--A facility along a pipeline containing storage vessels used to relieve surges or receive and store crude oil or condensate from the pipeline for reinjection into the pipeline and continued transportation by pipeline or to other facilities.

(6) **Pole float**--A float located inside a guidepole that floats on the surface of the stored liquid. The rim of the float has a wiper or seal that extends to the inner surface of the pole.

(7) **Pole sleeve**--A device that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening. The sleeve extends into the stored liquid.

(8) **Pole wiper**--A seal that extends from either the cover or the rim of an opening in a floating roof deck to the outer surface of a pole that passes through the opening.

(9) **Slotted guidepole**--A guidepole or gaugepole that has slots or holes through the wall of the pole. The slots or holes allow the stored liquid to flow into the pole at liquid levels above the

lowest operating level.

(10) ~~(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.  
A collection of storage tanks at a pipeline breakout station, petroleum refinery, or petrochemical plant is not considered to be a tank battery.

#### §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>		
<b>REQUIRED CONTROL 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>
$< 1.5 \text{ psia}^*$ ( $10.3 \text{ kPa}^*$ )	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
$\geq 1.5 \text{ psia}$ ( $10.3 \text{ kPa}$ ) and $< 11 \text{ psia}$ ( $75.8 \text{ kPa}$ )	$> 40,000 \text{ gal}$ ( $151,416 \text{ L}$ )	Internal floating roof or External floating roof with primary seal (any type) and secondary seal or vapor recovery system
$\geq 11 \text{ psia}$ ( $75.8 \text{ kPa}$ )	$\leq 1,000 \text{ gal}$ ( $3,785 \text{ L}$ )	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
	$> 25,000 \text{ gal}$ ( $94,635 \text{ L}$ )	Submerged fill pipe and vapor recovery system
$*\text{psia}=\text{pounds per square inch absolute, } *kPa=\text{kilo Pascals, } *gal=\text{gallon, } *L=\text{Liter}$		

<b>Table II(a)</b>
<b>REQUIRED CONTROL DEVICES FOR STORAGE TANKS FOR CRUDE OIL AND CONDENSATE</b>

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
≥ 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)	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</b>

VOC OTHER THAN 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)	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)	Internal or external floating roof (any type) 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
*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 beginning January 1, 2009.

(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 floating cover or external floating roof as defined in §115.10 of this title (relating to Definitions) except for automatic bleeder vents (vacuum breaker vents), and rim space vents, and roof drains must provide a projection below the liquid surface. All openings in an internal floating cover or external floating roof except for automatic bleeder vents (vacuum breaker vents), rim space vents, leg sleeves, and roof drains must be equipped with a deck cover. The deck cover must be equipped with a gasket in good operating condition between the cover and the deck. The deck cover must be closed (i.e. no gap of more than 1/8 inch) at all times, except when the cover must be open for access 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) and rim space vents must be equipped with a gasketed lid, pallet, flapper, or other closure device and must be working gasket and closed (i.e. no gap of more than 1/8 inch) at all times except when required to be open to relieve excess pressure or vacuum, in accordance with the manufacturer's design the roof is being floated off or landed on the roof leg supports.

(C) Each opening into the internal floating cover for a fixed roof support column may be equipped with a flexible fabric sleeve seal instead of a deck cover. ~~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 of more than 1/8 inch) 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 with the exception of gaps that do not exceed the following specification). 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 opening for a slotted guidepole in an external floating roof tank well must be equipped with one of the control device configurations specified in clauses (i) - (vi) of this subparagraph. ~~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.

(i) A pole wiper and a pole float. The wiper or seal of the pole float must be at or above the height of the pole wiper.

(ii) A pole wiper and a pole sleeve.

(iii) An internal sleeve emission control system.

(iv) Retrofit to a solid guidepole system.

(v) A flexible enclosure system.

(vi) A cover on an external floating roof tank.

(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 or other support devices (e.g., hangers from the fixed roof) during the initial fill (including refill after the tank has been degassed and cleaned in accordance with §§115.541 – 115.547 of this title (relating to Degassing or Cleaning of Stationary, Marine, and Transport Vessels) 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 an

incompatible 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 storage 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 floating roof is landed until the floating roof is within ten percent by volume of being 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 limit or cap approved under Chapter 116 of this title (relating to Control of Air Pollution by Permits for New Construction or Modification); or and the cap value is not increased to account for emissions from landings that would otherwise be prohibited.

(vi) when all emissions from floating roof landings at the regulated entity as defined in §101.1 of this title (relating to Definitions) are less than 25 tons per year.

(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) Storage tanks Tanks storing condensate prior to custody transfer must route flashed gases to a vapor recovery system or control device if the liquid throughput through an individual tank or

the aggregate of tanks in a tank battery exceeds 1,500 barrels (63,000 gallons) per year.

(5) Storage tanks storing crude oil or condensate prior to custody transfer or at a pipeline breakout station must route flashed gases to a vapor recovery system or control device if the uncontrolled VOC emissions from an individual storage 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; however, if emissions determined using direct measurements or other methods approved by the executive director under subparagraphs (A) or (D) of this paragraph are higher than emissions estimated using the default factors or charts in subparagraphs (B) or (C) of this paragraph, the higher values must be used:

(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 (42 gallons) of condensate produced or 1.6 pounds of VOC per barrel (42 gallons) 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~~

~~(D)~~ ~~(E)~~ other test method or computer simulation 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)(5)(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. For crude oil and natural gas production sites, the flow measurements must be made while the producing wells are operational; and

(2) test methods referenced in subsection (a)(2), (4), and (5) of this section or Gas Processors Association Method 2286, Tentative Method of Extended Analysis for Natural Gas and Similar Mixtures by Temperature Programmed Gas Chromatography, Gas Processors Association Method 2286, Tentative Method of Extended Analysis for Natural Gas and Similar Mixtures by Temperature Programmed Gas Chromatography, to measure the concentration of VOC in 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 emissions inventory 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):  $As$  (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) **Emissions Inventory** Reportable emissions:  $T_r$  (pounds) =  $(T_s - T_{ss}) \times RR_s \times RRI \times 90$  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, the 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 area areas, the following recordkeeping requirements apply in addition to those specified in subsection (a) of this section.

(1) The owner or operator of any stationary tank, reservoir, or container ~~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 starting and ending dates when ~~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 storage tanks with nominal storage capacity of 25,000 gallons or less storing volatile organic liquids other than crude oil or condensate, or to storage tanks with nominal storage capacity of 40,000 gallons or less storing crude oil or condensate.

(2) The owner or operator of any storage tank ~~vessel~~ that stores crude oil or condensate prior to custody transfer or at a pipeline breakout station and is not equipped with vapor recovery shall maintain records of the estimated annual emissions from the storage 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, ~~the~~ 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.

(9) Condensate storage tanks or tank batteries with a throughput exceeding 1,500 barrels (63,000 gallons) per year are exempt from the requirement in §115.112(d)(4) of this title to route flashed gases to a vapor recovery system or control device if the owner or operator demonstrates using test methods specified in §115.115(c) of this title, that uncontrolled VOC emissions from the individual tank, or from the aggregate of storage tanks in a tank battery, are less than 25 tons per year on a rolling 12-month basis.

(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 stationary tank, reservoir, or container storage vessel, compliance is not required until the next time the stationary tank, reservoir, or container vessel is emptied or degassed but no later than January 1, 2017. The owner or operator of each stationary tank, reservoir, or container 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, regardless if compliance with these requirements would require emptying and degassing of the stationary tank, reservoir, or container.

**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 adopted 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 adopted 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 adopted 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 adopted 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 250,000 40,000 gallons or greater more or with a nominal storage capacity of 75,000 gallons or greater storing materials with a true vapor pressure greater than 2.6 pounds per square inch absolute (psia).

(A) No person shall permit VOC emissions with a vapor space partial pressure greater than or equal to 0.5 psia 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 **VOC** ~~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 **VOC** ~~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 tank or transport 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 the ~~dilution or~~ inlet to the control device is less than 34,000 ppmv as methane or less than 50% of the lower explosive limit (LEL). After this condition has been satisfied, the storage tank 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 or less than 50% of the LEL. The VOC concentration must be measured once every 12 hours if the storage tank or transport vessel is vented ~~ventilated~~ continuously to

the atmosphere, and upon restart ~~startup~~ of the degassing and cleaning operation if venting to the atmosphere ~~ventilation~~ has been suspended for more than four hours. If any measurements of the VOC concentration equal or exceed ~~exceeds~~ 34,000 ppmv as methane or are equal to or greater than 50% of the LEL, the storage tank or transport vessel must be routed to the control device until the concentration is below 34,000 ppmv as methane or less than 50% of the LEL. While venting to the atmosphere, measurements must continue until five consecutive readings of VOC concentrations collected at 12 hour intervals are measured to be less than 34,000 ppmv or less than 50% of the LEL.

(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 VOC 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 VOC 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 VOC 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 LEL 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 VOC measured concentration before the dilution or inlet to the control device is less than 34,000 ppmv as methane or less than 50% of the LEL. 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 or less than 50% of the LEL. The VOC concentration must be measured once every 12 hours if the marine vessel is vented ventilated continuously to the atmosphere, and upon restart startup of the degassing and cleaning operation if venting to the atmosphere ventilation has been suspended for more than four hours. If any measurements of the VOC concentration equal or exceed exceeds 34,000 ppmv as methane or are equal to or greater than 50% of the LEL, the marine vessel must be routed to the control device until the concentration is below 34,000 ppmv as methane or less than 50% of the LEL. While venting to the atmosphere, measurements must continue until five consecutive readings of VOC concentrations collected at 12-hour intervals are measured to be less than 34,000 ppmv or less than 50% of the LEL.

**§115.543. Alternate Control Requirements.**

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)**, 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 **as defined in §115.10 of this title (relating to Definitions)**, 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 **as defined in §115.10 of this title (relating to Definitions)**, 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 (relating to Control Requirements) must be performed using one of the methods or measurement instruments listed in subparagraphs (A) – (F) of this paragraph. ~~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).~~

(A) Test Method 21 (40 CFR Part 60, Appendix A). The instrument response factor criteria in §8.1 of the United States Environmental Protection Agency Method 21 may be

determined using the average composition of the liquid in the tank rather than for each individual liquid.

(B) Test Method 18 (40 CFR Part 60, Appendix A) except that only one bag sample needs to be collected for each concentration measurement.

(C) Bag samples, provided the means of collecting the sample and the type of bag used are appropriate and representative of the type of space being sampled and the analytical method used to evaluate bag contents are appropriate for the concentration levels and compound types.

(D) Test Method 25A (40 CFR Part 60, Appendix A).

(E) Portable hydrocarbon gas analyzer using an appropriate detector that is effective in the concentration range being measured and calibrated with compounds of interest in each case. Analyzers must be calibrated and maintained according to manufacturer's specifications.

(F) Lower explosive limit detector. The detector must be calibrated and maintained according to manufacturer's specifications.

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

For facilities 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) 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, the United States Environmental Protection Agency [EPA], or any local air pollution control agency having jurisdiction in the area:

(1) for storage tank, transport vessel, or marine 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 storage tank, transport vessel, or marine vessel; and

(D) after January 1, 2009, in the Houston/Galveston/Brazoria area, a record of the measurements of VOC concentration or percent of lower explosive limit from the storage tank vessel, transport vessel, or marine vessel being degassed while the tank or 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); and

(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 storage tank, transport vessel, or marine vessel with a

vapor space partial pressure less than 0.5 pounds per square inch absolute (psia) (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 and vapor pressure of stored liquid as listed in subparagraphs (A) and (B) of this paragraph greater than or equal to 40,000 gallons but less than 1 million gallons are no longer exempt from the requirements of this division.

(A) Storage tanks with nominal storage capacity greater than or equal to 250,000 gallons but less than 1 million gallons.

(B) Storage tanks with nominal storage capacity greater than or equal to 75,000 gallons but less than 250,000 gallons storing materials with true vapor pressure greater than 2.6 psia.

(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.