The Texas Commission on Environmental Quality (TCEQ or commission) adopts amendments to §115.10 in Subchapter A, Definitions; §§115.120 - 115.123, 115.126, 115.127, 115.129, 115.142 - 115.144, 115.147, 115.149, 115.160, 115.161, 115.166, and 115.167 in Subchapter B, General Volatile Organic Compound Sources; §§115.211, 115.215, 115.219, 115.229, and 115.239 in Subchapter C, Volatile Organic Compound Transfer Operations; §§115.312, 115.326, 115.352, 115.354, 115.356, 115.357, and 115.359 in Subchapter D, Petroleum Refining, Natural Gas Processing, and Petrochemical Processes; and §§115.420, 115.421, 115.427, and 115.429 in Subchapter E, Solvent-Using Processes. The commission also adopts new §§115.720, 115.722, 115.725 - 115.727, 115.729, 115.760, 115.761, 115.764, 115.766 - 115.769, 115.780 - 115.783, and 115.785 - 115.789 in new Subchapter H, Highly-Reactive Volatile Organic Compounds. These new and amended sections and corresponding revisions to the state implementation plan (SIP) will be submitted to the United States Environmental Protection Agency (EPA).

Sections 115.10, 115.123, 115.126, 115.127, 115.142, 115.144, 115.147, 115.149, 115.160, 115.166, 115.215, 115.326, 115.352, 115.354, 115.356, 115.357, 115.359, 115.420, 115.421, 115.720, 115.722, 115.725 - 115.727, 115.729, 115.760, 115.761, 115.764, 115.766 - 115.769, 115.780 - 115.783, and 115.785 - 115.789 are adopted *with changes* to the proposed text as published in the June 21, 2002 issue of the *Texas Register* (27 TexReg 5394). Sections 115.120 - 115.122, 115.129, 115.143, 115.161, 115.167, 115.211, 115.219, 115.229, 115.239, 115.312, 115.427, and 115.429 are adopted *without changes* and will not be republished. Sections 115.170, 115.171, 115.173 - 115.176, 115.179, 117.180, 115.182 - 115.184, 115.186, 115.189, 115.723, 115.740 - 115.747, 115.749, 115.762, 115.763, 115.765, and 115.784 are being withdrawn. Section 115.741 was published in the July 12, 2002, issue of the *Texas Register* (27 TexReg 6208).

The adopted amendments to Chapter 115, concerning Control of Air Pollution from Volatile Organic Compounds, and revisions to the SIP improve implementation of the existing Chapter 115 by adding requirements to achieve reductions in emissions of highly-reactive volatile organic compounds (HRVOC) in the Houston/Galveston (HGA) ozone nonattainment area, correcting typographical errors, updating cross-references, clarifying ambiguous language, adding flexibility, deleting obsolete language, and amending requirements to achieve the intended volatile organic compound (VOC) emission reductions of the program.

The commission adopts these amendments to Chapter 115 and revisions to the SIP as essential components of, and consistent with, the SIP that Texas is required to develop under the Federal Clean Air Act (FCAA) Amendments of 1990 as codified in 42 United States Code (USC), §7410, to demonstrate attainment of the national ambient air quality standard (NAAQS) for ozone. In addition, 42 USC, §7502(a)(2), requires attainment as expeditiously as practicable, and 42 USC, §7511a(d), requires states to submit ozone attainment demonstration SIPs for severe ozone nonattainment areas such as HGA.

BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED RULES

The HGA ozone nonattainment area is classified as Severe-17 under the 1990 Amendments to the FCAA as codified in 42 USC, §§7401 *et seq.*, and therefore is required to attain the one-hour ozone standard of 0.12 part per million (ppm) by November 15, 2007. In addition, 42 USC, §7502(a)(2), requires attainment as expeditiously as practicable, and 42 USC, §7511a(d), requires states to submit ozone attainment demonstration SIPs for severe ozone nonattainment areas such as HGA. The HGA area, defined as Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties, has been working to develop a demonstration of attainment in accordance with 42 USC, §7410. On January 4, 1995, the state submitted the first of several post-1996 SIP revisions for HGA.

The January 1995 SIP consisted of urban airshed model (UAM) modeling for 1988 and 1990 base case episodes, adopted rules to achieve a 9% rate-of-progress (ROP) reduction in VOCs, and a commitment schedule for the remaining ROP and attainment demonstration elements. At the same time, but in a separate action, the State of Texas filed for the temporary nitrogen oxides (NO_x) waiver allowed by 42 USC, §7511a(f). The January 1995 SIP and the NO_x waiver were based on early base case episodes which marginally exhibited model performance in accordance with EPA modeling performance standards, but which had a limited data set as inputs to the model. In 1993 and 1994, the commission was engaged in an intensive data-gathering exercise known as the Coastal Oxidant Assessment for Southeast Texas (COAST) study. The commission believed that the enhanced emissions inventory, expanded ambient air quality and meteorological monitoring, and other elements would provide a more robust data set for modeling and other analysis, which would lead to modeling results that the commission could use to better understand the nature of the ozone air quality problem in the HGA area.

Around the same time as the 1995 submittal, EPA policy regarding SIP elements and timelines went through changes. Two national initiatives in particular resulted in changing deadlines and requirements. The first of these initiatives was a program conducted by the Ozone Transport Assessment Group (OTAG). This group grew out of a March 2, 1995 memo from Mary Nichols, former EPA Assistant Administrator for Air and Radiation, that allowed states to postpone completion of their attainment demonstrations until an assessment of the role of transported ozone and precursors had been completed for the eastern half of the nation, including the eastern portion of Texas. Texas participated in the OTAG program, and OTAG concluded that Texas does not significantly contribute to ozone exceedances in the Northeastern United States. The other major national initiative that impacted the SIP planning process is the revision to the ozone NAAQS. The EPA promulgated a final rule on July 18, 1997 changing the ozone standard to an eight-hour standard of 0.08 ppm. In November 1996, concurrent with the proposal of the standards, the EPA proposed an interim implementation plan (IIP) it believed would help areas like HGA transition from the old to the new standard. In an attempt to avoid a significant delay in planning activities, Texas began to follow this guidance, and readjusted its modeling and SIP development time lines accordingly. When the new standard was published, the EPA decided not to publish the IIP, and instead stated that, for areas currently exceeding the one-hour ozone standard, the one-hour standard would continue to apply until it is attained. The FCAA requires that HGA attain the one-hour standard by November 15, 2007.

The EPA issued revised draft guidance for areas such as HGA that do not attain the one-hour ozone standard. The commission adopted on May 6, 1998 and submitted to the EPA on May 19, 1998 a revision to the HGA SIP which contained the following elements in response to EPA's guidance: UAM modeling based on emissions projected from a 1993 baseline out to the 2007 attainment date; an estimate of the level of VOC and NO_x reductions necessary to achieve the one-hour ozone standard by 2007; a list of control strategies that the state could implement to attain the one-hour ozone standard; a schedule for completing the other required elements of the attainment demonstration; a revision to the Post-1996 9% ROP SIP that remedied a deficiency that the EPA believed made the previous version of that SIP unapprovable; and evidence that all measures and regulations required by Subpart 2 of Title I of the FCAA to control ozone and its precursors have been adopted and implemented, or are on an expeditious schedule to be adopted and implemented.

In November 1998, the SIP revision submitted to the EPA in May 1998 became complete by operation of law. However, the EPA stated that it could not approve the SIP until specific control strategies were modeled in the attainment demonstration. The EPA specified a submittal date of November 15, 1999 for this modeling. In a letter to the EPA dated January 5, 1999, the state committed to model two strategies showing attainment.

As the HGA modeling protocol evolved, the commission eventually selected and modeled seven basic modeling scenarios. As part of this process, a group of HGA stakeholders worked closely with commission staff to identify local control strategies for the modeling. Some of the scenarios for which the stakeholders requested evaluation included options such as California-type fuel and vehicle programs as well as an acceleration simulation mode equivalent motor vehicle inspection and maintenance program. Other scenarios incorporated the estimated reductions in emissions that were expected to be achieved throughout the modeling domain as a result of the implementation of several voluntary and mandatory state-wide programs adopted or planned independently of the SIP. It should be made clear that the commission did not propose that any of these strategies be included in the ultimate control strategy submitted to the EPA in 2000. The need for, and effectiveness of, any controls which may be implemented outside the HGA eight-county area will be evaluated on a county-by-county basis.

The SIP revision was adopted by the commission on October 27, 1999, submitted to the EPA by November 15, 1999, and contained the following elements: photochemical modeling of potential specific control strategies for attainment of the one-hour ozone standard in the HGA area by the attainment date of November 15, 2007; an analysis of seven specific modeling scenarios reflecting various combinations of federal, state, and local controls in HGA (additional scenarios H1 and H2 build upon Scenario VIf); identification of the level of reductions of VOC and NO_x necessary to attain the one-hour ozone standard by 2007; a 2007 mobile source budget for transportation conformity; identification of specific source categories which, if controlled, could result in sufficient VOC and/or NO_x reductions to attain the standard; a schedule committing to submit by April 2000 an enforceable commitment to conduct a mid-course review (MCR); and a schedule committing to submit modeling and adopted rules in support of the attainment demonstration by December 2000.

The April 19, 2000 SIP revision for HGA contained the following enforceable commitments by the state: to quantify the shortfall of NO_x reductions needed for attainment; to list and quantify potential control measures to meet the shortfall of NO_x reductions needed for attainment; to adopt the majority of the necessary rules for the HGA attainment demonstration by December 31, 2000, and to adopt the rest of the shortfall rules as expeditiously as practical, but no later than July 31, 2001; to submit a Post-1999 ROP plan by December 31, 2000; and to perform an MCR by May 1, 2004.

The emission reduction requirements included as part of the December 2000 SIP revision represented substantial, intensive efforts on the part of stakeholder coalitions in the HGA area. These coalitions, involving local governmental entities, elected officials, environmental groups, industry, consultants, and the public, as well as the commission and the EPA, worked diligently to identify and quantify potential control strategy measures for the HGA attainment demonstration. Local officials from the HGA area formally submitted a resolution to the commission, requesting the inclusion of many specific emission reduction strategies.

A SIP revision for HGA was adopted by the commission on December 6, 2000 and submitted to the EPA by December 31, 2000. The December 2000 SIP contained rules, enforceable commitments, and photochemical modeling analyses in support of the HGA ozone attainment demonstration. In addition, this SIP contained post-1999 ROP plans for the milestone years 2002 and 2005, and for the attainment year 2007. The SIP also contained enforceable commitments to implement further measures, if needed, in support of the HGA attainment demonstration, as well as a commitment to perform and submit an MCR.

In January 2001, the BCCA-Appeal Group (BCCA-AG) and several regulated companies challenged the December 2000 HGA SIP and some of the associated rules. Specifically, the BCCA-AG challenged the 90% NO_x reduction requirement from stationary sources in the HGA area. In May 2001, the parties agreed to a stay in the case, and Judge Margaret Cooper, Travis County District Court, signed a Consent Order, effective June 8, 2001, requiring the commission to perform an independent, thorough analysis of the causes of rapid ozone formation events and identify potential mitigating measures not yet identified in the HGA attainment demonstration, according to the milestones and procedures in Exhibit C (Scientific Evaluation) of the Consent Order.

On September 26, 2001, the commission adopted a revision to the December 2000 HGA SIP. This revision included changes to several previously adopted rules, removal of the construction equipment operating restriction and the accelerated purchase requirement for Tier 2/3 heavy duty equipment, and adjustments to the ROP and NO_x gap to account for mathematical inconsistencies. The September 2001 SIP also laid out the MCR process by detailing how the state will fulfill its commitment to obtain the additional emission reductions necessary to demonstrate attainment of the one-hour ozone standard in HGA by 2007. Chapter 7 of the September 2001 SIP described the options for reducing NO_x emissions and the anticipated results from improvements to science between 2001 and the 2004 MCR.

In compliance with the Consent Order, the commission conducted a scientific evaluation based in large part on aircraft data collected by the Texas 2000 Air Quality Study (TexAQS). The TexAQS, a comprehensive research project conducted in August and September 2000 involving more than 40 research organizations and over 200 scientists, studied ground-level ozone air pollution in the HGA and central and east Texas regions. The study revealed that while NO_x emissions from industrial sources were generally correctly accounted for, industrial VOC emissions were likely significantly understated in earlier emissions inventories. The study also showed that surface monitors were insufficient in capturing the phenomenon of ozone plumes downwind of industrial facilities. On four separate days, ozone levels exceeding 125 parts per billion (ppb) were recorded by aircraft instruments that were missed by surface monitoring equipment. The findings from the study are constantly evolving and have raised questions about the formation of high ozone in the HGA. To address these findings and to fulfill obligations resulting from the lawsuit settlement negotiations with the BCCA-AG, commission staff has focused on substituting industrial VOC controls for some of the last 10% of reductions required by industrial NO_x emission limit rules and determining which VOCs should be controlled if industrial VOC controls are found to be effective.

Results of photochemical grid modeling and analysis of ambient VOC data indicate that it is possible to achieve the same level of air quality benefits with reductions in industrial VOC emissions, combined with an overall 80% reduction in NO_x emissions from industrial sources, as would be realized with a 90% reduction in industrial NO_x emissions. This conclusion is based on results from several studies, including photochemical grid modeling of the August - September 2000 episode using a top-down emissions inventory adjustment to point source HRVOC emissions, and analyses of ambient HRVOC measurements made by commission automated gas chromatographs and airborne canisters using the maximum incremental reactivity and hydroxyl reactivity scales. Four HRVOCs clearly play important roles in the HGA's ozone formation, and these four (ethylene, propylene, 1,3-butadiene, and butenes) seem to be the best candidates for the first round of HRVOC controls.

In order to address these recent scientific findings, the commission is adopting revisions to the industrial source control requirements, one of the control strategies within the existing federally approved SIP. This revision contains new rules to reduce emissions of HRVOCs from four key industrial sources: fugitives, flares, process vents, and cooling towers. The adopted rules target HRVOCs while maintaining the integrity of the SIP. Analysis to date shows that limiting emissions of ethylene, propylene, 1,3-butadiene, and butenes in conjunction with an 80% reduction in NO_x is equivalent in terms of air quality benefit to that resulting from a 90% point source NO_x reduction requirement. As such, the HRVOC rules are performance-based, emphasizing monitoring, recordkeeping, reporting, and enforcement rather than establishing individual unit emission rates. More details about these controls are included in the SECTION BY SECTION DISCUSSION of this preamble.

Technical support documentation accompanying this revision contains the supporting analysis for early results from ongoing analysis examining whether reductions in emissions of HRVOCs can replace the last 10% of industrial NO_x controls with a reduction of approximately 36% in industrial HRVOC emissions, while ensuring that the air quality specified in the approved December 2000 HGA SIP continues to be met.

In order to demonstrate an equivalent air quality benefit and support a revision to the NO_x strategy, the commission has been conservative in estimating VOC emissions from industrial sources and establishing the site-wide cap allocation. This methodology is conservative in that, additional adjustments may be made to the inventory as the commission learns more about the relative ambient concentrations of other VOCs, thereby reducing the burden on HRVOCs necessary for attainment purposes. Similarly, the aircraft data did not account for some of the ethylene emissions, and therefore the 1:1 NO_x to VOC ratio adjustments made to the inventory are also conservative. These types of changes may be made in the future as more analysis is completed. In terms of the equivalency determination, there are conservative assumptions applied that may change with more data assessment as part of the MCR. As a full analysis of what is ultimately necessary to fully demonstrate attainment is conducted at the MCR, the commission will be evaluating a number of issues that may change the HRVOC rules, such as: which, if any, additional chemicals need to be addressed, and the sources of these chemicals; what is the appropriate geographic scope for the regulations; what are appropriate averaging times for the chemicals of concern; and what, if any, changes need to be made to the allocation process. By establishing a compliance date approximately 18 months after the conclusion of the MCR process, the commission believes it will have ample time to make necessary adjustments and still allow industry adequate time to fully comply.

SECTION BY SECTION DISCUSSION

Formatting, punctuation, and other non-substantive corrections are made throughout the rulemaking as necessary. These corrections include the deletion of unnecessary section title references. These non-substantive corrections will not be discussed further.

Subchapter A, Definitions

The amendments to §115.10, concerning Definitions, add a definition of background which is based upon the requirements of Test Method 21 in 40 Code of Federal Regulations (CFR) 60, Appendix A. This term is used in the current Subchapter D, Division 2, Fugitive Emission Control in Petroleum Refineries in Gregg, Nueces, and Victoria Counties, and Division 3, Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas, as well as the new Subchapter H, Division 3, Fugitive Emissions. Subsequent definitions are to be renumbered to accommodate the new definition.

The amendments to §115.10 also add a definition of closed-vent system which is based upon the corresponding definition in 40 CFR §60.481. The new definition is necessary because this term is used in the new Subchapter H, Division 3.

In addition, the amendments to §115.10 add a definition of connector which includes flanged, screwed, or other joined fittings used to connect two pipe lines or a pipe line and a piece of equipment. Joined fittings welded completely around the circumference of the interface are not included, however, because they would not be expected to leak if the fitting is competently welded. In a related action, the amendments to §115.10 also revise the definition of component to include connectors. However, these amendments do not expand the scope of the existing leak detection and repair (LDAR) requirements because connectors already meet the current definition of component, which is "a piece of equipment, including, but not limited to pumps, valves, compressors, and pressure relief valves, which has the potential to leak VOC." While connectors are not explicitly listed in the current definition of component, they are pieces of equipment that have the potential to leak VOC. Furthermore, the list of components in this definition is not an all-inclusive list, as evidenced by the statement "including, but not limited to."

In addition, the amendments to §115.10 add a definition of HRVOC. In Harris County, this definition includes 1,3-butadiene; all isomers of butene (i.e., alpha-butylene (ethylethylene) and beta-butylene (dimethylethylene, including both cis- and trans- isomers)); ethylene; and propylene. In Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, and Waller Counties, this definition includes ethylene and propylene. This new definition is necessary for the new Subchapter H which applies to HRVOC.

The amendments to §115.10 also add definitions of heavy liquid and light liquid which are consistent with the usage of these terms in the current fugitive monitoring rules of Subchapter D, Petroleum

Refining, Natural Gas Processing, and Petrochemical Processes, Division 2 (concerning Fugitive Emission Control in Petroleum Refineries in Gregg, Nueces, and Victoria Counties) and Division 3 (concerning Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas). In addition, the amendments to §115.10 relocate the definition of liquefied petroleum gas so that it will be in alphabetical order.

The amendments to §115.10 also add a definition of low-density polyethylene, based upon the definition in 40 CFR 60, Subpart DDD, to clarify §115.722. In addition, the amendments to §115.10 add a definition of "metal-to-metal seal." This is a type of connector which commission staff has determined is as effective as a flanged connection. The new definition is necessary for the amendments to §115.352(8), concerning Control Requirements, described later in this preamble.

The amendments to §115.10 further add a definition of process unit to clarify the use of this term in multiple rules. This definition is consistent with EPA guidance.

The amendments to §115.10 also add definitions of: pressure relief valve; process drain; rupture disk; shutdown or turnaround; and startup. The definitions are consistent with the usage and intent of these terms in the current fugitive monitoring rules of Subchapter D, Divisions 2 and 3.

Finally, the amendments to §115.10 revise the definition of synthetic organic chemical manufacturing process to update the reference to the list of chemicals in 40 CFR §60.489. This revision is necessary to reflect the revisions published in the October 17, 2000 issue of the *Federal Register* (65 FR 61763). No changes in the Chapter 115 rule requirements will occur as a result of updating the reference to the chemical list, because the changes that the EPA made to this list were non-substantive corrections of typographical errors, as follows: the chemical name chlorbenzoyl chloride was corrected to chlorobenzoyl chloride; the chemical name chloronapthalene was corrected to chloronaphthalene; the Chemical Abstracts Service (CAS) number for diethylene glycol monobutyl ether acetate was corrected to 124-17-4; the chemical name ethylne carbonate was corrected to ethylene carbonate; the chemical name ethylene glycol monoethy ether was corrected to ethylene glycol monoethyl ether; the chemical name propional dehyde was corrected to propionaldehyde; and the chemical name tetrahydronapthalene was corrected to tetrahydronaphthalene.

Subchapter B, General Volatile Organic Compound Sources
Division 2, Vent Gas Control
The amendment to §115.120, concerning Vent Gas Definitions, deletes unnecessary section title references.

The amendment to §115.121, concerning Emission Specifications, adds a new §115.121(a)(4) which specifies that any vent gas stream in HGA which includes an HRVOC is subject to the requirements of the new Subchapter H, concerning Highly-Reactive Volatile Organic Compounds, in addition to the applicable requirements of Division 2 of Subchapter B. This new paragraph is necessary to make it clear that the requirements of the new Subchapter H apply in addition to, rather than in place of, the requirements of Division 2.

The amendment to §115.122, concerning Control Requirements, deletes language in §115.122(a)(3)(A) and (B) which is obsolete due to the passing of December 31, 2000 and December 31, 2001 compliance dates.

The amendments to §115.123, concerning Alternate Control Requirements, replace a reference to "the effective date of the applicable paragraphs of this division" in §115.123(a)(2) with the actual date (December 3, 1993), and add the *Federal Register* publication date of federal regulations. The amendments to §115.123(a)(2) also specify that the alternate reasonably available control technology (ARACT) determination is for synthetic organic chemical manufacturing industry (SOCMI) reactor processes or distillation operations. In addition, the amendments to §115.123(a)(2) replace references to "the applicable rule(s)" with references to the specific rule (§115.122(a)(2)).

The amendment to §115.126, concerning Monitoring and Recordkeeping Requirements, revises the record retention time from two years to five years for consistency. The sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records. The amendments specify that the five-year record retention requirement does not apply to records generated before December 31, 2000.

The amendments to §115.127, concerning Exemptions, delete the current §115.127(a)(2)(C) because it is obsolete due to the passing of an April 15, 2001 compliance date, and reletter the current §115.127(a)(2)(D) and (E) as §115.127(a)(2)(C) and (D). In addition, the amendments to §115.127 update references to federal rules in §115.127(a)(4)(D) and (E).

The amendments to §115.129, concerning Counties and Compliance Schedules, delete the current §115.129(b), (c), (f), and (g) because these subsections are obsolete due to the passing of December 31, 2000 and December 31, 2001 compliance dates, and reletter the current §115.129(d) and (e) as §115.129(b) and (c).

Subchapter B, General Volatile Organic Compound Sources
Division 4, Industrial Wastewater
The amendments to §115.142, concerning Control Requirements, revise §115.142(1)(A) to prohibit the use of VOC, rather than water, as the sealing liquid in water seals. This is necessary to address a situation in which VOC was used in a water seal, thereby resulting in unnecessary emissions. However, ethylene glycol, propylene glycol, or other low vapor pressure antifreeze may be used during the period of November through February for freeze protection. The amendments to §115.142(1)(A) also specify that a gasketed seal, or a tightly-fitting cap or plug is required on process drains not equipped with water seals. This is necessary because if not properly sealed, process drains can have a relatively high flow rate in air volume coming out of them, resulting in uncontrolled VOC emissions. In addition, the amendments to §115.142 revise §115.142(1)(D)(ii)(II)(-b-) by deleting the requirement for a demonstration that water seal controls are functioning properly, and relocating it to §115.144, concerning Inspection and Monitoring Requirements, where it is more appropriately located.

The amendments to §115.142 also revise §115.142(1)(H) by adding a more explicit repair schedule for components found to be leaking and a requirement for verifying that adequate repairs have been made.

This is necessary because fugitive emissions from inadequate repairs could continue for an extended period.

Finally, the amendments to §115.142 revise §115.142(4) by replacing the outdated term "standard exemption" with the correct term "permit by rule" and correcting the reference to the 30 TAC Chapter 106 title to "Permits by Rule."

The amendment to §115.143, concerning Alternate Control Requirements, updates a reference to a federal rule in §115.143(c).

The amendments to §115.144 add a new §115.144(5) which includes the relocated language from §115.142(1)(D)(ii)(II)(-b-), as well as a new requirement that water seals be inspected on a daily basis to ensure that the water seal controls are properly designed and restrict ventilation. This new requirement is necessary for the following reasons. Commission staff has found that many process drains are configured with u-shaped P-traps that use a water seal as control technology. Many process drains receive high-temperature material or steam condensate, and any water in the drain seals is quickly evaporated. These drains then have a relatively high flow rate in air volume coming out of them, resulting in uncontrolled VOC emissions. If found leaking during an annual monitoring check, commission staff has found that an owner or operator can simply pour water in the drain and ignore it for another year. In April 2000, commission staff monitored the process drains in an ethylene unit and found readings as high as 2,000 parts per million by volume (ppmv) on process drains that were all equipped with water seal technology but no water seal. In many cases, emissions are recurring within hours of filling the drains. Consequently, some of these drains leak most of the year, and therefore the commission is adopting this more frequent inspection schedule.

The amendments to §115.144 add a new §115.144(6) which specifies that process drains not equipped with water seal controls must be inspected weekly to ensure that all gaskets, caps, and/or plugs are in place and that there are no gaps, cracks, or other holes in the gaskets, caps, and/or plugs. However, daily inspections are required for those seals that have failed three or more inspections in any 12-month period. These inspections are necessary because if not properly sealed, process drains can have a relatively high flow rate in air volume coming out of them, resulting in uncontrolled VOC emissions. In addition, §115.144(6) specifies that caps or plugs must be inspected monthly. This is necessary because in some cases the caps or plugs are only finger-tight, thereby resulting in leaks. While the caps or plugs could vibrate loose, a monthly inspection schedule is expected to be adequate because this will occur more slowly than the drying out of water seals.

The amendment to §115.147, concerning Exemptions, revises §115.147(3) to specify that the requirements of Subchapter D, Division 3, and Subchapter H apply in addition to the requirements of Subchapter B, Division 4. This revision is necessary to ensure that components of a wastewater system which are intended to be subject to Subchapter D, Division 3, and Subchapter H are not inadvertently exempted by §115.147(3).

The amendments to §115.149, concerning Counties and Compliance Schedules, add a new §115.149(e) which specifies a December 31, 2003 compliance date for the new requirement in §115.142(1)(A) for gasketed seals or a tightly-fitting cap or plug on process drains not equipped with water seal controls.

The amendments to §115.149 also add a new §115.149(f) which specifies a December 31, 2003 compliance date for the new requirements in §115.142(1)(H) for a first attempt at repair within five calendar days and followup monitoring and inspection.

In addition, the amendments to §115.149 add a new §115.149(g) which specifies a December 31, 2003 compliance date for the new requirements in §115.144(4) and (5) for weekly water seal inspections and monthly inspections of process drains not equipped with water seals.

Subchapter B, General Volatile Organic Compound Sources
Division 6, Batch Processes
The amendments to §115.160, concerning Batch Process Definitions, delete the definition of semi-continuous in §115.160(13) because this term is not used in Subchapter B, Division 6. It should be noted that semi-continuous processes are noncontinuous processes and therefore meet the definition of batch in §115.160(4). Consequently, semi-continuous processes will continue to be subject to the batch process requirements contained in this division after the deletion of the definition of semi-continuous. The amendments to §115.160 also renumber the current §115.160(14) and (15) as §115.160(13) and (14) due to the deletion of the definition of semi-continuous in the current §115.160(13).

The amendment to §115.161, concerning Applicability, adds a new §115.161(c) to make it clear that the requirements of the new Subchapter H apply in addition to, rather than in place of, the applicable requirements of either Divisions 2 or 6 of Subchapter B.

The amendment to §115.166, concerning Monitoring and Recordkeeping Requirements, revises the record retention time from two years to five years for consistency. The sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records. The amendments specify that the five-year record retention requirement does not apply to records generated before December 31, 2000.

The amendments to §115.167, concerning Exemptions, revise §115.167(1) and (2) by adding references to the new §115.161(c). This is necessary to make it clear that the requirements of the new Subchapter H apply in addition to, rather than in place of, the requirements of Division 6 of Subchapter B, and further, that the requirements of the new Subchapter H apply to batch process operations which qualify for one or more exemptions from the requirements of Division 6.

Subchapter C, Volatile Organic Compound Transfer Operations
Division 1, Loading and Unloading of Volatile Organic Compounds
The amendment to §115.211, concerning Emission Specifications, revises §115.211(2) by deleting language which is obsolete due to the passing of an April 30, 2000 compliance date.

The amendments to §115.215, concerning Approved Test Methods, revise §115.215(6) by adding the date of the gasoline terminal test procedures of 40 CFR §60.503 (b) - (d) and revise §115.215(7) by updating the reference to the marine vessel vapor-tightness test of 40 CFR §61.304(f).

The amendments to §115.219, concerning Counties and Compliance Schedules, delete the current §115.219(d) - (h) because these subsections are obsolete due to the passing of an April 30, 2000 compliance date. The amendments to §115.219 also revise §115.219(b) and (c) by deleting language which is obsolete due to the passing of an April 30, 2000 compliance date, and adding language which specifies that owners and operators of gasoline terminals and gasoline bulk plants in the 95 attainment counties of east and central Texas must continue to comply with this division as required by §115.930, concerning Compliance Dates. Finally, the amendments to §115.219 reletter the current §115.219(i) as §115.219(d).

Subchapter C, Volatile Organic Compound Transfer Operations
Division 2, Filling of Gasoline Storage Vessels (Stage I) for Motor Vehicle Fuel Dispensing Facilities
The amendments to §115.229, concerning Counties and Compliance Schedules, revise §115.229(a) and (b) by deleting language which is obsolete due to the passing of a January 31, 1994 compliance date and replacing it with language specifying that owners and operators of motor vehicle fuel dispensing facilities in the 16 ozone nonattainment counties and 95 attainment counties of east and central Texas must continue to comply with this division as required by §115.930. The amendments to §115.229 also delete the current §115.229(c) and (d) because these subsections are obsolete due to the passing of November 15, 1994 and April 30, 2000 compliance dates.

Subchapter C, Volatile Organic Compound Transfer Operations
Division 3, Control of Volatile Organic Compound Leaks from Transport Vessels
The amendments to §115.239, concerning Counties and Compliance Schedules, replace references to the sections in this division with references to the division itself. In addition, the amendments to §115.239 revise §115.239(b) by deleting language which is obsolete due to the passing of an April 30, 2000 compliance date and replacing it with language specifying that the owner or operator of each gasoline tank-truck tank in the 95 attainment counties of east and central Texas must continue to comply with this division as required by §115.930.

Subchapter D, Petroleum Refining, Natural Gas Processing, and Petrochemical Processes
Division 1, Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries
The amendments to §115.312, concerning Control Requirements, add a new §115.312(a)(3) which specifies that at petroleum refineries in HGA, vent gas streams from steam ejectors, vacuum-producing systems, and hotwells with contact condensers which include an HRVOC are subject to the requirements of the new Subchapter H in addition to the applicable requirements of Division 1 of Subchapter D. The amendments to §115.312 further specify that at petroleum refineries in HGA, any process unit shutdown or turnaround of a unit in which an HRVOC is a raw material, intermediate,

final product, or in a waste stream, is likewise subject to the requirements of the new Subchapter H in addition to the applicable requirements of Division 1. The new paragraph is necessary to make it clear that the requirements of the new Subchapter H apply in addition to, rather than in place of, the requirements of Division 1.

Subchapter D, Petroleum Refining, Natural Gas Processing, and Petrochemical Processes
Division 2, Fugitive Emission Control in Petroleum Refineries in Gregg, Nueces, and Victoria Counties
The amendments to §115.326, concerning Recordkeeping Requirements, revise §115.326(2)(G)(v) to require the owner or operator to record the date on which a leaking component is placed on the shutdown list. This is necessary in order to enhance enforceability of the requirement that leaking components on the shutdown list be repaired at the next shutdown. The amendments to §115.326 also revise the record retention time specified in §115.326(3) and (4) from two years to five years for consistency. The sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records.

Subchapter D, Petroleum Refining, Natural Gas Processing, and Petrochemical Processes
Division 3, Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas
The amendments to §115.352, concerning Control Requirements, revise §115.352(1) for improved syntax and delete the reference to calibrating on propane and hexane because these compounds can modify the screening concentration that was used in the correlation equations. In addition, methane is the industry standard calibration gas.

The amendments to §115.352 also relocate to a new §115.352(2)(A) the current language, which specifies that if the repair of a component would require a unit shutdown which would create more emissions than the repair would eliminate, the repair may be delayed until the next shutdown. The new §115.352(2)(A) adds a requirement for the owner or operator to maintain documentation that the total cumulative emissions from leaking components in the unit are less than the emissions resulting from shutdown of the unit. This new requirement is necessary because the emissions resulting from shutdown of the unit are most appropriately compared to the cumulative emissions from leaking components in the unit, rather than the emissions from a single leaking component, because all unrepaired leaking components will continue to emit until the next unit shutdown. The amendments to §115.352 add an option for delay of repair if extraordinary efforts to repair the leaking component (e.g., drilling and injection of sealant) must be made within seven days of the component being placed on the shutdown list. The component can only remain on the shutdown list after a second unsuccessful attempt to repair it through extraordinary efforts, unless the owner or operator demonstrates that there is a safety, mechanical, or major environmental concern posed by repairing the leak through extraordinary means.

In addition, the amendments to §115.352 add a new §115.352(2)(B) which requires that each component for which repair has been delayed must be repaired at the next unit shutdown. The amendments to §115.352 also add a new §115.352(2)(C) which specifies that delay of repair beyond a unit shutdown is allowed if the component is isolated from the process and does not remain in VOC service, since the component would no longer have the potential to leak.

The amendments to §115.352 also add a new §115.352(2)(D) which specifies that valves which can be safely repaired without a process unit shutdown may not be placed on the shutdown list. An example of such a valve is a leaking valve in pipeline service and located on the top of the line in a tank farm because the valve can have its packing replaced without a leak occurring provided that the line is depressurized.

The amendments to §115.352 also add a new §115.352(2)(E) which specifies that all components for which a repair attempt was made shall be monitored for leaks (with a hydrocarbon gas analyzer) within 30 days or at the next monitoring period, whichever occurs first, after startup is completed following the shutdown. This is necessary to ensure that leaking components have been properly repaired.

In addition, the amendments to §115.352 revise §115.352(4) to specify that caps or plugs on open-ended lines must be tight-fitting. This is necessary because in some cases the caps or plugs are only finger-tight, thereby resulting in emissions. The amendments to §115.352 also revise §115.352(8) to allow metal-to-metal seals. Commission staff has determined that this type of connector is as effective as a flanged connection.

The amendments to §115.352 also revise §115.352(8) to specify that all new connections must be checked for leaks within 30 days of being placed in VOC service by monitoring with a hydrocarbon gas analyzer for components in light liquid and gas service and by using visual, audio, and/or olfactory means for components in heavy liquid service.

The amendments to §115.352 further revise §115.352(9) to allow for use of devices similar to rupture disks. This revision will add the flexibility to use a rupture pin, second relief valve, or other similar leak-tight pressure relief component.

Finally, the amendments to §115.352 add a new §115.352(10) which specifies that any petroleum refinery; synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation in HGA in which an HRVOC is a raw material, intermediate, final product, or in a waste stream, is subject to the requirements of the new Subchapter H in addition to the applicable requirements of Division 3 of Subchapter D. The new paragraph is necessary to make it clear that the requirements of the new Subchapter H apply in addition to, rather than in place of, the requirements of Division 3.

The amendments to §115.354, concerning Inspection Requirements, revise §115.354(3) to exclude flanges in HGA which are required to be monitored for leaks using Test Method 21 under §115.781(b)(3).

The amendments to §115.354 also add new §115.354(9) to require that all component monitoring take place when the component is in contact with process material and the unit is in service. This is necessary because some companies have been monitoring components in units that are shut down, thereby inflating the count of components that are not leaking and lowering, on paper, the percentage of components that are leaking.

In addition, the amendments to §115.354 add new §115.354(10) to require the use of dataloggers and/or electronic data collection devices during monitoring, except when paper logs are necessary or more feasible (e.g., small rounds (less than 100 components), re-monitoring following component repair, or when dataloggers are broken or not available). In addition, new §115.354(10) requires daily transfer of electronic data from electronic datalogging devices to the electronic database required by §115.356(2), concerning Monitoring and Recordkeeping Requirements.

The new §115.354(10) further requires that when an electronic data collection device is used, the collected monitoring data must include the identification of each component and each calibration run, the maximum screening concentration detected, the time of monitoring (beginning and end), a date stamp, an operator identification, an instrument identification, and calibration gas concentrations and certification dates.

The new §115.354(10) also specifies that the acceptable rate for recording data must be determined individually by each owner or operator considering such factors including, but not limited to, the size of the equipment, the equipment type, the accessibility of the equipment, the number of leakers being found, and the skill of the monitoring technicians. The new §115.354(10) further specifies that each owner or operator must have a documented auditing process in place to assure proper calibration, identify response time failures, and assess pace anomalies.

The new §115.354(10) also specifies that changes to the database must be detailed in a log or inserted as a notation in the database, and that all such changes must include the name of the person who made the change, the date of the change, and an explanation to support the change.

In addition, the amendments to §115.354 add a new §115.354(11) which specifies that the monitored VOC concentration must be recorded for each component, rather than using notations such as "not leaking" or "below leak definition" for readings that are below the leak definition for the component, or "pegged," "off scale," or "leaking" for readings that are above the leak definition for the component.

For “pegged” readings on the hydrocarbon gas analyzer, one approach is to set the hydrocarbon gas analyzer to 10x scale or, if necessary, 100x scale. For example, a hydrocarbon gas analyzer reading of 8,000 ppmv on 10x scale means that the actual VOC concentration which must be recorded is 80,000 ppmv. If the hydrocarbon gas analyzer is still pegged on 100x scale or is not equipped with a 100x scale, a default pegged value of 100,000 ppmv is recorded.

Alternatively, if the hydrocarbon gas analyzer is not equipped with a 10x scale, a dilution probe which pulls in ambient air at a known ratio (e.g., ten-to-one) is used. For example, a hydrocarbon gas analyzer reading of 8,000 ppmv with a dilution probe using a ten-to-one dilution ratio means that the actual VOC concentration which must be recorded is 80,000 ppmv. If the hydrocarbon gas analyzer is still pegged using a dilution probe, a default pegged value of 100,000 ppmv is recorded.
This is necessary to be able to more accurately determine the VOC concentration for “pegged” components, which in turn will allow for a more accurate emissions inventory for use in developing control strategies toward reaching attainment with the ozone standard.

Similarly, the requirement to record the VOC concentration for components which are below the leak threshold will allow for a more accurate emissions inventory for use in developing control strategies toward reaching attainment with the ozone standard.

Finally, the amendments to §115.354 add a new §115.354(12) which specifies that exemptions for valves with a nominal size of two inches or less expired on July 31, 1992 (final compliance date). The new paragraph is necessary due to the continued misconception that such an exemption is available in Chapter 115 for ozone nonattainment areas, despite the fact that the rule change which eliminated the exemption was adopted over 11 years ago. (See the July 2, 1991 issue of the *Texas Register* (16 TexReg 3722 - 3724)).

The amendments to §115.356, concerning Monitoring and Recordkeeping Requirements, specify that the recordkeeping requirements can be met either through electronic records or in hard copy format. Electronic records are expected to result in reduced costs compared to hard copy records.

The amendments to §115.356 also renumber the current §115.356(1) as §115.356(2) and add a new §115.356(1) which specifies that records identifying each process unit must include the name of each process unit, a scale plot plan showing the location of each process unit, process flow diagrams for each process unit showing the general process streams and major equipment on which the components are located, and the expected VOC emissions if the process unit is shut down for repair of components or other equipment. These records are necessary to improve enforceability by enabling inspectors to more readily determine the process unit's compliance status through easier identification of process units and major equipment, as well as maintenance of estimated shutdown emissions.

In addition, the amendments to §115.356 replace the current §115.356(1)(C), (D), (E)(1), (H), and (I) with a renumbered §115.356(2)(C) which requires maintenance of all data required to be collected by the monitoring and inspection requirements of §115.354 for each component which must be monitored with a hydrocarbon gas analyzer. This revision will ensure that records of the appropriate data are maintained, thereby improving the enforceability of the rule.

The amendments to §115.356 also revise the current §115.356(1)(E)(ii) (renumbered as §115.356(2)(D)) to require records of the results of the weekly audio, visual, and olfactory inspections of flanges required by §115.354(3). This is necessary because currently there is no way to determine whether the required weekly flange inspections are being conducted as required. The revisions to the renumbered §115.356(2)(D) exclude flanges that are monitored using Test Method 21 as required by §115.781(b)(3). This will ensure that new instrument monitoring requirements are not added to flanges which are not subject to Subchapter H, Division 3.

The amendments to §115.356 also revise the current §115.356(1)(F) (renumbered as §115.356(2)(E)) to require records of the monitoring instrument data required by §115.354(10), such as results of the calibration gas concentrations.

In addition, the amendments to §115.356 revise the current §115.356(1)(G) (renumbered as §115.356(2)(F)) to require the owner or operator to record the component identification and method of leak determination (Test Method 21, sight/sound/smell, or inert gas or hydraulic testing); the date on which a leaking component is placed on the shutdown list the dates and nature of each extraordinary effort to repair the leaking component; the date on which the leaking component was taken out of service as allowed by §115.352(2)(C); and the calculation showing the estimated VOC emission rates of the component as required by §115.352(2)(A)(i)(II) if extraordinary efforts are not going to be initiated. These revisions ensure that adequate records are required to demonstrate compliance.

The amendments to §115.356 also revise the current §115.356(2) (renumbered as §115.356(2)(G)) to specify that records of the audio, visual, and olfactory inspections of connectors are not required unless a leak is detected. The current §115.356(2) only include reference to flanges, which are a specific type of connector. The amendments to §115.356(2) are necessary because the recordkeeping requirements of §115.356 are used to specify some of the records required to demonstrate compliance with the new Subchapter H, Division 3, concerning Fugitive Emissions, which requires monitoring (with a hydrocarbon gas analyzer) and inspection of connectors.

In addition, the amendments to §115.356 add a new §115.356(3) which requires records for each process unit with leaking components, updated each day after a leaking component is determined to require a process unit shutdown to repair and where extraordinary efforts to repair the component will not be pursued, including: 1) the date, calculations, and estimated emissions of VOC as required by §115.352(2)(A)(i)(III); 2) the date, calculations, and comparison of emissions of VOC as required by §115.352(2)(A)(i)(IV); and 3) the date of each process unit shutdown required due to VOC emissions of leaking components exceeding the expected VOC emissions from the shutdown. This revision will ensure that records of the appropriate data are maintained, thereby improving the enforceability of the rule.

The amendments to §115.356 further add a new §115.356(4) which requires records identifying and justifying each of the following: 1) unsafe-to-monitor valve; 2) nonaccessible (difficult to monitor) valve; and 3) exemption by component claimed under §115.357. This revision will ensure that records of the appropriate data are maintained, thereby improving the enforceability of the rule.

The amendments to §115.356 also renumber the current §115.356(4) as §115.356(5) to accommodate the new §115.356(4), and revise the record retention time specified in the renumbered §115.356(5) from two years to five years for consistency. The sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records. The five-year record retention requirement does not apply to records generated before December 31, 2000. This date was selected because it is two years before the estimated effective date of the revised rules, and consequently will ensure that the new five-year record retention requirement is not retroactive to records that were not required to be maintained under the current two-year record retention requirement.

The amendments to §115.357, concerning Exemptions, revise §115.357(1) to clarify which specific portions of §115.354 a component would be exempt from if the conditions of the exemption in §115.357(1) are met.

The amendments to §115.357 also revise §115.357(2) to clarify that the current reference to "storage tank valves" means conservation vents or other devices on atmospheric storage tanks that are actuated either by a vacuum or a pressure of no more than 2.5 pounds per square inch gauge (psig).

In addition, the amendments to §115.357 revise §115.357(5) to clarify that reciprocating compressors and positive displacement pumps used in natural gas/gasoline processing operations are exempt from the requirements of Division 3.

The amendments to §115.357 also add a new §115.357(10) which specifies that the requirements of the new Subchapter H apply to components which qualify for one or more of the exemptions in §115.357(1) - (9). The new paragraph is necessary to make it clear that the requirements of the new Subchapter H apply in HGA to each component in processes in which an HRVOC is a raw material, intermediate, final product, or in a waste stream, regardless of whether the component can qualify for an exemption from the requirements of Division 3 of Subchapter D.

The amendments to §115.359, concerning Counties and Compliance Schedules, add a new §115.359(2) which specifies a December 31, 2003 compliance date for maintaining the data required to be collected by the monitoring and inspection requirements of §115.354 for each component required to be monitored with a hydrocarbon gas analyzer, and for maintaining records of the results of the weekly audio, visual, and olfactory inspections of flanges required by §115.354(3).

The amendments to §115.359 also add a new §115.359(3) which specifies a December 31, 2003 compliance date for the recordkeeping required by §115.356(1), (3), and (4).

Subchapter E, Solvent-Using Processes
Division 2, Surface Coating Processes
The amendment to §115.420, concerning Surface Coating Definitions, revises the definition of vehicle refinishing (body shops) in §115.420(b)(12)(B)(viii) to clarify the intent of the exclusion of "construction equipment" from this definition. Specifically, the revisions replace "vehicle" with "motor vehicle" because the definition of vehicle refinishing (body shops) is intended to apply to self-propelled vehicles that are required to be registered under Texas Transportation Code, Chapter 502, consistent with the definition of motor vehicle in 30 TAC §114.620(3), concerning Definitions. In addition, the revisions replace "construction equipment" with a reference to non-road equipment and non-road vehicles, as those terms are defined in §114.6(17), concerning Low Emission Fuel Definitions, and §114.3(10), concerning Low Emission Vehicle Fleet Definitions. The revisions are necessary to eliminate any confusion over whether the coating of construction equipment is classified as vehicle refinishing or as miscellaneous metal parts and products coating.

The amendment to §115.421, concerning Emission Specifications, deletes §115.421(a)(9)(A)(v) because this requirement is no longer applicable as of December 31, 2001.

The amendments to §115.427, concerning Exemptions, revise §115.427(a)(1)(A) and (3) and (b)(2)(A) by deleting language which is obsolete due to the passing of a December 31, 2001 compliance date.

The amendments to §115.429, concerning Counties and Compliance Schedules, delete the current §115.429(a) and (b) because these subsections are obsolete due to the passing of a December 31, 1999 compliance date. The amendments to §115.429 also revise the current §115.429(c) by deleting language which is obsolete due to the passing of a December 31, 2001 compliance date and replacing it with language specifying that the owner or operator of each surface coating operation in the 16 ozone nonattainment counties and Gregg, Nueces, and Victoria Counties must continue to comply with this division as required by §115.930.

Subchapter H, Highly-Reactive Volatile Organic Compounds
Division 1, Vent Gas Control
The new §115.720, concerning Applicability and Definitions, specifies that any vent gas stream in HGA in which includes an HRVOC and any flare in HGA that emits or has the potential to emit HRVOC is subject to the requirements of Division 1 of Subchapter H in addition to the applicable requirements of Divisions 2 and 6 of Subchapter B and Division 1 of Subchapter D. The new section is necessary to make it clear that the requirements of the new Division 1 of Subchapter H apply in addition to, rather than in place of, the requirements of Divisions 2 and 6 of Subchapter B and Division 1 of Subchapter D. In addition, definitions regarding supplementary fuel and pilot gas have been added to define specific gases used in a flare.

The new §115.722(a), concerning Site-wide Cap and Control Requirements, specifies that HRVOC emissions at each account subject to this division and Division 2, concerning Cooling Tower Heat Exchange Systems, are limited to a 24-hour rolling average as specified in Table 6-2.1, Initial HRVOC Site-Cap Allocations: Harris County, and Table 6-2.2, Initial HRVOC Site-Cap Allocations: Seven Surrounding Counties, of the *Post-1999 Rate-of-Progress and Attainment Demonstration Follow-up SIP for the Houston/Galveston Ozone Nonattainment Area* adopted on December 13, 2002. The proposed Division 2, concerning Flares, has been deleted and the appropriate requirements incorporated in Division 1 because of the interrelationship between flares and vent gas (i.e., gas streams directed to flares are vent gas streams).

The commission solicited comment on the concept of establishing an emission rate cap for all HRVOC emitted from all flares at an account, the concept of establishing an emission rate cap for all HRVOC emitted from all vent gas streams at an account which are continuously monitored, or on the concept of establishing an emission rate cap for all HRVOC emitted from all flares, vents, and cooling tower heat exchange systems at an account. Comments regarding an HRVOC emission rate cap are addressed later in this preamble under the RESPONSE TO COMMENTS heading.

The proposed emission specifications for vent gas streams and flares have been deleted because an individual mass emission rate is no longer applicable under the cap. The new §115.722(b) specifies that any owner or operator of a flare in HGA must continuously comply with 40 CFR §60.18(c) - (f) when HRVOC is routed to the flare. This rule is applicable to new as well as existing flares in HGA.

The new §115.722(c) specifies that an owner or operator may not use emission reduction credits (ERC) or discrete emission reduction credits (DERC) in order to demonstrate compliance with Subchapter H, Division 1.

The new §115.725, concerning Monitoring and Testing Requirements, establishes the testing requirements for vent gas streams which include an HRVOC and the monitoring requirements for flares that emit or have the potential to emit HRVOC. The new §115.725(a) requires testing by applying the appropriate reference method tests on all vent gas streams.

The new §115.725(b) provides an alternative to testing for each vent equipped with a continuous emissions monitoring system (CEMS). To use this option, the CEMS must meet the monitoring requirements of 40 CFR §60.13(b), and (d) - (f), and must initially and at a minimum annually thereafter be subjected to a cylinder gas audit per 40 CFR Part 60, Appendix B, Performance Specification 2, Section 16 to assess system bias and ensure accuracy.

The new §115.725(c) specifies that testing conducted before December 31, 2002 may be used to demonstrate compliance with the standards specified in this division.

The new §115.725(d) specifies that flares must be equipped with a continuous flow monitoring system, and an on-line analyzer capable of determining HRVOCs and other potential constituents at least once every 15 minutes. In addition, the monitoring systems must operate at least 95% of the time when the flare is operational, averaged over a calendar year. The new §115.725(d) further specifies that a sample must be taken every four hours during any period of monitor downtime. In addition, HRVOC hourly average mass emission rates and actual exit velocity of the flare must be calculated. New monitoring methods, or minor modifications to the required monitoring methods, are allowed under specified conditions.

The new §115.725(e) provides an alternative to the monitoring requirements in §115.725(a) for flares used solely for control of transport vessel loading operations.

The new §115.726, concerning Recordkeeping and Reporting Requirements, specifies the records which must be kept to demonstrate compliance. The new §115.726(a) requires a test plan and quality assurance plan to be submitted as follows: 1) for flares and vent gas streams existing on or before June 30, 2004, no later than April 30, 2004; or 2) for flares/vent gas streams that become subject to the requirements of this division after June 30, 2004, at least 60 days prior to being placed in HRVOC service.

The new §115.726(b) requires maintenance of all testing results, and the new §115.726(c) and (d) requires the maintenance of records in sufficient detail to demonstrate continuous compliance with any exemptions claimed.

The new §115.726(c) specifies the recordkeeping requirements for flares, which include: hourly records of the speciated and total HRVOC emission rates on a pounds-per-hour basis for each affected flare in order to demonstrate compliance with §115.722; records of all monitoring, testing, and calibrations required by §115.725; weekly records that detail all corrective actions taken (or delay in corrective action) and the estimated quantity of all HRVOC emissions; and records of each calculated net heating value of the gas stream routed to the flare and each calculated exit velocity at the flare tip.

The new §115.726(d) requires records for flares and vent gas streams claimed exempt to ensure that these flares and vent gas streams meet the exemption criteria.

The new §115.726(e) requires the owner or operator to update hourly the 24-hour rolling average HRVOC emissions for the site-wide cap, including cooling tower emissions from cooling towers which are subject to Subchapter H, Division 2; all continuously monitored vent gas and flare emissions; and the maximum potential emission rate from vent gas streams and flares which are not continuously monitored.

The new §115.726(f) requires that all records be maintained for at least five years and made available for review upon request by authorized representatives of the executive director, EPA, or local air pollution control agencies with jurisdiction. The sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records.

The new §115.727, concerning Exemptions, establishes the available exemptions. The new §115.727(a) exempts any account for which no gas stream that is routed to a flare contains 5.0% or greater by weight of HRVOC at any time and no vent gas stream that is not routed to a flare contains more than 100 ppmv HRVOC at any time is exempt from the requirements of §115.722, with the exception of recordkeeping requirements.

The new §115.727(b) exempts any flare that at no time receives a gas stream containing 5.0% or greater HRVOC from the continuous monitoring requirements of §115.725(d) and (e). However, the gas stream directed to the flare is treated as a vent gas stream for purposes of determining compliance with the site-wide cap. Because the gas flow directed to a flare is a vent gas stream, this is necessary to ensure that these HRVOC emissions are included in the site-wide cap. Otherwise, these HRVOC emissions outside the cap would be able to increase without restriction under Chapter 115, thereby jeopardizing the SIP.

The new §115.727(c) exempts emissions from scheduled maintenance, startup, or shutdown activities that are reported in advance to, and approved by, the appropriate TCEQ regional office in compliance with §101.211, concerning Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements. Emissions from maintenance, startup, and shutdown activities were not reviewed or contemplated during the development of the site-wide cap. Even when well-planned and well-controlled, emissions from these periodic activities may exceed the emissions cap. This exemption is necessary to ensure that vital plant operations may be conducted in compliance with commission rules.

The new §115.727(d) exempts emissions from emissions events that have been reported to the commission in compliance with §101.201, concerning Emissions Event Reporting and Recordkeeping Requirements. This exemption from compliance with the cap does not exempt these emission events from enforcement. Rather, these emission events will be evaluated and subjected to the appropriate enforcement action for any violations that occurred in conjunction with the emissions event. This exemption is necessary to ensure that the emission event will not automatically be subjected to duplicate enforcement actions for a violation of the cap as well as for any violations at the facility or facilities involved in the event.

The new §115.729, concerning Counties and Compliance Schedules, specifies the compliance dates and affected counties for sources subject to the new vent gas and flare requirements. For vent gas streams, new §115.729(a) requires each owner or operator in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties to demonstrate compliance with the testing requirements as soon as practicable, but no later than June 30, 2004, and demonstrate compliance with all other requirements of this division (including the site-wide cap), as soon as practicable, but no later than April 1, 2006. For flares, new §115.729(b) requires each owner or operator in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties to demonstrate compliance with the division as soon as practicable, but no later than December 31, 2004, with the exception of the site-wide cap, for which the owner or operator must demonstrate compliance as soon as practicable, but no later than April 1, 2006. The compliance schedule was developed to be as expeditious as practicable, with consideration and balancing between competing needs for economic reasonableness and expeditious reductions.

Subchapter H, Highly-Reactive Volatile Organic Compounds
Division 2, Cooling Tower Heat Exchange Systems
The new §115.760, concerning Applicability and Cooling Tower Heat Exchange System Definitions, specifies that any account with a cooling tower heat exchange system in HGA that emits, or has the potential to emit, an HRVOC is subject to the new requirements of Subchapter H, Division 2, in addition to the applicable requirements of any other division in the subchapter or any other subchapter in Chapter 115. This does not include fin-fan coolers or comfort cooling tower heat exchange systems used exclusively in cooling, heating, ventilation, and air conditioning systems.

The new §115.761, concerning Site-wide Cap, specifies that HRVOC emissions at each account subject to this division and Division 1, concerning Vent Gas Control, are limited to a 24-hour rolling average as specified in Table 6-2.1, Initial HRVOC Site-Cap Allocations: Harris County, and Table 6-2.2, Initial HRVOC Site-Cap Allocations: Seven Surrounding Counties, of the *Post-1999 Rate-of-Progress and Attainment Demonstration Follow-up SIP for the Houston/Galveston Ozone Nonattainment Area* adopted on December 13, 2002. The proposed emission rate of 8.0 lb/hr for a cooling tower heat exchange system has been deleted, because an individual mass emission rate is no longer applicable under the cap. The proposed requirement for recordkeeping under §115.767, concerning Recordkeeping Requirements, to document excess emissions for which exemption is claimed under §101.22, concerning Demonstrations, has been deleted. The recordkeeping requirements for determination of an excessive emissions event are already specified in §101.22, so a similar requirement in the division for cooling tower heat exchange systems is duplicative.

The proposed §115.762, concerning Control Requirements, is being withdrawn. With the establishment of a site-wide cap under §115.761, the 24-hour corrective action requirement which was proposed is no longer applicable. Instead, compliance with a 24-hour rolling average is required under the cap.

The proposed §115.763, concerning Alternative Control Requirements, is being withdrawn because compliance will be determined under a site-side cap, not according to individual emission specifications. However, the proposed language which specifies that ERCs or DERCs may not be used in demonstrating compliance has been moved to §115.761(b).

The new §115.764, concerning Monitoring Requirements, has been reformatted so that subsection (a), instead of paragraph (1) as in the proposal, pertains to cooling water heat exchange system with a design capacity to circulate 8,000 gallons per minute (gpm) or greater of cooling water, and subsection (b), instead of paragraph (2) as in the proposal, pertains to a cooling tower heat exchange system with a design capacity to circulate less than 8,000 gpm of cooling water.

The new §115.764(a)(1) requires the owner or operator of a cooling water heat exchange system with a design capacity to circulate 8,000 gpm or greater of cooling water to install, calibrate, operate, and maintain a continuous flow monitor on each inlet of each cooling tower. Each monitor must be calibrated on an annual basis to within ± 5.0% accuracy. When the cooling tower flow monitor is down, flow measurements must be used for the most recent 24-hour period in which the flow measurements are representative of cooling tower operations during monitor downtime. The requirement to monitor both the inlet and outlet has been changed, so that only the inlet of each cooling tower is required to monitor flow. This revision was made because recording only the inlet flow is sufficient to obtain representative results. The proposal language concerning using the flow rate of cooling water in conjunction with the VOC inlet and outlet monitored value to calculate the pounds-per-hour emitted for all HRVOC has been modified and moved to §115.766, concerning Testing Requirements. The proposed requirement for continuous VOC monitors in addition to the proposed requirement for collecting a grab sample every eight hours to verify the HRVOC emission rate during out-of-order periods of the VOC monitor(s) have been modified and moved to the new §115.764(a)(2).

The new §115.764(a)(2) requires that a continuous monitoring system to determine the total strippable VOC concentration at each inlet of each cooling tower be installed, calibrated, operated, and maintained. During out-of-order periods of the VOC monitor(s), a sample must be collected for total VOC analysis according to the TCEQ air-stripping method (Appendix P, TCEQ Sampling Procedures Manual). This sample must be collected at least three times per calendar week, with an interval of no less than 36 hours between samples. This sampling interval of at least three times per calendar week was changed from the proposed requirement of every eight hours, because the new time period is sufficient to establish whether the concentration of total strippable VOC has increased due to a leak.

The new §115.764(a)(3) specifies that each required monitoring system be continuously operated at least 95% of the time when the cooling tower is operational, averaged over a calendar year. This requirement ensures that data collection is sufficient to meet the requirements of this division.

The new §115.764(a)(4) specifies that the concentration of speciated strippable VOC be collected from each inlet of each cooling tower at least once per month. The speciated concentration of at least 90% of the total VOC on a mass basis must be determined for each sample. This requirement was revised from the proposal, which specified continuous speciation of HRVOCs. Since the cooling tower system is essentially a steady-state process, monitoring and speciation of the total strippable VOC is sufficient to qualititatively determine the presence of a leak. The requirements for speciation are outlined under §115.764(a)(5).

The new §115.764(a)(5) requires that if the concentration of total strippable VOC is equal to or greater than 50 parts per billion by weight (ppbw), an additional sample must be collected for strippable VOC analysis from each inlet of the affected cooling tower at least once daily. The additional speciated strippable VOC sampling must continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw. Since the rule specifies the minimum detectable concentration at ten ppbw, new §115.764(a)(5) ensures that at 50 ppbw, a reasonable concentration above ten ppbw, the requirement for VOC speciation is triggered.

The new §115.764(b)(1) requires the owner or operator of a cooling water heat exchange system with a design capacity to circulate less than 8,000 gpm of cooling water to install, calibrate, operate, and maintain a continuous flow monitor on each inlet of each cooling tower. Each monitor must be calibrated on an annual basis to within ± 5.0% accuracy. When the cooling tower flow monitor is down, flow measurements must be used for the most recent 24-hour period in which the flow measurements are representative of cooling tower operations during monitor downtime. The requirement to monitor both the inlet and outlet has been changed, so that only the inlet of each cooling tower is required to monitor flow. This revision was made because recording only the inlet flow is sufficient to obtain representative results. The proposal language concerning using the flow rate of cooling water in conjunction with the VOC inlet and outlet monitored value to calculate the pounds-per-hour emitted for all HRVOC has been modified and moved to §115.766, relating to Testing Requirements. The proposed requirement for collecting a grab sample twice a week to determine the concentration of HRVOC has been modified and moved to §115.764(b)(2) and changed to the requirement to determine the total strippable VOC concentration by collecting samples from each inlet of each cooling tower at least twice per week, with an interval of not less than 48 hours between samples. As in the discussion under §115.764(a)(2), this sampling interval of at least three times per calendar week was changed from the proposed requirement of every eight hours, because the new time period is sufficient to establish whether the concentration of total strippable VOC has increased due to a leak.

The new §115.764(b)(2) requires the total strippable VOC concentration to be determined by collecting samples from each inlet of each cooling tower at least twice per week, with an interval of not less than 48 hours between samples. This sampling interval of at least three times per calendar week was changed from the proposed requirement of every eight hours, because, as in the discussion under §115.764(a)(2), the new time period is sufficient to establish whether the concentration of total strippable VOC has increased due to a leak.

The new §115.764(b)(3) specifies that each required monitoring system be continuously operated at least 95% of the time when the cooling tower is operational, averaged over a calendar year. This requirement ensures that sampling is sufficient to meet the requirements of this division.

The new §115.764(b)(4) specifies that the concentration of speciated strippable VOC be collected from each inlet of each cooling tower at least once per month. The speciated concentration of at least 90% of the total VOC on a mass basis must be determined for each sample. This requirement was revised from the proposal, which specified speciation of HRVOCs twice per week. Since the cooling tower system is essentially a steady-state process, monitoring and speciation of the total strippable VOC is sufficient to qualititatively determine the presence of a leak. The requirements for speciation are outlined under §115.764(b)(5).

The new §115.764(b)(5) requires that if the concentration of total strippable VOC is equal to or greater than 50 ppbw, an additional sample must be collected for strippable VOC analysis from each inlet of the affected cooling tower at least once daily. The additional speciated strippable VOC sampling must continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw. Since the rule specifies the minimum detectable concentration at ten ppbw, new §115.764(a)(5) ensures that at 50 ppbw, a reasonable concentration above ten ppbw, the requirement for VOC speciation is triggered.

The new §115.764(c) specifies that the speciated strippable VOC or HRVOC concentration must be determined as soon as this information is available, but no later than 48 hours after the sample(s) have been collected. This provision takes into account the typical turnaround time for an analytical laboratory to provide speciated results.

The new §115.764(d) requires a monitoring quality assurance plan to be submitted as follows: 1) for cooling towers existing on or before June 30, 2004, no later than April 30, 2004; or 2) for cooling tower heat exchange systems that become subject to the requirements of this division after June 30, 2004, at least 60 days prior to being placed in HRVOC service. This plan must be submitted prior to initiating a monitoring program to comply with the requirements of subsections (a) and (b) of this section. Additionally, the plan must define each compound which could potentially leak through the heat exchanger and therefore directly impact the emissions of the cooling water system.

The proposed §115.765, concerning Reporting Requirements, is being withdrawn. The proposed requirement to report the average hourly HRVOC emission rate has been revised to require the 24-hour rolling average HRVOC emissions to be updated hourly, and has been relocated to §115.767. The proposed requirement to report the chlorine usage in cooling tower heat exchange systems has been deleted. The commission plans to study the issue of chlorine emissions and, if needed, implement an appropriate program to collect chlorine data.

The new §115.766(1), concerning Testing Requirements, requires the determination of the total strippable VOC concentration in cooling tower water where a continuous monitoring system is required. The ten ppbw minimum detection limit of the continuous monitoring system in the cooling tower water is being relocated from proposed §115.766(2). In addition, the continuous monitor must be calibrated with methane or a VOC which best represents potential leakage into the cooling tower system and the emissions from the system. Calibration must be checked weekly or more frequently, as necessary, to maintain a monitor drift of less than 3.0%.

The new §115.766(2) specifies the procedure for determining the speciated strippable VOC in cooling water, using the air-stripping method given in Appendix P of the TCEQ Sampling Procedures Manual. The samples must be analyzed according to the procedures in EPA Test Method 18, 40 CFR Part 60, Appendix A, and/or Method TO-14A, published in "U.S. EPA Compendium for Determination of Toxic Organic Compounds in Ambient Air (1996)." The required sampling method no longer makes a distinction regarding the normal boiling point of the VOCs, since the revised definition of HRVOC includes only those compounds with a boiling point below 140 degrees Fahrenheit. Therefore, §115.766(3) is being deleted. The minimum detection limit of the testing system must be no greater than ten ppbw in the cooling tower water.

The new §115.766(3), proposed as §115.766(4), allows modifications to the previously referenced test methods, or alternative test methods, to be approved by the Engineering Services Team. Test methods other than those specified in §115.766(1) and (2) of this section may be used if validated by 40 CFR Part 63, Appendix A, Test Method 301.

The new §115.767, concerning Recordkeeping Requirements, has been reformatted into (a) and (b) subsections. New §115.767(a) applies to cooling tower heat exchange systems subject to the site-wide cap. New §115.767(a)(1) requires the owner or operator to establish and maintain a process diagram of the cooling tower heat exchange system, including the locations at which the system will be monitored and sampled such that the cooling water is not exposed to the atmosphere prior to sampling.

The new §115.767(a)(2) requires records of all monitoring, testing, and calibrations to be maintained.

The new §115.767(a)(3) requires the owner or operator to maintain hourly records documenting the emission rate in lb/hr for each hour for total strippable VOC, speciated HRVOC, and total HRVOC from the cooling water for each cooling tower heat exchange system. The flow rate of the cooling water in conjunction with the monitored concentration of the total strippable VOC, speciated HRVOC, or total HRVOC, must be used to calculate the respective emission rate in lb/hr.

The new §115.767(a)(4) requires the owner or operator to maintain hourly records on a weekly basis that detail all corrective actions and any delay in corrective action taken by documenting the dates, reasons, and durations of such occurrences and the estimated quantity of all HRVOC emissions during such activities.

The new §115.767(a)(5) requires the owner or operator to update hourly the 24-hour rolling average HRVOC emissions for the site-wide cap.

The new §115.767(b) applies to any cooling tower heat exchange system claiming exemption under §115.768, concerning Exemptions. New §115.767(b)(1) requires records of the heat exchanger pressure differential to be maintained to document continuous compliance with the exemption criteria, and new §115.767(b)(2) requires records of the process side fluid in each heat exchanger to be maintained to demonstrate continuous compliance with the exemption criteria.

The new §115.767(c), proposed as §115.767(9), requires the owner or operator to maintain all records necessary to demonstrate continuous compliance and records of periodic measurements for five years, and to make available for review upon request by authorized representatives of the executive director, EPA, or any local air pollution control agency with jurisdiction.

The new §115.768(1), concerning Exemptions, allows the owner or operator of any cooling tower heat exchange system that is operated with the minimum pressure on the cooling water side at least five psig greater than the maximum pressure on the process side, as demonstrated by continuous pressure monitoring and recording at all heat exchangers, to be exempt from the requirements of the division, with the exception of the recordkeeping requirements.

The new §115.768(2) allows the owner or operator of any cooling tower heat exchange system in which no individual heat exchanger has HRVOC in the process side fluid to be exempt from the requirements of this division, with the exception of the recordkeeping requirements.

The new §115.768(3) allows any account for which no stream directed to a cooling tower heat exchange system contains 5.0% or greater by weight HRVOC to be exempt from the requirements of the site-wide cap.

The new §115.768(4) exempts emissions from emissions events that have been reported to the TCEQ in compliance with §101.201. This exemption from compliance with the cap does not exempt these emission events from enforcement. Rather, these emission events will be evaluated and subjected to the appropriate enforcement action for any violations that occurred in conjunction with the emissions event. This exemption is necessary to ensure that the emission event will not automatically be subjected to duplicate enforcement actions for a violation of the cap as well as for any violations at the facility or facilities involved in the event.

The new §115.769, concerning Counties and Compliance Schedules, requires the owner or operator of a cooling tower heat exchange system in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties to demonstrate compliance with the division as soon as practicable, but no later than December 31, 2004, with the exception of the site-wide cap, for which the owner or operator must demonstrate compliance as soon as practicable, but no later than April 1, 2006. The compliance schedule was developed to be as expeditious as practicable, with consideration and balancing between competing needs for economic reasonableness and expeditious reductions. Proposed §115.769 contained a requirement that if a cooling tower heat exchange system at an account had data reflecting chlorine usage amounts and/or monitoring data for any HRVOC, then the reporting requirements of the division would be applicable and data must be submitted to the agency no later than April 30, 2003. This requirement has been deleted because of the elimination of reporting requirements for chlorine usage, and because the commission is not requiring monitoring data already present at an account to be reported. If such data are already being collected at an account, the commission is authorized to request that the data be submitted to the agency for review.

Subchapter H, Highly-Reactive Volatile Organic Compounds
Division 3, Fugitive Emissions
The new §115.780, concerning Applicability, specifies that any process unit or process within a petroleum refinery; synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation in HGA in which an HRVOC is a raw material, intermediate, final product, or in a waste stream is subject to the requirements of Division 3 of Subchapter H in addition to the applicable requirements of Division 3 of Subchapter D. The new section is necessary to make it clear that the requirements of the new Division 3 of Subchapter H apply in addition to, rather than in place of, the requirements of Division 3 of Subchapter D.

The new §115.781, concerning General Monitoring and Inspection Requirements, includes a requirement in the new §115.781(a) for the owner or operator to identify the components of each unit which is subject to the new Division 3 of Subchapter H. This is necessary to ensure that components which are subject to this division are readily identifiable for monitoring, which in turn will improve the compliance rate and reduce emissions of HRVOCs.

The new §115.781(b) specifies that each component in a unit subject to this division must be monitored in accordance with Division 3 of Subchapter D, with additional requirements intended to address components which are not monitored adequately, if at all, under Division 3 of Subchapter D. Specifically, the exemptions in Division 3 of Subchapter D do not apply, and leak-skip under §115.354(7) and (8) is prohibited because leak-skip can allow leaks to occur for up to one year before the leak is detected. In addition, quarterly monitoring is required for a variety of components that have been found to leak, yet in most cases are not currently required to be monitored at all. These components include: blind flanges, caps, or plugs at the end of a pipe or line containing VOC; connectors; heat exchanger heads; sight glasses; meters; gauges; sampling connections; bolted manways; hatches; agitators; sump covers; junction box vents; covers and seals on VOC water separators; and process drains.

The new §115.781(b) also specifies that all components for which a repair attempt was made during a shutdown must be monitored and inspected for leaks within 30 days or at the next monitoring period, whichever occurs first, after startup. This is necessary to determine whether repairs were successfully completed.

In addition, weekly inspections are required for all process drains equipped with water seals to ensure that the water seals are properly designed and maintained such that they are effective in preventing emissions. For process drains without water seals, the new §115.781(b) requires monthly inspections to ensure that all gaskets, caps, and/or plugs are in place and that there are no gaps, cracks, or other holes in the gaskets, caps, and/or plugs. In addition, all caps and plugs must be inspected monthly to ensure that they are tightly-fitting. This is necessary because in some cases the caps or plugs are only finger-tight, thereby resulting in emissions.

These requirements for process drains are necessary for several reasons. Commission staff has found that many of these drains are configured with u-shaped P-traps that use a water seal as control technology. Many process drains receive high-temperature material or steam condensate, and any water in the drain seals is quickly evaporated. These drains then have a relatively high flow rate in air volume coming out of them, resulting in uncontrolled VOC emissions. If the drain is found to be leaking during an annual monitoring check, commission staff has found that an owner or operator can simply pour water in the drain and ignore it for another year. In April 2000, commission staff monitored the process drains in an ethylene unit and found readings as high as 2,000 ppmv on process drains that were all equipped with water seal technology but no water seal. In many cases, emissions are recurring within hours of filling the drains. Consequently, some of these drains leak most of the year, and therefore the commission is adopting this more frequent inspection schedule.

In addition, new §115.781(b) specifies that all pressure relief valves (PRVs) in gaseous service which are not vented to a closed-vent system must be monitored each calendar quarter (with a hydrocarbon gas analyzer). This is consistent with typical permit provisions and is necessary to detect ongoing emissions from improperly-seated PRVs.

The new §115.781(b) also specifies that the monitored VOC concentration must be recorded for each component, rather than using notations such as "not leaking" or "below leak definition" for readings that are below the leak definition for the component, or "pegged," "off scale," or "leaking" for readings that are above the leak definition for the component.

For “pegged” readings on the hydrocarbon gas analyzer, one approach is to set the hydrocarbon gas analyzer to 10x scale or, if necessary, 100x scale. For example, a hydrocarbon gas analyzer reading of 8,000 ppmv on 10x scale means that the actual VOC concentration which must be recorded is 80,000 ppmv. If the hydrocarbon gas analyzer is still pegged on 100x scale or is not equipped with a 100x scale, a default pegged value of 100,000 ppmv is recorded.

Alternatively, if the hydrocarbon gas analyzer is not equipped with a 10x scale, a dilution probe which pulls in ambient air at a known ratio (e.g., ten-to-one) is used. For example, a hydrocarbon gas analyzer reading of 8,000 ppmv with a dilution probe using a ten-to-one dilution ratio means that the actual VOC concentration which must be recorded is 80,000 ppmv. If the hydrocarbon gas analyzer is still pegged using a dilution probe, a default pegged value of 100,000 ppmv is recorded.

This is necessary to be able to more accurately determine the VOC concentration for “pegged” components, which in turn will allow for a more accurate emissions inventory for use in developing control strategies toward reaching attainment with the ozone standard.

Similarly, the requirement to record the VOC concentration for components which are below the leak threshold will allow for a more accurate emissions inventory for use in developing control strategies toward reaching attainment with the ozone standard.

The new §115.781(c) specifies that pumps, compressors, and agitators must be inspected weekly or equipped with an alarm that alerts operators of leaks. For closed-vent systems containing bypass valves which are secured in the closed position with a car-seal or a lock-and-key type configuration, new §115.781(d) requires inspections of the seal or closure mechanism on a monthly basis and after any maintenance activity that requires the seal to be broken. These inspections are necessary to ensure the valve is maintained in the closed position and the vent stream is not diverted through the bypass line.

The new §115.781(e) requires monitoring within 24 hours of any pressure relief device which has vented to the atmosphere. This is necessary to ensure that the pressure relief device is not continuing to emit due to a problem such as a failure to reseat.

The new §115.781(f) establishes the availability of a leak-skip option for connectors.

The new §115.782, concerning Procedures and Schedule for Leak Repair and Follow-up, includes a requirement in new §115.782(a) for the owner or operator to place a weatherproof and readily visible tag on each leaking component. This is necessary to ensure that components are easy to locate once they have been found to leak, thereby facilitating repair.

The new §115.782(b) specifies that a first attempt to repair a leaking component must be made as follows: 1) for leaks detected over 10,000 ppmv, a first attempt at repairing the leaking component shall be made no later than one business day after the leak is detected, and the component shall be repaired no later than seven calendar days after the leak is detected; and 2) for all other leaks, a first attempt at repairing the leaking component shall be made no later than five calendar days after the leak is detected, and the component shall be repaired no later than 15 calendar days after the leak is detected. The existing LDAR rules require repair within 15 calendar days, but allow five days for a first attempt at repair. The requirement for a first attempt at repair within the newly-specified time periods after the leak is detected is necessary to minimize emissions of HRVOCs which contribute to ozone exceedances.

The new §115.782(c) establishes the conditions under which repair of a leaking component may be delayed. For valves other than PRVs and automatic control valves, extraordinary efforts to repair the leaking valve (e.g., drilling and injection of sealant) must be made within seven days of the valve being placed on the shutdown list (or 15 days for leaks of 10,000 ppmv or less). The valve can only remain on the shutdown list after a second unsuccessful attempt to repair it through extraordinary efforts, unless the owner or operator demonstrates that there is a safety, mechanical, or major environmental concern posed by repairing the leak through extraordinary means. In either case, repair of the valve must be made at the next shutdown. These conditions are appropriate due to the availability of sealant injection to stop leaks without needing to take the valve offline or shut down the unit, and will ensure that the best possible effort is made to repair most valve leaks without automatically placing them on the shutdown list and allowing the leak to continue unabated for as many as eight to ten years. Repair is not required if the valve is isolated from the process and does not remain in VOC service, since the valve would no longer have the potential to leak.

For all other components, new §115.782(c) specifies that repair can be delayed if the component is isolated from the process and does not remain in VOC service. In addition, new §115.782(c) specifies that repair can be delayed if the owner or operator can document that emissions from immediate repair would be greater than the fugitive emissions resulting from delay of repair (provided that the component is repaired at the next shutdown). For pumps, compressors, and agitators, new §115.782(c) specifies that repair can be delayed if repair is completed within six months and includes replacing the existing seal design with either a dual mechanical seal system that includes a barrier fluid system, a system that is designed with no externally actuated shaft penetrating the housing, or a closed-vent system and control device.

The new §115.783, concerning Equipment Standards, establishes the requirements for upgrading equipment to reduce emissions of HRVOCs. New §115.783(1) requires closed-vent systems containing bypass lines that could divert a vent stream away from the control device and to the atmosphere to have either a flow indicator that determines whether vent stream flow is present, or the bypass line valve secured in the closed position with a car-seal or a lock-and-key type configuration. This is necessary to ensure that emissions of HRVOCs, which should be controlled in a control device, are not emitted directly to the atmosphere uncontrolled and/or unnoticed by the owner or operator.

The new §115.783(2) requires closed-vent systems, control devices, and recovery devices to be operating properly whenever VOC emissions are directed to them. New §115.783(2)(A) requires recovery devices (e.g., condensers and absorbers) to be designed and operated to recover the VOC emissions vented to them with an efficiency of 95% or greater. New §115.783(2)(A) requires flares to meet the requirements of the new Subchapter H, Division 1, concerning Vent Gas Control, and 40 CFR §60.18(b) or §63.11(b). New §115.783(2)(C) requires all other control devices to reduce VOC emissions with a control efficiency of at least 98% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices). These are all standard control requirements for properly designed and operated control devices.

The new §115.783(3) requires each PRV equipped with a rupture disk to have a pressure sensing device between the PRV and the rupture disk, with failed rupture disks replaced as soon as practicable, but no later than 30 calendar days after the failure is detected. Rupture disks are a common method of isolating the PRV from the process, thereby preventing fugitive emissions from the PRV.

The new §115.783(4) requires each pump, compressor, and agitator installed on or after July 1, 2003 to be equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal. The new §115.783(4)(A) specifies acceptable shaft sealing systems, including seals equipped with piping capable of transporting any leakage from the seal(s) back to the process, seals with a closed-vent system capable of transporting to a control device any leakage from the seal or seals, dual pump seals with a heavy liquid or non-VOC barrier fluid at higher pressure than process pressure, and seals with an automatic seal failure detection and alarm system.

The new §115.783(4)(B) establishes the procedures for approval of additional shaft sealing systems, and new §115.783(4)(C) establishes the procedures for the appeal of any denial of a request for approval of an alternative shaft sealing system.

The new §115.783(5) establishes the equipment standards for process drains. Specifically, new §115.783(5)(A)(i) specifies that if a process drain is controlled by water seal controls, the use of VOC rather than water as the sealing liquid in a water seal is prohibited, except during November - February. This is necessary because commission staff has found an owner or operator using process VOC in this manner, with company personnel claiming that nothing prohibits this. Measurements with a hydrocarbon gas analyzer exceeded 10,000 ppmv, indicating significant emissions.

The new §115.783(5)(A)(ii) further specifies that as an alternative to weekly seal inspections, the process drain may be equipped with an alarm that alerts the operator if the water level is low and a device that continuously records the status of the water level alarm, or alternatively, a flow-monitoring device indicating either positive flow from a main to a branch water line supplying a trap or water being continuously dripped into the trap and a device that continuously records the status of water flow into the trap.

The new §115.783(5)(B) specifies that if a process drain is not controlled by water seal controls, the process drain must be equipped with a gasketed seal, or a tightly-fitting cap or plug.

The requirements in the new §115.783(5)(A) and (B) are necessary for the reasons described earlier in this preamble concerning the new §§115.142(1)(A), 115.144(4) and (5), and 115.781(b), as well as the preceding paragraphs concerning new §115.783(5).

The new §115.785, concerning Testing Requirements, requires reference method stack testing of control devices which are used to control emissions from components in the LDAR program. This testing is necessary to determine the control efficiency of these control devices and verify that they meet or exceed the minimum acceptable control efficiencies. New §115.785 also requires the owner or operator to submit the final sampling report within 60 days after sampling is completed.

The new §115.786, concerning Recordkeeping Requirements, specifies the records that the owner or operator must maintain and, in some cases, submit in order to demonstrate compliance with Subchapter H, Division 3. Specifically, for bypass lines on closed-vent systems equipped with flow monitors, new §115.786(a) requires the owner or operator to maintain records of whether the flow monitor was operating and any diversion to the bypass line.

For bypass lines on closed-vent systems in which the bypass line valve is secured in the closed position, new §115.786(b) requires the owner or operator to maintain a record of the monthly visual inspection of the seal or closure mechanism; record the date and time of all periods when the seal mechanism is broken, the bypass line valve position has changed, or the key for a lock-and-key type lock has been checked out; and maintain records of each time the bypass line valve was opened.

The new §115.786(c) requires the owner or operator to maintain records of all non-repairable components and submit them semiannually. The report shall contain the component identification code, the component type, the leak concentration measurement and date, the date of the last process unit turnaround, and the total number of non-repairable components awaiting repair.

The new §115.786(d) requires the owner or operator to maintain records in accordance with §115.356.

The new §115.786(e) requires the owner or operator to maintain all records for at least five years and make them available for review upon request by authorized representatives of the executive director, EPA, or local air pollution control agencies with jurisdiction. The sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records.

The new §115.787, concerning Exemptions, establishes exemptions for components with a low potential to emit HRVOC. Specifically, new §115.787(a) exempts components which contact a process fluid that contains less than 5.0% HRVOC by weight from the requirements of Subchapter H, Division 3, except for recordkeeping requirements necessary to document that a component qualifies for this exemption.

The new §115.787(b) exempts submerged pumps or sealless pumps (e.g., diaphragm, canned, or magnetic-driven pumps) and pumps, compressors, and agitators installed before July 1, 2003 from the shaft sealing system requirements of §115.783(4) described earlier in this preamble. The new §115.787(c) exempts conservation vents on atmospheric storage tanks, components in continuous vacuum service, valves that are not externally regulated (such as in-line check valves), plant sites covered by a single account number with less than 250 components in VOC service, components which are insulated, making them inaccessible to monitoring with an hydrocarbon gas analyzer, and sampling connection systems which are in compliance with 40 CFR §63.166(a) and (b).

The new §115.788, concerning Audit Provisions, requires an audit every two years by an independent third-party organization (NOT the current LDAR contractor), with a report due within 30 days of audit completion. The auditor must include an audit of all components which were not tagged, but which should have been tagged, or which were not included in the list of components to be monitored or visually inspected, but which should have been included on that list; and the leak/no-leak status and measured VOC concentration for all components for which monitoring or visual inspection is required that monitoring period.

The audit must also include monitoring of the following number of components required to be monitored in the unit, based on an average of the most recent four quarters: for units with no more than 100 components, audit all components; for units with 101 to 9,999 components, audit the number of components determined from a graph in the rule which is designed to achieve a 95% confidence level with a 5.0% confidence interval; and for units with 10,000 components or more, audit at least 400 components. For units with 1,000 components or more, the audit cannot include components which were included in either of the most recent two audits.

The audit must also include all data generated by monitoring technicians in the previous quarter, including a review of the number of components monitored per technician; a review of the time between monitoring events; identification of abnormal data patterns; and identification of any discrepancies between the data in the electronic database and the data in the datalogger and/or field notes.

In addition, new §115.788(e) specifies that staff from the commission, EPA, or local programs may conduct an audit of the LDAR program. Finally, new §115.788(f) specifies that in lieu of complying with the LDAR program audit provisions of §115.788(a) - (d), an owner or operator may request approval from the executive director of an alternative method which demonstrates equivalency with the independent third-party audit. The equivalency demonstration must include a detailed explanation of how the equivalency will be demonstrated, including the appropriate recordkeeping and reporting requirements that will be implemented which are sufficient to demonstrate compliance with the alternative method, and must demonstrate that it is a replicable procedure and detail how the equivalency will be demonstrated. New §115.788(f) will add flexibility while ensuring equivalency.

The audit provisions of §115.788 are necessary to properly motivate owners and operators to implement a meaningful LDAR program, and to properly repair the more significant leaks in a timely fashion such that emissions which contribute to ozone exceedances are minimized. The EPA's National Enforcement Investigations Center (NEIC) has published the results of its audits of 47,526 components at 17 refineries in the EPA's *Enforcement Alert* (October 1999), available at: http://es.epa.gov/oeca/ore/enfalert/propem.pdf. The average leak rate reported by the audited refineries was 1.3%, while the average leak rate determined by NEIC was 5.0%. South Coast Air Quality Management District (SCAQMD) provided data from audits of 109,384 components conducted at eight refineries from 1994 through 2000. The average leak rate reported by the audited refineries was 0.40%, while the average leak rate determined by SCAQMD investigators was 1.21%. The data suggest that SCAQMD's audit program, with its automatic violations and associated financial penalties, is having the desired effect in motivating owners and operators of refineries in SCAQMD to reduce fugitive emissions by better implementation of their LDAR programs. A similarly aggressive LDAR audit program in Texas could reasonably be expected to produce similar results on refinery and non-refinery sources.

The new §115.789, concerning Counties and Compliance Schedules, specifies the compliance dates and affected counties for sources subject to the new LDAR requirements. Specifically, each owner or operator must comply with the requirements of Subchapter H, Division 3, as soon as practicable, but no later than December 31, 2003, except that the initial independent third-party audit required by §115.788 must be completed and the results of the audit submitted to the executive director as soon as practicable, but no later than December 31, 2004. The compliance schedule was developed to be as expeditious as practicable, with consideration and balancing between competing needs for economic reasonableness and expeditious reductions.

FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission has reviewed the rulemaking in light of the regulatory analysis requirements of Texas Government Code, §2001.0225, and has determined that the rulemaking meets the definition of a "major environmental rule" as defined in that statute. A "major environmental rule" means 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 amendments to Chapter 115 and revisions to the SIP would improve implementation of the existing Chapter 115 by adding requirements to achieve reductions in emissions of HRVOC in the HGA ozone nonattainment area. The rules are intended to protect the environment and reduce risks to human health and safety from environmental exposure and may have adverse effects on owners and operators of certain sources, in particular fugitives, flares, process vents, and cooling towers. Many of these sources are owned or operated by utilities, petrochemical plants, refineries, and other industrial, commercial, or institutional groups, and each group could be considered a sector of the economy in a sector of the state. This is based on the analysis provided in the rule proposal preamble, including the discussion in the PUBLIC BENEFITS AND COSTS section of the proposals (27 TexReg 5394 and 6208). The remaining amendments in this rulemaking are intended to correct typographical errors, update cross-references, clarify ambiguous language, add flexibility and delete obsolete language, and these amendments are not expected to 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 amendments do not meet any of the four applicability criteria of a "major environmental rule" as defined in the Texas Government Code. Section 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 amendments implement requirements of the FCAA. Under 42 USC, §7410, states are required to adopt a SIP which provides for "implementation, maintenance, and enforcement" of the primary NAAQS in each air quality control region of the state. While 42 USC, §7410, does not require specific programs, methods, or reductions in order to meet the standard, SIPs must include "enforceable emission limitations and other control measures, means or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance as may be necessary or appropriate to meet the applicable requirements of this chapter," (meaning Chapter 85, Air Pollution Prevention and Control). It is true that the FCAA does require some specific measures for SIP purposes, such as the inspection and maintenance program, but those programs are the exception, not the rule, in the SIP structure of the FCAA. The provisions of the FCAA recognize that states are in the best position to determine what programs and controls are necessary or appropriate in order to meet the NAAQS. This flexibility allows states, affected industry, and the public, to collaborate on the best methods for attaining the NAAQS for the specific regions in the state. Even though the FCAA allows states to develop their own programs, this flexibility does not relieve a state from developing a program that meets the requirements of 42 USC, §7410. Thus, while specific measures are not generally required, the emission reductions are required. States are not free to ignore the requirements of 42 USC, §7410, and must develop programs to assure that the nonattainment areas of the state will be brought into attainment on schedule.

The requirement to provide a fiscal analysis of proposed regulations in the Texas Government Code were amended by Senate Bill (SB) 633 during the 75th Legislative Session. The intent of SB 633 was to require agencies to conduct an regulatory impact analysis (RIA) of extraordinary rules. These are identified in the statutory language as major environmental rules that will have a material adverse impact and will exceed a requirement of state law, federal law, or a delegated federal program, or are adopted solely under the general powers of the agency. With the understanding that this requirement would seldom apply, the commission provided a cost estimate for SB 633 that concluded "based on an assessment of rules adopted by the agency in the past, it is not anticipated that the bill will have significant fiscal implications for the agency due to its limited application." The commission also noted that the number of rules that would require assessment under the provisions of the bill was not large. This conclusion was based, in part, on the criteria set forth in the bill that exempted proposed rules from the full analysis unless the rule was a major environmental rule that exceeds a federal law. As discussed earlier in this preamble, the FCAA does not require specific programs, methods, or reductions in order to meet the NAAQS; thus, states must develop programs for each nonattainment area to ensure that area will meet the attainment deadlines. Because of the ongoing need to address nonattainment issues, the commission routinely proposes and adopts SIP rules. The legislature is presumed to understand this federal scheme. If each rule proposed for inclusion in the SIP was considered to be a major environmental rule that exceeds federal law, then every SIP rule would require the full RIA contemplated by SB 633. This conclusion is inconsistent with the conclusions reached by the commission in its cost estimate and by the Legislative Budget Board (LBB) in its fiscal notes. Since the legislature is presumed to understand the fiscal impacts of the bills it passes, and that presumption is based on information provided by state agencies and the LBB, the commission believes that the intent of SB 633 was only to require the full RIA for rules that are extraordinary in nature. While the SIP rules will have a broad impact, that impact is no greater than is necessary or appropriate to meet the requirements of the FCAA. For these reasons, rules adopted for inclusion in the SIP fall under the exception in Texas Government Code, §2001.0225(a), because they are specifically required by federal law.

In addition, 42 USC, §7502(a)(2), requires attainment as expeditiously as practicable, and 42 USC, §7511a(d), requires states to submit ozone attainment demonstration SIPs for severe ozone nonattainment areas such as HGA. The adopted rules, which will reduce ambient HRVOC and ozone in HGA, will be submitted to the EPA as one of several measures in the federally approved SIP. As discussed earlier in this preamble, controls on upsets and routine industrial VOC emissions are necessary to address some of the elevated ozone levels observed in HGA; these controls will result in reductions in ozone formation in the HGA ozone nonattainment area and help bring HGA into compliance with the air quality standards established under federal law as NAAQS for ozone. As discussed in Chapter 7 of the HGA SIP, this revision is another phase in the process of continued analysis and review of the science, and the data collected as a result of these revisions will further assist the commission as it develops its full reassessment of the attainment demonstration at the MCR. Therefore, the adopted amendments are necessary components of, and consistent with, the ozone attainment demonstration SIP for HGA, required by 42 USC, §7410.

The commission has consistently applied this construction to its rules since this statute was enacted in 1997. Since that time, the legislature has revised the Texas Government Code but left this provision substantially unamended. It is presumed that "when an agency interpretation is in effect at the time the legislature amends the laws without making substantial change in the statute, the legislature is deemed to have accepted the agency's interpretation." *Central Power & Light Co. v. Sharp*, 919 S.W.2d 485. 489 (Tex. App. - Austin 1995), *writ denied with per curiam opinion respecting another issue*, 960 S.W.2d 617 (Tex. 1997); *Bullock v. Marathon Oil Co.*, 798 S.W.2d 353, 357 (Tex. App. - Austin 1990, no writ). *Cf. Humble Oil & Refining Co. v. Calvert*, 414 S.W.2d 172 (Tex. 1967); *Sharp v. House of Lloyd*, Inc., 815 S.W.2d 245 (Tex. 1991); *Southwestern Life Ins. Co. v. Montemayor*, 24 S.W.3d 581 (Tex. App. - Austin 2000, *pet. denied*); and *Coastal Indust. Water Auth. v. Trinity Portland Cement Div.*, 563 S.W.2d 916 (Tex. 1978).

The commission's interpretation of the RIA requirements is also supported by a change made to the Texas Administrative Procedure Act (APA) by the 76th Legislature (1999). In an attempt to limit the number of rule challenges based upon APA requirements, the legislature clarified, in Texas Government Code, §2001.035, that state agencies are required to meet certain sections of the APA against the standard of "substantial compliance." The legislature specifically identified Texas Government Code, §2001.0225 as subject to this standard. The commission has more than substantially complied with the requirements of §2001.0225.

As discussed earlier in this preamble, this rulemaking implements requirements of the FCAA. There is no contract or delegation agreement that covers the topic that is the subject of this rulemaking. Therefore, the adopted rules do not exceed a standard set by federal law, exceed an express requirement of state law, exceed a requirement of a delegation agreement, nor are adopted solely under the general powers of the agency. In addition, the rules are adopted under the Texas Health and Safety Code (THSC), Texas Clean Air Act (TCAA), §§382.011, 382.012, 382.014, 382.016, 382.017, 382.021, 382.034 and 382.051(d). Comments regarding the draft RIA determination are addressed later in this preamble under the RESPONSE TO COMMENTS heading.

TAKINGS IMPACT ASSESSMENT

The commission completed a takings impact analysis for the adopted rules under Texas Government Code, §2007.043. The specific purposes of these amendments are to achieve reductions in HRVOC emissions and ozone formation in the HGA ozone nonattainment area and help bring HGA into compliance with the air quality standards established under federal law as NAAQS for ozone, as well as to improve implementation of the existing Chapter 115 by correcting typographical errors, updating cross-references, clarifying ambiguous language, adding flexibility, and deleting obsolete language. Certain sources located in HGA will be required to install equipment to monitor emissions and achieve reductions in emissions of HRVOC in the HGA ozone nonattainment area, and implement new reporting and recordkeeping requirements. Installation of the necessary equipment could conceivably place a burden on private, real property.

Texas Government Code, §2007.003(b)(4), provides that Chapter 2007 does not apply to these adopted rules, because they are reasonably taken to fulfill an obligation mandated by federal law. The emission limitations and control requirements within this rulemaking were developed in order to meet the NAAQS for ozone set by the EPA under 42 USC, §7409. States are primarily responsible for ensuring attainment and maintenance of NAAQS once the EPA has established them. Under 42 USC, §7410, and related provisions, states must submit, for approval by the EPA, SIPs that provide for the attainment and maintenance of NAAQS through control programs directed to sources of the pollutants involved. Therefore, one purpose of this rulemaking action is to meet the air quality standards established under federal law as NAAQS. Attainment of the ozone standard will eventually require reductions of HRVOC emissions, as well as substantial reductions in NO_x emissions. Any VOC reductions resulting from the current rulemaking are no greater than what scientific research indicates is necessary to achieve the desired ozone levels. However, this rulemaking is only one step among many necessary for attaining the ozone standard.

In addition, Texas Government Code, §2007.003(b)(13), states that Chapter 2007 does not apply to an action that: 1) is taken in response to a real and substantial threat to public health and safety; 2) is designed to significantly advance the health and safety purpose; and 3) does not impose a greater burden than is necessary to achieve the health and safety purpose. Although the rule revisions do not directly prevent a nuisance or prevent an immediate threat to life or property, they do prevent a real and substantial threat to public health and safety and significantly advance the health and safety purpose. This action is taken in response to the HGA area exceeding the federal ambient air quality standard for ground-level ozone, which adversely affects public health, primarily through irritation of the lungs. The action significantly advances the health and safety purpose by reducing ozone levels in the HGA nonattainment area. Consequently, these adopted rules meet the exemption in §2007.003(b)(13). This rulemaking action therefore meets the requirements of Texas Government Code, §2007.003(b)(4) and (13). For these reasons, the adopted rules do not constitute a takings under Chapter 2007.

CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

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

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 that 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(1)). No new sources of air contaminants will be authorized and ozone levels will be reduced as a result of these rules. The CMP policy applicable to this rulemaking action is the policy that commission rules comply with regulations in 40 CFR, to protect and enhance air quality in the coastal area (31 TAC §501.14(q)). This rulemaking action complies with 40 CFR. Therefore, in compliance with 31 TAC §505.22(e), this rulemaking action is consistent with CMP goals and policies. No comments were received during the comment period regarding the CMP consistency review.

EFFECT ON SITES SUBJECT TO THE FEDERAL OPERATING PERMIT PROGRAM

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

PUBLIC COMMENT

The commission held public hearings on this proposal at the following locations: July 18, 2002, in Austin; July 22, 2002 in Houston and Channelview; and August 6, 2002 in Houston. The comment period was originally scheduled to close on July 22, 2002, but was extended until 5:00 p.m. on August 6, 2002 (see the July 12, 2002 issue of the *Texas Register* (27 TexReg 6450)).

Forty-two commenters submitted testimony on the proposal. Houston Analytical Systems Company and JUM Engineering submitted joint written comments and will be referred to as Houston Analytical. Harris County Public Health & Environmental Services Pollution Control Division (HCPC) and one individual supported the proposed revisions to Chapter 115. Air Products, L.P. (Air Products); Association of Texas Intrastate Natural Gas Pipelines (ATINGP); ATOFINA Petrochemicals, Inc. (ATOFINA); BakerBotts L.L.P. on behalf of BCCA-AG (BCCA-AG); BakerBotts L.L.P. on behalf of Waste Management, Inc. (Waste Management); BASF; BP Products North America Inc. (BP); Chevron Phillips Chemical Company LP (Chevron); Dow Chemical Company (Dow); Duke Energy Gas Transmission (Duke); DuPont; Environmental Defense (ED); EnRUD Resources, Inc. (EnRUD); EPA; Ethyl Corporation - Houston Plant (Ethyl); ExxonMobil Downstream/Chemical (ExxonMobil); Galveston-Houston Association for Smog Prevention (GHASP); Good Company Associates, Inc. (Good Company); Goodyear Tire and Rubber Company - Beaumont Chemical Plant (Goodyear-Beaumont); Goodyear Tire and Rubber Company - Houston Chemical Plant (Goodyear-Houston); Greater Houston Partnership; Green Environmental Consulting, Inc. (Green); Kinder Morgan Energy Partners, L.P. (Kinder Morgan); Lloyd, Gosselink, Blevins, Rochelle, Baldwin, and Townsend, P.C. on behalf of Allied Waste Industries, Inc. (Allied); Lyondell Chemical Company (Lyondell); Mothers for Clean Air (MfCA); Occidental Chemical Corporation (OxyChem); Phillips Petroleum Company (Phillips); Selas Fluid Processing Corporation (Selas); Sierra Club - Houston Regional Group (Sierra-Houston); Sierra Club - Lone Star Chapter (Sierra-Lone Star); Solutia, Inc. (Solutia); Texas Chemical Council (TCC); Texas Oil and Gas Association (TxOGA); Texas Terminal Operators Group (Terminal Operators); URS Corporation on behalf of Rohm and Haas Company (Rohm & Haas); Valero Refining - Texas, L.P. (Valero); and one individual supported the proposed revisions but suggested changes or clarifications.

GHASP supported the comments submitted by ED. Sierra-Lone Star supported the comments submitted by ED, GHASP, and Sierra-Houston. Air Products supported the comments submitted by BCCA-AG and TCC. BP and DuPont supported the comments submitted by TCC. Chevron, Dow, OxyChem, and Valero supported the comments submitted by BCCA-AG and TCC. ExxonMobil and Phillips supported the comments submitted by BCCA-AG, TCC, and TxOGA. Kinder Morgan supported the comments submitted by Terminal Operators, and TxOGA's comments regarding an exemption for low flow flares with less than two tpy of VOC emissions.

RESPONSE TO COMMENTS

GENERAL COMMENTS
Ethyl stated that the proposed regulations and supporting documents are lengthy, and that there was insufficient time to read them, evaluate them, gather information, and develop substantial comments with supportive documentation to oppose portions of the proposals.

Many of the supporting documents were posted on the commission's website for months before the rule revisions were proposed. In addition, the comment period was extended from July 22, 2002 to August 6, 2002 (see the July 12, 2002 issue of the *Texas Register* (27 TexReg 6450)). Any additional extensions of the comment period would not allow commission staff sufficient time to review and analyze the comments.

BP and HCPC supported the proposed revisions to Chapter 115. BP stated that improvements in air quality in HGA would benefit their employees and their neighbors, and that BP wanted to be part of the solution. HCPC agreed with the concept of a specialized LDAR protocol for HRVOCs. Sierra-Houston and Sierra-Lone Star supported the regulation of cooling towers, flares, HRVOCs, and other VOC sources. GHASP supported the regulations to control VOCs, stating that in the face of all the uncertainty about how much pollution is being emitted, it is absolutely time to start regulating these VOCs. The Greater Houston Partnership supported efforts to significantly reduce HRVOC emissions through strong and feasible control measures. Chevron and Ethyl supported the commission's focus on HRVOC emission controls as a means to control ozone spikes in HGA. Goodyear-Houston and Phillips agreed with the commission that the most recent scientific findings support the premise that HRVOCs can cause or contribute to spike ozone events and therefore should be addressed in the SIP. ED expressed similar comments.

The commission appreciates the support.

Terminal Operators opposed the proposed revisions and expressed support for the current requirements in HGA.

The commission appreciates the support for the current requirements.

Air Products commented that existing programs, such as the Hazardous Organic National Emission Standards for Hazardous Air Pollutants (NESHAP) (HON) or the ethylene maximum achievable control technology (MACT) standards, should be used in lieu of the proposed HRVOC rules. Air Products stated that many of the sources addressed by the proposed rules are already complying with these programs and commented that new requirements which are inconsistent with existing regulations will likely result in overlapping requirements that could be confusing for both commission investigators and the regulated community.

Because there are a myriad of air pollution control programs with differing requirements, targeting a variety of sometimes overlapping compounds, with a multitude of different objectives, it is essentially impossible to avoid overlapping requirements. The more reasonable goal is not to avoid overlapping requirements, but to ensure that different requirements do not conflict with

each other in such a way that the only possible outcome of compliance with one rule would be noncompliance with another rule. The commission has been careful to ensure that no such undesirable outcome results from the new and revised Chapter 115 rules.

One individual expressed concerns regarding the personal health effects of toxic VOCs being emitted from the industrial plants in the area and requested the commission control these emissions.

The proposed rules do not specifically address emissions of air toxics, which instead are regulated by other commission rules as well as a variety of federal standards. However, the community air toxics monitoring network currently includes a total of 45 monitors in 18 counties, including 15 in HGA. Should this air toxics monitoring indicate levels of concern, the commission will take appropriate action to ensure that health effects concerns are thoroughly addressed. In addition, the proposed rules require reductions in HRVOC emissions, some of which are air toxics (hazardous air pollutants), and the HRVOC rules are also expected to concurrently reduce emissions of non-HRVOC air toxics.

Good Company stated that a new technology has the ability to reduce the emission of HRVOCs from fuel and chemical storage tanks that tend to vent on hot summer days. It stated that the simple, cost-effective technology keeps tanks from heating up, which reduces venting of VOCs. Good Company suggested that the commission include this new technology in the SIP control strategy for tanks that do not already require vent controls.

The commission appreciates the commenter's interest in air pollution control. The commission will contemplate the suggested control measure in the future if the emission reductions are needed to meet EPA and/or FCAA requirements. Good Company may wish to consider making a vendor presentation to agency staff concerning this technology.

Phillips commented that general VOC requirements should be limited to highly cost-effective monitoring requirements because no scientific data has been presented showing significant ozone reduction benefits from the proposed requirements, which are particularly onerous for equipment leak monitoring, flare monitoring, and cooling tower monitoring. Phillips also expressed a belief that the analytical requirements of the proposed monitoring are massive and unnecessary for developing a valid inventory. Phillips advocated that the commission develop a plan addressing HRVOC in a two-phased approach, such that emissions and source data is acquired and evaluated prior to setting equipment limits or standards for HRVOC. TxOGA commented that the proposed revisions to the equipment leak provisions in Chapter 115 are very onerous, labor-intensive, and costly, and that the emission reductions intended by the revisions are very likely not the most cost-effective reductions for sources in the nonattainment area. In addition, TxOGA stated that manpower requirements for the monitoring and maintenance of added components are very significantly underestimated by the commission. TxOGA recommended that a study be conducted to determine the effectiveness of specific recommended revisions to determine whether monitoring of added components and/or increased frequency would be expected to reduce emissions to any significant degree.

The commission has withdrawn the proposed general VOC monitoring rules in Subchapter B, Divisions 7 and 8. In lieu of requiring this monitoring of all VOCs from individual flares, cooling

towers, and process vents to obtain emissions data for use in SIP planning, the commission is relying on data from not only the commission's monitoring network, but also data from additional ambient monitors that will be strategically located in HGA. This monitoring is expected to not only be a more efficient use of resources for this data gathering, but will also provide information more quickly. As described more fully in the narrative to the SIP revision and Technical Support Document (TSD) that accompany these rule amendments, the commission is committed to developing the best science possible to understand the causes of high ozone in the HGA. For the MCR, the commission plans to perform an in-depth analysis of the contributions of the less-reactive compounds and to perform top-down analyses similar to those used for the HRVOCs. If warranted, appropriate adjustment factors will be developed for less-reactive VOCs. As explained more fully in the SIP and TSD, the current modeling analysis indicates that emission reductions in the HRVOC alone can compensate for the change of industrial NO_x controls to 80% reductions, but additional controls on VOC sources are likely to be necessary to reach attainment. The commission will continue to study VOC data available now and in upcoming years to determine whether additional compounds should be added. To accomplish this task, the commission needs the support of and expects owners and operators of facilities in HGA which emit VOCs to participate in the ambient monitoring efforts which are scheduled to begin no later than June 1, 2003. If the ambient monitoring network is not fully and timely developed and operated such that the commission has received sufficient data for MCR, the commission may reconsider site-specific monitoring controls of VOC sources.

The commission agrees that the regulation of pollutants should be based upon the best available science. The commission believes that the tremendous wealth of data acquired since the summer of 2000 has provided the commission with a very strong basis for determining the pollutants that warrant control at this time and the level to which they should be controlled. The commission disagrees that it is premature to establish numerical emission limitations. In fact, in order to justify a more cost-effective control strategy other than that already in the adopted SIP, specific numeric emission limitations are essential to maintain the integrity of the SIP and ensure an approvable attainment demonstration.

Revisions to the fugitive monitoring rules are discussed later in this preamble.

Valero stated that the commission has no justification for making the general VOC rules more stringent as part of its current strategy to focus more on HRVOCs to compensate for the relaxation of NO_x reductions. Valero stated that the commission must make the proposed HRVOC rules stand alone without revising other VOC rules. BCCA-AG, ExxonMobil, Goodyear-Houston, Lyondell, and TxOGA expressed similar concerns. DuPont asserted that it anticipates zero reduction in emissions at its HGA facilities as a result of the proposed rules addressing fugitive emissions. ExxonMobil recommended consideration of the general VOC fugitive monitoring rules at the end of MCR in 2004, once the effectiveness of the HRVOC rules can be evaluated.

The commission disagrees with the commenters. The preamble includes summaries of numerous loopholes and implementation problems in the current rules which must be addressed to ensure that the emission reductions anticipated by and relied upon in the SIP actually occur in each of the

ozone nonattainment areas. The current rules are being amended concurrently with the addition of the proposed HRVOC rules for HGA because it is administratively more efficient to do so.

TxOGA agreed with the commission that the regulation of pollutants in the HGA area should be based upon the best available science in demonstrating attainment of the ozone standard, and expressed a belief that the commission appropriately focused on many of the requirements of the Chapter 115 proposal on data acquisition to further the science. However, TxOGA stated that further refinement is needed in targeting specific data needs. TxOGA supported work practice standards which, when combined with reductions resulting from the episodic emissions initiatives, TxOGA believed would reduce emissions of general VOCs as well as HRVOCs thought to cause ozone spikes. TxOGA, however, expressed a belief that specific numerical emission limitations on HRVOCs for stationary sources are premature until such time as impacts from those standards are understood and a full review of alternate control strategies is undertaken.

The commission agrees that the regulation of pollutants should be based upon the best available science. The commission believes that the tremendous wealth of data acquired since the summer of 2000 has provided the commission with a very strong basis for determining the pollutants that warrant control at this time and the level to which they should be controlled. The commission disagrees that it is premature to establish numerical emission limitations. In fact, in order to justify a more cost-effective control strategy other than that already in the adopted SIP, specific numeric emission limitations are essential to maintain the integrity of the SIP and ensure an approvable attainment demonstration.

Sierra-Lone Star strongly advocated the commission proposal for improving the Chapter 115 regulations to require better monitoring and controls of HRVOCs that are being released from cooling towers, flares, fugitive sources, and vent sources in significant volumes and concentrations. Sierra-Lone Star stated that the proposed rules will result in measurable VOC reductions and related decreases in ground level ozone in HGA. Sierra-Lone Star expressed a belief, however, that the new rules do not go nearly far enough to address fugitive VOC losses; flared emissions from upsets, shutdowns, and startups; off-specification chemical product flaring; and on-specification chemical product flaring after meeting production contract quotas. The Sierra-Lone Star concern is that the proposed rules contain significant limitations on certain VOC monitoring, yet the commission needs to provide a strong set of VOC rules that address major regulatory gaps and drawbacks which have existed for years in Chapter 115. Sierra-Lone Star commented that the commission estimated that fugitives account for approximately 48% of the HRVOCs, so the leak detection monitoring methods and control measures for the fugitives component will be an extremely important factor in the SIP and attainment demonstration.

As stated in the proposal, the purpose of this revision was to determine if a certain level of reduction in HRVOCs could attain the same air quality benefit with an 80% NO_x reduction strategy as was demonstrated with the approved 90% NO_x reduction strategy. The commission believes it has met that determination with this revised strategy. Much analysis needs to be conducted between now and the MCR, particularly with regard to the contribution of other VOCs to ozone formation in HGA nonattainment area, in order to develop the most cost-effective strategy to attain the standard. This effort will consist of continued evaluation of data already collected, the collection of additional ambient data through an expanded auto gas chromatograph

network, and additional inventory analysis as well as additional modeling analysis. As a full analysis of what is ultimately necessary to fully demonstrate attainment is conducted at the MCR, the commission will be evaluating a number of issues that may change the HRVOC rules, such as: which, if any, additional chemicals need to be addressed, and the sources of these chemicals; what is the appropriate geographic scope for the regulations; what are appropriate averaging times for the chemicals of concern; and what, if any, changes need to be made to the allocation process. By establishing a compliance date approximately 18 months after the conclusion of the MCR process, the commission believes it will have ample time to make necessary adjustments and still allow industry adequate time to fully comply.

GHASP stated that the rules anticipate the control of emissions to maximum levels per affected component, but the commission has not calculated the potential total emissions from facilities, even under the assumption of maximum rule effectiveness. GHASP stated that there is no reason to assume that the rules can be fully effective, and the commission has neither estimated what enforcement resources will be needed to ensure compliance, nor made commitments as to the actual level of enforcement resources that will be made available. GHASP stated that the commission must address concerns about the adequacy of commission resources for oversight of the HRVOC rules, and must then model its rule effectiveness based on an assured commitment of enforcement and oversight resources.

As stated in the proposal, the commission has incorporated the best scientific information available and is now using a much more recent episode from 2000 for the purposes of supporting this revision. The commission has also revised its approach from establishing a per capita emission based performance standard for each flare, cooling tower, and process vent to establishing a site cap for specific facilities. This was accomplished by the following methodology.

1) The 2000 reported inventory was submitted to the modeling staff.

2) The commission's modeling staff applied a speciation profile, based upon Standard Industrial Classification (SIC), to the reported inventory for those accounts which did not provide speciated data in its report.

3) Based upon ambient measurements an adjustment for additional reactivity was applied across the modeling domain to the emissions inventory of all affected accounts. This is discussed in the TSD filed with the SIP revision concurrently adopted with this rulemaking.

4) The accounts were sorted and a ten tpy (2.28 pounds per hour (lb/hr)) significance threshold applied to the total adjusted inventory.

5) A further adjustment to account solely for flares, cooling towers, and vents was applied to establish the emissions from which a control factor could be applied. This adjustment was based on the total amount of fugitives as a percentage of the 2000 reported inventory, applied equally across all accounts in Harris County and then in the seven remaining counties.

6) An analysis was conducted based upon relative contribution to the inventory, to determine as equitably as practical, site caps where by the overall controlled inventory would equal what was

initially modeled with an across the board 64% reduction strategy. The following are the results of that analysis: a) Sources emitting >500 lb/hr were assigned 70% control; b) Sources emitting >125 lb/hr and <500 lb/hr were assigned 68% control; c) Sources emitting >ten lb/hr and <125 lb/hr were assigned 60% control; d) Sources emitting <ten lb/hr were assigned 50% control.

As shown on Table 6.2-1 in the HGA SIP revision adopted concurrently with this rulemaking, the lbs/hr for the adjusted total inventories for cooling towers, flare, and vent emissions ranges from 1.846 to 891.320 lbs/hr in Harris County, and 2.05 to 632.83 lbs/hr in the seven surrounding counties. The distribution of these inventory amounts naturally fall into four ranges of amounts. The largest inventories are those which are greater than 500 lbs/hour. Due to the magnitude of these inventories as compared to those in the next category, these accounts were allocated approximately 10% greater amount of control level over the necessary 64%, resulting in a 70% control level. The next group of sources are those represented by the distribution for the model adjusted inventory of between 125 and 500 lbs/hr. These sources are also a relatively large portion of the total and were allocated approximately 6% greater amount of control level over the necessary 64%, resulting in a 68% control level. Accounts which have adjusted totals of between ten and 125 lbs/hr were allocated approximately 6% less than the necessary 64%, since the magnitude of those emissions are not as great as those in the first two categories. Finally, the smallest accounts, those with ten lbs/hr or less were allocated approximately 22%, or a 50% control level.

By using an airshed cap to establish the individual site caps, the commission used a conservative assumption that every facility would be emitting at its cap. Since this clearly will not be the case, the commission asserts that rule effectiveness for the overall strategy has been addressed.

EPA noted that the proposed rules implement a number of changes to make the LDAR program more effective. EPA stated that the most important aspect of an effective LDAR program is to make sure that leak surveys are conducted carefully and thoroughly, and commented that this seems to be most effectively achieved in areas where inspectors periodically perform leak surveys to audit the performance of the facilities. EPA stated that in California, this has resulted in substantially fewer leaks being missed by facilities. EPA noted that the proposed rules include a framework for this type of enforcement and stated that to be effective, the commission will have to devote sufficient resources to performing leak surveys. EPA requested that the commission explain in the public record its plans for increased efforts to enforce the LDAR rules and commented that the more information provided regarding the commission's plans for oversight of the LDAR program, the more likely that EPA will be able approve emission reductions from this program.
The commission believes that a combination of requiring third party audits and prioritizing leak surveys to be conducted by commission staff will accomplish effective oversight of the program to ensure increased rule effectiveness.

TCC asserted that the proposed fugitive monitoring rules are "based on the assumption that fugitive emissions are the most significant contributor to HRVOC emissions."

TCC's belief is in error because the commission has, in fact, made no such assumption. While the proposed fugitive monitoring rules in Subchapter H, Division 3, focus on HRVOC emissions, the

proposed rulemaking also addresses numerous loopholes and implementation problems in the current fugitive monitoring rules in Subchapter D, Division 3, as described in detail elsewhere in this preamble.

ED expressed concern about compatibility with Title V permit requirements. ED stated that the commission should ensure that the proposed rules are enforceable, have sufficient monitoring and recordkeeping, and do not inadvertently limit evidence of violations. ED also urged that the commission ensure that the Chapter 115 rules can be easily incorporated in Title V permits. ED also expressed concern about the potential for conflicting permit conditions which result in relaxed, rather than more stringent, permit conditions. ED stated that the commission should adopt a general statement for Chapter 115 indicating that unintended rule relaxations are invalid and not a valid defense for enforcement purposes, and that the commission should also should clarify that the more stringent of a permit or a rule always applies.

The commission believes that the adopted rules are enforceable, have sufficient monitoring and recordkeeping, and do not inadvertently limit evidence of violations. As noted earlier in this preamble, owners or operators subject to the Federal Operating Permit Program must, consistent with the revision process in Chapter 122, revise their operating permits to include the revised Chapter 115 requirements for each emission unit at their sites affected by the revisions to Chapter 115. The commission notes that the permit provisions in a permit do not represent an exhaustive list of all requirements that may apply, and a permit provision cannot authorize noncompliance with a commission rule. In effect, each rule or permit stands on its own. Thus, compliance with the permit provisions does not necessarily represent full compliance with all applicable rules. It is the responsibility of the owner or operator to ensure compliance with all applicable permits and rules.

Sierra-Lone Star and ED commented that the commission should promote the use of storage in lieu of flaring and include specific language stating that flares which are not permitted as process flares may only be used for emergencies, startups, shutdowns, and malfunctions. ED also requested clarification language explaining that flares may not be used to dispose of off-specification product or surplus on-specification product, and that these products must be stored on site or recycled. Sierra-Lone Star indicated a need for routine emissions testing, real-time emissions monitoring, continuous flow rate volume measurements of VOCs, and the need for more frequent inspections (both visual and photographic) of flares.

The commission believes that some of the practices and programs suggested by the commenters could be part of a comprehensive emissions management plan implemented by affected sources. The commission anticipates that compliance with the site-wide cap on a 24-hour rolling average will require reevaluation of routine flaring, and will promote the use of other methods to dispose of materials commonly routed to flares.

ED stated that the commission should require all facilities to demonstrate that the design capacity of each flare is suitable to handle the potential maximum flow during an upset or other non-routine event.

The commission believes that there is no practical way for a facility to demonstrate that a flare's design capacity is suitable to handle the load in an unplanned emergency event, other than by installing a flare and forcing the process into an upset, which would not be appropriate. However, the specifications sent to a flare manufacturer, the engineering calculations, and the design capacity of the process components are appropriate parameters. From a safety point of view, the facility has a vested interest in installing a flare that has a much larger capacity than the greatest anticipated flow rate to the flare.

EMISSIONS INVENTORY
Ethyl supported the commission's focus on increasing the quality of the emissions inventory for VOC emissions in HGA.

The commission appreciates the support.

The Greater Houston Partnership supported the commission's effort to improve the monitoring and reporting of HRVOCs to reduce the uncertainty in HRVOC emission inventories that appear to be underestimated. Air Products noted that the rule proposal preamble stated that "the proposed rules are intended to facilitate the collection of emission inventory data by industry over the next few months, to be used to evaluate whether emissions specifications from preliminary results are appropriate." Air Products stated that this is inappropriate for Chapter 115 rules and that if emissions inventory (EI) improvements are needed, changes should be proposed to the EI rules in 30 TAC Chapter 101 or that additional data should be requested in a manner similar to the COAST study. MfCA commented that better emissions reporting for all VOCs, not just HRVOCs, is required, and is essential to determine an effective plan to reduce ozone levels.

The commission believes that it is appropriate for Chapter 115 rules to lay the groundwork for an improved EI through better monitoring and recordkeeping. The commission has withdrawn the proposed general VOC monitoring rules in Subchapter B, Divisions 7 and 8. In lieu of requiring this monitoring of all VOCs from individual flares, cooling towers, and process vents to obtain emissions data for use in SIP planning, the commission is relying on data from not only the commission's monitoring network, but also data from additional ambient monitors that will be strategically located in HGA. This monitoring is expected to not only be a more efficient use of resources for this data gathering, but will also provide information more quickly. As described more fully in the narrative to the SIP revision and TSD that accompany these rule amendments, the commission is committed to developing the best science possible to understand the causes of high ozone in the HGA. For the MCR, the commission plans to perform an in-depth analysis of the contributions of the less-reactive compounds and to perform top-down analyses similar to those used for the HRVOCs. If warranted, appropriate adjustment factors will be developed for less-reactive VOCs. As explained more fully in the SIP and TSD, the current modeling analysis indicates that emission reductions in the HRVOC alone can compensate for the change of industrial NO_x controls to 80% reductions, but additional controls on VOC sources are likely to be necessary to reach attainment. The commission will continue to study VOC data available now and in upcoming years to determine whether additional compounds should be added. To accomplish this task, the commission needs the support of and expects owners and operators of facilities in HGA which emit VOCs to participate in the ambient monitoring efforts which are

scheduled to begin no later than June 1, 2003. If the ambient monitoring network is not fully and timely developed and operated such that the commission has received sufficient data for MCR, the commission may reconsider site-specific monitoring controls of VOC sources.

TxOGA stated that an accurate inventory of HRVOCs is needed before the most cost-effective reduction plans and control strategies can be instituted. TxOGA also stated that while fugitive emissions may be a significant source of estimated emissions in the EI, it is unknown whether specific changes to the LDAR program could reasonably be expected to reduce ozone events. TxOGA stated that better estimation techniques and calculation methodologies will provide data upon which to evaluate cost-effective reductions.

The commission agrees that the most accurate EI possible will facilitate the most accurate modeling results which in turn will facilitate development of the most effective control strategy. The commission notes that fugitive emissions include VOC and HRVOC, both of which are ozone precursors which contribute to ozone formation and subsequent exceedances of the ozone NAAQS. Because the proposed changes to the LDAR rules can reasonably be expected to reduce VOC and HRVOC emissions, they also can reasonably be expected to reduce ozone events.

Sierra-Houston and Sierra-Lone Star stated that the commission did not provide an accurate EI for each of the sources, so the commission does not know how much actual VOC reduction in tons per day and tons per year (tpy) will result from these rules. Sierra-Houston and Sierra-Lone Star stated that the commission is not adhering to the FCAA, which requires an accurate EI and an estimate of the emissions reductions from each control strategy/measure that will be applied to each source category.

The commission disagrees. The fundamental goal of these strategies is to ensure that the air quality in HGA is not compromised and in fact can be improved from what was demonstrated in the previous SIP. The vast wealth of real physical measurements of what emissions are in the ambient air in HGA provide the commission with a very sound basis for these rules. By limiting the HRVOC rules to a site cap based on a pound per hour limit demonstrated on a 24-hour rolling average, the commission has determined an enforceable limit that can be demonstrated to regional inspectors as a part of their normal routine inspections. The 24-hour rolling average was determined to be the appropriate averaging time for the site-wide cap. The commission's control strategy is based on the maximum amount of emissions per day, as supported by the photochemical modeling which is performed on an hourly basis and is the statutorily required analytical method for attainment demonstrations. Since the findings from the photochemical modeling indicate that ozone can form as rapidly as 50 - 200 ppm in an hour, and the ozone standard can only be exceeded three hours in a three year-period, it is reasonable that the averaging time be set to consider these factors such that the rules will be expected to achieve the necessary reductions.

Sierra-Lone Star stated that the commission did not present any reliable evidence as to how much of the estimated 48% of the fugitive HRVOC emissions are undetectable with Test Method 21. Sierra-Lone Star also stated that due to the large estimation in the EI, the undetectable fugitive volume may be a significant portion, and questioned if the present undetectable fugitive VOCs are as much as 25%, 50%, or 75% of the total fugitives. Sierra-Lone Star expressed a concern that the commission may be incorrectly assuming that all of the 48% of the fugitive HRVOC emissions are detectable with Test Method 21 and stated that because the EI is erroneous by orders of magnitude, the fugitive HRVOC emissions need to be comprehensively addressed in Chapter 115, and not piecemeal. Finally, Sierra-Lone Star stated that the commission needs to use a science-based approach to develop effective and comprehensive monitoring of all fugitive VOC leaks.

As noted earlier in this preamble, the definition of HRVOC includes ethylene, propylene, 1,3-butadiene, and butenes. The flame ionization detector (FID) response factor multipliers for the four compounds range from approximately 0.6 to 1.1. Therefore, all four compounds are readily detectable by Test Method 21 using an FID. Similarly, all four compounds are readily detectable by Test Method 21 using an FID and a photoionization detector (PID). Depending on the specific PID lamp and whether it has the energy to provide sensitivity for the analysis, however, there may be questions concerning one compound (ethylene). All PID response factors multipliers are above 1.0, with three being between approximately 1.1 and 1.8 and the fourth (ethylene) being between 7.0 and 14 depending on the instrument and specific PID lamp. Therefore, all of the fugitive HRVOC emissions are detectable with Test Method 21. Finally, the commission has used a science-based approach to develop effective and comprehensive monitoring of all fugitive VOC leaks, as described in detail elsewhere in this preamble.

HRVOC EMISSIONS CAP

BCCA-AG, Chevron, Goodyear-Houston, Lyondell, TCC, and TxOGA supported the concept of an HRVOC emission cap and allocation for HGA as a means to control ozone spikes. ExxonMobil also stated that it would support a program as described in the comments submitted by BCCA-AG. Goodyear-Houston stated that any airshed cap rule should be flexible enough to allow either the volume of HRVOCs handled or used (whichever is most appropriate for the specific process) as raw material, feedstock, or product throughput at a site, and that the facility's historical emissions should be evaluated in establishing any proposed airshed cap allocation. Phillips and TxOGA supported the concept of a source cap for HRVOC, but reiterated that emission limits on these sources should be established after review of the data to determine cost-effective reductions and control strategies. Phillips and TxOGA stated that a cap and trade system, similar to the NO_x cap and trade system would provide flexibility in attaining stringent standards. Phillips also expressed a belief that a market trading mechanism is appropriate for HRVOC as well as NO_x as long as only reductions are being traded and no site increases actual HRVOC emissions for the regulated sources.

As stated in the proposal, the commission has incorporated the best scientific information available and is now using a much more recent episode from 2000 for the purposes of supporting this revision. The commission has also revised its approach from establishing a per capita emission-based performance standard for each flare, cooling tower, and process vent to establishing a site cap for specific facilities. This was accomplished by the following methodology.

1) The 2000 reported inventory was submitted to the modeling staff.

2) The commission's modeling staff applied a speciation profile, based upon SIC classification, to the reported inventory for those accounts which did not provide speciated data in its report.

3) Based upon ambient measurements an adjustment for additional reactivity was applied across the modeling domain to the emissions inventory of all affected accounts. This is discussed in the TSD filed with the SIP revision concurrently adopted with this rulemaking.

4) The accounts were sorted and a ten tpy (2.28 pounds per hour (lb/hr)) significance threshold applied to the total adjusted inventory.

5) A further adjustment to account solely for flares, cooling towers, and vents was applied to establish the emissions from which a control factor could be applied. This adjustment was based on the total amount of fugitives as a percentage of the 2000 reported inventory, applied equally across all accounts in Harris County and then in the seven remaining counties.

6) An analysis was conducted based upon relative contribution to the inventory, to determine as equitably as practical, site caps where by the overall controlled inventory would equal what was initially modeled with an across the board 64% reduction strategy. The following are the results of that analysis: a) Sources emitting >500 lb/hr were assigned 70% control; b) Sources emitting >125 lb/hr and <500 lb/hr were assigned 68% control; c) Sources emitting >ten lb/hr and <125 lb/hr were assigned 60% control; and d) Sources emitting <ten lb/hr were assigned 50% control.

As shown on Table 6.2-1 in the HGA SIP revision adopted concurrently with this rulemaking, the lbs/hr for the adjusted total inventories for cooling towers, flare, and vent emissions ranges from 1.846 to 891.320 lbs/hr in Harris County, and 2.05 to 632.83 lbs/hr in the seven surrounding counties. The distribution of these inventory amounts naturally fall into four ranges of amounts. The largest inventories are those which are greater than 500 lbs/hour. Due to the magnitude of these inventories as compared to those in the next category, these accounts were allocated approximately 10% greater amount of control level over the necessary 64%, resulting in a 70% control level. The next group of sources are those represented by the distribution for the model adjusted inventory of between 125 and 500 lbs/hr. These sources are also a relatively large portion of the total and were allocated approximately 6% greater amount of control level over the necessary 64%, resulting in a 68% control level. Accounts which have adjusted totals of between ten and 125 lbs/hr were allocated approximately 6% less than the necessary 64%, since the magnitude of those emissions are not as great as those in the first two categories. Finally, the smallest accounts, those with ten lbs/hr or less were allocated approximately 22%, or a 50% control level.

By using an airshed cap to establish the individual site caps, the commission used a conservative assumption that every facility would be emitting at its cap. Since this clearly will not be the case, the commission asserts that rule effectiveness for the overall strategy has been addressed.

There are many technical and policy issues associated with a VOC trading program. The commission did not propose nor take comment on such an approach and is not in a position to allow for it at this time. However, the concept merits further review and may be considered in the future.

ED stated that account wide caps would be a good adjunct to (but not a substitute for) the emission specifications on individual units. ED stated that account-wide caps on top of the proposed emissions specifications would be a good way to prevent growth in emissions from new sources of HRVOCs from eroding the possible gains under these proposed rules for existing sources. ED asserted that in contrast, allowing the use of account-wide caps in place of the unit-by-unit emission limitations as a means of providing compliance flexibility would seriously undermine the environmental benefits of the proposed HRVOC rules. ED stated that the commission should not establish an emission rate cap for the total HRVOC emitted from all flares (or all flares, vents, and cooling towers) at an account in lieu of emission specifications on individual units. ED stated that the analysis of TexAQS data showed that industrial plumes form ozone very rapidly due to the collocation of NO_x and VOC emissions from individual industrial facilities, as discussed in the rule proposal preamble. ED stated that a flare plume represents a unique case where VOC and NO_x emissions are premixed and perfectly collocated, such that the VOC emissions have the highest potential to produce ozone rapidly and efficiently. ED stated that it would defeat the purpose of the proposed HRVOC rules to allow for the aggregation of all the individual flare emission limits into a single, overall rate cap at an account.

ED stated that the commission should establish account-wide emission caps (in pounds of total HRVOC per hour) that would apply in addition to the proposed unit-by-unit emission specifications. ED asserted that this would ensure that the total allowable mass emissions rate at individual accounts, and over the HGA domain, would not grow over time. ED asserted that neither the proposed rules nor the SIP fully account for the effect of emissions from new sources of HRVOCs emissions. ED stated that these new sources could arise due to natural economic expansion or as a possible unintended result of the proposed rules (for example, if owners or operators of flares and cooling towers decide to route existing flows to new units to reduce the chance that any single unit will violate the rules). ED stated that while new source review permitting requires new emission sources to acquire offsets, it does not ensure that the offsetting emission reductions are restricted to HRVOCs and does not prevent localized hot spots. ED stated that the offset requirement for a new source of HRVOC can be met through reductions of undifferentiated "VOC emissions," including relatively unreactive VOCs. ED commented that the benefit of the offset will depend on the specific VOC species that were reduced because different VOCs have different effects on ozone formation. ED stated that as a result, new source review permitting does not guarantee that new sources of HRVOC emissions will not increase the overall emissions of HRVOCs at an individual account or even across the entire airshed. ED stated that establishing account-wide mass emission caps (in pounds per hour) would have the very desirable effect of requiring that any new sources of HRVOC emissions at an individual account have to be offset by making compensating improvements at other sources of HRVOC that are part of the same account, and therefore in close proximity. ED asserted that ensuring that the offsets occur in close proximity to the new emissions source is important because TexAQS results show that ambient concentrations of HRVOC are not uniformly dispersed, but tend to be concentrated in plumes from individual plants or individual units at a plant, according to Figure 1-12 and 1-13(b) of the TSD (June 5, 2002).

As stated in the proposal, the commission has incorporated the best scientific information available and is now using a much more recent episode from 2000 for the purposes of supporting this revision. The commission has also revised its approach from establishing a per capita emission-based performance standard for each flare, cooling tower, and process vent to establishing a site cap for specific facilities. This was accomplished by the following methodology.

1) The 2000 reported inventory was submitted to the modeling staff.

2) The commission's modeling staff applied a speciation profile, based upon SIC classification, to the reported inventory for those accounts which did not provide speciated data in its report.

3) Based upon ambient measurements an adjustment for additional reactivity was applied across the modeling domain to the emissions inventory of all affected accounts. This is discussed in the TSD filed with the SIP revision concurrently adopted with this rulemaking.

4) The accounts were sorted and a ten tpy (2.28 pounds per hour (lb/hr)) significance threshold applied to the total adjusted inventory.

5) A further adjustment to account solely for flares, cooling towers, and vents was applied to establish the emissions from which a control factor could be applied. This adjustment was based on the total amount of fugitives as a percentage of the 2000 reported inventory, applied equally across all accounts in Harris County and then in the seven remaining counties.

6) An analysis was conducted based upon relative contribution to the inventory, to determine as equitably as practical, site caps where by the overall controlled inventory would equal what was initially modeled with an across the board 64% reduction strategy. The following are the results of that analysis: a) Sources emitting >500 lb/hr were assigned 70% control; b) Sources emitting >125 lb/hr and <500 lb/hr were assigned 68% control; c) Sources emitting >ten lb/hr and <125 lb/hr were assigned 60% control; and d) Sources emitting <ten lb/hr were assigned 50% control.

As shown on Table 6.2-1 in the HGA SIP revision adopted concurrently with this rulemaking, the lbs/hr for the adjusted total inventories for cooling towers, flare, and vent emissions ranges from 1.846 to 891.320 lbs/hr in Harris County, and 2.05 to 632.83 lbs/hr in the seven surrounding counties. The distribution of these inventory amounts naturally fall into four ranges of amounts. The largest inventories are those which are greater than 500 lbs/hour. Due to the magnitude of these inventories as compared to those in the next category, these accounts were allocated approximately 10% greater amount of control level over the necessary 64%, resulting in a 70% control level. The next group of sources are those represented by the distribution for the model adjusted inventory of between 125 and 500 lbs/hr. These sources are also a relatively large portion of the total and were allocated approximately 6% greater amount of control level over the necessary 64%, resulting in a 68% control level. Accounts which have adjusted totals of between ten and 125 lbs/hr were allocated approximately 6% less than the necessary 64%, since the magnitude of those emissions are not as great as those in the first two categories. Finally, the smallest accounts, those with ten lbs/hr or less were allocated approximately 22%, or a 50% control level.

By using an airshed cap to establish the individual site caps, the commission used a conservative assumption that every facility would be emitting at its cap. Since this clearly will not be the case, the commission asserts that rule effectiveness for the overall strategy has been addressed.

There are many technical and policy issues associated with a VOC trading program. The commission did not propose nor take comment on such an approach and is not in a position to allow for it at this time. However, the concept merits further review and may be considered in the future.

HRVOC CAP AND TRADE PROGRAM
BP, TCC, and TxOGA recommended the establishment of a regional HRVOC cap and trade program using the monitoring data that will be obtained as a result of the HRVOC rules. ExxonMobil suggested that the commission develop a cap and allocation system that would allow a facility to utilize data collected over the next year or two to develop an emission cap for the facility. ExxonMobil stated that a cap would limit the HRV0C emissions, but allow a facility to determine the most efficient methods for doing so, with commission approval.

As stated in the proposal, the commission has incorporated the best scientific information available and is now using a much more recent episode from 2000 for the purposes of supporting this revision. The commission has also revised its approach from establishing a per capita emission-based performance standard for each flare, cooling tower, and process vent to establishing a site cap for specific facilities. This was accomplished by the following methodology.

1) The 2000 reported inventory was submitted to the modeling staff.

2) The commission's modeling staff applied a speciation profile, based upon SIC classification, to the reported inventory for those accounts which did not provide speciated data in its report.

3) Based upon ambient measurements an adjustment for additional reactivity was applied across the modeling domain to the emissions inventory of all affected accounts.

4) The accounts were sorted and a ten tpy (2.28 pounds per hour (lb/hr)) significance threshold applied to the total adjusted inventory.

5) A further adjustment to account solely for flares, cooling towers, and vents was applied to establish the emissions from which a control factor could be applied.

6) An analysis was conducted based upon relative contribution to the inventory, to determine as equitably as practical, site caps where by the overall controlled inventory would equal what was initially modeled with an across the board 64% reduction strategy. The following are the results of that analysis: a) Sources emitting >500 lb/hr were assigned 70% control; b) Sources emitting >125 lb/hr and <500 lb/hr were assigned 68% control; c) Sources emitting >ten lb/hr and <125 lb/hr were assigned 60% control; and d) Sources emitting <ten lb/hr were assigned 50% control.

As shown on Table 6.2-1 in the HGA SIP revision adopted concurrently with this rulemaking, the lbs/hr for the adjusted total inventories for cooling towers, flare, and vent emissions ranges from 1.846 to 891.320 lbs/hr in Harris County, and 2.05 to 632.83 lbs/hr in the seven surrounding counties. The distribution of these inventory amounts naturally fall into four ranges of amounts. The largest inventories are those which are greater than 500 lbs/hour. Due to the magnitude of

these inventories as compared to those in the next category, these accounts were allocated approximately 10% greater amount of control level over the necessary 64%, resulting in a 70% control level. The next group of sources are those represented by the distribution for the model adjusted inventory of between 125 and 500 lbs/hr. These sources are also a relatively large portion of the total and were allocated approximately 6% greater amount of control level over the necessary 64%, resulting in a 68% control level. Accounts which have adjusted totals of between ten and 125 lbs/hr were allocated approximately 6% less than the necessary 64%, since the magnitude of those emissions are not as great as those in the first two categories. Finally, the smallest accounts, those with ten lbs/hr or less were allocated approximately 22%, or a 50% control level.

By using an airshed cap to establish the individual site caps, the commission used a conservative assumption that every facility would be emitting at its cap. Since this clearly will not be the case, the commission asserts that rule effectiveness for the overall strategy has been addressed.

There are many technical and policy issues associated with a VOC trading program. The commission did not propose nor take comment on such an approach and is not in a position to allow for it at this time. However, the concept merits further review and may be considered in the future.

DEFINITIONS

Definition of "closed-vent system"

TCC and TxOGA commented that the definition of closed-vent system should indicate that the system includes only that section of the conveyance between the last piece of equipment and the control device, and stated that piping upstream of a vent being controlled, for example, or inlet piping to a controlled, fixed-roof tank is not part of the closed-vent system. Consequently, TCC and TxOGA recommended the addition of the word "directly" after "equipment" in the definition of closed-vent system.

The commission agrees and has revised the definition accordingly.

Definition of "component"

TCC commented that in §115.781(b)(3), the commission is requiring monitoring for heat exchanger heads, meters, sight glasses, etc. for which monitoring was not previously required. TCC commented that none of these terms appear in either the definition of "component" or the definition of "connector." TCC stated that it "concurs that these 'items' should not be in the definition of 'component' until such time as studies have demonstrated that these items are significant sources of emissions."

TCC has apparently misread the definition of "component" to come to its erroneous conclusion that heat exchanger heads, meters, sight glasses, etc. are not included in the definition of "component." Specifically, equipment listed in the definition of "component" (pumps, valves, compressors, connectors, and PRVs) is preceded by the wording "including, but not limited to." As a result, the components specified in the definition are intended to be examples of typical components, not an exhaustive list. Therefore, equipment such as heat exchanger heads, meters, and sight glasses has been, and continues to be, included in the definition of "component." The

distinction is that monitoring of this less conventional equipment has not previously been required under Chapter 115.

Definition of "connector"
TCC commented on the definition of "connector" and stated that the commission should clarify that a union connecting two pipes is one connector.

The commission agrees and has made the suggested change.

Definition of "flare"
Allied stated that the proposed rules are ambiguous with regard to what type of equipment is considered to be a flare. Allied requested that the commission clarify what constitutes a flare in order to clearly define the applicability of the proposed flare requirements. Sierra-Houston and Sierra-Lone Star stated that the commission has not clearly differentiated or implemented in its state permit program the different requirements that flares and vapor combustors have, and asked if the requirements of §§115.170 - 115.179 apply to vapor combustors. Sierra-Houston and Sierra-Lone Star also stated that the commission should provide a clear determination of the requirements vapor combustors must meet because vapor combustors are defined differently than flares. ED stated that a definition of flare should be added to Chapter 115.

The definitions in §101.1 apply to multiple commission chapters, including Chapter 115. "Flare" is defined in §101.1 as "an open combustion unit (i.e., lacking an enclosed combustion chamber) whose combustion air is provided by uncontrolled ambient air around the flame, and which is used as a control device. A flare may be equipped with a radiant heat shield (with or without a refractory lining), but is not equipped with a flame air control damping system to control the air/fuel mixture. In addition, a flare may also use auxiliary fuel. The combustion flame may be elevated or at ground level. A vapor combustor is not considered a flare." In addition, "vapor combustor" is defined in §101.1 as "a partially enclosed combustion device used to destroy VOCs by smokeless combustion without extracting energy in the form of process heat or steam. The combustion flame may be partially visible, but at no time does the device operate with an uncontrolled flame. Auxiliary fuel and/or a flame air control damping system, which can operate at all times to control the air/fuel mixture to the combustor's flame zone, may be required to ensure smokeless combustion during operation." These definitions are included in §101.1 because they apply to multiple commission chapters. The definition of "incinerator" in §115.10 is "for the purposes of this chapter, an enclosed control device that combusts or oxidizes VOC gases or vapors" and is included in §115.10 rather than §101.1 because its meaning for purposes of Chapter 115 is different than the meaning of "incinerator" in §101.1 for purposes of other commission chapters. The commission believes that these definitions explicitly specify what is considered to be a flare and what is not. It should be noted that if a control device meets the definition of "vapor combustor," then it is subject to the "incinerator" NO_x emission specifications for attainment demonstration (ESAD) in Chapter 117 but not the Chapter 115 requirements applicable to flares. If a control device meets the definition of "flare," it is subject to the Chapter 115 requirements applicable to flares but is not subject to the "incinerator" ESAD in Chapter 117.

Definition of "highly-reactive volatile organic compound"
EPA stated that the modeling in the proposed SIP revision indicates that the proposed definition of "highly-reactive volatile organic compound" will address many of the VOCs impacting ozone formation in HGA. EPA commented that this is supported by monitoring data it has collected through a contract effort at three monitoring sites in HGA's industrial area and that for the sites and time period of the study, EPA estimates that the proposed definition of "highly-reactive volatile organic compound" captures about 60 - 75% of the reactivity-weighted concentration of pollution depending on the site. During the study, EPA also found that much of the potential to cause ozone formation was contained in less reactive compounds that are present in much higher concentrations. EPA estimated that by the addition of just four additional chemical compounds and compound classes (propane, butane, pentane, and hexenes), 83 - 93% of the total reactivity could be captured. EPA stated that these compounds may not be termed "highly-reactive" but that reducing their concentrations through stringent regulations clearly would be beneficial in reducing ozone. Finally, EPA encouraged the commission to explore, using additional data sets, whether additional VOCs should be targeted for control.

MfCA commented that controlling VOC emissions is an important strategy for reducing ozone and has the benefit of reducing air toxic emissions; however, controls should include a broader class than HRVOCs which in the Houston area can lead to additional high ozone days. ED likewise urged the commission to broaden its proposal to include other VOCs that are less reactive, but which can nevertheless significantly contribute to ozone formation due to their high ambient concentrations. ED stated that there is enough evidence to justify the addition of a select group of chemicals and stated that as a starting point, the commission should expand the applicability of its rules to include all hydrocarbons on the list of most abundant species on a reactivity-weighted basis in HGA. ED commented that in addition to many of the chemicals covered under the proposed rules, this list also includes several paraffins: isopentane, isobutane, n-butane, propane, and n-pentane, according to Table 4-2 of the Sonoma Technology, Inc., document, "Preliminary Analysis of Houston Auto-GC 1998-2001 Data: Episode/Non-episode Differences" (March 8, 2002). ED asserted that the commission has not made a scientific case that its focus on the HRVOCs will adequately reduce total reactivity on a sufficient number of days to ensure that its revised strategy will lead to attainment. ED stated that presentations by Peter Daum of Brookhaven National Laboratory and Doug Boyer of the commission staff have indicated that in a number of canisters collected from aircraft canister flights, the "less reactive" VOCs cumulatively produce an extraordinary level of ozone reactivity. ED stated that these findings are implicitly recognized in the commission's TSD, which specifies on pages 1-3 that "...other VOCs, even though not highly-reactive, may have contributed to high ozone levels in HGA because of their extremely high mass." ED stated that this finding suggests that on a high percentage of days, in some parts of HGA, even an extraordinary level of control of the "highly-reactive" VOCs will leave a highly productive mass of VOCs in the HGA airshed which, since it is also co-located with major NO_x sources, would be conducive to ozone formation in the correct meteorological circumstances. ED stated that limiting the commission's initial rulemaking to the HRVOCs could mean that essential controls on other VOCs would be delayed until after HGA's attainment deadline of 2007, potentially preempting major sources of ozone precursors from effective regulatory action. ED stated that the commission indicates that it intends to analyze the role of the less reactive VOCs as a part of the MCR, and ED stated that this suggests that rulemaking would not occur for two years. ED stated that if the implementation schedule for addressing issues with these chemicals follows that of the HRVOCs, then controls would not be in place until the end of 2007 and would likely make little contribution to attainment in 2007.

ATINGP, BASF, BCCA-AG, BP, ExxonMobil, Kinder Morgan, Lyondell, Phillips, TCC, TxOGA, and Valero stated that the definition of "highly-reactive volatile organic compound" should only include ethylene, propylene, and 1,3-butadiene. Kinder Morgan further stated that there does not seem to be any sound scientific justification for a broader list, and asserted that the commission has taken a hasty and unwarranted leap in definition to include chemicals beyond ethylene, propylene, and 1,3-butadiene. Kinder Morgan expressed a belief that the inclusion of aromatics in the definition would likely bring gasoline into regulation as an HRVOC, and that gasoline operations are already adequately regulated, hence controlled, under the commission's VOC requirements and federal NESHAP requirements. TxOGA stated that further study is needed to analyze the role of compounds in ozone formation, and asserted that the commission is unjustified in adding compounds beyond ethylene, propylene, and 1,3-butadiene at this time. TxOGA stated that the premise that they "may be found to possibly contribute to ozone production in HGA" is not adequate to expand the scope, complexity, and cost of the associated regulations as drastically as would the addition of the entire list of compounds. TxOGA recommended that a step-wise approach, considering the impacts of both the compounds and the regulation of them be undertaken. Valero stated that the commission's proposed rules must only apply incrementally to stationary emissions sources of HRVOCs that directly and significantly impact ozone nonattainment in the HGA area, and asserted that current data only supports the regulation and control of ethylene, propylene, and butadiene. BCCA-AG and Lyondell stated that emissions of other reactive VOCs would be reduced by controlling ethylene, propylene, and 1,3-butadiene. BCCA-AG and Lyondell stated that these VOCs are not emitted in pure form, but as part of typical chemical mixtures generated during industrial processes. BCCA-AG and Lyondell stated that many of the reactive VOCs that would be regulated under the proposed HRVOC rules are co-emitted by sources that emit ethylene, propylene, and butadiene, and that significant collateral emission reductions would be achieved by rules that applied only to ethylene, propylene, and 1,3-butadiene. As an example, BCCA-AG and Lyondell stated that butylenes are generally co-emitted with 1,3-butadiene. BCCA-AG and Lyondell stated that limiting the definition of HRVOC to ethylene, propylene, and 1,3-butadiene will not leave other VOCs uncontrolled. BCCA-AG and Lyondell also stated that by regulating only ethylene, propylene, and 1,3-butadiene at this time, the commission would maintain flexibility for regulating additional compounds after it has completed a more thorough evaluation. BCCA-AG and Lyondell also commented that the commission has already noted in the Executive Summary of its TSD that it will be considering the role of other compounds in ozone formation during MCR, and that those compounds listed in the proposed definition of HRVOC other than ethylene, propylene, and 1,3-butadiene should be placed in that category for additional study and possible future regulation. Ethyl objected to the inclusion of formaldehyde, trimethylbenzenes, and xylenes as HRVOCs, and stated that these compounds have substantially lower vapor pressures than ethylene, propylene, and 1,3-butadiene. Ethyl and ATINGP noted that the TexAQS showed that ethylene, propylene, and 1,3-butadiene emissions were contributing to rapid ozone formation, but that the commission has stated that formaldehyde, trimethylbenzenes, and xylenes "may" contribute to ozone production in the HGA. Ethyl stated that without "solid evidence" and with known lower vapor pressures, it is not now necessary to have the same restrictions for formaldehyde, trimethylbenzenes, and xylenes as for ethylene, propylene, and 1,3-butadiene. Ethyl stated that the commission should consider categories of HRVOCs with varying regulatory requirements in much the same way as EPA has regulated chlorofluorocarbons.

As stated in the proposal, the purpose of this revision was to determine if a certain level of reduction in HRVOCs could attain the same air quality benefit with an 80% NO_x reduction strategy as was demonstrated with the approved 90% NO_x reduction strategy. The commission believes it has met that determination with this revised strategy. For the purposes of this revision, HRVOC is defined as ethylene, propylene, 1,3-butadiene, and butenes for Harris County, and ethylene and propylene for the surrounding seven counties.

The reported EI was adjusted with a speciation profile and then increased to reflect the amount of reactivity which was measured in the ambient air during the Texas 2000 Air Quality Study. The increase was determined by equating the reported NO_x emissions at 27 facilities and then applying that amount of reactivity across all sources. Since there was no distinction of the individual compounds, the overall reactivity associated with this adjustment was applied to the 12 HRVOCs listed in the June proposal. A discussion of how the 12 HRVOCs were selected can be found in the TSD. Allocation of this generic HRVOC to the 12 listed compounds was based upon their relative contribution to the reported inventory on a reactivity basis, as seen in the following reactivity pie chart.

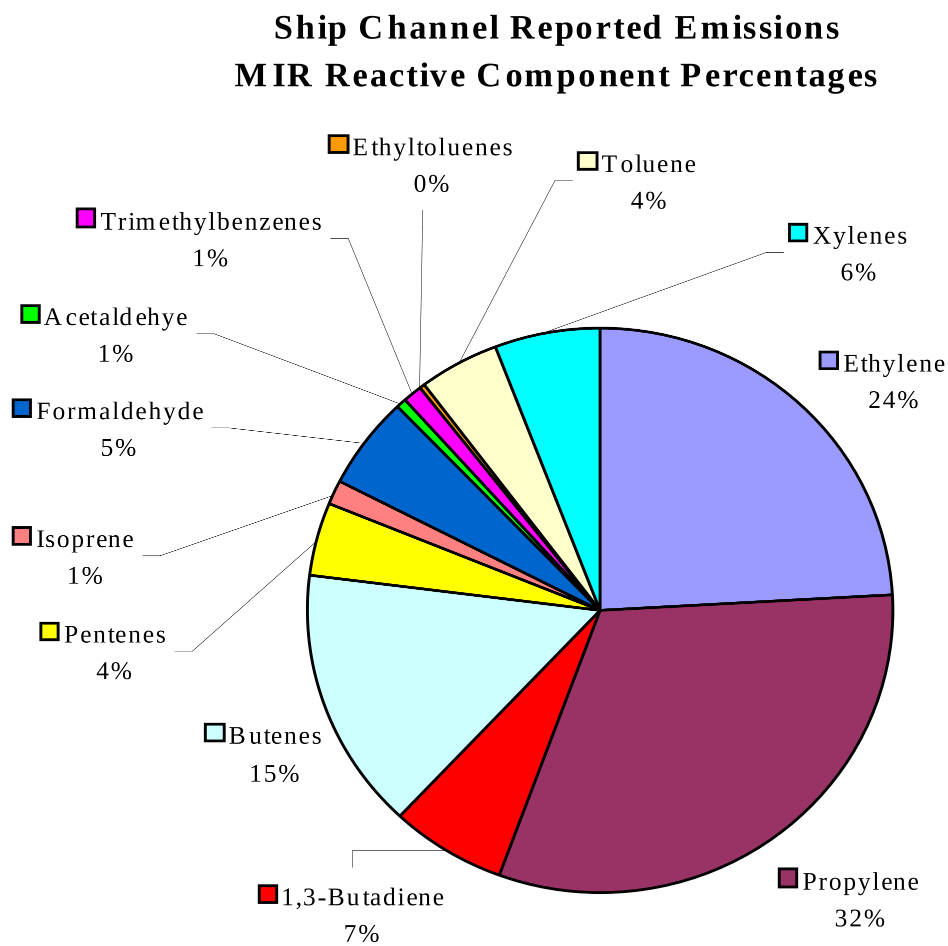
Initial modeling runs were conducted to bracket the amount of reductions needed to demonstrate an equivalent air quality benefit associated with an 80% NO_x strategy versus a 90% strategy. One of these sensitivity runs removed half of the added emissions, which equates to 39% of the total point source HRVOC inventory. Another run removed all of what was added, which equates to 78% of the total point source HRVOC inventory. These runs indicated that an overall reduction of less than 39% would be sufficient. From these results, it was estimated that a 36% reduction in emissions of HRVOC would achieve the same level of ozone at 80% NO_x reduction that was seen at 90% without any HRVOC controls.

To refine the analysis and determine if an equivalent air quality benefit could be achieved by addressing as few of the 12 HRVOCs as possible, the 36% reduction of the total pie was applied only to ethylene and propylene, the largest components of the pie. This would reduce these pieces by 64%. No reductions were made to any of the remaining 12 HRVOCs. This reduction was run in the air quality model. However, the equivalent air quality benefit was not achieved as was in the adopted SIP, primarily because the modeling inventory was updated slightly after the first series of runs.

An additional sensitivity run was done by making a 64% reduction of ethylene, propylene, 1,3-butadiene, and butenes. The results of this run produced an equivalent air quality benefit.

Based upon the pictorial representation of the model output, an additional run was conducted of a 64% reduction of the four compounds in Harris county, and 64% reduction of ethylene and propylene only in the other seven counties. There was essentially no change in the model predictions from the additional sensitivity modeling run. Thus, this result formed the basis for the executive director's recommendation.

Figure: 30 TAC Chapter 115 - Preamble



Reactivity-weighted emissions of HRVOCs in the greater Ship Channel area

Much analysis needs to be conducted between now and the MCR, particularly with regard to the contribution of other VOCs to ozone formation in HGA nonattainment area, in order to develop the most cost-effective strategy to attain the standard. This effort will consist of continued evaluation of data already collected, the collection of additional ambient data through an expanded auto gas chromatographs (GC) network, and additional inventory analysis as well as additional modeling analysis. As a full analysis of what is ultimately necessary to fully demonstrate attainment is conducted at the MCR, the commission will be evaluating a number of issues that may change the HRVOC rules, such as: which, if any, additional chemicals need to be addressed, and the sources of these chemicals; what is the appropriate geographic scope for the regulations; what are appropriate averaging times for the chemicals of concern; and what, if any, changes need to be made to the allocation process. By establishing a compliance date of April 1, 2006, approximately 24 months after the conclusion of the MCR process, the commission believes

it will have ample time to make necessary adjustments and still allow industry adequate time to fully comply.

The commission has withdrawn the proposed general VOC monitoring rules in Subchapter B, Divisions 7 and 8. In lieu of requiring this monitoring of all VOCs from individual flares, cooling towers, and process vents to obtain emissions data for use in SIP planning, the commission is relying on data from not only the commission's monitoring network, but also data from additional ambient monitors that will be strategically located in HGA. This monitoring is expected to not only be a more efficient use of resources for this data gathering, but will also provide information more quickly. As described more fully in the narrative to the SIP revision and TSD that accompany these rule amendments, the commission is committed to developing the best science possible to understand the causes of high ozone in the HGA. For the MCR, the commission plans to perform an in-depth analysis of the contributions of the less-reactive compounds and to perform top-down analyses similar to those used for the HRVOCs. If warranted, appropriate adjustment factors will be developed for less-reactive VOCs. As explained more fully in the SIP and TSD, the current modeling analysis indicates that emission reductions in the HRVOC alone can compensate for the change of industrial NO_x controls to 80% reductions, but additional controls on VOC sources are likely to be necessary to reach attainment. The commission will continue to study VOC data available now and in upcoming years to determine whether additional compounds should be added. To accomplish this task, the commission needs the support of and expects owners and operators of facilities in HGA which emit VOCs to participate in the ambient monitoring efforts which are scheduled to begin no later than June 1, 2003. If the ambient monitoring network is not fully and timely developed and operated such that the commission has received sufficient data for MCR, the commission may reconsider site-specific monitoring controls of VOC sources.

Duke requested that all chemical species of HRVOC, e.g., the isomers of xylene (meta, ortho, and para), be listed in the definition so that the regulated community and regional inspectors will not have to make assumptions about which chemical species are included in the definition.

The adopted definition of HRVOC only includes 1,3-butadiene, all butenes (butylenes), ethylene, and propylene in Harris County, and ethylene and propylene in Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, and Waller Counties. The commission revised the definition of HRVOC to clarify that butenes includes all isomers of butene (i.e., alpha-butylene (ethylethylene) and beta-butylene (dimethylethylene, including both cis- and trans- isomers)).

TxOGA stated that the definition of HRVOC would be much clearer if it specifically indicated a distinction between the term "VOC" and the term "highly-reactive" VOC. OxyChem and TxOGA expressed similar concerns about the distinction between HRVOC and VOC in the rules.

The commission agrees and has revised the definition of "highly-reactive volatile organic compound" such that this term is abbreviated as HRVOC. Where the commission intends a requirement to apply to all VOC, it has used the term "VOC."

Definition of "low-density polyethylene"

Dow recommended that a definition of "low density polyethylene" based upon the definition in 40 CFR 60, Subpart DDD be added to clarify §115.722. The definition in 40 CFR 60 Subpart DDD is as follows: "Low-density polyethylene (LDPE) means a thermoplastic polymer or copolymer comprised of at least 50 percent ethylene by weight and having a density of 0.940 g/cm^3 {grams per cubic centimeter} or less."

The commission agrees and has added the suggested definition of "low density polyethylene." Subsequent definitions were renumbered to accommodate the new definition.

Definition of "pressure relief valve"
TCC supported the proposed definition of "pressure relief valve."

The commission appreciates the support.

Definition of "process drain"
TCC commented on the proposed definition of "process drain" and stated that this definition might more appropriately be located in §115.140, concerning Industrial Wastewater Definitions. TCC stated that this would clarify that the process drains of concern are those that are already subject to the underlying provisions of affected VOC wastewater streams as defined in existing Subchapter B, Division 4.

The commission disagrees. Numerous process drains are not subject to Subchapter B, Division 4, yet the process drains could emit HRVOCs uncontrolled under TCC's proposal. Because the definition of "process drain" is used in multiple divisions within Chapter 115, it is most appropriately located in §115.10.

Definition of "process unit"
In order to clarify the meaning of the term "process unit" which is used in Subchapters B, D, and H, the commission has added a definition to §115.10 which is consistent with the one in the EPA guidance document "*Protocol for Equipment Leak Emission Estimates*," Chapter 4, Mass Emission Sampling (EPA-453/R-95-017, November 1995). This definition is "the smallest set of process equipment that can operate independently and includes all operations necessary to achieve its process objective." In addition, the commission replaced the term "unit" with the term "process unit" where appropriate in Subchapters B, D, and H.

Definitions of "semi-continuous" and "batch"
Dow stated that the definition of "semi-continuous" in §115.160(13) should not be deleted and that additional text should be added to the "batch" definition stating that semi-continuous vent streams are not vent streams subject to Subchapter B, Division 6. Dow disagreed that semi-continuous vents are batch vents and stated that semi-continuous vents are continuous vents from steady-state operations of less than 8,760 hours per year. Dow stated that a batch process is not characterized by steady-state conditions, while a semi-continuous process is steady-state if viewed over the entire process. Dow also stated that in a batch process, reactants are not added and products are not removed simultaneously, while a semi-continuous distillation process is characterized by the simultaneous adding of reactants and removal of product. Finally, Dow stated that the definition of "batch" in §115.160(4) should be revised

to specify that the semi-continuous vents are not subject to Subchapter B, Division 6 through the addition of the following sentence: "Semi-continuous vents are not batch vents."

The definition of "batch" specifies noncontinuous and not steady-state, and the definition of "semi-continuous" is steady-state for finite durations. Although the term "semi-continuous" is defined in §115.160, this term is never used in any other portions of the batch process rules of Subchapter B, Division 6, including §115.161.

The commission reviewed the EPA's Control Techniques Guideline (CTG) guidance documents associated with the development of the batch process rules of Subchapter B, Division 6. The CTGs are issued by the EPA for the purpose of assisting states in developing reasonably available control technology (RACT) controls for sources of VOC emissions. Each CTG contains specific source category requirements that the EPA recommends that the states adopt. One specific source category EPA studied was batch processes. However, instead of issuing a CTG for batch processes, the EPA issued a guidance document known as an Alternative Control Techniques (ACT) document. The commission reviewed the EPA's *Control of Volatile Organic Compound Emissions from Batch Processes - Alternative Control Techniques Information Document* (Batch Processes ACT), since the EPA provided the Batch Processes ACT to specify control techniques for states to use in developing RACT for batch processes.

The EPA specified the following in the Batch Processes ACT: "Note that there are two CTGs, the Air Oxidation CTG and the Reactor Processes and Distillation Operations CTG, that cover synthetic organic chemical emissions from continuous processes. The CTGs also exempt batch or semi continuous processes. *The information in this document applies to the processes that are exempted because they are not continuous. This includes semi continuous processes*." (emphasis added.)

In this particular statement, EPA clarified that previous EPA guidance documents for reactor processes and distillation operations, which cover the chemical industry, cover continuous processes. The CTGs for continuous processes specifically exempted batch and semi-continuous processes. Based on this, the Batch Processes ACT includes control techniques for noncontinuous processes, including semi-continuous processes and it can be interpreted that EPA may have intended for semi-continuous processes to be regulated under the batch process rule. However, EPA did not structure the ACT in a manner which directly included all semi-continuous processes. As a result, the commission's adopted rule (which is based on EPA's ACT) only discusses batch operations, and the term "semi-continuous" has no functional purpose in the context of applicability, based on a direct reading of the rule language.

In conclusion, although the term "semi-continuous" is defined under §115.160, this term is never used in the associated batch process rules and has no particular significance in terms of applicability. Therefore, if a semi-continuous process meets the §115.160 definitions of "batch" and "batch process," it is subject to the batch process rules contained in Subchapter B, Division 6. A process which does not meet the §115.160 definitions of "batch" and "batch process" is regulated under the vent gas control rules in Subchapter B, Division 2. Therefore, the

commission has deleted the definition of "semi-continuous" as proposed and has not revised the definition of "batch."

Definition of "shutdown or turnaround" and "startup"
Sierra-Houston and Sierra-Lone Star questioned how the commission will mesh the definitions of "shutdown or turnaround" and "startup" with the upset/maintenance (now known as the emissions events) requirements in Chapter 101.

The definitions of "shutdown or turnaround" and "startup" in §115.10 both begin with the phrase "for the purposes of this chapter" to make it clear that these §115.10 definitions only apply to the Chapter 115 requirements. Therefore, there is no conflict with the requirements in Chapter 101.

TxOGA stated that the definition of "shutdown or turnaround" should contain an exclusion for a complete or partial shutdown of units due to emergency conditions, such as threat of hurricane. TxOGA stated that when operations shut down for this purpose, it is impractical to schedule equipment leak monitoring and repair into these types of non-routine, emergency events, which may impact an entire plant site. TxOGA suggested adding a third clause to subparagraph (A) to read: "(iii) stop production from a unit or part of a unit due to emergency situations, such as threat of hurricane."

The commission declines to make this change. As stated earlier in this preamble, the definition of "shutdown or turnaround" is applicable only to Chapter 115 requirements. The definition specifically acknowledges three criteria for the work practice: technical feasibility, safety constraints, and that the repairs can be accomplished. Those criteria can be applied when a decision is necessary regarding whether to shutdown due to emergency situations, and this additional language is not necessary for the exclusions in subparagraph (A).

Dow and DuPont stated that the definition of "shutdown or turnaround" should clarify that operation of a unit or part of a unit in recycle mode (i.e., process material is circulated, but production does not occur) for any period of time does not constitute a shutdown or turnaround. Dow and DuPont stated that in certain circumstances, it is necessary to operate in a recycle mode for periods of time greater than 24 hours and that it is not possible to repair/replace leaking components or to install equipment upgrades during these operating times. As examples, Dow cited hydrate or freezing problems, severe upsets, temporary poisoning, or an uncontrolled exothermic reaction, and temporary production distribution or pipeline problems. Dow and DuPont also stated that it is possible to shut down a portion of the plant while other portions continue to run, and that it is often better from an environmental standpoint to remain in a recycle mode than to shut the entire process down because a complete shutdown would likely generate significant flaring as the system is deinventoried.

The commission agrees and has revised the definition of "shutdown or turnaround" accordingly.

TxOGA stated that the definition of "startup" needs to include the time period for attainment of normal operations and that the trigger for fugitive monitoring, for example, should not include the period of time that the unit is being "lined-out" after a turnaround. TxOGA stated that it would be dangerous to have monitoring personnel in a process unit or around equipment that is undergoing startup and activities associated with obtaining equilibrium in the operation, and expressed the belief that it is inappropriate to start any equipment leak monitoring requirements before this period is fully complete. TxOGA suggested adding the following sentence to the end of the definition: "The startup period includes the period of time that the unit or equipment is being "lined-out" for attainment of normal operations." TCC expressed similar concerns and stated that the commission should recognize that "startup" occurs after a "shutdown" and is not necessarily linked to intermediate operations such as loading.

This issue is addressed later in this preamble in the discussion concerning "monitoring of repaired components after startup."

TCC stated that the definition of "startup" should not include the phrase "or waste management." TCC stated that petrochemical plants are chemical manufacturers and do not typically startup units solely for the purposes of waste management.

The commission disagrees. In some cases, a unit may be operating for purposes of waste management. A component in contact with a VOC or HRVOC has the potential for emissions from a leak, regardless of the specific purpose (production or waste management) that the unit is operating.

Definition of "vent gas"
Valero stated that there is currently no definition of "vent gas" in Chapter 101 or Chapter 115. Valero commented that it is common practice in the refining industry to route offgas streams with a high British thermal unit (Btu) content to a fuel gas system. Valero expressed concern that "vent gas" with no definition could be construed to include these streams and subject combustion sources, such as heaters and boilers, to testing and monitoring requirements. Valero recommended that the commission specifically exclude gaseous streams routed to a fuel gas system from the definition of "vent gas" to be consistent with federal MACT standards, such as the 40 CFR §63.101 definition of "process vent" and 40 CFR §63.641 definition of "miscellaneous process vent."

The term "process vent" is not defined, but the terms "process" and "vent" are defined in §101.1. The definition of "process" establishes what constitutes a process. Any vent associated with a process is then considered a "process vent." In the situation cited by the commenter, the vent gas stream from a process vent is routed to a boiler or heater, which functions as a VOC control device in addition to functioning as a boiler or process heater. Such dual-function boilers and heaters are subject to the Chapter 115 requirements specifying vent gas control efficiency, monitoring, recordkeeping, etc. The commenters's suggested change would not ensure that the required control efficiency is met. Therefore, the commission has made no changes in response to the comment. Additional information about the commission's interpretation of vent gas rules is available on the commission's website at *http://www.tnrcc.state.tx.us/permitting/airperm/opd/rimhmpg.htm*.

TxOGA stated that the vent gas definitions in §115.120 should also apply to Subchapter H, Division 1, and recommended duplication of §115.120 in §115.720.

The definitions in §115.120 are only used in Subchapter B, Division 2, and not in Subchapter H, Division 1. Consequently, there is no need to relocate or copy these definitions to §115.10 or §115.720.

APPLICABILITY
Vent Gas
§115.720
Duke stated that unlike §115.121(a), §115.720 does not specify that the regulation is applicable to vent gas streams from process vents, and requested that §115.720 be revised to clarify the applicability.

The commission has revised §115.720(a) to clarify the applicability and therefore does not believe that the suggested reference to process vents is necessary.

DuPont, ExxonMobil, TCC, and TxOGA stated that the commission must make clear in the rule language that the HRVOC controls only apply to uncontrolled HRVOC vents that release to the atmosphere. ExxonMobil and TxOGA expressed a concern that the proposal as written could be interpreted as applying to every process, relief, and safety vent that is already controlled and vented to an emission control device. TxOGA stated that the requirements for controlled vents should be clarified to be only §115.722(d) and (e), as appropriate, and that the word "uncontrolled" needs to be added to §115.720 such that it reads "Any uncontrolled vent gas stream...."

The commission disagrees that §115.720 should include the word "uncontrolled." Such a narrowing of the applicability would mean that a vent gas stream that was directed to a control device having minimal control efficiency would be exempt from the requirements of Subchapter H, Division 1, thereby resulting in no emission reductions. Regarding the concern that the rule could be interpreted as applying to every process, relief, and safety vent that is already controlled and vented to an emission control device, the commission notes that it is necessary for these emissions to be included in the HRVOC emissions cap in order to achieve the reductions upon which the revisions to the Chapter 117 NO_x ESADs, published elsewhere in this issue of the *Texas Register*, are based. Regarding pressure relief valves which are not vented to a control device, the commission notes that this concern was addressed in previous rulemaking. Specifically, in the June 30, 1992 issue of the *Texas Register* (17 TexReg 4685), the Texas Air Control Board (TACB, one of the commission's predecessor agencies) stated that "the vent gas rule addresses only normal process emissions. The staff has previously interpreted that upset conditions (such as the venting of safety relief valves) and maintenance were to be handled by TACB General Rules, §101.6 and §101.7, and not by Chapter 115, unless otherwise specifically stated." While 30 TAC §101.6 and §101.7 were recently revised and relocated to 30 TAC §101.201 and §101.211, respectively, and the terms "upset" and "maintenance, startup, or shutdown" were replaced by the terms "emissions event" and "scheduled maintenance, startup, or shutdown activity," respectively, the commission reaffirms that the intent expressed in the June 30, 1992 issue of the *Texas Register* remains valid for pressure relief valves which are not vented to a control device.

ExxonMobil and TxOGA stated that §115.720 lacks clarity and creates parallel requirements, and that the language should be specific and include the requirements for a covered HRVOC vent or a covered VOC vent. ExxonMobil and TxOGA commented that a single vent being subject to both requirements is particularly confusing as the proposed rule language switches back and forth between the terms VOC and HRVOC.

In order to clarify the requirements, the commission has used the term "HRVOC" when the requirements are intended to only refer to those compounds included in the definition of "highly-reactive volatile organic compound." Where the commission intends a requirement to apply to all VOC, it has used the term "VOC."

Flares
§*115.740(a)*
Air Products and DuPont commented that the phrase "or has the potential to emit" should be deleted from §115.740(a), relating to Applicability, HRVOC Flares, stating that it unnecessarily broadens the applicability for flares, particularly those flares that are limited to emergency use. DuPont commented that emergency flares are excluded from 40 CFR §60.18. TCC commented that the phrase "in addition to the applicable requirements . . ." is unnecessary.

As noted earlier in this preamble, the commission has relocated the proposed §115.740(a) to §115.720(a). One of the purposes of the rule is to monitor HRVOC emissions during emergencies. The phrase "or has the potential to emit" is necessary, since otherwise applicability of the rule to a given flare would depend solely on the flare's emissions at any particular point in time. Such a rule would be unworkable, since the monitoring requirements would be applicable only when HRVOC emissions were present; however, monitoring would be necessary to establish the nature and quantity of these emissions in the first place. The fact that emergency flares are excluded from 40 CFR §60.18 does not address the necessity to control HRVOC emissions that contribute to short-term ozone exceedances, something that 40 CFR §60.18 was not designed to do. The phrase "in addition to the applicable requirements . . ." has been replaced by a reference to Subchapter B, Divisions 2 and 6 (Vent Gas Control; and Batch Processes) and Subchapter D, Division 1 (Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries). This is included to ensure that §115.127(a)(6) does not provide an inadvertent loophole and as a courtesy to the reader.

Cooling Towers
§*117.760(a)*
TCC commented that a cooling tower heat exchange system (CTHES) should not be subject to more than one division in Chapter 115, since this would cause confusion and misunderstanding from potentially conflicting and duplicative requirements. Accordingly, TCC recommended that the last phrase in §115.760(a), "in addition to the applicable requirements of any other division in this chapter," be deleted. TCC commented that text should be included in Subchapter H, Division 3 (relating to HRVOC CTHES) stating that if a CTHES is subject to the requirements of this division, then the CTHES is not subject to the requirements of Subchapter B, Division 8 (relating to general VOC CTHES). TCC noted that its comments regarding Subchapter B, Division 8, relating to CTHES only in VOC service are also intended to apply to Division 3, relating to CTHES in HRVOC service.

The commission has withdrawn the proposed general VOC rules for cooling towers in Subchapter B, Division 8. Therefore, the comments pertaining to this withdrawn division are moot. With

regard to the phrase "in addition to the applicable requirements of any other division in this chapter" in §115.760(a), the rule language has been changed to "in addition to the applicable requirements of any other division in this chapter or any other subchapter in this chapter." With this language, the commission intends to clarify that applicability under Chapter 115 is not necessarily limited to the division in question alone.

TCC and TXOGA commented that for readability the definitions in §115.760 should be moved to §115.10, which contains definitions for terms used in Chapter 115. TCC commented that the language in §115.760 concerning fin fan coolers, etc. is more appropriate for §115.768.

The commission believes that locating the definition for "cooling tower heat exchange system" in the rule to which the definition applies is useful, and therefore makes no change to the rule. Similarly, listing in this section certain types of cooling tower heat exchange systems and other equipment to which the rule does not apply helps the reader in quickly establishing whether the rule applies.

Fugitive Emissions
TCC commented on proposed §115.352(10), which specifies that any petroleum refinery; synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation in HGA in which an HRVOC is a raw material, intermediate, final product, or in a waste stream, is subject to the requirements of the new Subchapter H in addition to the applicable requirements of Division 3 of Subchapter D. TCC suggested that the reference to "waste stream" be deleted.

The commission disagrees. In some cases, a unit may be operating for purposes of waste management. A component in contact with a VOC or HRVOC has the potential for emissions from a leak, regardless of the specific purpose (production or waste management) that the unit is operating.

§115.780
TxOGA stated that §115.780 should be revised to clarify that the HRVOC fugitive monitoring requirements apply to a unit or process within a petroleum refinery; synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation. TxOGA stated that as written, Subchapter H, Division 4 becomes applicable to the entire site as opposed to individual process units.

The commission agrees and has revised §115.780 accordingly.

§115.781(a)
EnRUD commented on §115.781(a) and suggested that "of another unit" be changed to "within the unit."

The commission agrees that the reference should be to components which are not subject to this Subchapter H, Division 4, and has revised §115.781(a) accordingly.

TxOGA commented on §115.781(a) and stated that the requirement to identify components of each unit should apply only to HRVOC components and suggested the addition of the phrase "in HRVOC service."

The commission agrees and has revised §115.781(a) accordingly.

Dow commented on §115.781(a) and stated that individually tagging each component subject to or exempt from the rule should not be a requirement. Dow suggested that the component identification requirement in §115.781(a) is really a recordkeeping requirement and should be relocated to §115.786 or somehow combined with §115.786(e). Dow stated that if the audit provisions in §115.788 are retained, then §115.788(a)(1)(A) and (B) and §115.788(d) should be made consistent with the identification methods allowed in §115.781(a). Finally, Dow stated that lines and equipment that are clearly not in VOC service (e.g., steam and nitrogen lines) should not need to be individually identified.

It is unclear how components could be accurately identified on a unit-wide basis, as opposed to a component by component basis. If each component is not identified with a unique component identification code, it would be difficult to identify which specific components had been monitored on a particular date, which components were not monitored, which components were leaking, etc. Therefore, the commission believes that for the rule to be enforceable, each component ideally would be identified with a unique component identification code. However, the commission also recognizes that connectors present a unique difficulty in labeling due to the sheer number of connectors, which is estimated to be three to four times the number of valves. Therefore, the commission has revised §115.781(a) accordingly to specify that each component other than connectors must be labeled with a unique component identification code in order to improve the enforceability of the rule, with connectors not required to be individually labeled if they are clearly identified individually in the master components log. This will also ensure consistency with §115.788(a)(1)(A) and (B) and §115.788(d). Regarding components in non-VOC service, such as steam, nitrogen, and water lines, the commission revised §115.781(a) to specify that the requirements apply to the components in HRVOC service.

§115.781(b)(2) and (3)

Dow, ExxonMobil, Sierra-Houston, Sierra-Lone Star, TCC, and TxOGA commented on §115.781(b)(2), which prohibits leak-skip under §115.354(7) and (8). Sierra-Houston and Sierra-Lone Star supported the monitoring of each component and not allowing leak-skip periods. ExxonMobil and TxOGA stated that a leak-skip program is more important if the number of components to be monitored increases significantly. TxOGA asserted that most of the components being added to the monitoring program are those which are less likely to leak (e.g., connectors), and stated that the large number of components being added to the monitoring program would make incorporation of a skip-period monitoring program a logical choice for the management of resources for such a labor-intensive program. Dow and TCC expressed similar concerns. Dow, DuPont, ExxonMobil, Phillips, TCC, and TxOGA commented on the list of components in §115.781(b)(3). DuPont asserted that the list of components is unreasonable and extremely expensive for a complex manufacturing site to implement and maintain. Dow, TCC, and TxOGA expressed similar concerns. Phillips stated that component types should be added only after evaluation that emission reductions are commensurate with the resource requirements. BP stated that it conducted a survey of four process units and found a leak rate of less than 1.0% for the flanges, connectors, heat exchanger heads, and pressure gauges. TCC stated that the components listed in §115.781(b)(3) have not been shown to leak HRVOCs, while Dow stated that they "contribute only a very small portion of overall emissions from a process unit." DuPont stated that it estimates 2.3 flanges (connectors) for every valve, and that plugs, caps, and blind flanges serve the purpose to eliminate fugitive emissions and should not require additional monitoring (per the HON rule). DuPont stated that segregated stormwater drains would be unlikely sources of fugitive emissions. DuPont stated that the commission should narrow down the list and include only those components that have truly demonstrated significant and frequent leakage. ExxonMobil and TxOGA stated that the HON provisions should be used to establish the list of components to be monitored, and that HRVOCs and VOCs should not be subject to more stringent monitoring provisions than those for air toxics. Dow and TCC stated that as an alternative, the commission should consider monitoring of these components during 2003 and based on the findings, reduce or allow leak-skip monitoring of these components in future periods. Dow and TCC stated that including the existing leak-skip provisions should be a consideration as well. TCC suggested that the word "unsegregated" be added before "stormwater drains" to clarify that dedicated stormwater conveyances do not require monitoring. Dow suggested consideration of four alternatives for these additional types of components: 1) monitoring within five calendar days if a potential leak is found by audible, visual, or olfactory (AVO), or any other detection method; 2) leak-skip monitoring; 3) sweep monitoring (in which monitoring personnel start monitoring at one end of a plant and then monitor all components within an area without checking for component identifications); and 4) statistical sampling (using a graph similar to the graph in §115.788(a)(2)(B)). Dow also suggested establishing alternate monitoring frequencies for connectors similar to the alternative frequencies allows in the Consolidated Federal Air Rule. Dow further suggested that instead of monitoring sampling connection systems on a quarterly basis, the commission should provide the option to comply with the sampling connection system requirements in HON Subpart H, 40 CFR §63.166.

The commission disagrees with TCC's claim that non-traditional components have not been shown to leak. In *Volume 2A: Comments on Process Vents, Storage Vessels, Transfer Racks and Equipment Leaks*, section 5.1.13, §*63.174: Connectors in Gas/Vapor Service and in Light Liquid Service*, of EPA's background information document for the HON, "Hazardous Air Pollutant Emissions from Process Units in the Synthetic Organic Chemical Manufacturing Industry -- Background Information for Promulgated Standards" (January 1994), EPA responded to a similar comment concerning connectors as follows: "The EPA does not agree with the commenter's (A-90-19: IV-D-68) view that a LDAR program for connectors is inappropriate and is not a cost-effective means of emissions reduction. The commenter (A-90-19: IV-D-68) did not provide the basis for the emission estimates used in concluding that the LDAR program for connectors was not cost-effective. The EPA believes that it is important to include process equipment connectors in the LDAR program because emissions from these connectors can be significant. The revised SOCMI average factors show that the factor for connectors is one-half to one-third of the factors for valves in light liquid and gas service. Because of the large number of connectors in process units, connector emissions could easily exceed emissions from valves and pumps. In fact for the number of components reported by the commenter (A-90-19: IV-D-68), the revised SOCMI average factors indicate that connectors contribute roughly 55 percent of total emissions and valves contribute 40 percent. While the average factors may not be indicative of emission rates for the commenter's (A-90-19: IV-D-68) units, they do indicate that on a national

basis it is important to consider control measures for connectors." The commission likewise concluded that an LDAR program for connectors in HRVOC service is appropriate. Concerning other non-traditional components, such as heat exchanger heads and sight glasses, BP did not submit detailed results of its survey. These non-traditional components have been found to leak, yet in most cases are not currently required to be monitored at all. As described elsewhere in this preamble, reductions of HRVOC emissions from these sources are necessary to allow continued progress toward attainment of the ozone NAAQS.

Concerning stormwater drains, the commission agrees that segregated stormwater drains would be unlikely sources of fugitive emissions. The situation in which the commission found significant fugitive emissions involved a company which knowingly allowed contaminated condensate to empty into the stormwater drain, resulting in significant emissions where none would normally be expected. Because enforcement action for the improper discharge of contaminated condensate is the appropriate course of action in this and similar situations, the commission has deleted the reference to stormwater drains in §115.781(b)(3).

The commission has considered the comments requesting the availability of a leak-skip option and has concluded that this is appropriate for connectors. The committee which developed the HON generally agreed that connectors could be a significant source of emissions at a well-controlled plant and that emissions could be reduced. In the development of the HON provisions, the committee considered LDAR data and the contribution of connector emissions to total emissions for several process units. These data showed a range of connector leak frequencies at different leak definitions (e.g., 3.0% at 10,000 ppmv to less than 2.0% at 250 ppmv) and showed that connectors could be a significant source of the total emissions. Some committee members believed the relatively high leak rates observed at some process units were a result of infrequent or no inspections and maintenance. The committee agreed that connector leaks should be controlled and established a connector LDAR program to ensure that low leak rates are attained.

The commission likewise believes that LDAR can reduce connector leak frequencies and that less frequent monitoring for connectors may be necessary than that for pumps, compressors, and valves because connectors have no moving parts. Once repaired, connectors would be expected to remain leak-free for extended periods. A number of actions can be taken to reduce or eliminate leaks. In most cases, tightening the flange bolts on flanged connectors is expected to eliminate the leak. In other cases, it may be necessary to replace the gasket or to correct faulty alignment of surfaces, although these latter cases are expected to be relatively infrequent. It is also possible to undertake "extraordinary efforts" (e.g., sealant injection) to repair leaks on connectors. Because bolted manways, heat exchanger heads, hatches, and sump covers have no moving parts, they are analogous to connectors (and in some cases even could be considered a subset of connectors). Therefore, the commission believes it is appropriate that these components be included in a leak-skip option for connectors. In conclusion, the commission has added the availability of a leak-skip option for connectors, bolted manways, heat exchanger heads, hatches, and sump covers, as new §115.781(f) which is similar to the skip-period provisions for connectors in the HON.

As in the HON, a base performance level of 0.5% leaking connectors was established. Process units that have 0.5%, or greater, leaking connectors, bolted manways, heat exchanger heads,

hatches, and sump covers are required to implement an annual LDAR program for these components. Process units that have less than 0.5% leaking connectors, bolted manways, heat exchanger heads, hatches, and sump covers are allowed to monitor these components in a biennial or quadrennial program. However, if the leak rate exceeds 0.5%, but is no greater than 1.0%, then annual monitoring is specified. If the leak rate exceeds 1.0%, but is no greater than 2.0%, then semi-annual monitoring is specified. Finally, if the leak rate exceeds 2.0%, then quarterly monitoring is specified.

For valves in a leak-skip program, it is likely that leaks that occur will not be detected and will accumulate with time. The fact that valves have moving parts makes them much more susceptible to leaks which would not be detected under a leak-skip program. Therefore, the commission is not allowing leak-skip monitoring of valves.

For components such as pump seals and compressor seals, leak-skip monitoring is not allowed because there are not enough of these components present for the statistics of skip monitoring to apply. In addition, leaks from these components are not particularly predictable and might operate with low leak rates for long periods of time and then fail instantaneously with sudden increases in leak rates. Consequently, no matter how many consecutive successful inspections are performed, there is little assurance that a low leak rate would continue if skipping were allowed.

Concerning Dow's suggestion concerning sampling connection systems, the commission agrees that sampling connection systems which are in compliance with §63.166(a) and (b) can be exempted from the LDAR program because §63.166(b) requires control of emissions from sampling connection systems. This exemption has been added as §115.787(c)(6).

Dow, ExxonMobil, and TxOGA stated that §115.781(b)(3) should reference HRVOC service rather than VOC service.

The commission agrees and has revised §115.781(b)(3) accordingly. However, the term "VOC water separator" has been retained because it is the defined term used to describe this equipment.

MISCELLANEOUS RULE LANGUAGE COMMENTS

The commission made several minor changes in wording for which no comments were received. Specifically, the commission added section symbols to §§115.126(1)(A)(iv) and (B), 115.144(3)(E), and 115.166(1)(B) where these symbols were missing. The commission also replaced the outdated term "exemption from permitting" with the correct term "permit by rule" in §115.142(4)(A) and §115.160(2). In addition, the commission revised §115.357(1) by adding language to clarify which specific portions of §115.354 a component would be exempt from if the conditions of the exemption in §115.357(1) are met. The text added to make this clarification is "instrument monitoring (with a hydrocarbon gas analyzer)," and the specific paragraphs in §115.354 are "115.354(1) and (2)." The commission is also replacing the wording "within this same section" with "in §115.354(1) and (2) of this title" to clarify which specific inspection schedules are being referenced. The commission is making the changes to §115.357(1) to clarify that the remaining requirements of §115.354 apply to components which contact a process fluid containing VOC having a true vapor pressure equal to or less than 0.044 pounds per square inch absolute (psia) at

68 degrees Fahrenheit (20 degrees Celsius). The exemption only exempts components in heavy liquid service from the instrument monitoring requirements related to scheduled inspection requirements of §115.354(1) and (2).

BCCA-AG, Lyondell, TCC, and TxOGA commented that the proposed rules would create parallel rules for flares, cooling towers, and LDAR, with one set regulating VOCs generally and the other set regulating HRVOCs. BCCA-AG and Lyondell stated that although the HRVOC rules generally contain more emission limits and control requirements and more stringent monitoring provisions, each HRVOC rule substantially tracks its VOC counterpart and that much of the language of the regulations are identical. BCCA-AG and Lyondell noted that the proposed rules make clear that sources can be subject to both sets of rules. BCCA-AG, Lyondell, and TCC expressed concern that confusion may result if the same source is subject to both VOC and HRVOC rules. BCCA-AG and Lyondell recommended that each HRVOC rule should be structured so as to include all of the salient aspects of the parallel VOC rule, revised or supplemented to address HRVOCs, and to exempt any source that is subject to it from the parallel VOC rule. BCCA-AG and Lyondell stated that a less desirable, but nonetheless preferable, alternative would be to have both rules apply, but include in the HRVOC rules only those requirements that apply over and above the parallel VOC rule. TxOGA requested that for ease in regulatory interpretation, compliance, and Title V identification, the commission should write into Subchapter H all substantive requirements for both HRVOCs and VOCs such that only Subchapter B or Subchapter H applies to a unit. TxOGA stated that this will eliminate duplication and conflicts between the sections and assure that there are no redundancies, and that trying to incorporate separate and distinct requirements from different sections for the same facility is extremely confusing and difficult to implement.

The commission has withdrawn the proposed general VOC monitoring rules in Subchapter B, Divisions 7 and 8. In lieu of requiring this monitoring of all VOCs from individual flares, cooling towers, and process vents to obtain emissions data for use in SIP planning, the commission is relying on data from not only the commission's monitoring network, but also data from additional ambient monitors that will be strategically located in HGA. This monitoring is expected to not only be a more efficient use of resources for this data gathering, but will also provide information more quickly. As described more fully in the narrative to the SIP revision and TSD that accompany these rule amendments, the commission is committed to developing the best science possible to understand the causes of high ozone in the HGA. For the MCR, the commission plans to perform an in-depth analysis of the contributions of the less-reactive compounds and to perform top-down analyses similar to those used for the HRVOCs. If warranted, appropriate adjustment factors will be developed for less-reactive VOCs. As explained more fully in the SIP and TSD, the current modeling analysis indicates that emission reductions in the HRVOC alone can compensate for the change of industrial NO_x controls to 80% reductions, but additional controls on VOC sources are likely to be necessary to reach attainment. The commission will continue to study VOC data available now and in upcoming years to determine whether additional compounds should be added. To accomplish this task, the commission needs the support of and expects owners and operators of facilities in HGA which emit VOCs to participate in the ambient monitoring efforts which are scheduled to begin no later than June 1, 2003. If the ambient monitoring network is not fully and timely developed and operated such that the commission has

received sufficient data for MCR, the commission may reconsider site-specific monitoring controls of VOC sources.

TxOGA stated that throughout the proposal, the term "VOC" is used, without clarity as to whether VOC is intended, or HRVOC is intended, because the term "highly-reactive" has been dropped. TxOGA stated that from the context, it appears that the intent is inconsistent and requested that the two terms be separate and that throughout the entire proposal, the term VOC or HRVOC be identified, as appropriate. Solutia and TCC suggested that the commission conduct a consistency check of the various divisions of the two subchapters. As an example, Solutia and TCC stated that all references to VOCs in Subchapter H should instead use the term HRVOC, thereby clearly indicating which compounds or chemicals are affected. Solutia stated that if someone were to read a section of Subchapter H out of context, they could easily be mislead on what the proper requirements were.

As noted earlier in this preamble, the commission revised the definition of "highly-reactive volatile organic compound" such that this term is abbreviated as HRVOC. Where the commission intends a requirement to apply to all VOC, it has used the term "VOC."

Solutia stated that both Subchapter B and H should contain a clause allowing alternate methods with executive director approval for monitoring or testing requirements. Solutia and TCC noted that some reporting requirements specify that reports be submitted to the Technical Analysis Division, with other items submitted to the Engineering Services Team. Solutia suggested that the commission should clarify the difference to avoid confusion by affected facilities. TCC also stated that approval authority should remain with the executive director, as has historically been the case in most agency programs, rather than Engineering Services. TCC stated that this shift in responsibility could restrict the ability to appeal matters to higher agency offices.

The commission has deleted all references in the rules to the Technical Analysis Division. "Executive director" is defined in 30 TAC §3.2 as "the executive director of the commission, or any authorized individual designated to act for the executive director." The references to the Engineering Services Team are necessary to clearly designate where within the agency certain information should be directed and who will review such information. This allows a more efficient flow of information to the appropriate area within the agency. The inclusion of references in the rules to specific areas of the agency has never prevented industry representatives from appealing matters to higher offices in the past, and is not expected to do so now.

BCCA-AG and Lyondell recommended that references to "continuous" compliance in the VOC and HRVOC flare rules be deleted, stating that the use of this term is unnecessary and may be misinterpreted to require a particular task be performed without interruption, when in fact the regulation requires that it only be performed periodically.

The commission disagrees, since continuous compliance is the basic intent of the rule. The commission believes that the rule's requirements for conducting continuous measurements (flow monitoring devices, for example) and noncontinuous measurements (HRVOC analyzers) are clear. However, the commission has clarified in §115.722(b) that flares must continuously comply with

40 CFR §60.18 by adding "when vent gas containing VOC is being routed to the flare" to the rule language.

EXEMPTIONS

Exemption for Small Percentages of HRVOC

BCCA-AG, Dow, DuPont, ExxonMobil, Goodyear-Houston, Lyondell, TCC, TxOGA, and Valero commented that the proposed HRVOC vent gas stream, cooling tower, and flare rules exempt from the control requirements streams in which HRVOCs comprise less than 1.0% by weight of the VOC in the stream, while the proposed HRVOC fugitives rule exempts from control requirements any component that contacts a process fluid that contains less than 1.0% by weight HRVOC. BCCA-AG, Dow, DuPont, ExxonMobil, Goodyear-Houston, Lyondell, TCC, TxOGA, and Valero agreed that a low HRVOC percent exemption is appropriate, but stated that the exemption should be based on the percentage of HRVOCs in the gas stream, not the percentage of HRVOCs in the VOC portion of the gas stream, because many streams contain significant percentages of non-VOCs. BCCA-AG, Goodyear-Houston, and Lyondell stated that this would make the basis of the exemption more straightforward, and would make it consistent with other, similar exemptions. As an example of why they believed that the exemption should be based on the entire content of the stream, BCCA-AG and Lyondell provided the following hypothetical example. Assume a site includes a non-condensable blow-down vent gas stream that normally consists of 99.95% nitrogen, 0.05% total VOC, and 0.005% ethylene. Given these relative percentages, the ethylene accounts for 10% of the VOC in this vent gas stream, but only 0.005% of the total stream, although this vent gas stream still would be subject to the new HRVOC requirements.

The commission agrees that the exemption should be based on the percentage (or concentration) of HRVOCs in the total stream for the reasons in the example cited by BCCA-AG and Lyondell, and has revised §115.727 and 115.768(2) (renumbered as §115.768(3)) accordingly.

BCCA-AG, DuPont, ExxonMobil, Goodyear-Houston, Lyondell, TCC, and TxOGA stated that each of the low HRVOC percent exemptions is provided for streams with 1.0% or less HRVOC. BCCA-AG, DuPont, ExxonMobil, Goodyear-Houston, and Lyondell agreed that a low HRVOC percent exemption is appropriate for the proposed HRVOC rules, but asserted that the proposed exemption level does not provide a meaningful exemption for streams with negligible amounts of HRVOCs. BCCA-AG, DuPont, ExxonMobil, Lyondell, TCC, and TxOGA suggested that the exemption level be set at 5.0% HRVOC of the total amount of material in the stream under normal operating conditions. BCCA-AG and Lyondell stated that "even the most stringent air regulations typically provide a 5.0% exemption, e.g., the HON leak detection and repair requirements" of 40 CFR §63.161 (definition of "in organic HAP service"). Phillips stated that the 1.0% HRVOC exemption limit is unrealistically low and should be raised to at least 5.0% to be meaningful. Valero recommended changing the exemption to 5.0% HRVOC of the total amount of material in the stream. Valero stated that this is similar in concept to the relief provided in the federal MACT standards for low hazardous air pollutant streams, and asserted that the proposed 1.0% level is too stringent and will not provide relief to insignificant HRVOC streams which do not cause ozone exceedances. Dow expressed similar concerns and suggested an exemption of 5.0% HRVOC by weight on an annual average basis. ExxonMobil and TxOGA requested that the exemption in §115.727(a) be established when the HRVOC level is 5.0% or less of the total vent gas stream from any uncontrolled vent. ExxonMobil stated that limiting the exemption to less than 1.0%

HRVOC of the VOC stream produces overly broad rule coverage, impacting low-density streams that will have little effect on total HRVOC emissions in the nonattainment area. Goodyear-Houston expressed support for a 5.0% to 10% HRVOC stream composition exemption. TCC stated that monitoring fugitive emissions from components that contact process streams with concentrations of less than 5.0% will be difficult because some of these streams contain high nitrogen concentrations and low VOC concentrations, making detection with standard VOC analyzers impossible. TCC also stated that some of the dilute process streams are associated with vent headers and flare systems, making them difficult or unsafe-to-monitor. TCC further stated that including components in process streams with less than 5.0% VOC will require considerable engineering work to reassess process streams and compile new component counts. TCC asserted that these low concentration streams do not contribute significantly to the overall HRVOC emissions. Finally, TCC stated that Chapter 115 should be consistent with HON Subpart H and the other Part 63 NESHAP standards on the concentration exemption to simplify compliance. TCC stated that HON Subpart H (and all other Part 63 NESHAP standards) regulate equipment intended to operate in organic hazardous air pollutant service 300 hours or more during the calendar year, with the definition of "in organic hazardous air pollutant or in organic HAP service" meaning that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5.0% by weight of total organic hazardous air pollutants (HAPs) as determined according to the provisions of §63.180(d). TCC noted that the provisions of §63.180(d) also specify how to determine that a piece of equipment is not in organic HAP service.

The commission agrees that an appropriate exemption level is 5.0% by weight of HRVOCs in the total stream for flares, cooling towers, and fugitive emissions, and has revised §§115.727(a) and (b), 115.768(3), and 115.787(a) accordingly. For vent gas streams, however, the exemption levels in the existing Subchapter B vent gas rules range from 408 to 612 ppmv of the total stream. Therefore, an exemption level of 5.0% (50,000 ppm) by weight of HRVOCs in the total stream would exempt many vent gas streams from the Subchapter H vent gas requirements. The commission has revised §115.727(a) to establish a 100 ppmv exemption level because this threshold will ensure that all vent gas streams which are currently subject to Subchapter B, Division 2 (Vent Gas) are subject to, rather than inadvertently exempted from, Subchapter H.

Goodyear-Houston stated that an exemption should be added for sites that contribute a small portion of HRVOC to HGA (for example, 0.1% or less of the daily HRVOC allocation for HGA), or for industries who are users of HRVOC, but do not significantly contribute HRVOC emissions to HGA, such as industries under SIC code 2822. Goodyear-Houston also suggested the addition of an exemption for sites whose combustion sources are not beneficiaries of a less stringent alternate NO_x emission specification. Ethyl stated that the commission should consider categories of HRVOC users/emitters, with varying regulatory requirements in much the same way as EPA has regulated chlorofluorocarbons. Ethyl specifically stated that small specialty chemical plants should be considered separately from refineries and ethylene plants because operations and emission rates and potential for VOC emissions are dramatically different between large refineries/ethylene plants as compared to small specialty chemical plants.

Even though a particular individual site's emissions may form a relatively small fraction of the total emissions in HGA, the same can be said of most categories of emission sources. The logic of allowing no (or minimal) reductions from a source sector because it individually contributes only

marginally to the area's ozone problem would cumulatively result in an inadequate plan for the area's attainment of the ozone standard due to insufficient emission reductions. Because significant contributions to air pollution occur throughout the HGA area, reductions from only the largest sources will not be enough to meet federal air quality standards.

To consider the concept of exempting certain "non-contributing" sources would imply that ozone formation is generally caused by specific emission units. This premise is unsupported by decades of scientific research concerning photochemical oxidants and ozone. In fact, ozone is a regional problem to which all sources of photochemical oxidants contribute. During ozone exceedance episodes, ozone tends to build slowly over time so that more sources contribute to the problem, over a much wider area, than for other criteria pollutant emissions. The available evidence on ozone formation points out the inherent difficulties in placing arbitrary borders around a problem which does not recognize geographical boundaries.

Furthermore, creation of a protected source category, such as industries under SIC code 2822, would permit continued growth in emissions, thereby jeopardizing the SIP.

Low Annual Hours of Operation
Dow and DuPont stated that an exemption should be added to both §115.357 and §115.787 for equipment in VOC or HRVOC service less than 300 hours per calendar year. Dow stated that in certain chemical plants, particularly batch processes that produce a number of different products, there is equipment that is used in VOC service only occasionally. Dow asserted that in such cases, implementation of the standards can be difficult and achieves very little emission reduction. Dow stated that pumps and compressors used only during startup or shutdown of a process unit are one example of such equipment, and that other examples include equipment used in batch steps in continuous processes and components on a closed vent system that routes emissions from pressure relief devices to a control device. DuPont also suggested that the commission consider adding an exemption to the flare, cooling tower, and vent gas requirements for equipment in service less than 300 hours per calendar year.

The commenters' suggestion would exempt sources that might operate solely on summer days with a particularly high potential for ozone formation, yet would be uncontrolled. Therefore, the commission has made no change in response to the comments.

Minimum Mass Flow Rate of HRVOCs - §§115.727, 115.747, 115.787
Ethyl stated that §115.727 and §115.787 should include additional qualifying requirements of minimum mass flow rate of HRVOCs for the vent stream, to account for small vents from batch processes.

The commission disagrees. Vents with a low flow rate, but high concentration, can have significant short-term emissions. The commenter's suggestions would allow higher emissions on a day when ozone may be a problem and cannot assure the level of control required on the hot summer days when ozone is most likely to form.

General VOC Industrial Wastewater
§115.147(3)
TxOGA commented that the first sentence of §115.147(3) is confusing. TxOGA stated that the sentence contemplates inclusion of specific requirements to identify other divisions of Chapter 115 as being applicable, and suggested that the wording of the proposed sentence should be revised accordingly to include the specific requirements of Subchapter D, Division 3 and Subchapter H rather than eliminate this exemption for specific components. TxOGA stated that there are several reasons the current wording is confusing. TxOGA stated that the term "component" has a different connotation in the industrial wastewater rules than in the fugitive emissions rules. TxOGA also questioned whether the second sentence means that components subject to Subchapter D, Division 3 and Subchapter H are now subject to any and all divisions of Chapter 115, or only to industrial wastewater (Division 4) and the additional ones listed. TxOGA stated that as written, it would seem to imply the broader applicability, where it should be adequate to have only the additional requirements of the fugitives emission divisions.

The current language of §115.147(3) (i.e., the first sentence) addresses pieces of equipment which are subject to §115.142, but which are also addressed by other divisions within Chapter 115, such as Storage of Volatile Organic Compounds. The intent is that only the industrial wastewater requirements apply to these pieces of equipment. In the absence of the first sentence of §115.147(3), these pieces of equipment also would be subject to one or more other divisions in Chapter 115. For this reason, the commission revised §115.147(3) to include a reference to

Subchapters D and H. The commission agrees with TxOGA that the term "component" has a different meaning in the industrial wastewater rules than in the fugitive emissions rules, and has replaced this term with the more accurate term "piece of equipment" to clarify the intent. The second sentence in §115.147(3) means that some components or pieces of equipment are subject to the fugitive monitoring requirements of Subchapter D, Division 3, and/or Subchapter H. The commission has replaced the term "components" in the second sentence with the more accurate phrase "pieces of equipment or components" to clarify the intent.

Natural Gas Transmission Lines and Compressor Stations
§115.727(a)
Duke requested that special consideration with respect to §115.727(a) be given to vent gas streams in which the gas stream being vented is a relatively consistent compound, e.g., natural gas at transmission pipelines and compressor stations. With respect to natural gas transmission pipelines and compressor stations, Duke stated that there are a significant number of vent gas streams in which natural gas is the only compound being vented, and noted that natural gas contains trace amounts of HRVOC. Duke stated that it currently has only one extended gas analysis, for which the HRVOC would be anticipated to be in pipeline natural gas, which indicates an HRVOC content of 0.5% by weight. Although the chemical composition of natural gas does vary to a certain degree, Duke stated that it is unlikely that the HRVOC content of pipeline natural gas would ever exceed the exemption threshold of 1.0% by weight. Duke suggested that for vent gas streams consisting solely of pipeline quality natural gas, the commission should either specifically exempt pipeline quality natural gas from any sampling requirement, or allow the collection of representative samples for VOC analysis from the pipeline as opposed to the collection of samples at each individual piece of piping from which the natural gas is vented.

As noted earlier in this preamble, the commission revised §115.727(a) to establish an exemption level of 5.0% by weight of HRVOCs in the total stream. Because it is unlikely that the HRVOC content of pipeline natural gas would ever exceed 1.0% by weight, a vent gas stream in which only natural gas is vented would not be expected to be subject to the HRVOC rules.

HRVOC Vent Gas
Goodyear-Houston stated that vent gas streams in compliance with the polymer and resins MACT requirements of 40 CFR 63, Subpart U (40 CFR §63.494) should be exempt. Goodyear-Houston stated that alternatively, an exemption should be included for vent gas streams where stripping technology is used for MACT compliance.

MACT standards, such as 40 CFR Part 63, Subpart U (40 CFR §63.494), are not adequate to provide reductions for ozone strategy. Specifically, the MACT standards are based on the need to reduce exposure to HAPs, while the purpose of Chapter 115 is to reduce emissions which contribute to ozone formation. Because the purposes of the rules are so different, there is no reason they should necessarily have the same thresholds or exemptions.

§115.727(b)
Dow stated that the 100 ppmv criteria and 14 lbs/day criteria in §115.727(b) should apply only to HRVOC and not to all VOC in a vent gas stream.

The commission has deleted the proposed §115.727(b). Therefore, the commission has made no changes in response to the comment.

§115.727(b) and (c)
ExxonMobil recommended that §115.727(b) and (c) be amended to allow exemption for HRVOC vents that are able to demonstrate either a concentration threshold recognizing cost of control, or a mass flow rate recognizing an insignificant emissions level, and stated that combining these two restrictive limits results in cost-ineffective controls on insignificant emission sources. DuPont, Goodyear-Houston, and TCC expressed similar concerns. Goodyear-Houston stated that the existing mass emission threshold of 100 pounds of VOC per 24-hour period should be retained.

The commission has deleted the proposed §115.727(b) and (c). Therefore, the commission has made no changes in response to the comment.

§115.727(c)
Dow stated that §115.727(c) should be consistent with proposed §115.725(a) with respect to the requirement to conduct reference method testing. Dow also stated that §115.727(c) contradicts §115.725(a)(1)(A) to some degree. Dow commented that §115.725(a)(1)(A) states that if the measured concentration with a portable analyzer is less than 306 or 204 ppmv, then no mass emission rate test is needed, and implies that the stream may continue to be vented to the atmosphere. Dow commented that §115.727(c) states that both the concentration limit and the VOC mass emission rate must be met in order to be exempt from controls, such that it would be necessary to conduct a reference method test for each stream regardless of the concentration measured with a portable analyzer. Dow and Goodyear-Houston suggested that §115.727(c) be structured so that a vent stream is exempt from controls if either the concentration limit, as measured with a portable analyzer, or the mass flow rate limit is met. In addition, Dow stated that both sections should require reference test method testing only if testing with a portable analyzer shows concentrations in excess of the 306 or 204 ppmv cutoffs specified in the rule.

The commission has deleted the proposed §115.727(c). Therefore, the commission has made no changes in response to the comment.

DuPont commented on §115.727(c) and expressed disappointment that the commission back-calculated from EI data to develop the exemption threshold of 14 pounds in a continuous 24-hour period, while Goodyear-Houston stated that it is not clear how this threshold was developed. DuPont stated that the commission should insert language to allow for review of data at a particular date (December 31, 2003) to determine what level of control is necessary instead of prescribing a control point based on EI data.

The commission has deleted the proposed §115.727(c). Therefore, the commission has made no changes in response to the comment.

Combustion Unit Exhaust Streams Not Being Used as Control Devices
§115.727(d)
Duke and TxOGA stated that unlike §115.127(a)(7), §115.727 does not provide an exemption for combustion unit exhaust streams that are not being used as control devices for a vent gas stream which originates from a non-combustion source, but by contrast, §115.727(d) provides the §115.127(a)(6)

exemption for vent gas streams for which requirements of a different division of Chapter 115 are applicable. Duke and TxOGA requested that an exemption be provided for combustion unit exhaust streams that are not being used as control devices for a vent gas stream which originates from a non-combustion source.

The exemptions available in §115.727(a) and (b) are designed to provide an appropriate exemption, while also ensuring that all appropriate vent gas streams are included in the site-wide cap. Therefore, the commission does not believe that the suggested exemption is necessary or appropriate.

VOC Flares
BCCA-AG and Lyondell commented that the proposed VOC flare rule applies to any flare in the HGA area which emits or has the potential to emit any VOC. In light of the potential high costs, BCCA-AG and Lyondell recommended that the commission include an exemption based on appropriate low emission and low annual usage thresholds. TCC commented that under §115.747, it should be clarified that if a source meets the exemption criteria, it is exempt from the subchapter, and that as stated, the exemption only relieves an operator from corrective action.

The commission has withdrawn the proposed general VOC rules for flares in Subchapter B, Division 7. For flares in HRVOC service under Subchapter H, Division 1, §115.727(a) exempts from the site-wide cap accounts for which no gas stream that is routed to a flare contains 5.0% or greater by weight of HRVOC at any time. However, such flares are still subject to recordkeeping requirements to document exempt status. The site-wide cap allows a company to take into account factors such as low emissions and low annual usage thresholds when designing its control plan for complying with the cap.

HRVOC Flares
§115.747
Green commented that some plants may not be subject to 40 CFR §60.18, and suggested that a one-time demonstration be allowed to determine the appropriate exemption level. Green commented that acceptable calculation methods or a one-time 40 CFR §60.18 performance test should be allowed. Green stated that there should be a de minimus level, expressed both as a percentage and a mass limit, to account for the fact that methane (which is not an HRVOC) is a major constituent of the flare gas.

All flares subject to the HRVOC rule must comply with 40 CFR §60.18 when vent gas containing VOC is being routed to the flare. This ensures that the flare is operated under proper operating conditions with regard to exit velocity and net heating value of the gas stream(s) routed to the flare. Section 115.727(a) exempts from the site-wide cap accounts for which no gas stream that is routed to a flare contains 5.0% or greater by weight of HRVOC at any time. Since this exemption applies to the percentage HRVOC in the *total* gas stream, not in the VOC portion of the stream, the presence of methane does not penalize the stream with regard to exemptability. In addition, the commission has added §115.725(c), which exempts flares used solely for abatement of emissions from loading operations for transport vessels from the rule's monitoring requirements, and instead allows the emissions to be calculated. However, such flares are still subject to recordkeeping requirements to document exempt status.

Green commented that the rule should be revised to exclude small companies that use a flare as their primary VOC control device, and stated that the inclusion of toluene and xylene in the definition of HRVOC would be detrimental to small companies. Green requested flexibility for small companies handling toluene and xylenes by allowing tanks storing these materials to be taken off the flare header as long as the exemption criteria for vapor pressure and tank size under §115.112 are met.

Toluene and xylenes are not included in the definition of HRVOC. Compliance with the storage tank provisions elsewhere in Chapter 115 does not necessarily exclude gas streams associated with the tanks from the applicability of the HRVOC rules.

Green requested clarification on the reason that the exemption is expressed in percent by weight rather than percent by volume, stating that most performance tests report volume percent in the flared gas.

Compliance with the site-wide cap is determined on a mass basis, averaged over a rolling 24-hour period. Therefore, in determining whether a unit or stream is exempt from the HRVOC rules, the commission believes that it is appropriate to use weight-based criteria.

TCC suggested that the following exemptions be added: 1) flares in dedicated VOC service from on-line or other speciated VOC analysis; and (in addition to Dow) 2) flares in emergency service (defined by Dow as flares with a routine feed rate of ten lb/hr or less of VOC), since these devices should be receiving no process gas during normal operation, and it is not practical to monitor these flares.

Information available to the commission indicates that very few flares are used solely for emergencies. At a minimum, there are fugitive emissions which are routinely routed to the flares from the relief valves on a non-emergency basis. The potential for large amounts of emissions to be released from such flares requires that monitoring be conducted. The commission has added §115.725(e), which exempts flares used solely for abatement of emissions from loading operations for transport vessels from the rule's monitoring requirements and instead allows the emissions to be calculated, provided that certain recordkeeping and other provisions are met.

Dow recommended that temporary flares be exempt from the rule, stating that such flares are generally used for short-term operations as temporary maintenance facilities used in planned startup, shutdown, and maintenance activities. Dow suggested that temporary flares be exempt for a period of 180 days, with extensions available on a case-by-case basis. Dow stated that there would not be enough time for a complete installation of necessary monitoring equipment, which could take six - eight months. Dow also commented that temporary flares are not part of routine operations, and are usually responsible for few emissions because they are intended for short-term use.

The commission does not agree that an operating period of up to 180 days constitutes short-term use, and, more importantly, from an emissions standpoint sees no difference between a temporary flare and a permanent installation. Exempting temporary flares would essentially mean that their emissions would not be accounted for under the site-wide cap, and might even create an incentive to favor their use over permanent flares. In particular, the commission has concerns about exempting a control device used in startup, shutdown, and maintenance activities,

given that these activities have the potential for creating excess emission events. No action has been taken in response to the comment.

Allied and Waste Management commented on the impact of the proposed rules on municipal solid waste (MSW) landfills. They stated that MSW landfills should be exempted from the rules because the gases routed to flares are essentially all methane and carbon dioxide (CO_2), with typically less than 1% VOC by volume. Waste Management commented that the amount of HRVOC (toluene and xylene) routed to flares is extremely small. The commenters interpreted the proposed rule as requiring control unless the HRVOC content is less than 1.0% by weight of total VOC in the gas stream.

The commission has withdrawn the proposed general VOC rules for flares in Subchapter B, Division 7. For flares in HRVOC service under Subchapter H, Division 1, §115.727(a) exempts from the site-wide cap accounts for which no gas stream that is routed to a flare contains 5.0% or greater by weight of HRVOC at any time. However, such flares are still subject to recordkeeping requirements to document exempt status. Based on the information submitted by the commenters on their operations, it is extremely unlikely that a landfill waste gas stream routed to a flare would contain anywhere near 5.0% by weight HRVOC, which is equivalent to 50,000 ppm. This refers to the percentage HRVOC in the total gas stream, not the percentage HRVOC in the VOC portion of the stream. When EPA was developing New Source Performance Standards (NSPS) for new MSW landfills and emission guidelines for existing MSW landfills, the default concentration of non-methane organic compounds in lieu of testing was 8,000 ppm. Based on more complete operating data, this default was later reduced to 4,000 ppm. However, actual test data showed emissions in the 2,000 ppm range. Based on this information, the commission is not specifically exempting MSW landfills from the rule, but concludes that the 5.0% by weight HRVOC exemption level can easily be met by all MSW landfills.

VOC Cooling Towers
BCCA-AG and Lyondell commented that the VOC cooling tower rule should include exemptions for systems that have only a de minimis potential to significantly contribute to ozone development in the HGA area. BCCA-AG and Lyondell recommended that the exemptions should apply to cooling tower systems that (1) service process streams containing less than 1.0% total VOC, based on the average for all heat exchangers in the cooling tower system; (2) service heat exchangers containing materials with minimal vapor pressure (heavy liquids); and (3) have circulation rates below a low threshold. BCCA-AG and Lyondell stated that since the intent of the proposed VOC cooling tower rule is to target monitoring and control requirements for cooling tower systems that have the greatest potential for VOC emissions, applying the proposed regulation to the cooling tower systems that meet the suggested exemption criteria is unnecessary and overly burdensome.

The commission has withdrawn the proposed general VOC rule for cooling towers in Subchapter B, Division 8. Therefore, the specific concerns expressed by the commenter are no longer applicable.

HRVOC Cooling Towers
BCCA-AG and Lyondell commented that for HRVOC cooling towers, the requirement that the hourly emission limit be met for the exemption to apply should be deleted. BCCA-AG and Lyondell also

stated that the exemption should provide relief not only from the emission limit and the corrective action requirement, but from all of the proposed HRVOC cooling tower requirements. BCCA-AG and Lyondell further commented that if a HRVOC cooling tower system has no potential for leaking HRVOC to the atmosphere, there is no justification for its regulation under the proposed rule.

The commission has revised §115.768 to exempt any account for which no stream directed to a cooling tower heat exchange system contains 5.0% or greater by weight HRVOC. In addition, any CTHES in which no individual heat exchanger has HRVOC in the process side of the fluid is exempt from the requirements of the division, with the exception of recordkeeping requirements. These changes, in addition to the elimination of individual unit emission limits and establishment of a site-wide cap, provides the owner or operator of a cooling tower with considerable flexibility.

BCCA-AG and Lyondell commented that cooling towers subject to appropriate MACT standards should be exempt from the current proposed rules.

MACT standards are not adequate to provide reductions for ozone strategy. Specifically, the MACT standards are based on the need to reduce exposure to HAPs, while the purpose of Chapter 115 is to reduce emissions which contribute to ozone formation. Because the purposes of the rules are so different, there is no reason they should necessarily have the same thresholds or exemptions.

BCCA-AG and Lyondell commented that the proposed HRVOC cooling tower rule, which exempts from the 24-hour corrective action requirement cooling tower systems in which the minimum pressure on the cooling water side is at least 5.0 psig greater than the maximum pressure on the process side of all of its heat exchangers, should exempt a cooling tower system from all of the HRVOC cooling tower requirements, not merely the 24-hour corrective action requirement. TCC commented that the exemptions listed in §115.768, relating to Exemptions, should apply to the entire division, not just to the monitoring or control requirements. TCC stated that having such a complete exemption would prevent duplicative or conflicting requirements for the same CTHES.

The commission agrees, and has revised §115.768(1) to exempt such cooling towers from the requirements of the entire division, with the exception of the recordkeeping requirements of §115.767. Recordkeeping is needed to demonstrate that the minimum pressure on the cooling water side is at least 5.0 psig greater than the maximum pressure on the process side of all of the cooling tower's heat exchangers.

TCC recommended revising §115.768 to clarify that this exemption applies only if all heat exchangers serviced by the HRVOC CTHES meet the exemption criteria. TCC also suggested changing the phrase "minimum pressure" to "minimum normal operating pressure."

The commission has revised §115.768 to specify that each individual heat exchanger in the cooling tower system must meet the exemption criteria in order to qualify for exemption. The commission believes that the phrase "minimum pressure" should be retained in the rule. "Normal" implies an averaging period or baseline conditions. However, even if the suggested change were made,

leaks could still occur; the intent of the rule is to address all conditions. Records documenting exempt status still need to be maintained.

TCC recommended that the exemption should not include a reference to the proposed mass emission rate limit found in §115.761 as a criterion for exemption from the proposed rule.

The commission agrees, and has eliminated this language from the rule.

TCC recommended moving the circulation rate exemption criteria from §115.760 to §115.768. TCC also requested clarification on the commission's reason for setting exemption criteria based on an 8,000 gpm circulation rate.

The rule makes a distinction between cooling towers with a water circulation rate equal to or greater than 8,000 gpm and those with a water circulation rate less than 8,000 gpm with regard to stringency of monitoring requirements. These requirements, however, are not criteria for exemption. Section 115.768 exempts a CTHES from the requirements of the division, with the exception of recordkeeping, if either pressure criteria or HRVOC criteria are met, and exempts an account for which no stream directed to a CTHES contains 5.0% or greater by weight HRVOC from the site-wide cap requirements. Therefore, no changes were made in response to the comments.

Fugitive Emissions
§115.357(10)
TxOGA commented on §115.357(10), which specifies that the requirements of the new Subchapter H apply to components which qualify for one or more of the exemptions in §115.357(1) - (9). TxOGA recommended writing the specific exemptions for Subchapter H in §115.787, but stated that if not, the exemptions excluded here should include only §115.357(1), (3), and (6) - (8).

The commission has retained §115.357(10) and is addressing exemptions for HRVOC in §115.787. Comments on the specific exemptions in §115.787 are discussed in the response to the next comment.

§115.781(b)(1)
Dow, DuPont, ExxonMobil, TCC, and TxOGA noted that §115.781(b)(1) specifies that the exemptions of §115.357 do not apply to Subchapter H, Division 4. DuPont stated that smaller sites with less than 250 components, water streams containing one ppm VOC, and sealless pumps would all be "inappropriately pulled into" the HRVOC fugitive emissions requirements. DuPont stated that existing exemptions such as "valves . . . venting to a control device" (§115.357(2)) "pumps and compressors with a shaft sealing system . . ." (§115.357(4)) should be retained. DuPont stated that the commission should justify removing any exemptions based on the emissions, reinstate appropriate exemptions, and provide a de minimis level of HRVOC for applicability. TxOGA stated that the exemptions in §115.357(1) - (4), (6), and (7) and the exemptions in §115.357 other than those §115.357(1), (3), and (6) - (8) should remain valid for HRVOC fugitive requirements. ExxonMobil and TxOGA also stated that, as proposed, §115.781(b)(1) inadvertently includes §115.357(10). TCC stated that the exemptions in §115.357(2) - (4) should remain valid for HRVOC fugitive requirements. ExxonMobil stated that

the exemptions in §115.357(1) - (4) and (6) - (7) should remain valid for HRVOC fugitive requirements. Dow stated that the exemption in §115.357(9) for valves rated greater than 10,000 psig should remain valid for HRVOC fugitive requirements "to address potential safety hazards."

An exemption for de minimis level of HRVOC is available in §115.787(a), and an exemption for sealless pumps is available in §115.787(b). The commission agrees that exemptions are appropriate for plant sites covered by a single account number with less than 250 components in VOC service, pumps and compressors equipped with a shaft sealing system that prevents or detects emissions from the seal, PRVs equipped with a rupture disk or venting to a control device, and valves rated greater than 10,000 psig. The commission has added these exemptions as §115.787(c)(4) and (d) - (f). In addition, the commission has revised §115.781(b)(1) by changing the reference from "§115.357" to "§115.357(1) - (9)" in order to exclude §115.357(10). Finally, although no revisions to the 250 component exemption of §115.357(7) were proposed, the commission clarifies that the reference to "facilities" is intended to refer to plant sites covered by a single account number with less than 250 components in VOC service. This interpretation is supported by documentation for the 1993 rulemaking in which this exemption was added.

Dow stated that the exemption provided in §115.357(4) needs to be repeated in §115.787, with the addition of agitators that are equipped with shaft sealing systems. Dow stated that equipping pumps, agitators, and compressors with a shaft sealing system should be an alternative to quarterly monitoring, and that because automatic leakage control and detection is already required, there is no need for quarterly monitoring with a hydrocarbon gas analyzer.

The commission agrees that pumps, agitators, and compressors equipped with a shaft sealing system should be exempt from the monitoring requirements of §115.781(b) and (c), and has added an exemption as §115.787(d).

§115.352(4) - Open-ended Lines
Air Products and Dow noted that §115.354(4) specifies that except for PRVs, no valves shall be installed or operated at the end of a pipe or line containing VOC unless the pipe or line is sealed with a second valve, a blind flange, or a tightly-fitting plug or cap. Air Products expressed concerns about the additional requirement in §115.352(4) for a "tightly-fitting" plug or cap and stated that it has processes where material, if confined between a valve and a cap, could under certain conditions rapidly decompose and result in an explosion. Air Products stated that in some cases, its safety policy would not allow the configuration as proposed, and suggested the commission adopt language similar to the HON exemption in 40 CFR §63.167(e). Dow stated that an exemption to this requirement should be added to §115.357 and §115.787 similar to 40 CFR §63.167(d) - (e) of HON Subpart H. Dow stated that HON Subpart H provides two exemptions from equipping each open-ended valve or line with a cap, blind flange, plug, or a second valve as follows: "(d) Open-ended valves or lines in an emergency shutdown system which are designed to open automatically in the event of a process upset are exempt from the requirements of paragraphs (a), (b) and (c) of this section" and "(e) Open-ended valves or lines containing materials which would autocatalytically polymerize or, would present an explosion, serious overpressure, or other safety hazard if capped or equipped with a double block and bleed system as specified in paragraphs (a) through (c) of this section are exempt from the requirements of paragraph (a) through (c) of this section."

Dow stated that according to the Background Information Document following the December 31, 1992 proposal of the HON, EPA added the exemption in 40 CFR §63.167(d) because "the EPA agrees that automatically opening vent lines which are part of an emergency shutdown system should not be required to add a second valve or cap. It was also determined that the requirements for block and bleed systems were not appropriate. Section 63.167(d) was, therefore, added to the final rule to address a potential safety hazard." Dow stated that EPA added the exemption in 40 CFR §63.167(e) for open-ended lines or valves containing material that represented a safety or explosion hazard because "in a few processes, the requirement to cap, or plug the line could result in trapping highly-reactive monomer in the line. In these cases, the polymerization reaction will cause serious overpressure and catastrophic equipment failure presenting a safety hazard to plant personnel and creating the potential for greater emissions to the atmosphere than if the line were left uncapped." (60 FR 18073, April 10, 1995) Air Products likewise suggested the commission adopt language similar to 40 CFR §63.167(e).

The existing requirements of §115.354(4) concerning open-ended valves or lines implement federal RACT requirements for fugitive monitoring and, as such, cannot be relaxed. Should Air Products or Dow wish to pursue the matter further, the commission suggests that they present the issue to EPA and determine if EPA will agree to relax the federal RACT requirements.

§115.357 and §115.787(c) - Low Annual Hours of Operation
Dow and DuPont stated that an exemption should be added to both §115.357 and §115.787(c) for equipment in VOC service or HRVOC service less than 300 hours per calendar year. Dow stated that in certain chemical plants, particularly batch processes that produce a number of different products, there is equipment that is used in VOC service only occasionally, and that in such cases, implementation of the standard can be difficult and achieves very little emission reduction. Dow stated that pumps and compressors used only during startup or shutdown of a process unit are one example of such equipment, and that other examples include equipment used in batch steps in continuous processes and components on a closed vent system that route emissions from pressure relief devices to a control device. TCC expressed similar concerns.

The commission disagrees with the suggested addition of an exemption for equipment in VOC service or HRVOC service less than 300 hours per calendar year because such an exemption would conflict with federal RACT requirements for fugitive monitoring and, as such, cannot be relaxed. Should Dow or DuPont wish to pursue the matter further, the commission suggests that they present the issue to EPA and determine if EPA will agree to relax the federal RACT requirements. Therefore, when such equipment is in VOC or HRVOC service, the emissions from leaking components need to be included in the LDAR program to ensure that timely repair occurs in order to minimize emissions which contribute to exceedances of the ozone NAAQS. Monitoring is not required during those times that this equipment is not in VOC or HRVOC service.

§115.787(c) - Insulated Components
TCC stated that an exemption for insulated components should be added as §115.787(c)(3) because of related safety and accessibility issues. TCC stated that removing insulation can cause corrosion which presents a safety concern and suggested the commission evaluate non-obtrusive methods if monitoring of insulated components is required.

The commission agrees that an exemption for insulated components is appropriate due to inaccessibility of the components, and has added an exemption as §115.787(c)(5).

Nonaccessible or Unsafe to Monitor Valves
TCC recommended an exemption for "nonaccessible or unsafe-to-monitor" valves.

As described in the response to the previous comment, the commission has added an exemption for insulated components as §115.787(c)(5) due to inaccessibility of such components. As described later in this preamble in the discussion regarding §115.781(b)(8), the commission agrees that difficult-to-monitor PRVs should be monitored annually, as is currently required under §115.354(1)(B), and has revised §115.781(b)(8) accordingly. Similarly, the commission believes that components which are unsafe-to-monitor should be on a reduced monitoring schedule as is currently allowed under §115.354(1)(C), and has added a new §115.781(b)(7) which is based upon §115.354(1)(C). The commission has included a provision in §115.781(b)(7) which specifies that components which are difficult to monitor (i.e., cannot be inspected without elevating the inspecting personnel more than two meters above a permanent support surface) may instead be monitored annually.

EMISSION SPECIFICATIONS
General VOC Vent Gas Control
§115.121
For ease in regulatory interpretation, compliance, and Title V identification, TXOGA requested that the commission write into Subchapter H all substantive requirements for both HRVOCs and VOCs such that only Subchapter B or Subchapter H applies to a unit. TxOGA stated that this will eliminate duplication and conflicts between the sections and assure that there are no redundancies, and that trying to incorporate separate and distinct requirements from different sections for the same facility is extremely confusing and difficult to implement. TCC and TxOGA suggested that §115.121(a)(4) be changed to read: "Any vent gas stream in the Houston/Galveston area which includes an HRVOC, as defined in §115.10 of this title, is subject only to the requirements of Subchapter H of this title . . .."

Under the revision to §115.121(a)(4) suggested by TCC and TxOGA, a gap in coverage would result because vent gas streams which are currently subject to Subchapter B, Division 2, would no longer have any applicable vent gas requirements until the compliance date in §115.729. Therefore, the commission has not made the suggested change, but may revisit the issue after the compliance date in §115.729.

HRVOC Vent Gas Control
§115.722
ExxonMobil recognized that the commission is faced with a serious challenge in addressing emission of ozone precursors in the HGA area, but asserted that the proposal to unilaterally assign a single standard emission limitation on a per capita basis to every uncontrolled HRVOC vent gas stream is arbitrary and does not recognize technical feasibility, cost impact, volumes, necessity, or safety.

The commission has stated that the intent of this proposed revision to the SIP is to demonstrate a more cost-effective approach in lieu of the nominal 90% NO_x reduction incorporated in the

currently approved SIP. The commission believes it has a significant amount of technical justification to support that conclusion. As the commission continues its stated course of action towards an MCR SIP, it will continue to analyze the data and determine if additional controls are warranted on other compounds besides the ones targeted for this revision. The commission agrees that the regulation of pollutants should be based upon the best available science. The commission believes that the tremendous wealth of data acquired since the summer of 2000 has provided the commission with a very strong basis for determining the pollutants that warrant control at this time and the level to which they should be controlled. The commission disagrees that it is premature to establish numerical emission limitations. In fact, in order to justify a more cost-effective control strategy other than that already in the adopted SIP, specific numeric emission limitations are essential to maintain the integrity of the SIP and ensure an approvable attainment demonstration. However, the commission does recognize that there are some issues associated with the different types and sizes of flares and cooling towers, and has therefore incorporated specific language to allow for a site-wide cap to address these issues.

HRVOC Flares
§115.741
EPA commented that the rule sets a pound per hour emission limit for a flare, but that the assumed destruction removal efficiency for the flares is not clear. EPA stated that the commission should specify in the rule the assumed destruction efficiency for a flare that meets 40 CFR §60.18, and should also provide justification for the chosen destruction efficiency. EPA further commented that the rule is not enforceable without a clearly stated assumed destruction efficiency. ED requested that the commission address the subject of destruction efficiency, and suggested that a study be undertaken to measure the destruction efficiency of typical VOC mixtures routed to flares in the HGA area.

As noted earlier in this preamble, the proposed Subchapter H, Division 2, flare requirements were relocated to Subchapter H, Division 1, and a site-wide HRVOC emissions cap has replaced individual (i.e., unit by unit) emission limits. Based upon more recent information concerning flare efficiency, the commission has specified in §115.725(d)(4) and (6) that a 98% destruction efficiency is assumed when the flare is in compliance with the heating value and exit velocity requirements of 40 CFR §60.18. Otherwise, a destruction efficiency of 93% is specified. The 93% destruction efficiency value is based on the approximate median destruction efficiency from selected flare tests conducted during EPA flare studies in the 1980s. Accountability under the site-wide cap is a crucial element that goes along with the flexibility offered by the cap. For this reason, increased emissions from flares that are not operating in compliance with the performance standard of 40 CFR §60.18 must be accounted for in the cap. With regard to studies on flare destruction efficiency, the commission has contracted for such a study, which currently is underway. The results of this study may be used to refine requirements for flares by the time of the MCR, which will be completed by May 1, 2004.

BCCA-AG and Lyondell commented that the proposed HRVOC flare emission limit of 7.4 lb/hr ignores the differences in flare size and flare service, as well as the underlying emission sources tied into the flares. BCCA-AG and Lyondell stated that the commission offers no technical justification for setting an individual hourly limit for each flare without regard to its physical characteristics or use, or considering the severity of the emission reduction required to meet the limit. BCCA-AG and Lyondell further stated that this emission limit is arbitrary and capricious because it is based on a *per capita* distribution of a source-category allocation that treats all flares that have the potential to emit any HRVOC the same and assumes that all such flares emit the same each hour.

As noted earlier in this preamble, the proposed Subchapter H, Division 2, flare requirements were relocated to Subchapter H, Division 1, and a site-wide HRVOC emissions cap has replaced individual (i.e., unit by unit) emission limits. The site-wide cap addresses the commenters' concerns because it enables each owner or operator to select the most cost-effective and technically feasible means of maintaining continuous compliance with the site-wide cap. Therefore, the commission has made no changes in response to the comments.

Under §115.741, relating to Emission Specifications, TCC commented that the term "excess emissions" should be deleted to avoid confusion with the Chapter 101 rules.

Because the site-wide HRVOC emissions cap has replaced individual (i.e., unit by unit) emission limits, the commenter's concerns are moot.

TCC commented that language should be added to §115.741 to require review of the flare emission specification after new monitoring data is obtained, and that the emission limitation should then be apportioned based on the size or complexity of the source. TCC also stated that this approach would provide a useful tool should a VOC emission allocation program be established. TCC commented that §115.741 should clarify that the pound per hour limitation is an "average" hourly rate rather than an instantaneous value. Dupont requested clarification that the specified lb/hr emission limitation is an average rate and not an instantaneous rate.

As noted earlier in this preamble, the proposed Subchapter H, Division 2, flare requirements were relocated to Subchapter H, Division 1, and a site-wide HRVOC emissions cap has replaced individual (i.e., unit by unit) emission limits. The site-wide cap is based on a 24-hour rolling average, rather than the hourly unit by unit emission limit that was proposed. The MCR which will be completed by May 1, 2004 provides an opportunity for the commission to reevaluate the level of the site-wide emission cap.

Sierra-Lone Star opposed the withdrawal of the proposed flare emission rate of 0.6 lb/hour of HRVOCs and the proposal of a 7.4 lb/hr emission rate.

As stated in the preamble of the proposal, the original 0.6 lb/hr emission limitation was the result of an inadvertent calculation error. The emission limitation was therefore withdrawn and replaced by the proper figure of 7.4 lb/hr. However, the site-wide cap has replaced individual unit emission limitations.

ED commented that the commission's intended interpretation and enforcement of the emission specification of §115.741 and the control requirement of §115.742(b) is ambiguous, and suggested that language be included to clarify that each hour during which the emission specification of §115.741 is exceeded will result in a separate violation, and that failure to fulfill the corrective action requirements of §115.742(b) within 24 hours will be separate and distinct from the violations of §115.741.

The individual unit emission specifications have been replaced by a site-wide cap which requires compliance on a rolling 24-hour average. Therefore, the distinctions pointed out by the commenter are no longer applicable. However, compliance with the overall HRVOC emissions cap will require that appropriate corrective actions be taken to remain within the cap on a rolling 24-hour average.

ED requested clarification regarding the recordkeeping requirements in §115.741 to ensure that the mass flow rate of VOC averaged in pounds per hour is recorded as well as how many calculations were performed to obtain the recorded quantity.

The emission specifications for HRVOC flares proposed in §115.741 have been replaced by a site-wide cap under §115.722. The monitoring requirements in §115.725(d)(2) specify that HRVOCs and other constituents be determined every 15 minutes using an on-line analyzer.

HRVOC Cooling Towers
TCC commented that the proposed hourly HRVOC mass emission rate limit on each CTHES is based on a per capita distribution of a source-category allocation which treats all CTHES that have the potential to emit any amount of HRVOC equally, and assumes that all such cooling towers emit HRVOCs at the same hourly rate. TCC also commented that this source-category allocation was derived from the 1999 emissions inventory, the accuracy of which has been questioned in the commission's recent "ground-truthing" analysis.

The commission has eliminated individual unit HRVOC emission limits, and in their place has established a site-wide cap. The site-wide cap allows an affected company to choose the most cost-effective and technically feasible methods for continuous compliance under the cap, and therefore addresses the concerns expressed.

CONTROL REQUIREMENTS
VOC Industrial Wastewater
TCC stated that the commission should add language in §115.142 stating that any industrial wastewater stream in the HGA area which includes an HRVOC is subject only to the requirements of Subchapter H, Division 4 of this chapter. TCC stated that this would avoid redundancies between §115.783(5)(A) and (B) and §115.142, and between §115.781(b)(5) and (6) and §115.144. ExxonMobil expressed similar concerns.

Under the revision to §115.142 suggested by TCC, a gap in coverage would result because industrial wastewater streams which are currently subject to Subchapter B, Division 4, would no longer have any applicable wastewater requirements until the compliance date in §115.789. Therefore, the commission has not made the suggested change, but may revisit the issue after the compliance date in §115.789.

§115.142(1)(A) and §115.783(5)(A)(i) and (B)
DuPont, TCC, and TxOGA stated that an allowance should be made for use of ethylene glycol where freezing of water seals may cause equipment damage or process disruptions. TxOGA suggested the inclusion of the following language: "For any component equipped with water seal controls, the only

acceptable alternative to water is the use of ethylene glycol or other low vapor pressure anti-freeze, which may be used only during the period of November through February." DuPont suggested that propylene glycol be specifically listed as well. TCC and TxOGA also suggested that §115.783(5)(A)(i) could be deleted as redundant with §115.142(1)(A), but stated that it should be consistent with §115.142(1)(A) if retained. TCC and TxOGA further suggested that §115.783(5)(B) could be deleted as redundant with §115.142(1)(A). Dow and ExxonMobil expressed similar concerns.

The commission has revised §115.142(1)(A) and §115.783(5)(A)(i) to allow for freeze protection of water seals. The commission has retained §115.783(5)(A)(i) and (B) and has ensured that §115.142(1)(A) is consistent with §115.783(5)(A)(i) and (B).

§115.142(1)(H)
TxOGA commented that in §115.142(1)(H), the first attempt at repair within five days is reasonable. However, TCC and TxOGA stated that the commission should clarify the means of getting a waiver for situations where a final repair within 15 days is technically infeasible. TCC and TxOGA suggested that in addition to infeasibility due to unit shutdown, the rule should allow an extension in cases where the repair requires a capital project or construction which cannot be feasibly completed within 15 days or parts are not readily available. In addition, TCC and TxOGA stated that Test Method 21 should only be required where a repair has been made and stated that replacement of a cap, cover, or plug or the addition of water to a water seal should not require monitoring. TxOGA stated that monitoring in those instances is not a good use of resources since the cap or cover may removed again because the drain is used very shortly thereafter, rendering the monitoring not very useful. DuPont stated that once a leaking condition has been repaired, the component should not have to be monitored using Test Method 21 to confirm the repair is complete because it adds cost to the repair. EPA stated that proposed change to §115.142(1)(H) implies that no repair is necessary if Test Method 21 does not measure a leak. EPA commented that there could be a variety of reasons due to process variability that a component in disrepair does not show a measurable leak at a given time and therefore, if visual inspection of the seals and other components shows they are not in proper condition as described in §115.142(1)(G), a repair should be made. EPA stated that Test Method 21 should be used to confirm that the repair was effective, and suggested that §115.142(1)(H) be revised to include language stating that Test Method 21 must be used to confirm that a leak or improper condition is repaired.

The commission has revised §115.142(1)(H) to clarify that if a repair or correction is technically infeasible without a unit shutdown, the repair or correction may be delayed until the next unit shutdown. The commission believes that this provision renders moot any perceived need for a "waiver." The commission agrees with EPA that Test Method 21 is necessary to confirm that a leak or improper condition is repaired. This confirmation monitoring is an inherent part of the LDAR program and should not present an undue burden. If, as TCC and TxOGA suggested, monitoring was not required for the replacement of a cap, cover, or plug, or the addition of water to a water seal, then there would be no confirmation that a leak was properly repaired. Consequently, the commission has retained the requirement for Test Method 21 monitoring to confirm that each leak or improper condition is repaired.

HRVOC Vent Gas Control
Sierra-Lone Star supported vent gas control requirements, but stated that they needed to be improved.

The commission appreciates the support and has improved the vent gas control requirements wherever necessary and reasonable.

§115.722
Ethyl recommended a minimum mass discharge limit for vent gas streams before being subject to monitoring and control requirements, as very small vent streams which may exceed 20 ppmv would be subject to costly monitoring and control systems. As an example, Ethyl stated that it has one permitted scrubber vent of less than 0.01 tpy which possibly would be subject to monitoring and controls if testing showed greater than 20 ppmv of VOC at maximum or peak operation. Ethyl also stated that vents to the scrubber are from batch operated processes where there are very short-duration emissions spikes. Ethyl asserted that facilities that have such small vents could be subject to large costs, with no benefit to the environment or to the emissions inventory database.

There are numerous options for compliance, and the availability of a site-wide emissions cap provides each owner or operator with the maximum flexibility to select the most cost-effective and technically feasible method of controlling emissions. Therefore, the commission declines to add these specific options to the rule.

§115.722(a) - LDPE Plants
Dow, ExxonMobil, and TCC stated that there does not appear to be adequate technical analysis and justification for the proposed emission levels in §115.722(a) for low and high-pressure polyethylene processes. Dow agreed that the proposed LDPE emission specifications represent best available control technology (BACT), but stated that significant retrofits would be required for existing LDPE production facilities. Dow and TCC asserted that installation of controls such as catalytic oxidizers would increase NO_x emissions. Dow, ExxonMobil, and TCC recommended that the commission establish a site-wide allocation system based on data analysis and appropriately include at a later date any new emission limits that are needed.

As noted earlier in this preamble, the proposed Subchapter H, Division 2, flare requirements were relocated to Subchapter H, Division 1, and a site-wide HRVOC emissions cap has replaced individual (i.e., unit by unit) emission limits. Therefore, the commission has deleted §115.722(a). The site-wide cap addresses the commenters' concerns because it enables each owner or operator to select the most cost-effective and technically feasible means of maintaining continuous compliance with the site-wide cap. Regarding the commenters' concerns about increased NO_x emissions, the commission notes that Chapter 117 classifies a catalytic oxidizer as an incinerator, which is subject to inclusion in the Chapter 101 mass emissions cap and trade program if it has a maximum rated capacity of 40 million British thermal units per hour (MMBtu/hr) or greater. A newly-installed incinerator with a maximum rated capacity of 40 MMBtu/hr or greater would not receive allowances under the Chapter 101 mass emissions cap and trade program, thereby ensuring that no increase in NO_x emissions occurred. Therefore, the commenters' concerns about increased NO_x emissions are overstated.

Sierra-Lone Star opposed the exclusion of not counting the fugitive emissions in the allowable VOC emission rate from LDPE plants of 90 pounds of ethylene per 1.0 million pounds of product and high-pressure (HP) LDPE plants of 200 pounds of ethylene per 1.0 million pounds of product from all the vent gas streams associated with the formation, handling, and storage of solidified product, based on a 30-day rolling average. Sierra-Lone Star stated that the commission is aware that LDPE and HPLDPE plants are sources of high volumes of fugitive HRVOCs like ethylene that are in need of better control, and that the commission needs to require including the fugitive emissions in the 30-day rolling average VOC emission rate. Sierra-Lone Star also stated that LDPE and HPLDPE fugitive emissions need to be better monitored and controlled in the LDPE and HPLDPE plant process units, and that the commission needs to determine if these LDPE and HPLDPE plant fugitives are detectable with Test Method 21 or are undetectable because they are occurring under the insulation from either leaking piping or leaking equipment components.

The commission disagrees with Sierra-Lone Star and believes that fugitive emissions are more appropriately regulated in the divisions which address fugitive emissions (Subchapter D, Division 2, and Subchapter H, Division 3). Emerging technologies such as CO_2 laser imaging are much more likely than Test Method 21 to be able to find leaks occurring underneath pipe insulation since Test Method 21 is not designed for finding such leaks. As noted earlier in this preamble, a site-wide HRVOC emissions cap has replaced individual (i.e., unit by unit) emission limits for vents, flares, and cooling towers. The commission has made no changes in response to the comments.

§115.722(b) - Alternative Vent Gas Control Requirements for LDPE Plants
Sierra-Lone Star supported the control requirement of achieving at least 98% or higher destruction efficiency for all vent gas streams as long as the plant has evidence and maintains records that 98% efficiency or higher is continuously achieved.

The commission appreciates the support. However, the site-wide HRVOC emissions cap has replaced the need for the specified control efficiency for control devices to which individual LDPE vents are routed. Therefore, the commission has deleted §115.722(b).

§115.722(c) - Vent Gas Control Requirements non-LDPE Plants
Sierra-Lone Star supported the control requirement of achieving at least 98% destruction efficiency (or to 20 ppmv) for all vent gas streams as long as the plant has evidence and maintains records that 98% efficiency or higher is continuously achieved. TxOGA also supported the control requirement of achieving at least 98% destruction efficiency (or to 20 ppmv) for all vent gas streams.

The commission appreciates the support. However, the site-wide HRVOC emissions cap has replaced the need for the specified control efficiency for control devices to which individual vents are routed. Therefore, the commission has deleted §115.722(c).

§115.722(d)
Sierra-Lone Star supported the proposed §115.722(d), which requires that whenever VOC emissions are vented to a closed-vent system, control device, or recovery device used to comply with the provisions of this chapter, the system or control device must be operating properly. Dow suggested adding a provision that would allow a minimum on-stream time (e.g., 95% or better) to allow for short periods of time when these new systems need to be taken off-line or experience an upset. Dow stated that a shutdown of a polyethylene facility will cause high short-term emissions, which will likely exceed the

emissions from not operating the control equipment for a short period of time. Dow stated that another alternative would be the use of Start-up, Shutdown, Malfunction Plans in 40 CFR 63, Subpart A, which detail how the production plants and emission controls systems will be operated during these times.

The site-wide HRVOC emissions cap has replaced the need for the proposed §115.722(d) because under a cap, the additional HRVOC emissions resulting from a control device which is not operating properly will be deducted from an account's site-wide cap. Therefore, the commission has deleted the proposed §115.722(d).

§115.722(e)
ExxonMobil and TxOGA stated that §115.722(e) is redundant with the proposed flare rules and should be deleted.

The commission has combined the proposed Subchapter H, Divisions 1 and 2, into Division 1. Therefore, there is no redundancy.

§115.722(f)
TCC commented on §115.722(f), which specifies that an owner or operator may not use ERCs or DERCs in order to demonstrate compliance with Subchapter H, Division 1. TCC stated that the commission should withhold judgment on trading mechanisms until such time as an HRVOC allocation/trading program can be addressed. TCC stated that programs that provide flexibility for industry to comply in the most cost-effective manner should be encouraged.

Because there is not a program in place for HRVOC banking and trading and HRVOC ERCs and DERCs do not exist, it would be inappropriate to allow the use of HRVOC ERCs and DERCs. Therefore, the commission has made no changes in response to the comment. However, the commission has relettered §115.722(f) as §115.722(c).

HRVOC Flares
BCCA-AG and Lyondell commented that §115.171 requires flares to comply with every subsection of 40 CFR §60.18, but only subsections (c), (e), and (f) of 40 CFR §60.18 contain substantive flare control provisions that are appropriate for adoption by reference. BCCA-AG and Lyondell further commented that the other subsections of 40 CFR §60.18 have no applicability in the context of the proposed rules.

As noted earlier in this preamble, the commission has deleted the proposed §115.171. The commission agrees with the commenters, however, and has changed the corresponding language in §115.742(a), which was relocated to §115.722(b), to reference "40 CFR §60.18(c) - (f)." The revised and relocated language includes 40 CFR §60.18(d) because it is applicable.

§115.742
EPA commented that this rule properly requires that deviations from the limit in §115.741 should be corrected promptly within 24 hours, and further commented that the rule should also be clear that the same requirement for correction within 24 hours also applies any time a flare deviates from the requirements of 40 CFR §60.18.

The site-wide HRVOC emissions cap has replaced the need for the proposed §115.742 to address deviations from the limit in §115.741 because under the cap, unit-by-unit compliance does not apply. Additional HRVOC emissions resulting from deviations from the applicable requirements of 40 CFR §60.18 will have to be accounted for in the account's site-wide cap.

§115.742(a)
TCC and TxOGA commented that the word "continuous" should be deleted from §115.742(a), relating to Control Requirements, noting that 40 CRF §60.18 does not require continuous compliance.

The proposed §115.742(a) has been relocated to §115.722(b). The commission disagrees with the commenters because continuous compliance is the basic intent of the rule. However, the commission has clarified the requirement in §115.722(b) that flares must continuously comply with 40 CFR §60.18(c) - (f) by adding "when vent gas containing VOC is being routed to the flare" to the rule language.

TCC commented that §115.742(a) should not impose control requirements on emergency flares which do not typically receive vent streams, stating that this would result in increased NO_x emissions by forcing compliance with the minimum heating value levels when the flare would otherwise be idle.

Most flares are used as routine control devices, and very few flares are used solely for emergencies. In addition, the purpose of the site-wide HRVOC emissions cap is, as the name implies, to limit HRVOC emissions at a site to a capped value. The site-wide cap provides each owner or operator with the maximum flexibility to select the most cost-effective and technically feasible method of controlling emissions. Therefore, the commission has made no changes in response to the comment.

§115.742(b)
TCC and Goodyear-Houston commented that it is not possible in all cases to make flare repairs within 24 hours. TCC suggested that a period of 15 days should be allowed to troubleshoot the flare header and make appropriate adjustments, further noting that options for additional delay of repair should be allowed on a case-by-case basis, depending on approval of the regional office. For this rule requiring corrective action to be completed within 24 hours, EPA requested clarification on whether avoidable unauthorized emissions that occur for less than 24 hours will be considered violations. EPA also questioned whether facilities can apply for discretion under §101.222 for unauthorized emissions that persist longer than 24 hours. EPA stated that the level of emissions assumed to be achieved by the rule depends on these factors. BCCA-AG and Lyondell commented that the emissions from the process units(s) shutdown(s) could cause more HRVOC emissions than are being emitted on a daily basis from the leak, and that the 24-hour repair period would require many unplanned unit shutdowns whose environmental consequences, including ozone formation, could outweigh the benefit associated with more quickly reducing HRVOC emissions. BCCA-AG and Lyondell stated that these factors could be appropriately taken into account in individual emissions management plans (EMPs). BCCA-AG, Lyondell, and TxOGA commented that the requirement for corrective action within 24 hours is not needed since the commission's existing upset rules and associated enforcement exemption criteria already provide an additional regulatory incentive for resolving excess emission problems as quickly as possible. BCCA-AG and Lyondell further commented that the 24-hour corrective action provision is

unnecessary because, even in the absence of such a provision, an owner or operator would be under a continuing obligation to stop violating the limit as soon as possible, and that the 24-hour provision merely serves to enable the commission to cite a separate violation for the same underlying activity. TCC commented that the commission should consider deletion of §115.742(b), relating to corrective action. TCC stated that corrective action related to upset events should be addressed in the Chapter 101 rules, and that when an emission limitation or standard is exceeded, the regulated community typically reviews the Chapter 101 rules for necessary response requirements for these events.

As noted earlier in this preamble, under the site-wide HRVOC emissions cap the owner or operator is not required to make repairs on any particular schedule, provided that the 24-hour rolling average HRVOC emission cap is not exceeded. Likewise, the site-wide cap has replaced the need for the proposed §115.742 to address deviations from the limit in §115.741 because under the cap, unit-by-unit compliance does not apply. The site-wide cap simply requires that each site stay below its 24-hour rolling average HRVOC emission cap. Therefore, the commission has made no changes in response to the comments.

HRVOC Cooling Towers
Sierra-Lone Star stated that miles of insulated piping and thousands of large pieces of insulated equipment continuously undergo great wear and tear, stress, and strain from normal pressure changes and heat changes causing expansions and contractions that weaken and damage metal materials until leaks occur; and corrosive effects of certain chemical materials will also damage piping and lead to leakage. Sierra-Lone Star stated that a significant portion of cooling tower fugitive VOC emissions evidently result from these kinds of piping leaks and process equipment leaks with some of the leaking fugitive VOC emissions finally escaping at cooling towers, and although the new rules address this one aspect of the widespread problem, the cooling towers account for only 7% of the fugitive HRVOC emissions in the EI.

The types of leaks described are fugitive emissions from equipment leaks, which are totally separate from cooling tower emissions. Fugitive emissions are addressed in other parts of Chapter 115.

§115.762
EPA requested clarification on whether, if unauthorized emissions persist beyond 24 hours, the facility can apply for discretion under §101.222, or whether unauthorized emissions beyond 24 hours are automatically a violation. EPA commented that how this issue is handled should be factored into the assumed effectiveness of the rule.

The Chapter 101 emissions event rules do not apply to a facility until it exceeds its authorized emission limitations. Therefore, if the site-wide cap has not been exceeded and no other limitations have been exceeded, the facility would still be authorized to emit and therefore would not fall under the reporting and demonstration requirements of Chapter 101. Any unauthorized emissions which meet the definition of an emissions event may be eligible for exemption.

EPA commented that for cooling water systems in HRVOC service, it would not be unreasonable to expect facilities to have sufficient heat exchanger capacity such that a leaking heat exchanger could be taken out of service and repaired without delay until shutdown of the facility.

A parallel heat exchanger design would be necessary to change out leaking heat exchangers as suggested by EPA. Not all cooling towers have this type of design, however, and the commission is not requiring that companies implement this design.

BCCA-AG and Lyondell commented that the 24-hour corrective action requirement should be deleted, stating that the EMPs would ensure that cooling tower emissions meet the applicable site-wide HRVOC cap and address potential short-term contributions to ozone formation. TCC commented that the proposal to require repair of any leaking CTHES within 24 hours of detection is unrealistic. TCC recommended modifying this requirement to allow for no more than 45 days to make such repairs.

The commission has eliminated the individual unit emission limitations and 24-hour corrective action requirement proposed in the HRVOC cooling tower rule, and has replaced them with a site-wide cap requiring compliance on a 24-hour rolling average. However, under the new requirements for compliance under the cap, when emissions increase above the cap limit the company must still take action to maintain compliance on a 24-rolling average basis. The commission supports the development and submission of EMPs that address specific actions to be taken to ensure compliance with the site-wide cap.

BCCA-AG, Goodyear, and Lyondell commented that identifying and repairing cooling tower leaks within 24 hours usually is not logistically possible, because it may take from 24 - 48 hours to several days merely to verify the initial sample result and determine which exchanger(s) may be the cause of the leak. BCCA-AG and Lyondell also commented that if a cooling tower serves multiple process units within a site and a process unit shutdown is required to correct the leak in one heat exchanger, it may require multiple process unit shutdowns to be coordinated, and the time required for such an effort would be days and weeks, not hours. BCCA-AG, Goodyear, and Lyondell further commented that the federal SOCMI HON and Ethylene MACT standards allow 45 days for leaks to be repaired. TCC recommended revision of §115.762 to allow 24 hours to initiate investigation upon confirmation of the presence of a leak, five days to determine the source of the leak or else submit a forward plan to the regional office, to initiate corrective actions within 24 hours after confirming the source of the leak, and 45 days to correct the problem or else submit a forward plan to the regional office. Citing the fact that a typical cooling tower heat exchange system may have over 50 heat exchangers, TCC stated that it can take in excess of 24 - 48 hours just to collect the necessary samples to identify the heat exchanger(s) responsible for the leak. TCC further stated that this does not include additional time for analytical work, especially if it is being done off-site. TCC commented that the timing for repair is consistent with the existing provisions found in the HON (40 CFR 63.104) and in the recently promulgated ethylene MACT rule.

The 24-hour corrective action requirement proposed by the commission has been replaced by a site-wide cap requiring compliance over a 24-hour rolling average. The long time periods claimed to be necessary for identification and correction of the referenced problems may very well be plausible, based on current operating practices. However, in order to reduce HRVOC emissions

to avoid short-term ozone exceedances, the response to such problems needs to be proactive instead of reactive. With regard to sufficient time for analytical work, the commission has taken this factor into account in §115.764(c), which requires the speciated strippable VOC or HRVOC concentration to be determined as soon as this information is available, but no later than 48 hours after the sample(s) has been collected. This provision takes into account the typical turnaround time for an analytical laboratory to provide speciated results. With regard to MACT, the MACT standards are designed specifically to reduce exposure to HAPs, and do not adequately reduce emissions which contribute to ozone formation, which is the purpose of Chapter 115. Because the purposes of these rules are so different, there is no reason they should necessarily have the same thresholds or exemptions.

BCCA-AG and Lyondell commented that the emissions from the process units(s) shutdown(s) could cause more HRVOC emissions than is being emitted on a daily basis from the leak, and that the 24-hour repair period would require many unplanned unit shutdowns whose environmental consequences, including ozone formation, could outweigh the benefit associated with more quickly reducing HRVOC emissions. BCCA-AG and Lyondell stated that these factors could be appropriately taken into account in individual EMPs.

As described in the previous response, the rule has been changed to allow 48 hours for the speciated results to be obtained from laboratory analysis of samples. However, under the site-wide HRVOC emissions cap the owner or operator is not required to make repairs on any particular schedule, provided that the cap emission limit is not exceeded on a 24-hour rolling average.

BCCA-AG and Lyondell commented that the commission's existing upset rules and associated enforcement exemption criteria already provide an additional regulatory incentive for resolving excess emission problems as quickly as possible, and that the requirement for corrective action within 24 hours is therefore not needed in the rule. BCCA-AG and Lyondell further commented that the 24-hour corrective action provision is unnecessary because, even in the absence of such a provision, an owner or operator would be under a continuing obligation to stop violating the limit as soon as possible, and that the 24-hour provision merely serves to enable the commission to cite a separate violation for the same underlying activity.

The response to the previous comment is also applicable to this comment.

ALTERNATE CONTROL REQUIREMENTS
HRVOC Vent Gas Control
§115.723
Dow and TCC stated that they appreciate that the alternate control standard in §115.723 allows existing control devices to operate with efficiencies of 95%, but suggested that a limit of 90% is more justifiable. Dow stated that several of the existing rules that will be impacted by Subchapter H currently require only 90% controls, including §§115.121(a)(1), 115.162, and 115.312(a)(2), all referenced in §115.722(c). ExxonMobil and TxOGA stated that under §115.723(1), the commission proposed that a control device approved under an ARACT must operate at its maximum efficiency. ExxonMobil stated that the regulated community cannot design and install emission control equipment

that exceeds the minimum requirements of state and federal rules to ensure operation within emission restrictions, if each piece of equipment must be operated at maximum efficiency. ExxonMobil and TxOGA suggested the maximum efficiency phrase be replaced with the phrase "operating properly." BCCA-AG, ExxonMobil, and Lyondell recommended that the commission add a provision that vents controlled to MACT standards are approved as meeting the alternate control requirements. BCCA-AG and Lyondell stated that the level of emission control required by MACT standards will likely exceed the level required by the proposed rule and such sources should not be subject to both standards. Sierra-Lone Star expressed concern that the commission did not publish in the rules the criteria that will be required for determining "economic reasonableness." Sierra-Lone Star's concern is that without such published criteria being subjected to public scrutiny, the commission might not be consistent in determining and concluding when this level of cost is triggered. Sierra-Lone Star requested that the commission publish the alternate control requirement criteria that will be used in this determination in this rule.

As noted earlier in this preamble, §117.723 has been withdrawn. Therefore, the commission has made no changes in response to the comments.

HRVOC Cooling Towers
§115.763
TCC suggested changes in the wording in §115.763, relating to Alternate Control Requirements, to make the section consistent with TCC's related comments on other sections.

As noted earlier in this preamble, §117.763 has been withdrawn. Therefore, the commission has made no changes in response to the comments.

PROCEDURES AND SCHEDULE FOR LEAK REPAIR AND FOLLOW-UP
Fugitive Emissions
Delay of Repair/Shutdown List
§115.352(2)
Phillips stated that the delay of repair requirements are unduly restrictive. Phillips suggested that the commission should contemplate unplanned unit shutdowns for equipment leak repair only on a case-by-case basis after thorough consideration of all the ramifications and resultant environmental impact.

The commission has revised the delay of repair requirements in response to a variety of comments, as described elsewhere in this preamble, and believes that the revised requirements are reasonable and necessary. The commission agrees that unplanned unit shutdowns should be contemplated on a case-by-case basis with appropriate consideration given to the ramifications and resultant environmental impact.

OxyChem stated that when given the opportunity to plan a shutdown, it can minimize emissions to the environment and cited as an example a planned shutdown in one of its units which resulted in only 12 pounds of total VOC emissions over the course of several days. OxyChem stated that some relief should be given to those units that have components which may be leaking at rate greater than that which would be experienced during a shutdown, particularly for those owners and operators who actively and aggressively minimize shutdown emissions. OxyChem recommended that difficult-to-repair components (those that are typically scheduled for repair during a turnaround) for which emissions would be greater than a shutdown event be repaired at the next scheduled shutdown provided that "extraordinary efforts" to repair the component have taken place. OxyChem stated that extraordinary efforts may include, but are not limited to, non-routine leak prevention methods, and that extraordinary efforts will need to be undertaken within seven days of the component being place on the shutdown list.

The commission agrees that §115.352(2) should include an incentive for owners and operators who actively go above and beyond the current leak repair requirements. Consequently, the commission has added a new §115.352(2)(A)(iii) which provides an alternative to documenting that the total cumulative mass emissions from leaking components in the unit for which delay of repair is sought are less than the mass emissions resulting from shutdown of the unit. The new §115.352(2)(A)(iii) is based upon §115.782(b)(2)(A)(i), which is described later in this preamble, and specifies that delay of repair is allowed for each leaking component for which the owner or operator has chosen to undertake "extraordinary efforts" (e.g., sealant injection) to repair the leak. For leaks detected over 10,000 ppmv, extraordinary efforts shall be undertaken within seven days of the valve being placed on the shutdown list; however, the owner or operator may

keep the leaking valve on the shutdown list only after two unsuccessful attempts to repair a leaking valve through extraordinary efforts, provided that the second extraordinary effort attempt is made within 15 days of the first extraordinary effort attempt. For all other leaks, extraordinary efforts shall be undertaken within 15 days of the valve being placed on the shutdown list, and a second extraordinary effort attempt is not required. The commission emphasizes that the extraordinary efforts are an option, not a requirement, in §115.352(2)(A)(iii).

§115.352(2)(A)
Air Products requested that the commission clarify §115.352(2)(A) to state whether "emissions" to be evaluated include only the material leaking or all air contaminants. Air Products questioned whether the amount of VOC leaking from a valve (or valves) is to be compared only to VOC emissions during the unit shutdown and start-up, or compared to all emissions from a unit shutdown and start-up (i.e. NO_x, carbon monoxide (CO), etc.).

Section 115.352(2)(A) specifies that repair may be delayed until the next shutdown if the repair of a component within 15 days after the leak is detected would require a unit shutdown "which would create more emissions than the repair would eliminate." Because §115.352(2)(A) specifies that the comparison of shutdown emissions is to the emissions from the leaking component, and a component that is subject to §115.352 will be emitting VOC if the component is leaking, then it is a direct reading of the rule that only VOC emissions are included in the comparison.

Dow stated that the commission should allow repair attempts while the component is on delay of repair, but prior to the expected date of shut down. Dow stated that the commission should consider adding an additional delay of repair reason consistent with HON Subpart H (40 CFR §63.171(a)), NSPS Subpart VV (40 CFR §60.482-9(a)), and NESHAP V (40 CFR §61.242-10(a)), as these rules were amended on December 14, 2000. Dow stated that each of these rules includes the following delay of repair reason: "Delay of repair of equipment for which leaks have been detected is allowed if the repair *within 15 days after the leak is detected* is technically infeasible without a process unit shutdown. Repair shall occur by the end of the next process unit shutdown." (Dow's emphasis supplied.) Dow stated that the preamble to the CAR provides explanation as to why this clarification was made (63 FR 57776) as follows: "The CAR clarified language dealing with repair of leaks. Leaks must be repaired within 15 days of detection, unless the leak qualifies for delay of repair. Provisions in all three referencing subparts (NSPS VV, NESHAP V, HON Subpart H) allow for delay of repair ". . . if the repair is technically infeasible without a process unit shutdown." This language potentially discourages any attempts at repair between the 15th day after detection and the next process unit shutdown, since a successful repair within that period would then disqualify one from the original delay of repair. Some equipment leaks legitimately qualify for delay of repair, yet they can be repaired after the 15-day repair deadline and before the next process unit shutdown. These repairs can be effected by continued repeat attempts over time until the leak is repaired. In order to eliminate the potential disincentive to attempt repair of leaks after the 15th day, the CAR revises the wording of this provision to state that delay of repair is allowed if repair "within 15 days after a leak is detected" is technically infeasible without a process shutdown."

The commission agrees and has revised §115.352(2)(A) and §115.782(c)(1)(B) accordingly.

§115.352(2)(A)(i)
ATOFINA agreed with the concept of qualifying components for a shutdown list, but disagreed that the owner must submit documentation to the Office of Compliance and Enforcement within 30 days after the leak is detected. ATOFINA stated that historically, it places approximately 150 components on the shutdown list every quarter, and that notification for each component placed on the shutdown list is impracticable. ATOFINA stated that because of the quantity of notices the commission would receive from regulated sites, it is unlikely that the commission has the necessary manpower or resources to review and comment on notification. ATOFINA suggested that component records for the shutdown list be maintained on site. BCCA-AG, Dow, ExxonMobil, Lyondell, and TCC expressed similar concerns and stated that if the commission chooses to revise the delay of repair (DOR) process so as to require prior agency action on DOR requests, such action should be taken by the executive director, and not by Engineering Services. DuPont and Goodyear-Beaumont disagreed with the requirement that notification be submitted within 30 days regarding a leak. DuPont stated that in some operating areas, it may take over 30 days to complete all monitoring in that area, such that if a leak is found on the first day that cannot be fixed (i.e., requires a shutdown), then multiple reports would have to be submitted. DuPont recommended that all such records be kept on-site available for inspector review during routine inspections and that no submittals be required. Goodyear-Houston and TxOGA likewise stated that no submittals should be required.

The commission agrees and has revised §115.352(2)(A)(i) to require that the owner or operator maintain, and make available upon request, DOR documentation to authorized representatives of EPA, the executive director, appropriate regional office, and any local air pollution control agency having jurisdiction.

BCCA-AG and Lyondell noted that §115.352(2) requires each leaking component to be repaired within 15 days, but allows owners and operators to submit DOR calculations under §115.352(2)(A)(i) within 30 days. BCCA-AG stated that the proposal should be revised to make clear that DOR is allowed from the end of the initial 15-day deadline until the commission rejects a DOR request.

Because the revision to §115.352(2)(A)(i) in response to the previous comment changed the DOR submittal requirement to a record maintenance requirement, there is no inconsistency with the 15-day repair requirement. Therefore, the commission has made no change in response to the comment.

BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA recommended that DOR emissions be calculated and reported quarterly, within 30 days of the end of the monitoring quarter. BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA stated that those cumulative emissions would then be compared to the emissions that are projected by the owner or operator to result from a complete unit shutdown and subsequent startup, and that an unplanned shutdown would then have to be scheduled within the next six months if the DOR emissions are greater than the shutdown/startup emissions. BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA stated that records would be kept documenting the evaluation of emissions from DORs and comparing them to shutdown/startup emissions.

As noted in the response to the previous comment, the commission has revised §115.352(2)(A)(i) to require that the owner or operator maintain, and make available upon request, DOR documentation to authorized representatives of EPA, the executive director, appropriate regional office, and any local air pollution control agency having jurisdiction. Therefore, the commission has made no change in response to the comments.

§115.352(2)(A)(i)(II)
Dow, EnRUD, and Goodyear-Beaumont commented on §115.352(2)(A)(i)(II), which references the mass emissions sampling method ("bagging") of the EPA guidance document "*Protocol for Equipment Leak Emission Estimates*," Chapter 4, Mass Emission Sampling (EPA-453/R-95-017, November 1995). Dow, EnRUD, and Goodyear-Beaumont stated that bagging is an intensive and costly task. Goodyear-Beaumont suggested that fugitive emission factors from the commission's *Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives* (October 2000) should be allowed in lieu of bagging. Dow recommended using the methods in the EPA guidance document "*Protocol for Equipment Leak Emission Estimates*," EPA Correlation Approach in Section 2.3.3 or the Mass Emission Sampling approach in Chapter 4 (EPA-453/R-95-017, November 1995).

The commission agrees that bagging is an intensive and costly task, and has revised §115.352(2)(A)(i)(II) to give owners and operators the choice of using either bagging or the correlation equations to estimate the mass emissions from leaking components.

Dow and Goodyear-Beaumont suggested that §115.352(2)(A)(i)(II) be revised to clarify that leaking compounds for which delay of repair is not being sought and which will be repaired such that they will not leak until the next shutdown are not included in the calculation as if they will leak until the next shutdown.

The commission agrees and has added the wording "for which delay of repair is sought" after "each leaking component in the unit."

§115.352(2)(A)(i)(III)
Goodyear-Beaumont suggested that §115.352(2)(A)(i)(III) be revised to clarify that leaking compounds for which delay of repair is not being sought and which will be repaired such that they will not leak until the next shutdown are not included in the calculation as if they will leak until the next shutdown. BCCA-AG, Dow, ExxonMobil, Lyondell, and TCC likewise stated that the DOR calculation should be clarified such that only the emissions from leaking components that cannot be repaired without a unit shutdown (and therefore, are candidates for DOR) should be included in the DOR emissions calculation. BCCA-AG and Lyondell stated that otherwise, owners and operators will have to recalculate DOR eligibility every time a new leaking component is identified, which would render the DOR approval process wholly unworkable because many large facilities include over 200,000 components and fugitive monitoring is conducted almost daily.

The commission agrees and has added the wording "in the unit for which delay of repair is sought" after "each leaking component." The commission has made corresponding revisions to §115.352(2)(A)(i)(IV) and (ii).

ATOFINA stated that refineries and certain petrochemical plants have incorporated scheduled shutdowns into their operating schedule, but that many petrochemical facilities have no need to schedule shutdowns. ATOFINA commented that as an example, polyethylene and polypropylene plants have no need to schedule shutdowns every four years, because shutdowns at these facilities occur as a result of economics and/or technical problems. As a result, ATOFINA stated that attempting to estimate emissions between the date a leak is discovered and the next unit shutdown is not possible.

The commission agrees and has deleted the reference to the next scheduled shutdown in §115.352(2)(A)(i)(III).

BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA stated that leaking components are not necessarily leaking at the rate previously detected. BCCA-AG, ExxonMobil, and Lyondell asserted that assuming leaking components are leaking at the rate detected since the last monitoring event will overestimate emissions. BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA stated that it should be assumed that the component has been leaking at the average of the current rate and the previous rate over the number of days since the last time the component was monitored. DuPont stated that the date that a component was discovered to be leaking should be considered the starting date. The commenters also stated that leaking components can increase or decrease leak rates, and even drop below the threshold defined as leaking without any repairs being made.

The commission agrees and has revised §115.352(2)(A)(i)(III) accordingly.

§115.352(2)(A)(ii)
ATOFINA, BCCA-AG, Dow, ExxonMobil, DuPont, Lyondell, TCC, and TxOGA commented on §115.352(2)(A)(ii) and stated that requiring unit shutdowns to be triggered when emissions from leaking components approach 50% of the emissions resulting from a shutdown has the potential to increase emissions. Consequently, ATOFINA, BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA suggested that shutdown be required only when emissions from leaking components equal the emissions that would result from a shutdown, while DuPont stated that the commission should allow flexibility in a facility selecting an appropriate factor based on its shutdown plans. BCCA-AG and Lyondell asserted that repeated startup/shutdown cycling of units will shorten the life spans of seals in some components and thus result in increased emissions. ExxonMobil stated that inflexibility in mandating shutdown for repairs could cause shutdowns during peak ozone season, and that the unit shutdown could be better scheduled outside the peak ozone season and thereby decrease the likelihood that the shutdown will contribute to an ozone exceedance. BCCA-AG and Lyondell stated that the DOR calculation should recognize this by ensuring that it does not result in frequent shutdowns and start-ups. TCC stated that only DOR components should be included in the calculation. BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA also stated that startup emissions should be included in the calculation and that §115.352(2)(A)(i)(I) and (ii) should be revised accordingly.

The commission agrees and has revised §115.352(2)(A)(ii) accordingly. The commission notes that the rules specifying that only shutdown emissions are included in the calculation became effective on August 22, 1980. The commission does not believe that it is appropriate to relax the requirement to also include startup emissions because the current shutdown-only calculation has

been in place for over 22 years and has been approved by EPA in that configuration. The suggested change could jeopardize EPA approval.

Rohm & Haas stated that §115.352(2)(A)(ii) stipulates that repair may be delayed if "the total cumulative mass emissions from leaking components in the unit as determined in subclause (IV) of this clause are less than 50% of the mass emissions resulting from shutdown of the unit as determined in subclause (IV) of this clause." Similarly, §115.782(c)(1)(B) allows that "if the repair of a component would require a unit shutdown which would create more emissions than the repair would eliminate, the repair may be delayed until the next shutdown." Rohm & Haas suggested that these requirements should be modified to include a provision to delay repairs based on a de minimis amount of leaking components, similar to those presented in §115.782(e)(3)(B).

As discussed later in this preamble, the commission has deleted §115.782(e)(3)(B). The commission believes that the revisions it has made to §115.352(2) render moot the potential need for a provision to delay repairs based on a de minimis amount of leaking components. Therefore, the commission has made no changes in response to the comment.

§115.352(2)(A)(iii)
Dow, DuPont, ExxonMobil, and TCC recommended that §115.352(2)(A)(iii) not be adopted and stated that a large shutdown could involve placing hundreds of components on a shutdown list for approval during any one year. DuPont stated that submitting this information for review and approval is time-consuming and of little benefit, and that such data is available for review by inspectors at the facility at any time. BCCA-AG, Dow, ExxonMobil, and Lyondell stated that the 30 days allotted for shutdown upon DOR disapproval under §115.352(2)(A)(iii)(III) is too short. BCCA-AG, Dow, ExxonMobil, and Lyondell stated that planning for a safe unit shutdown and startup takes more than 30 days and usually requires at least six months of detailed planning. BCCA-AG, Dow, and Lyondell suggested that the provision should be revised to require a shutdown within six months of the disapproval of DOR.

As noted in the response to comments on §115.352(2)(A)(i), the commission revised §115.352(2)(A)(i) to require that the owner or operator maintain DOR documentation and make it available upon request. For consistency with the revised §115.352(2)(A)(i), the commission has deleted the proposed §115.352(2)(A)(iii).

§115.352(2)(B)
Sierra-Houston and Sierra-Lone Star supported the requirement in §115.352(2)(B) that each component for which repair has been delayed must be repaired at the next unit shutdown.

The commission appreciates the support. The commission has revised §115.352(2)(B) to specify an additional 15 days to initiate a process unit shutdown after comparison of the calculations of the process unit leaking component emissions to the shutdown emissions. A company will not know if a shutdown is triggered until it updates the calculation after each day of monitoring. Because a monitored concentration can change after an attempt at repair and the rule was allowing seven days to enter hand data, 15 extra days (from the date the leaks are found, not when the company makes the calculation) was selected because it fit with that time frame. The commission's

expectation is that no process unit shutdowns will be required under the revised §115.352(2)(B) because companies will find it more desirable to make extraordinary efforts at repairing leaks.

§115.352(2)(C)
Sierra-Houston and Sierra-Lone Star supported the proposed §115.352(2)(C), which specifies that DOR beyond a unit shutdown is allowed for a component that is isolated from the process and does not remain in VOC service.

The commission appreciates the support.

§115.352(2)(D)
DuPont commented on the proposed §115.352(2)(D), which specifies that valves which can be repaired without purging and/or cleaning the line may not be placed on the shutdown list. DuPont stated that it will not repair lines and/or components that have not been adequately cleared due to safety concerns, and recommended deletion of §115.352(2)(D).

The commission appreciates DuPont's concerns and has added the modifier "safely" before "repaired" in §115.352(2)(D). The commission also replaced "purging and/or cleaning the line" with "a unit shutdown" and "valves" with "components" to clarify the intent. As an example, pumps may operate in tandem, one in service with the other serving as a spare, and in such cases a leaking seal can be repaired without the need for a unit shutdown.

Monitoring of repaired components after startup
§115.352(2)(E) and §115.781(b)(4)
Air Products, BCCA-AG, Dow, DuPont, Ethyl, ExxonMobil, Lyondell, OxyChem, TCC, and TxOGA noted that the proposed §115.352(2)(E) and §115.781(b)(4) require that all components opened or repaired during a shutdown be re-monitored within seven days after startup. BCCA-AG, Dow, ExxonMobil, Lyondell, OxyChem, TCC, and TxOGA stated that following an extensive unit shutdown, there typically would be a very large number of components subject to this requirement, and that monitoring all of these components within seven days is impractical and would require a substantial increase in monitoring personnel. BCCA-AG, ExxonMobil, Lyondell, and TxOGA suggested that 60 days be allowed for the required monitoring of repaired components after startup, with ExxonMobil and TxOGA suggesting a full quarter as an alternative. ExxonMobil also suggested 30 days. OxyChem suggested that 90 days be allowed for the required monitoring of repaired components after startup, while TCC suggested that monitoring occur at the next monitoring period. Dow suggested allowing 30 days or until the next monitoring period, whichever occurs first. BCCA-AG and Lyondell stated that it should be clarified that only those components identified in §115.354(4) are subject to re-monitoring. DuPont, Goodyear-Beaumont, and OxyChem stated that only components opened during a shutdown for repair of a leak should be subject to re-monitoring. Dow and DuPont stated that it is extremely difficult to determine which components might have been disturbed following a shutdown and that the entire unit would likely have to be monitored, which could not be accomplished in seven days. DuPont recommended deletion of the phrase "within seven days after startup is completed following the shutdown." Air Products also stated a belief that seven days is not a reasonable time period to recheck components that were repaired or opened. Air Products stated that in some cases there are certain areas with restricted access until the start-up is complete which could take several days, and in other cases,

the individuals who would normally conduct the monitoring are occupied with activities associated with the completion of the turnaround and are not available for monitoring. Air Products stated that monitoring during the next scheduled monitoring period should be adequate. Ethyl opposed the proposed requirement to monitor repaired components within seven days after a startup of a repaired component in the LDAR program for smaller specialty chemical plants such as the Ethyl Houston Plant. Ethyl stated that the Ethyl Houston Lubricant Additives Plant is rather new, has small line sizes, handles materials with heavy vapor pressures, and operates under low pressure, mainly on a batch basis, and that an experienced and qualified contract third-party firm conducts LDAR monitoring for 3,000 - 4,000 components quarterly. Ethyl stated that the plant averages one to two leaking components per quarter at the 500 ppm leak level, which are immediately repaired and re-monitored within hours of discovery, certainly within a few days. Ethyl stated that, in contrast to refineries and ethylene plants, there is no such thing as delayed repairs and leak lists. Therefore, Ethyl stated that continued quarterly emission monitoring is sufficient to detect VOC and the even heavier HRVOC leaks, and repair occurs on a timely basis. Ethyl stated that monitoring within seven days of a small repair would require the special call out of the third-party contractor to monitor for such trivial repairs as the replacement of a pressure gauge or two-inch valve. Ethyl stated that alternatively, it would have to purchase equipment and train personnel for the additional seven-day monitoring, which would likewise be costly, with no significant reduction in VOC emissions. Ethyl stated that several years of LDAR monitoring data provide proof of the sufficiency of the current approach, and asserted that continued routine visual and odor monitoring by operation and maintenance personnel is sufficient to assure no significant HRVOC emissions following line breaks from smaller specialty chemical plants that operate similarly to Ethyl.

The commission has revised the monitoring schedule in §115.352(2)(E) and §115.781(b)(4) from seven days to 30 days or until the next monitoring period, whichever occurs first. In addition, the commission has clarified that only components opened during a shutdown for repair of a leak are subject to re-monitoring because these components are more likely to be leaking upon startup than components which were not opened during a shutdown.

BCCA-AG and Lyondell stated that the phrase “opened or repaired” should be clarified to mean “disturbed” in §115.352(2)(E) and §115.781(b)(4) because the term “opened” may be broader than intended. BCCA-AG and Lyondell recommended the use of the term “disturbed,” which is drawn from the SOCMI HON and is familiar to industry. DuPont stated that the word “opened” could likely double or triple the monitoring requirements after startup and recommended deletion of the word “opened.” OxyChem suggested the use of the term “repaired or disturbed” instead of “opened or repaired,” while TCC suggested use of the term “repaired.”

The commission has replaced the phrase “that have been opened or repaired” with “for which a repair attempt was made,” in reference to a repair attempt in §115.352(2)(E) and §115.781(b)(4) in order to clarify the intent. The commission believes that “repair attempt” will be more easily understood than “disturbed.”

§115.352(2)(F)
Sierra-Houston and Sierra-Lone Star supported the requirement in §115.353(2)(F) that components be monitored even if on the shutdown list. DuPont stated that components should be taken off the

shutdown list if they quit leaking while on the shutdown list (i.e., pass remonitoring). DuPont stated that an example is a compressor which routinely settles after a few weeks of run time following a shutdown, which it believed should not have to be monitored as a leaking component until the next shutdown. Dow stated that §115.353(2)(F) and §115.782(c)(3) should be deleted. Dow stated that this requirement is unnecessary and will inevitably result in additional issues that must be resolved. Dow stated that most fugitive emissions database management software programs do not currently allow for delay of repair items to be downloaded with the routine monitoring. Dow also stated that if the subsequent monitoring reading while the component is on the shutdown list is different than the original reading, there is the question of which reading should be used for emission calculating purposes. Dow also stated that the commission will need to provide additional guidance on what to do if the component is no longer shown to be leaking upon re-monitoring.

The commission agrees with Dow and has deleted §115.353(2)(F) and §115.782(c)(3).

§115.352(8)
The commission has revised §115.352(8) to clarify the requirements for leak testing of new and reworked connections.

§115.782(b)
ATOFINA expressed concern that the proposed §115.782(b), which specifies that a first attempt to repair a leaking component must be made within 24 hours after the leak is detected and the leaking component repaired within 15 calendar days, will severely complicate its current monitoring program. ATOFINA stated that currently, the monitoring technician begins rounds early in the morning and submits findings to the maintenance staff at the end of each day. ATOFINA stated that if a leaking component is found early in the technician's rounds, a work order may not be written until the end of the day, resulting in as much as a ten-hour delay before maintenance is even notified. ATOFINA also stated that most maintenance work is completed during normal business hours, resulting in work orders being submitted as the maintenance staff is leaving for the day. ATOFINA stated that without significant changes in its monitoring program and work order system, there is a potential that maintenance staff would not receive a first attempt of repair work order within 24 hours of the leak's discovery, thus making it impossible to make the first attempt in the proposed allotted time. ATOFINA also stated that its technicians are required to monitor 400 - 600 components each day and its current system allows each technician to efficiently focus on monitoring components without interruptions. ATOFINA questioned whether interrupting a technician's rounds for each insignificant component leak ($>$ 500 ppmv but $<$ 10,000 ppmv) is justified, because each interruption potentially results in significant delays. ATOFINA suggested that components that are found to have insignificant leaks should remain on a five-day first attempt to repair schedule. ATOFINA agreed that if a component is found to have a significant leak of greater than 10,000 ppmv, the technician should contact maintenance immediately and the first attempt to repair should be made within 24 hours. BCCA-AG, Dow, DuPont, ExxonMobil, Goodyear-Houston, Lyondell, TCC, and TxOGA expressed similar concerns. BCCA-AG, ExxonMobil, Goodyear-Houston, Lyondell, and TxOGA suggested that the first attempt of repair be required by the next business day following a leak detected at over 10,000 ppmv, and within five days for all other leaks. DuPont suggested that leaks be prioritized according to severity, with repair required in three to five days at a minimum. TCC suggested that the first attempt of repair be required within three days following a leak detected at over 50,000 ppmv, and within five days for all other

leaks. Dow suggested that the first attempt of repair be required by five days (i.e., the current requirement) but no less than the next business day. As an alternative, Dow suggested that leaks be prioritized according to severity as follows: for leaks detected over 10,000 ppmv, a first attempt at repair required by the next business day and repair required no later than seven calendar days after the leak is detected; and for all other leaks, the currently-required first attempt at repair within five days and repair within 15 calendar days after the leak is detected.

The commission agrees that it is appropriate and logical to prioritize leaks according to severity, such that the components with the higher leak rates are addressed before components with smaller leaks. The commission has reviewed the various options and revised §115.782(b) to require a first attempt at repair within one business day for leaks over 10,000 ppmv, with repair required no later than seven calendar days after the leak is detected. For leaks of no more than 10,000 ppmv, the commission revised §115.782(b) to require a first attempt at repair within five days, with repair required no later than 15 calendar days after the leak is detected. The commission selected this tiered approach in order to balance the implementation of an effective control strategy for repairing leaking components in a timely manner against concern that a significantly more aggressive schedule will be difficult or impractical to implement for the reasons cited by the commenters.

Dow stated that the commission should clarify that if action is taken to repair leaks within the specified time, failure of that action to successfully repair the leak is not a violation. Dow suggested that the following language be added as new §115.352(2)(G) and §115.782(e)(5): "In all cases where the provisions of Chapter 115 require an owner or operator to repair leaks by a specified time after the leak is detected, it is a violation of Chapter 115 to fail to take action to repair the leaks within the specified time. If action is taken to repair the leaks within the specified time, failure of that action to successfully repair the leak is not a violation of Chapter 115. However, if the repairs are unsuccessful, a leak is detected and the owner or operator shall take further action as required by applicable provisions of Chapter 115."

The commission does not believe that the suggested language is necessary. The rules already specify the action to be taken if a leak is detected, as well as the steps to be taken if the first attempt to repair the leak is unsuccessful. Failure to comply with the rules clearly represents a violation. The commission does not believe it is necessary or appropriate to specify in the rules that compliance with the rules does not represent a violation.

§115.782(c)(1)(A) and (2)(B)
TxOGA stated that "VOC" should be changed to "HRVOC" in §115.782(c)(1)(A) and (2)(B).

The commission agrees and has revised §115.782(c)(1)(A) and (2)(B) accordingly.

§115.782(c)(1)(B)(ii)
BCCA-AG, DuPont, ExxonMobil, Lyondell, and TxOGA stated that the four-year limit for repair or replacement of components on the DOR list in proposed §115.782(c)(1)(B)(ii) should be deleted. BCCA-AG and Lyondell stated that many major shutdowns occur from five to eight years apart and that an appropriate DOR calculation will account for the continued emissions from the leaking component

until the next scheduled shutdown, whenever that occurs. ExxonMobil and TxOGA expressed similar concerns.

The commission agrees that the four-year limit should be deleted and has revised §115.782(c)(1)(B)(ii) accordingly.

Extraordinary Efforts
§115.782(c)(2)(A)
ATOFINA, BCCA-AG, Dow, ExxonMobil, Lyondell, TCC, and TxOGA noted that the proposed rules require that "extraordinary efforts" be made for valves (other than PRVs and automatic control valves) which are found to be leaking. ATOFINA, BCCA-AG, Dow, Lyondell, and TxOGA stated that extraordinary efforts should be made on valves that are found to be significant leakers (>10,000 ppmv). TCC stated that extraordinary efforts should be made on valves that are leaking at >50,000 ppmv. TCC also stated that extraordinary efforts should be required for valves that are leaking at >10,000 ppmv and have been on the DOR list for three years or more. ATOFINA stated that extraordinary efforts should be limited to significant leakers while valves with insignificant leak rates should be exempt from extraordinary efforts. TCC stated that sealant injection may not be appropriate in certain cases like high pressure service. BCCA-AG, Dow, and Lyondell stated that the requirement for extraordinary efforts should be tied to the 15 pounds per day mass emissions rate proposed in §115.782(e)(3)(C). BCCA-AG, Dow, and Lyondell also stated that an owner or operator should be able to exempt certain valves from the requirement to make extraordinary efforts upon a demonstration that such efforts would upset or contaminate the process. BCCA-AG, Dow, and Lyondell stated that the time frame for the second attempt should be extended to 15 days to allow time to evaluate alternative extraordinary efforts. ExxonMobil and TxOGA stated that the four-year limit of §115.782(c)(2)(A) should be deleted for the reasons given in the ExxonMobil and TxOGA comments on §115.782(c)(1)(B)(ii). Similarly, TCC recommended that the four-year limit of §115.782(c)(2)(A) be deleted. ExxonMobil commented that pumps are often spared and can be fixed without shutdown, but compressors are seldom spared and shutdown is usually required to fix compressor leaks.

The commission disagrees with TCC's suggestion that extraordinary efforts be limited to valves that are leaking at >10,000 ppmv and have been on the DOR list for three years or more because it would allow leaks to continue unabated for three years before the extraordinary effort would be required. Under TCC's suggestion, the cost for the extraordinary effort would be the same, but an additional three years' worth of emissions would occur that could have been prevented had the extraordinary effort been made three years earlier. The commission also disagrees with the suggestion that extraordinary efforts should be required only if the valve's mass emissions rate exceeds 15 pounds per day. Such a cutoff would allow over 2.7 tpy of emissions without repair. Because units can often operate five to ten years between shutdowns, a 15 pounds per day cutoff could cumulatively result in 13.7 to 27.4 tons of uncontrolled emissions before the leak is repaired or the component is replaced.

The commission agrees with the commenters' suggestion that more attention be focused on valves that are found to be significant leakers (>10,000 ppmv), and has revised §115.782(c)(2)(A) to require that the first extraordinary effort be made within seven days of the valve being placed on the shutdown list. The commission believes that it is appropriate to require a second attempt to

repair a leaking valve through extraordinary efforts for significant leakers, given the low cost ($100 - $150 per valve) and the potential that a leak can be stopped that otherwise could continue for five or even ten years. The commission agrees that 15 days should be allowed for the second attempt at extraordinary efforts to stop a leak and has revised §115.782(c)(2)(A) accordingly. For leaks of 10,000 ppmv or less, the commission has revised §115.782(c)(2)(A) to require that an extraordinary effort be made within 15 days of the valve being placed on the shutdown list, with no second attempt to repair a leaking valve through extraordinary efforts required. In addition, the commission has changed "repair" to "repair or replacement" because both methods may be used to correct a component for which repair has been delayed until the next shutdown. The commission agrees that the four-year limit should be deleted and has revised §115.782(c)(2)(A) accordingly. Concerning TCC's comment that sealant injection may not be appropriate in certain cases like high pressure service, the commission notes that §115.782(c)(2)(A)(ii) provides an exception to the extraordinary efforts requirement if the owner or operator documents that there is a safety, mechanical, or major environmental concern posed by repairing the leak by using extraordinary efforts.

§115.782(c)(2)(A)(i)
Dow, TCC, and TxOGA requested that the requirement for a second "extraordinary effort" to repair a valve be deleted. TxOGA asserted that a valve that does not respond to a first repair such as sealant injection is not likely to respond to a second. Dow stated that if the second extraordinary effort requirement is retained, the time frame for the second attempt should be extended to 15 calendar days from the first extraordinary effort attempt to allow time to evaluate alternative extraordinary means.

The commission disagrees that the requirement for a second "extraordinary effort" to repair a valve should be deleted. However, the commission agrees that the time frame for the second attempt should be extended to 15 calendar days from the first extraordinary effort attempt and has revised §115.782(c)(2)(A)(i) accordingly. The commission believes that it is appropriate to retain the second "extraordinary effort" because the cost is minimal ($100 - $150 per valve), in some cases a second attempt is needed to successfully stop a leak, and the second attempt may stop a leak that otherwise could continue for five or even ten years.

§115.782(c)(2)(A)(ii)
ExxonMobil and TxOGA stated that §115.782(c)(2)(A)(ii) does not specify how long an operator has to comply by other means if the Engineering Services Team does not approve the reason given for not using "extraordinary efforts" on valves. ExxonMobil and TxOGA stated that the seven/seven days for using "extraordinary efforts" may have already passed by the time the decision is made. ExxonMobil and TxOGA also asserted that the commission should not be in the business of deciding what is a justified safety concern. TCC expressed similar concerns.

The commission agrees and has revised §115.782(c)(2)(A)(ii) to require that the owner or operator maintain, and make available upon request, documentation to authorized representatives of EPA, the executive director, the appropriate regional office, and any local air pollution control agency having jurisdiction.

§115.782(c)(3)
Sierra-Houston and Sierra-Lone Star supported §115.782(c)(3), which requires that shutdown list components must be monitored until they have been repaired.

The commission appreciates the support. However, as noted earlier in this preamble in the discussion about §115.353(2)(F), the commission deleted §115.353(2)(F) and §115.782(c)(3).

§115.782(d)
Dow, DuPont, ExxonMobil, OxyChem, TCC, and TxOGA expressed similar concerns regarding §115.782(d) as they expressed regarding §115.352(2)(E) and §115.781(b)(4). ATOFINA commented that the proposed §115.782(d)(2) requires that if an attempt to repair a component during a unit shutdown is unsuccessful, the unit shall be shut back down and the component repaired or replaced. ATOFINA stated that in a perfect world, all components can be repaired or replaced the first time, but that experience suggests otherwise as newly installed components sometimes leak upon start-up of a unit. ATOFINA stated that as a result, even if reasonable efforts are made to repair/replace leaking components, it can reasonably be expected that a small percentage may still leak and that requiring a unit to shutdown again to repair/replace a single component will result in excess and unnecessary emissions and is counterproductive to the goals of the proposed rules. ATOFINA recommended the removal of this requirement. BCCA-AG, Dow, DuPont, ExxonMobil, and Lyondell expressed similar concerns. BCCA-AG and Lyondell stated that the commission could require documentation of best-faith efforts to repair the component to guard against components being placed on the DOR list indefinitely, and that at the very least, the commission should allow components to remain on the DOR list despite one unsuccessful repair during shutdown.

Because the emissions from the shutdown would far outweigh the emissions from the leaking component, the commission has deleted §115.782(d)(2). Similarly, the commission has reevaluated §115.782(d)(1) and deleted it due to concerns about the reasonableness of the proposed requirement for monitoring one day after startup. Because the remaining language in §115.782(d) is redundant with §115.781(b)(4), the commission has deleted §115.782(d).

Limit on the number of components on a shutdown list
§115.782(e)
ExxonMobil and TxOGA commented on §115.782(e) and stated that term "non-repairable" is misleading in that these components are not unable to be repaired, but only require access or methods that cannot be provided without shutdown. Dow and TCC suggested that the HON definition (40 CFR §63.161) of "non-repairable" be used as follows: "technically infeasible to repair a piece of equipment from which a leak has been detected without a process unit shutdown." Dow also suggested that automatic control valves be added to the exceptions in §115.782(e) to be consistent with §115.782(c)(2).

The commission agrees that a definition of "non-repairable" would be useful. However, as described later in this section of the preamble in response to comments on §115.782(e)(3), the commission has deleted §115.782(e) in its entirety.

§115.782(e)(1)
Dow, ExxonMobil, TCC, and TxOGA stated that replacement should not be mandated because repair may still be a viable option.

The commission agrees that many components can be repaired rather than replaced. However, as described later in this section of the preamble in response to comments on §115.782(e)(3), the commission has deleted §115.782(e) in its entirety.

Dow, ExxonMobil, TCC, and TxOGA stated that the four-year limit of §115.782(e)(1) should be deleted for the reasons given in their comments on §115.782(c)(1)(B)(ii).

The commission agrees with the commenters. However, as described later in this section of the preamble in response to comments on §115.782(e)(3), the commission has deleted §115.782(e) in its entirety.

§115.782(e)(2)
ATOFINA, BCCA-AG, Dow, DuPont, Lyondell, TCC, and TxOGA commented on §115.782(e)(2), which limits the percentage of non-repairable leaking components at each unit. ATOFINA stated that placing a limit on the number of components on a shutdown list has the potential to actually increase emissions. ATOFINA stated that an emissions increase can occur if the majority of leaking components placed on a shutdown list are insignificant leakers, because the required shutdown would take place well before the emission reductions from repairing the components approach the emissions resulting from a unit shutdown. ATOFINA, BCCA-AG, Dow, and Lyondell suggested that unit shutdowns be based upon mass emission rates only, as determined by the use of EPA correlation equations. Dow, DuPont, and TCC stated that a major chemical manufacturing plant could have over 10,000 components and that the 25 component threshold is biased against complex operations. Dow, DuPont, and TCC recommended deletion of the wording "or 25 components, whichever is less," and that all facilities use a percentage.

As described later in this section of the preamble in response to comments on §115.782(e)(3), the commission has deleted §115.782(e) in its entirety. Therefore, the commenters' concerns are moot.

§115.782(e)(3)
Dow, EnRUD, ExxonMobil, TCC, and TxOGA commented on the proposed §115.782(e)(3). EnRUD suggested that as an alternative for Subchapter D, Division 3, the rule could instead specify that the correlation equations are used to estimate emissions if one "extraordinary effort at repair" is made, but that bagging must be used to estimate emissions if no "extraordinary effort at repair" is made. ExxonMobil and TxOGA asserted that the emission limit values in §115.782(e)(3) have been reduced by a factor of ten from Bay Area Air Quality Management District (BAAQMD) Regulation 8, Rule 18, without any justification given. TCC expressed similar concerns and recommended deletion of the limits. EnRUD suggested that as an alternative, the rule could instead require two "extraordinary efforts at repair," with bagging required to estimate emissions for all components put on the shutdown list or delay or repair, and seven days allowed to repair each component having a mass emission rate greater than 15 pounds per day. ExxonMobil and TxOGA stated that no rule should set an individual or cumulative emission caps for DORs that would cause more emission from shutdown and startup than the repairs would reduce. ExxonMobil and TxOGA also stated that the percentage calculations can only apply to existing units with at least four quarters of data, and that new units would have to be calculated based on initial data until additional quarters are past. Dow and TCC suggested specifying that the correlation equations are used to estimate emissions, rather than bagging within seven days to estimate mass emissions. Dow also recommended changing the 15 pounds per day leak rate limit and seven calendar day repair time limit in §115.782(e)(3)(C) to a concentration limit (e.g. 10,000 ppmv). Dow further suggested moving the requirement in §115.782(e)(3)(C) to §115.782(b).

The commission has reevaluated §115.782(e) and believes that the "extraordinary effort" requirements specified in §115.782(c)(2) will largely eliminate the need for limitations on the number of non-repairable components specified in §115.782(e). Because most leaking components are valves and, based on recent information concerning a refinery in HGA which demonstrated that the vast majority of those valves can be repaired through "extraordinary efforts," the commission has deleted §115.782(e).

EQUIPMENT STANDARDS
HRVOC Fugitive Emissions
§115.783
BP and TCC stated that the commission should set performance standards rather than equipment standards. In particular, BP stated that the commission should reconsider the proposed equipment standards for process drains, flanges, heat exchanger heads, sight glasses, etc.

The commission has revised many of the proposed equipment standards in the fugitive monitoring rules in response to comments, as described elsewhere in this preamble. In general, a performance standard for equipment leak sources, such as pumps and valves, is not feasible. For example, even though compressor seals can be equipped to release emissions into a closed-vent system, measurement of these emissions is impractical, although the rules include a performance standard for the control device to which the closed-vent system conveys emissions. Except for

those components for which standards can be set at a specific concentration, the only method of measuring emissions is total enclosure of individual components, collection of emissions for a specified time period, and measurement of the emissions. This procedure, known as bagging, is a time-consuming and prohibitively expensive technique considering the great number of individual components in a typical process unit. In addition, this procedure would not be useful for routine monitoring and identification of leaking components for repair. The adopted fugitive monitoring rules primarily include standards intended to result in the repair of leaks in a timely manner.

§115.783(2)
Dow recommended that the recovery and control device efficiency requirements in the proposed new §115.783(2) be consistent with HON Subpart H, 40 CFR §63.172(b) - (e), which requires a 95% control efficiency (or to 20 ppmv) for recovery or recapture devices (e.g., condensers and absorbers) and enclosed combustion devices.

MACT standards, such as the HON, are not adequate to provide reductions for ozone strategy. Specifically, the MACT standards are based on the need to reduce exposure to HAPs, while Chapter 115's purpose is to reduce emissions which contribute to ozone formation. Because the purposes of the rules are so different, there is no reason they should necessarily have the same thresholds or exemptions. The commission has retained the requirement in §115.783(2)(C) for 98% control efficiency (or to 20 ppmv).

§115.783(3)
DuPont, ExxonMobil, and Rohm & Haas disagreed with the requirement in §115.783(3) that each PRV be equipped with a rupture disk and a pressure sensing device. DuPont and Rohm & Haas stated that these systems can present a safety hazard. Rohm & Haas stated that industry has been moving away from such systems. Rohm & Haas stated that although current fugitive monitoring rules allow such equipped PRVs to be exempt from monitoring, in many cases, they would rather monitor such PRVs rather than install rupture disks. An individual suggested that PRVs which discharge to closed-vent systems should be exempt from the requirement of having a rupture disk installed in their inlets. The individual stated that many of the air quality management districts in California specifically state that relief valves that discharge to a closed-vent system are not required to have rupture disks installed on their inlets. The individual also stated that rupture disk installation in a closed-vent system will be very difficult because, even though the rupture disk itself is small, it needs a special holder for proper operation, which will result in having to modify the piping to accommodate the changed dimensions. In addition, the individual stated that the capacity of relief valves used in combination with a rupture disk must either be derated or the combination must be tested to determine its capacity as required by Section VIII of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code. The individual stated that in a few cases, a larger relief valve would be required to obtain the required capacity for safe operation, requiring even more modifications to existing piping and possible replacement of the nozzle of the original pressure vessel. The individual asserted that little, if anything, is to be gained by installing a rupture disk upstream of the relief valve because the discharge from these relief valves eventually goes to a control device, such as a flare. TCC expressed similar concerns as the individual. DuPont suggested that rupture disks be used on new valve systems (when a safety analysis has been performed to confirm adequacy of the design of the rest of the system). ExxonMobil and TxOGA stated that clarification is needed that rupture disks are required on relief devices venting

to atmosphere only, not relieving to a control device. TxOGA recommended adding “not routed to a control device” after “Each pressure relief valve.”

The commission agrees that rupture disks are unnecessary on PRVs which vent to a closed-vent system and has revised §115.783(3) by adding “in gaseous HRVOC service that vents to atmosphere” after “Each pressure relief valve.” The commission also agrees that rupture disks should not be mandated due to possible safety concerns, but that PRVs with rupture disks should be equipped with a pressure sensing device between the PRV and the rupture disk to monitor disk integrity. The commission has revised §115.783(3) accordingly.

TCC suggested that §115.783(3) be revised to allow 30 days for replacement of failed rupture disks, rather than five days. TCC stated that 30 days for repair is reasonable because the rupture disk is coupled with a relief valve.

The commission agrees and has revised §115.783(3) accordingly.

§115.783(4) - Shaft sealing systems
ATOFINA, Dow, DuPont, and TCC commented on proposed §115.783(4), which requires that all pumps, agitators, and compressors be equipped with shaft sealing systems prior to December 31, 2005. ATOFINA stated that proposed §115.783(4), which requires that all pumps, agitators, and compressors be equipped with shaft sealing systems prior to December 31, 2005, should be changed to allow an exemption to be submitted to the executive director for approval. ATOFINA recommended that an exemption be allowed if, after an economic review is completed, it is determined that the cost of upgrading is not justified. ATOFINA stated that historically, the emissions from many of these components have been very low, and expressed concern that the emission reductions achieved would not justify the cost of implementing this requirement. DuPont and TCC stated that shaft sealing systems are not technically feasible for some older equipment and that the proposed requirement could impact hundreds of pumps at a typical site. DuPont recommended restricting the shaft sealing system requirements to new equipment. Dow stated that §115.783(4)(A)(ii) should mention vapor recovery systems in addition to control devices, and stated that the terms in §115.10 seem to make a distinction between “vapor control system” and “vapor recovery system.” Dow also stated that §115.783(4)(A)(iii) should mention specifically gas barrier seals as an acceptable pressurized sealing method or clarify that the term “fluid” means gas or liquid.

The commission agrees that some older equipment may be difficult or impossible to retrofit, and therefore believes that it would be appropriate to limit the shaft sealing system requirements to new equipment. In order to give affected owners and operators time to plan for incorporating shaft sealing systems in the design of new equipment, the commission revised §115.787(b) to exempt pumps, agitators, and compressors installed before July 1, 2003 from the shaft sealing requirements of §115.783(4). In response to Dow’s comments, the commission notes that “vapor recovery system” and “vapor control system” are synonymous in Chapter 115, as noted in the definition of these terms in §115.10. Whenever possible, however, the commission has been replacing “vapor recovery system” with the more appropriate term “vapor control system” in Chapter 115. The commission has clarified §115.783(4)(A)(iii) as suggested to clarify that gas barrier seals are an acceptable pressurized sealing method.

§115.783(4)(B)(iii)
TCC suggested that action on requests for approval of alternate shaft sealing systems should be taken by the executive director, and not by Engineering Services.

"Executive director" is defined in 30 TAC §3.2 as "the executive director of the commission, or any authorized individual designated to act for the executive director." The reference to the Engineering Services Team is necessary to clearly designate where within the agency requests for approval of alternate shaft sealing systems should be directed and who will review and respond to such requests. Therefore, the commission has made no change in response to the comment.

§115.783(5)(A)(i) - Water seals
Comments concerning water seal are addressed earlier in this preamble in the discussion concerning §115.142(1)(A).

§115.783(5)(A)(ii) - Process drain alarms/flow monitoring
Comments concerning alarms and flow monitoring devices for process drains are addressed later in this preamble in the discussion concerning §115.781(b)(5).

§115.783(6) - Upgrades of leaking valves at shutdown
ATOFINA, Dow, DuPont, ExxonMobil, TCC, and TxOGA commented on proposed §115.783(6), which requires that all leaking valves added to a shutdown list be replaced with either a bellows or diaphragm valve, or an alternative valve design approved by the executive director. ATOFINA strongly objected to proposed §115.783(6), and stated that site operators must be allowed to choose the valve type that best suits the service the equipment is in, taking into account several factors, including safety and service of the component. ATOFINA expressed a belief that by mandating a particular type of valve and approving alternatives, the commission is opening itself up to litigation in the event of catastrophic failure. In addition, ATOFINA expressed concern that the approval process may be delayed, resulting in the installation of a bellows or diaphragm valve in the wrong service, or installation of a valve that may not meet the approval of the executive director. ATOFINA suggested that the rule be changed to specify that the executive director or designated representative must review alternatives within 15 days or the alternative be automatically approved. DuPont stated that it does not support completely replacing valves due to age and historical leakage. DuPont and TCC stated that replacement of packing may be sufficient to prevent any further leakage for the life of the valve, and suggested use of the word "repaired" rather than "replaced" to discourage unnecessary replacement of equipment. ExxonMobil and TxOGA stated that only chronic leakers that are subject to requiring shutdown for repair should be reviewed for upgrade applicability, and that an alternative to allow for system modification to redesign the component should also be allowed. Dow stated that automatic control valves should be added to the exceptions in §115.783(6) to be consistent with §115.782(c)(2).

The commission agrees with the commenters that the proposed valve upgrades should not be mandated, and has deleted §115.783(6).

§115.783(6)(B)(i)

DuPont and TCC stated that the executive director should consider on a case-by-case basis the technological circumstances of a type of valve or a valve used in a particular service, and make that list available via guidance (not rule), as opposed to approving one individual valve for one particular entity.

As described earlier in this preamble, the commission has deleted §115.783(6).

§115.783(6)(B)(ii)
DuPont stated that it is unclear on how BACT would be set for valves that vary in weather conditions, type of chemical service, pressure of service, etc. DuPont stated that the phrase "after the application of best available control technology" should be deleted until further study can provide a more appropriate technical approach.

As described earlier in this preamble, the commission has deleted §115.783(6).

PREVENTION MEASURES PROCEDURES
HRVOC Fugitive Emissions
§115.784
Ethyl objected to the proposed preventive measures procedures, and asserted that they are overly prescriptive and apply a "one size fits all" prescription to any pressure safety valve (PSV) release. Ethyl stated that these regulations are best left to process safety management requirements regulated by the Occupational Safety and Health Administration (OSHA), and that these proposed regulations have not been critiqued by the Chemical Safety Board, American Institute for Chemical Engineers' Center for Process Safety, or any other group specializing in the development of process safety management standards or requirements. Ethyl expressed a belief that manpower and paperwork would be excessive, burdensome, and extremely costly as currently proposed, with little, if any, likelihood of reduction of pressure safety device venting for most facilities. Ethyl supported an incident investigation, identifying contributing factors, and taking appropriate procedural or control measures to reduce the likelihood of a repeat release from a pressure control device; however, Ethyl stated that appropriate solutions should take into account the magnitude and potential seriousness of the potential release. For example, the appropriate response, investigation, and remedial measures for a PSV release of a small amount of heavy oil or wastewater into a contained area from thermal expansion of contained liquid in a blocked in line should be treated differently from the release of a large quantity of highly flammable light organic compound into the atmosphere, which is the type of event the commission should be trying to focus on and minimize through these proposed regulations. Ethyl stated that the requirement for a second process hazard analyses following a PSV release in overly prescriptive, as a well-conducted incident investigation should be sufficient for most releases. Ethyl stated that the evaluation for routing a vent to a control device upon a second PSV release is overly prescriptive for most releases, in that it does not take into account the magnitude and severity of the release, or the time span between releases, which could be anywhere from five to 20 years. Ethyl stated that the commission should consider the magnitude, severity, and frequency of potential releases and develop a review/prevention strategy which takes those factors into account. Regarding the proposed definition for "process hazard analysis" (PHA), Solutia stated that OSHA also has a definition for PHA which can be found at 29 CFR §1910.119(c)(2), and that broadly speaking, OSHA's rules are intended as a systematic study of the entire process that finds where the process could fail in a way that results in catastrophic events. Solutia stated that a team of process experts and a methodology expert evaluate what, if any, additional

safeguards are needed to prevent the event, but it is not designed to find the specific cause of a process failure. Solutia stated that incident investigations would be better suited to finding why a system or piece of equipment failed, or released material, in a specific incident, and requested that the commission revise the proposed rule language to allow the affected facility to investigate the incident, find the causes, and take corrective actions to prevent recurrence. In addition, Solutia suggested that the commission use another term such as "incident investigation." Solutia also cautioned the commission about trying to put into its rules terms and procedures that are not in its jurisdiction and commented that the commission's Title V program is on record as stating that it is not qualified to review a facility's risk management plan. Solutia suggested that the commission rules include broader, more generic, language that references these other areas which would let a facility's safety personnel better determine the methodology used. Dow, ExxonMobil, TCC, and TxOGA expressed similar concerns as those of Ethyl and Solutia. Dow also stated that definitions provided in §115.784(a) should be moved to §115.10.

The commission agrees that additional research is needed before prevention measures procedures should be adopted. Therefore, the commission is withdrawing the proposed §115.784 and is not adopting the following proposed rules which included references to §115.784: §115.786(c) and §115.789(6). In addition, the commission has deleted references to §115.784 in §§115.781(e), 115.788(e)(1) and (e)(1)(B), and 115.789(2).

INSPECTION REQUIREMENTS
Industrial Wastewater
§115.144(5)
Dow, DuPont, TCC, and TxOGA recommended that the requirement in §115.144(5) for daily inspection of water seals be changed to weekly. TCC and TxOGA stated that unless there is a design flaw, water seals should be no more likely to fail on a daily basis than other types of seal designs. Dow and TxOGA suggested an alternative, that the commission could request more frequent (daily) monitoring or an evaluation of seal design where a process drain is found to have habitual water seal failures.

The commission has revised the water seal inspection schedule in §115.144(5) from daily to weekly, except that daily inspections are required for those seals that have failed three or more inspections in any 12-month period.

§115.144(6)
Sierra-Houston, Sierra-Lone Star, and TxOGA supported the requirement in §115.144(6) that process drains not equipped with water seal controls must be inspected weekly to ensure that gaskets, caps, and/or plugs are in place and that there are no gaps, cracks, or other holes in these devices. TCC suggested monthly inspections.

The commission agrees that process drains not equipped with water seals controls are less likely to leak than process drains with water seals controls, such that a monthly inspection schedule appears adequate. Therefore, the commission has revised the inspection schedule in §115.144(6) from weekly to monthly.

Fugitive Emissions
§115.354
Sierra-Houston and Sierra-Lone Star supported the requirement in §115.354 that all component monitoring take place when the components are actually in service and not when they are in shutdown; §115.354(1) which requires an electronic data collection device that includes the time and date stamp so that monitoring cannot be done faster than Method 21 requires; and §115.354(12) which requires the actual monitored VOC concentrations be recorded instead of notations such as "not leaking."

The commission appreciates the support.

§115.354(3)
TxOGA stated that the weekly AVO inspection of flanges should be deleted. TxOGA stated that because connectors are being added to the definition of "component," the weekly AVO inspections should be deleted and instrument monitoring of the flanges should replace the weekly flange AVO inspection requirements. TxOGA stated that if instrument monitoring is not at least as effective as the AVO monitoring was, the new requirement should not be incorporated.

Rather than adding a requirement for instrument monitoring of flanges to §115.354 as suggested by TxOGA, the commission is instead revising §115.354(3) to exclude flanges that are monitored using Test Method 21 as required by §115.781(b)(3). This will ensure that new instrument monitoring requirements are not added to flanges which are not subject to Subchapter H, Division 3.

§115.354(9)
BCCA-AG, DuPont, EnRUD, ExxonMobil, Goodyear-Beaumont, Lyondell, TCC, and TxOGA commented on §115.354(9), which is intended to prevent owners and operators from monitoring components in units that are shut down, thereby inflating the count of components that are not leaking and lowering, on paper, the percentage of components that are leaking. EnRUD, ExxonMobil, and TxOGA stated that the language is unclear. BCCA-AG, DuPont, and Lyondell did not object to such a prohibition in concept, but stated that the proposed rule uses multiple terms to express the same idea. BCCA-AG, ExxonMobil, Goodyear-Beaumont, and Lyondell suggested that the rule would be clearer if the first two sentences of the proposed rule are retained, and the remainder of the paragraph removed. TCC suggested that the rule would be clearer if the first three sentences of the proposed rule are replaced with a sentence which states: "Components must be in contact with process fluids to be considered in the total component count." DuPont stated that various commission regional offices have stated that a material must be flowing in the line to be considered for monitoring, but that DuPont expressed the belief that it is unreasonable to check every line for flow prior to monitoring. DuPont stated that it monitors components without verifying active flow or residuals, and suggested that §115.354(9) be revised to require that monitoring be done when components are in contact with process material. TxOGA stated that §115.354(9) should only apply to units utilizing a skip-period for leak detection monitoring schedules.

The commission has deleted the last two sentences of the proposed §115.354(9) and has replaced the second sentence with a sentence which states: "If a unit is not operating during the required monitoring period but a component in that unit is in contact with process fluid which is circulating

and/or under pressure, then that component is considered to be in service and is required to be monitored." The commission has also added TCC's suggested sentence. These changes express the intent more clearly.

§115.354(10)
TCC commented on §115.354(10) and stated that the commission should give operators a choice in determining whether paper or electronic data collection is best-suited for their plant. TCC stated that either approach can provide accurate results and similarly, neither approach is without possibility of error.

Because §115.354(10)(B) provides the flexibility to use paper logs where necessary or more feasible, the commission has made no change in response to the comment.

§115.354(10)(A)
BCCA-AG, Dow, EnRUD, ExxonMobil, Goodyear-Beaumont, Lyondell, TCC, and TxOGA commented on the proposed §115.354(10)(A), which includes language that invalidates data that was not collected in accordance with Test Method 21. BCCA-AG, Dow, Goodyear-Beaumont, Lyondell, and TCC stated that it is not clear whether all monitoring results must be reviewed by someone other than the technician, what criteria are to be used in determining how quickly Test Method 21 can be followed, exactly what data must be invalidated, etc. EnRUD, ExxonMobil, Goodyear-Beaumont, and TxOGA stated that the language is ambiguous, with TxOGA suggesting that §115.354(10)(A) be deleted. EnRUD suggested that a benchmark time be set. BCCA-AG and Lyondell stated that because data discrepancies must be dealt with on a case-by-case basis, it would be better to address the problem in guidance. DuPont stated that there is an opportunity for interpretation in assessing Test Method 21. For example, DuPont considers that if the initial datalogger reading is 50% of the leak definition, then monitoring time must not be less than two times the instrument response rate. Dow recommended adding the following language to §115.354(10)(A): "The acceptable rate for recording data shall be determined individually by each company considering such factors including, but not limited to, the size of the equipment, the equipment type, the accessibility of the equipment, the number of leakers being found, the skill of the monitoring technicians, etc. Each company shall have a documented auditing process in place to identify response time failures and assess pace anomalies."

Because the commission can take enforcement action against owners or operators as necessary for failure to correctly follow the requirements of Test Method 21, it has deleted the second sentence of §115.354(10)(A). The second sentence of Dow's suggested language provides a reasonable way to guard against monitoring technicians's collection of data in a way that is contrary to Test Method 21, and has revised §115.354(10)(A) accordingly. The commission has also revised §115.354(10)(A) to clarify that the collected monitoring data include the identification of each component and each calibration run, the maximum screening concentration detected, the time of monitoring (beginning and end), a date stamp, an operator identification, an instrument identification, and calibration gas concentrations and certification dates.

§115.354(10)(B)
Air Products commented on the proposed §115.354(10)(B) and requested that the commission provide guidance on the meaning of "small rounds" as used in the context of the use of paper logs. TxOGA

suggested that the last sentence be deleted for the reasons noted in its comments on §115.354(3) for AVO inspections.

Small rounds refers to the monitoring of fewer than 100 components. The commission has revised §115.354(10)(B) accordingly, and has also revised §115.354(10)(B) to include a reference to the information required in §115.354(10)(A).

§115.354(10)(C)
BCCA-AG, Dow, DuPont, EnRUD, ExxonMobil, Goodyear-Beaumont, Lyondell, OxyChem, TCC, and TxOGA commented on the proposed §115.354(10)(C), which prohibits changes to monitoring data that has been transferred from a datalogger to the facility's database. BCCA-AG, Dow, DuPont, ExxonMobil, Goodyear-Beaumont, Lyondell, OxyChem, TCC, and TxOGA stated that this provision is too broad because quality assurance reviews may disclose potential problems with data in the facility's database. DuPont stated that changes may be necessary if the monitoring technician entered the wrong date, operator identification, analyzer identification, etc. BCCA-AG, Dow, DuPont, EnRUD, ExxonMobil, Goodyear-Beaumont, Lyondell, OxyChem, TCC, and TxOGA stated that changes to databases should be allowed if justified and properly documented. Dow, DuPont, and EnRUD suggested that such documentation could include the name of the person who made the change and an explanation to support the change.

The commission agrees that in some situations, it may be necessary to correct information in the database. Therefore, the commission has replaced the proposed language in §115.354(10)(C) with language which requires documentation of each change.

§115.354(11) and §115.781(b)(10) - Response Factors
Goodyear-Beaumont stated that the response factor multiplier (RFM) is defined as actual concentration divided by measured concentration, and the relative response factor (RRF), which is the inverse of the corresponding RFM. However, Goodyear-Beaumont indicated that it is unfamiliar with the term relative response factor multiplier used in the proposed §115.354(11) and §115.781(b)(10), and suggested that this term be defined in §115.10.

Air Products stated that the requirements in §115.354(11) and §115.781(b)(10) for “response factors” are unnecessary and would add a significant burden with no corresponding benefit. Air Products referenced the background information document for the hazardous organic NESHAPS in which EPA indicated that response factors were not intended to be used to adjust screening in LDAR programs and will not reduce emissions from an LDAR program. Air Products suggested a compromise to adopt the response factor criteria in EPA Test Method 21 and make the use of response factors voluntary for process streams whose average response factor is less than ten. EnRUD stated that although no other LDAR regulation in the United States requires a response factor adjustment, it can be done once process stream specific response factors are developed.

Goodyear-Beaumont stated that several problems arise regarding the use of RFMs and RRFs. Specifically, Goodyear-Beaumont stated that RFMs and RRFs are available for only a relatively small number of chemicals out of the thousands of VOCs in process lines across Texas. Goodyear-Beaumont also stated that RFMs and RRFs vary with measured concentration, detector lamp energy and detector type (i.e., flame ionization detector vs. photoionization detector). Goodyear-Beaumont further stated that components are often in contact with mixtures, and it is difficult to calculate the composite RFM or RRF for each component, especially since so few chemicals have available response factors. Goodyear-Beaumont stated that complex hydrocarbon mixtures in contact with a component may vary over a manufacturing cycle, particularly for batch operations.

BCCA-AG, Dow, ExxonMobil, Lyondell, and TxOGA stated that response factors are a function of both compounds and concentration and that determination of a response factor for a component cannot reasonably be made prior to monitoring. BCCA-AG, ExxonMobil, Lyondell, and TxOGA stated that response factors are commonly used to adjust emission data for more accurate emissions estimates, not for real time monitoring, and that modification of data management programs to include component-specific response factors with monitoring runs would require extensive program modifications for little benefit. As an alternative, BCCA-AG and Lyondell recommended that the facility set and report a conservative response factor for the entire unit, or for certain delineated sections of units, and apply that factor. DuPont expressed similar concerns and recommended clarifying that response factors should be developed based on the annual average composition for the process fluid because many process components see compositional variability by design (e.g., hazardous waste incinerators). Dow and DuPont recommended only correcting measured concentrations for components where the annual average response factor is greater than 3.0 at the applicable leak definition. DuPont also stated that if the commission continues efforts to obtain more accurate EI data and retains the requirement to correct measured concentrations when the response factor is greater than one, then correcting measured concentrations with a response factor less than one should also be required to accurately reflect fugitive emissions.

Dow and TCC stated that Section 8.1.1 of Test Method 21 requires that a response factor be determined "for each compound that is to be measured, either by testing or from reference sources." Dow and TCC stated that §115.354(11) should provide that response factor criteria in Section in 8.1.1.2 of Test Method 21 shall be for the average composition of the process fluid not each individual VOC in the stream. Dow and TCC stated that for process streams that contain nitrogen, water, air, or other inerts which are not organic HAPs or VOCs, the average stream response factor may be calculated on an inert-free basis, and that the response factor may be determined at any concentration for which monitoring for leaks will be conducted. Dow and TCC recommended that language from 40 CFR §63.180(b)(2) of HON Subpart H be added to §115.354(11).

Dow and TCC further stated that EPA's "Protocol for Equipment Leak Emission Estimates" (November 1995) recommends adjusting the screening value if the compound (or mixture) has a response factor greater than three. Dow and TCC stated that this EPA document provides a procedure for evaluating whether a response factor adjustment should be made, and that one of the steps in this procedure states: "If the RF's at both actual concentrations are below 3, it is not necessary to adjust the screening values. If either of the RF's are greater than 3, then the EPA recommends an RF be applied for those screening values for which the RF exceeds 3." Dow and TCC stated that if the commission decides to retain the requirement to correct measured concentrations if the response factor is greater than 1.0, then correcting measured concentrations if the relative response factor is less than or equal to 1.0 should also be required. Dow and TCC stated that ethylene and propylene, for example, have a response factor less than 1.0, which, in effect implies emissions may be currently overestimated from these components.

Goodyear-Beaumont stated that if the objective is to use more accurate VOC concentrations to compare to a leak definition, then the application of both RFMs greater than 1.0 and less than 1.0 is appropriate, but that if the objective is to reduce emissions, then a simple reduction in the leak definition is the appropriate approach, rather than response factors. Finally, Goodyear-Beaumont stated that if the objective is generate more accurate EI data, as suggested by the rule proposal preamble, then the EI rules in 30 TAC §101.10 and/or EI guidance documents should be revised.

After further evaluation, the commission concluded that issues associated with response factors are complex. Therefore, the commission has deleted §115.354(11) and §115.781(b)(10) and has renumbered subsequent paragraphs accordingly. The commission notes that the current §115.352(1) allows calibration by propane or hexane, which can modify the screening concentration that was used in the correlation equations, although methane is the industry standard calibration gas. Therefore, the commission has revised §115.352(1) to delete the propane and hexane options in conjunction with the removal of the use of a response factor adjustment. The commission also deleted the compliance schedule in §115.359(4) and §115.789(9) for the newly deleted §115.354(11) and §115.781(b)(10).

§115.354(12) and §115.781(b)(11) - Pegged Components
BCCA-AG, Dow, DuPont, ExxonMobil, Lyondell, OxyChem, TCC, and TxOGA commented on the proposed requirement to record a default value of 500,000 ppmv for any monitor reading that is higher than the upper end of the monitor scale. BCCA-AG, ExxonMobil, Lyondell, TCC, and TxOGA stated that this value is "arbitrarily high" and may artificially increase emissions estimates, resulting in premature shutdowns. BCCA-AG, ExxonMobil, Lyondell, OxyChem, TCC, and TxOGA recommended that the default pegged value should be the maximum detectable value of the instrument, with consideration given to a dilution probe reading when available. DuPont and TCC recommended that the default pegged value should be 100,000 ppmv because most monitoring instruments only span to 100,000 ppmv, not 500,000 ppmv. Dow stated that consistent with EPA's "Protocol for Equipment Leak Emission Estimates" (November 1995), the 10,000 and 100,000 ppmv "pegged" emissions rates (in lb/hr per source or kilograms/hr per source) in Tables 2-13 and 2-14 should be used instead of recording a default pegged value of 500,000 ppmv. Dow stated that this would allow develop a more accurate emissions inventory.

After further evaluation, the commission concluded that a pegged component default of 100,000 ppmv is appropriate and has revised §115.354(12) and §115.781(b)(11) accordingly.

§115.354(13)
Dow, Goodyear-Beaumont, and TxOGA commented on §115.354(13), which specifies that exemptions for valves with a nominal size of two inches or less expired on July 31, 1992. Goodyear-Beaumont stated that it was granted a permit on August 31, 1993 that included an exemption for valves with a nominal size of two inches or less. TxOGA stated that §115.354(13) should be deleted, while Dow stated that valves nominally 0.5 inches and smaller, and connectors nominally 0.75 inches and smaller

in diameter, should be exempted because these components are exempted from the HON through the definition of "instrumentation system" in 40 CFR §63.161.

The permit provisions in a new source review permit do not represent an exhaustive list of all requirements that may apply, and a permit provision cannot authorize noncompliance with a commission rule. In effect, each rule or permit stands on its own. Thus, compliance with the permit provisions does not necessarily represent full compliance with all applicable rules. It is the responsibility of the owner or operator to ensure compliance with all applicable permits and rules. As noted in the preamble, new §115.354(13) is necessary due to the continued misconception that such an exemption is available in Chapter 115 for ozone nonattainment areas, despite the fact that the rule change which eliminated the exemption was adopted over 11 years ago. (See the July 2, 1991 issue of the *Texas Register* (16 TexReg 3722 - 3724)). Goodyear-Beaumont's comment is a clear indication that §115.354(13) is needed, and that as new source review permits are amended, modified, or renewed, industry and the commission should work together to remove obsolete permit provisions such as the one which is apparently in Goodyear-Beaumont's permit. In addition, the exemption for valves with a nominal size of two inches or less was removed from the Chapter 115 fugitive monitoring rules applicable in ozone nonattainment areas in response to a federal requirement to remove the exemption. EPA required removal of the exemption because it was inconsistent with RACT requirements in that no exemption for valves with a nominal size of two inches or less is allowed under EPA's RACT requirements for fugitive monitoring. The fact that the HON includes an exemption for small valves in instrumentation systems does not relieve the commission of the separate federal requirement to ensure that the Chapter 115 rules represent RACT. However, it is possible to consider an exemption for connectors in instrumentation systems because connectors other than flanges are not included in the federal RACT requirements for fugitive emissions.

MONITORING REQUIREMENTS
Chevron supported the commission's focus on HRVOC monitoring as a means to control ozone spikes. One individual supported VOC monitoring and stated that the proposed changes to vent gas monitoring are appropriate.

The commission appreciates the support.

EPA commented that for cooling towers, flares, and fugitives, the proposed rules significantly enhance the monitoring and recordkeeping provisions to improve the inputs to the modeling analysis. EPA stated that the commission should also consider revising the monitoring and recordkeeping requirements for the general VOC rules to try and better capture hourly, daily, and weekly emissions and the resulting fluctuations in emission rates. EPA commented that improved general VOC emission rate information could be used in future SIP modeling demonstrations. EPA further commented that the proposed HRVOC recordkeeping and reporting requirements should attempt to obtain the highest temporal resolution on emission rates, and that where the data collected makes it possible to calculate hourly and daily emission rates, these rates should be calculated and reported to the commission for ozone season days. EPA stated that averaging of emissions over time does not improve the resolution of the data, and should not be done in the reporting of emissions.

As noted earlier in this preamble, the commission is implementing a site-wide HRVOC emissions cap. The commission agrees that the HRVOC recordkeeping and reporting requirements should attempt to obtain the highest temporal resolution on emission rates, and that where the data collected makes it possible to calculate hourly and daily emission rates, these rates should be calculated and reported to the commission for ozone season days. The site-wide cap requires that each site stay below its 24-hour rolling average HRVOC emission cap, with appropriate documentation to demonstrate continuous compliance. Concerning the general VOC rules for flares and cooling towers, the commission agrees that improved emission rate information could be used in future SIP modeling demonstrations. However, as noted earlier in this preamble, the commission has withdrawn the proposed Subchapter B, Divisions 7 and 8.

EPA Test Method 21

Sierra-Lone Star stated that one major drawback in the proposed revisions is the VOC equipment monitoring limitations of EPA's Test Method 21 utilizing a calibrated organic vapor analyzer (OVA) that is being used routinely and widely for fugitive leak detection in HGA, and asserted that the commission has not acknowledged the detection limitations in the new rules. Sierra-Lone Star stated that Test Method 21 is limited to the detection of fugitive VOC leaks that are readily accessible to the analyzer's sensor of a few inches at most, but other fugitive VOC leaks that are completely hidden within the equipment and process units will not be sensed or measured by the OVA detectors. Sierra-Lone Star stated that the current state-of-the-art analytical technique required by federal and state regulations in fugitive leak detection is the OVA known in the EPA regulations as Test Method 21. Sierra-Lone Star stated that the OVA's serious detection limitation, and Test Method 21 as well, is that it is a hand-held device that senses leaking hydrocarbon vapors at only a single measurement point. Sierra-Lone Star stated that in order to traverse wide plant areas with an OVA or FID instrument, it is necessary to manually sweep it over those areas, a labor intensive and time consuming process, and basically which is unable to see leaking hydrocarbons beyond a few inches at best in sprawling plants with an immense expanse of process units vertically and horizontally. Sierra-Lone Star supported the use of Test Method 21 as appropriate and effective for finding the smaller range of fugitive VOC leaks on hundreds of thousands of pieces of equipment items where direct OVA monitoring access is readily available, but stated that the major monitoring drawback is that many larger fugitive VOC leaks (especially concentrations above 10,000 ppm to beyond 100,000 ppm and up to 300,000 - 500,000 ppm and higher) are going undetected and uncorrected due to Test Method 21's inherent sensing limitations. Sierra-Lone Star stated that a prime factor in this Test Method 21 problem is because HGA's industrial chemical, petrochemical, and refining plants contain thousands of miles of heavily insulated piping and thousands of pieces of heavily insulated equipment that are leaking unknown concentrations and volumes of VOCs, serious leaks which are not addressed in the proposed rules. Sierra-Lone Star provided references to several experimental and commercial infrared and CO_2 laser VOC imaging technologies that may be useful in the monitoring of VOC leaks, which included the Sandia Laboratories laser backscatter absorption gas imaging video gas leak visualization, the Pacific Advanced Technology electro-optical systems using their patented technology Image Multi-spectral sensing, and the Gas Imaging Systems laser VOC video imaging technology. In one example, Sierra-Lone Star stated that field testing of an experimental infrared laser imaging monitor quickly and easily identified a large benzene leak in excess of 100,000 ppm when aimed from ground level at a series of large heat exchangers, while not surprisingly, the large benzene leak was initially missed by persons using the Test Method 21. Sierra-Lone Star recommended that the commission adopt a requirement to implement fugitive VOC monitoring with some type of portable laser imaging system, preferably infrared, CO_2, or similar system, to be used in all the industrial plants to evaluate them for large fugitive VOC leaks occurring under the insulation.

The commission agrees that Test Method 21 has certain limitations. The commission is aware of the CO_2 laser imaging technology. However, this emerging technology also has limitations. For example, it is tuned to respond to a specific compound (e.g., ethylene), must have the appropriate background, and is not yet as portable as a Test Method 21 OVA. The commission will continue to follow the development of the CO_2 laser imaging technology.

General VOC Flares
§115.173
ED indicated support for the quantification of mass material entering flares in §115.173. However, ED requested clarification regarding whether it is the commission's intent to quantify the mass material via measurement or calculation.

As noted earlier in this preamble, the commission has withdrawn the proposed general VOC rules for flares in Subchapter B, Division 7. Therefore, no changes have been made in response to the comments.

General VOC Cooling Tower Heat Exchange Systems
§115.182
EPA stated that the elements of the quality assurance plan should be made more clear so that the commission review and approval can be considered a replicable procedure and thus the sampling plans would not require EPA approval. In particular, EPA commented that the rule should explain the minimum leak the system must be able to detect, and that this evaluation should be part of the sampling plan. EPA further commented that the rule should specify the minimum frequency for auditing the monitoring equipment as well as the test methods used for auditing the monitors.

The commission has withdrawn the general VOC rules for cooling towers in Subchapter B, Division 8. Similar comments made by EPA for the HRVOC rules in Subchapter H are addressed below.

HRVOC Flares
Ethyl stated that there are no exceptions to the proposed HRVOC rules based on limited use and limited emissions of HRVOCs and that a source is subject to the proposed rules if it has the potential to emit certain compounds, in contrast to a rule based on actual or estimated emissions. As an example, Ethyl stated that its Houston plant uses formaldehyde and trimethylbenzenes in the production of certain products and that tank vents and process vents that may have small quantities of these components are routed to a flare to minimize atmospheric emissions and reduce potential personnel exposures to these chemicals. Ethyl stated that the total permitted VOC emissions from the flare are 0.21 lb/hr and 0.93 tpy, and that actual emissions of the proposed HRVOCs would be less than 10% of the VOCs, which is significantly less than the permitted annual amounts. Ethyl stated that the proposed continuous emission monitoring requirements for sources with relatively small emissions of HRVOCs will result in no benefit to the environment and no significant improvement in the quality of HRVOC data.

The commission has revised the exemption provisions in §115.727 to exempt from the site-wide cap any account for which no gas stream that is routed to a flare contains 5.0% or greater by weight of HRVOC at any time and no vent gas stream that is not routed to a flare contains more than 100 ppmv HRVOC at any time. If a gas stream cannot meet either of these exemption criteria, an internal emissions management plan needs to be developed to properly control the stream.

§115.744
EPA commented that it can approve a provision providing for the executive director to approve minor modifications to test methods, but not to approve alternative methods. EPA commented that the rules themselves should contain a replicable procedure for the evaluation of alternative test methods, or else, alternative methods must be approved through a SIP revision process. EPA further stated that the proposed rule does not contain a replicable procedure for evaluation of alternative test methods.

In response to the comment, the commission added EPA Test Method 301, which provides for a comparison of any two given methods, as §115.725(d)(8) and §115.766(3). This will provide flexibility while also ensuring federal approvability.

Solutia commented that its flares handling hydrogen cyanide, which may also contain propylene, an HRVOC, cannot meet the flow monitoring, sampling, and speciation requirements of the proposed general VOC or HRVOC rules because of safety concerns. In addition, nitriles present in the stream form polymers that could plug up the sampling system. Solutia stated that it has demonstrated compliance with 40 CFR §60.18 using acceptable alternative methods to determine gas velocity, and that it adds natural gas to ensure the heating value requirements are met. Solutia further commented that the hydrogen cyanide MACT standard recognizes these safety concerns, and allows alternate methods to demonstrate compliance with the flare standards. Solutia recommended that an exemption be added to the rules for "unsafe-to-monitor" flares.

Flow monitoring in this situation could be adequately performed using ultrasonic flow monitors. The provisions of §115.725(d)(8), which allow a company to submit minor modifications to the specified monitoring methods for approval by the Engineering Services Team, provide flexibility in the use of a monitoring method. This exemption is not appropriate because the determination of "unsafe-to-monitor" flares is very difficult given the extreme variability in materials handled, flaring conditions, and other factors.

BCCA-AG, Goodyear, and Lyondell stated that the proposed revision requiring VOC sampling every four hours and the continuous HRVOC monitoring requirement should be replaced by flare-specific monitoring plans. BCCA-AG, Goodyear, and Lyondell recommended that the frequency of speciated VOC sampling be tied to the significance of the emissions from the particular flare operation. For example, the presumptive sampling frequency for flares handling normal process, maintenance clearing, and emergency flows could be: daily (> 25 tpy emissions), weekly (ten - 25 tpy emissions), and monthly (< ten tpy emissions), with additional sampling for defined flaring events. The sampling for flares only in emergency service should be limited to flaring events. BCCA-AG, Goodyear, and Lyondell stated that these presumptive frequencies could be evaluated, and departed from when appropriate, as part of individual EMPs.

The commission has withdrawn the proposed general VOC requirements for flares in Subchapter B, Division 7. Section 115.725(d)(2) requires that HRVOC and other substituents be sampled on the main flare header every 15 minutes. The requirement under §115.725(d)(4) to determine the HRVOC concentration in the flare header gas every four hours applies only during periods when the on-line analyzer is down. The commission believes that the monitoring frequency specified in the rule is necessary because of the potentially large emissions of HRVOC from flaring operations.

BCCA-AG, Goodyear, and Lyondell disagreed with the rule proposal which uniformly requires the installation of continuous flow monitors on each flare, regardless of its specific characteristics and uses. BCCA-AG and Lyondell recommended that companies be required to include as part of their EMPs a monitoring plan detailing collection of appropriate flow data. BCCA-AG and Lyondell stated that a comprehensive and tailored monitoring plan must address speciation and flow together in order to be effective. Depending on the flare, however, the appropriate means could be a continuous flow monitor, a flow-level indicator, an on-off flow indicator or another type of monitoring device.

Because of the potentially high flow rates of gas streams being routed to a flare, it is important that accurate flow data be collected to determine compliance under the rule. Section 115.725(d)(8) allows minor modifications to the specified monitoring methods upon approval by the agency's Engineering Services Team.

BCCA-AG, Goodyear-Houston, and Lyondell commented that the HRVOC rule for flares should provide flexibility for monitoring the heating value. BCCA-AG and Lyondell stated that the commission had provided no technical justification supporting the use of an on-line analyzer as the only acceptable means of monitoring flare gas heating value in all cases. BCCA-AG and Lyondell further commented that the commission should separate into two provisions the different objectives of: 1) monitoring to assure heating value maintenance, and 2) monitoring to understand VOC composition in the flare gas for emission inventory purposes.

The primary purpose of the rules is to assure compliance with the HRVOC site-wide cap. Flexibility for monitoring the heating value is provided by §115.725(d)(8), which allows minor modifications to the specified monitoring methods upon approval by the agency's Engineering Services Team. One possible example of such an alternative method for determining heating value is the calorimeter.

BCCA-AG, Dow, Goodyear-Houston, and Lyondell commented that the rules for VOC and HRVOC flares should not specify the location of monitoring devices or sampling locations. BCCA-AG and Lyondell further stated that measurement location is a site-specific engineering decision that is inappropriate for specification by rule. Instead, sampling and monitoring locations should be included in flare-specific EMPs and approved by the commission as long as they capture flow with reasonable accuracy.

Section 115.725(d)(8) allows minor modifications to the location of monitoring devices or sampling locations upon approval by the agency's Engineering Services Team. The commission supports the use of flare-specific EMPs, submitted to the agency for review and approval under §115.726, as a means of ensuring compliance with the site-wide cap.

BCCA-AG and Lyondell commented that the monitoring requirements for VOC and HRVOC flares should better account for safety considerations, recommending that each rule provide that sampling not be required for any flare event that: 1) is the a result of a catastrophic event, including a major fire or an explosion at the facility, or 2) constitutes a safety hazard to the sampling personnel at the sampling location approved in a flare monitoring plan, provided that a sample is collected at an alternative safe location.

This situation is properly handled under enforcement discretion. Under §115.725(d)(8), an affected company may submit a request for an alternative sampling location for approval by the agency.

As an alternative to the monitoring provisions in the proposed rule for HRVOC flares, BCCA-AG and Lyondell recommended that each owner or operator of a flare in HRVOC service be required to prepare and implement an EMP to establish a technically achievable short-term limit suitable for the specific flare application. DuPont suggested that the commission consider requesting sites to develop and implement an analytical plan that is representative of the materials that could go to the flare, and have the plan available for review during inspection.

The commission supports the use of flare-specific EMPs, submitted to the agency for review and approval under §115.726, as a means of ensuring compliance with the rule's monitoring requirements. Minor modifications to the monitoring requirements are allowed under the rule.

TCC commented that in §115.744, relating to Monitoring Requirements, continuous flare flow monitoring may be appropriate if the commission provides the necessary practical considerations related to calibration, analytical techniques, etc. TCC encouraged the commission to consider alternatives to continuous VOC speciation, stating that it unnecessarily complicates the analyzer and makes maintenance of these devices more difficult when a large number of components are present in very small quantities. DuPont commented that the commission has done little to investigate the consequences of the requirements, including the multiple train analytical instruments, the facilities that would have to be built to house such analytical instruments, the methods to be used, and the personnel to conduct maintenance to keep field instrumentation functioning.

The commission has provided sufficient detail in the rule concerning calibration, analytical techniques, and other criteria that are necessary to properly perform continuous HRVOC monitoring. Samples must be collected for speciation every 15 minutes. The commission believes that this sampling frequency is necessary because of the potentially high HRVOC emissions from flares. The commission is aware of the possible complexities of designing and operating monitoring systems required by the rule, but at the same time believes that the requirements are technically feasible. The commission has added §115.725(c), which exempts flares used solely for abatement of emissions from loading operations for transport vessels from the rule's monitoring requirements, and instead allows the emissions to be calculated using heating value data from a calorimeter and certain recorded parameters. The commission believes that this alternative approach is appropriate for flares in dedicated service. However, such flares are still subject to recordkeeping requirements to document exempt status.

TCC commented that continuous monitoring of exit velocity and net heating value as required in §115.744 would be costly with little environmental benefit, and recommended that language be added to the section allowing periodic monitoring of these parameters.

All flares subject to the HRVOC rule must comply with 40 CFR §60.18 when vent gas containing VOC is being routed to the flare. This ensures that the flare is operated under proper operating conditions with regard to exit velocity and net heating value of the gas stream(s) routed to the flare.

EPA commented that the rule requires monitoring using a flow monitoring device meeting the accuracy requirements of 40 CFR Part 60, Appendix A, Method 2D, and that the rule also calls for annual calibration. EPA stated that Method 2D is one of many test methods developed by the EPA for stack testing. It provides a reference method of measuring a flow rate during a unit performance test. EPA stated that the method was not designed to be a method for continuous monitoring. In fact, one use of Method 2D is to confirm the relative accuracy of continuous flow monitors. Method 2D calls for the use of a flow monitoring device which has been previously calibrated to read flow rates within 5% of the true value. Therefore, EPA stated, it would be more appropriate to say that the flow measuring device will be accurate within ±5% over the full range of expected operation. The accuracy of the flow measuring device will be confirmed on an annual basis using Method 2D. The first accuracy test should be conducted no later than 60 days after installation of the monitoring device. This comment also applies to proposed §115.744. TCC commented that although §115.744 requires monitoring of mass flow rate, Method 2D specified in this provision is applicable to volumetric flow rates. TCC recommended deletion of references to Method 2D in this section.

The rule as proposed did not require that facilities perform an EPA Method 2D test; rather, it stated that the monitor should meet the accuracy specifications of EPA Method 2D. The rule has been revised to make this requirement clearer by specifically citing the accuracy specification from EPA Method 2D. However, the commission disagrees with EPA's comment that the flow monitor should be accurate to ± 5% over the full range of expected operation. Such a requirement could be extremely difficult for instrument manufacturers and facilities to prove at the very low end of the expected operation. With regard to EPA's comment on performing accuracy tests with Method 2D on the flow monitors installed on flare headers, while relative accuracy test audits (RATA) are an important part of verifying monitor accuracy, performing such a test on a flare header will be problematic at flow rates that are typical of normal flare operation. Additionally, a comparative flow rate RATA test on a flare header will be burdensome on industy. The accuracy specifications selected for the flow monitors are equivalent to Method 2D. The commission has deleted references to 2D in response to the comments. Notwithstanding, volumetric flow rate is necessary to determine mass flow.

TCC and Valero commented on the flow monitoring requirements in §115.744, stating that the commission should recognize that variations in flow composition can lead to inaccuracies in flow measurements, as most flow measurement devices are accurate only within a specified range.

The commission realizes that some inaccuracy is inherent in any measurement device, but must also emphasize the importance of establishing accuracy requirements for data collection. Section

115.725(d)(1) includes the following accuracy specifications: flow monitor, ± 5.0%; temperature gauge, ± 2.0% at absolute temperature; and pressure gauge, ± 5.0 mm mercury.

TCC commented that the commission should consider alternative methods to obtain VOC data on a periodic basis in lieu of continuous monitors. The proposed requirement to continuously monitor and speciate HRVOCs will require multiple GCs to adequately separate and quantify the various constituents. Each GC could cost as much as $100,000 simply for the analyzer. This cost could increase to over $300,000 when analyzer housing, piping, and the like are considered. Alternative methods should be explored which could provide the desired information at reduced cost.

The commission disagrees with the cost estimate of $100,000 for a single GC. Considering that other acceptable options are much less expensive, this scenario is unlikely. Depending on the number and type of detectors, other advanced features, and the requirements dictated by the particular stream, information available to the commission indicates that $20,000 to $30,000 would be a typical cost. Some streams may be able to use a single column/detector system, such as a gas chromatograph/thermal conductivity (GC/TCD).

TCC commented that use of Method 18, as indicated in 40 CFR Part 50, Appendix 1, is focused on grab sample analysis and is not appropriate for continuous, on-line analysis. TCC also stated that the detector specified by Method 18 would easily malfunction due to saturation expected during a significant flaring event. TCC recommended that the term "continuous" should be deleted from this section and that Method 18 should be reserved for periodic monitoring.

The commission disagrees that Method 18 is focused on grab sample types of analyses; this method can be used on-line. Section 8.2.2 in Method 18, which addresses direct interface type analyses, could be used for an on-line GC system. Although Method 18 is geared more toward an emission test run and not continuous operation, this method can be carried out for the latter procedure. Most of Method 18 and American Society for Testing and Materials (ASTM) D1946 would not be applicable. To give the plant more flexibility, methodology has not been specified. With regard to saturation, companies should take this effect into account when designing their monitoring plan. If the detector malfunctions because of a large "dump," §115.725(4) requires that grab samples be taken every four hours during monitor downtime.

TCC commented that the commission should clarify why it proposes monitoring for inorganic constituents in a rule directed at HRVOC control, stating that CO and CO_2 are not significant constituents in most flare headers. TCC commented that mandatory carbon oxides analysis would require either addition of either an infrared analyzer or a methanator to allow GC analysis, and that this is an additional expense which does not contribute to the overall goals of this proposal.

The commission disagrees that a GC would require an infrared analyzer or methanator (also referred to as "methanizer"). A GC with a thermal conductivity detector (TCD) is commonly used to measure CO, CO_2, and many other compounds. In fact, the TCD is the detector used in the GC analysis under ASTM D1946, the required method for CO and hydrogen measurement in 40 CFR §60.18. The primary reason for analyzing for CO and CO_2, as well as other inerts like nitrogen, is to obtain an accurate molecular weight of the stream. Most of the flow measurement

instruments that would typically be used are dependent on the molecular weight of the stream. Additionally, CO and hydrogen add Btu content to the stream, and disregarding them would require more supplemental fuel than actually needed.

ED stated that the commission should clarify that §115.744 requires monitoring of both HRVOCs and general VOCs on a speciated basis.

The monitoring requirements for flares, which have been relocated to §115.725, specify that only the HRVOC hourly average mass emission rate must be calculated for determining compliance with the site-wide cap. However, as a practical matter, all VOCs are speciated by the on-line analyzer, but only the HRVOCs are required to be reported.

HRVOC Cooling Tower Heat Exchange Systems
TCC commented that the commission can obtain improved data for compliance, emissions inventory and SIP modeling purposes for CTHES in HRVOC service without requiring multiple continuous HRVOC monitors that are costly to install and to maintain. TCC and Goodyear-Houston commented that periodic sampling and analysis coupled with enhanced CTHES EMPs should be allowed as appropriate to meet these data needs. BCCA-AG and Lyondell stated that the proposed monitoring requirements are "exceedingly onerous" and exceed what is reasonably necessary to improve the emissions inventory and ensure compliance with applicable requirements. BCCA-AG and Lyondell stated that the proposed monitoring does not provide significantly more useful data than can be obtained by frequent sampling. BCCA-AG and Lyondell recommended the monitoring requirements be replaced with EMPs tailored to each unique operation, which take into account its physical characteristics, service, and emissions. BCCA-AG, Lyondell, and TxOGA commented that quality assurance plans for HRVOC cooling towers should not be submitted to the commission for approval, but instead, each VOC cooling tower system should be covered by an EMP maintained on-site and available for inspection. These EMPs would detail normal monitoring requirements, as well as appropriate responses to the detection of leaks found in cooling tower systems, and include the information contemplated by the commission in quality assurance plans.

The commission partially agrees with the commenters and has revised the monitoring requirements for cooling towers. Continuous flow monitoring is required for all affected cooling towers. For cooling water heat exchange systems with a design capacity to circulate 8,000 gpm or greater of cooling water, a continuous monitoring system to determine the total strippable VOC concentration is required at each inlet of each cooling tower. For cooling water heat exchange systems with a design capacity to circulate less than 8,000 gpm of cooling water, the total strippable VOC concentration is obtained by collecting grab samples from each inlet of each cooling tower at least twice per week, with an interval of not less than 48 hours between samples. In addition, speciation for HRVOC must be performed monthly. The rule sets the trigger level for more frequent HRVOC speciation at 50 ppbw total strippable VOC. When this level is triggered, an additional sample must be collected for strippable VOC analysis from each inlet of the affected cooling tower at least once daily, and this speciated sampling must continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw. The commission encourages EMPs that incorporate best operating practices and ensure compliance, and believes

that the revisions to the rules provide sufficient flexibility while ensuring that leaks are detected and repaired in a timely manner.

TCC commented that continuous on-line samplers and GC analyzers are often not the best method for determining leaks in water systems (including cooling towers). To support this comment, TCC cited a 1992 study which concluded that the performance of continuous on-line VOC monitors on ppb-level VOCs in actual waste streams was unsatisfactory for the use of this data for compliance purposes. TCC and Lyondell recommended periodic instead of continuous monitoring, as follows: monitoring requirements for CTHESs in HRVOC service should be separated between that for: 1) emissions inventory purposes, and 2) for leaks that have been detected by an appropriate surrogate means. Monitoring for EI purposes should include monthly grab samples from a point in the CTHES system that would allow for appropriate estimation of emissions from the CTHES. Monitoring for leak detection purposes should be done at least three times per week using appropriate surrogate methods to provide for leak detection. Once a leak has been confirmed, specific grab sampling for speciated HRVOC analysis is appropriate.

The revised monitoring requirements for cooling towers described in the response to the previous comment provide additional flexibility in monitoring, as requested by the commenter. However, continuous monitoring for total strippable VOC is still needed to detect leaks as soon as they occur. Some surrogates may not be accurate enough for the level of accuracy needed. However, alternative methods may be submitted to the Engineering Services Team for review and approval.

TCC commented that if the commission decides to require the proposed monitoring in the final rule, VOC speciation should be limited to HRVOCs by definition for each CTHES (and other constituents as may be required by permit requirements). TCC further stated that it is impractical to analyze for each and every VOC compound that has the potential to be leaking to the CTHES, and that it is also unnecessary and burdensome to require complete speciation of every potential VOC compound that could be in the CTHES at the frequency proposed. Ethyl stated that it supports a de minimis quantity concentration for speciation of HRVOCs and VOCs for monitoring under the proposed rules.

The previously described revisions to the cooling tower rule address the concerns stated in the comment. Each monitoring system (continuous flow monitor, and continuous on-line analyzer or grab samples twice per week) must be operated at least 95% of the time when the cooling tower is operational, averaged over a calendar year. Total strippable VOC must be routinely monitored (either continuously or twice per week, depending on circulation rate with relation to 8,000 gpm), and HRVOC speciation must be performed monthly. The frequency of HRVOC speciation is increased to once daily when a 50 ppbw concentration of total strippable VOC is reached, and daily HRVOC speciation must continue until the total strippable VOC concentration falls below 50 ppbw. For each sample, the speciated concentration of at least 90% of the total VOC must be determined on a mass basis.

Goodyear-Houston commented that the ten ppbw minimum detection requirement is unrealistic, especially for a cooling tower system with a high circulation rate. DuPont commented that it is unrealistic to assume that the same ten ppbw minimum detection limit could be achieved for all

HRVOC in a sample. Likewise, the selection of the actual method should be based on the material in a heat exchanger, not the individual components.

The commission disagrees, and believes that a detection level of ten ppbw is readily achievable, using commonly available flow monitors, over the range of cooling water flow rates expected to be encountered in affected cooling towers. Section 115.766 now requires that the total strippable VOC, not HRVOC, concentration be determined with a ten ppbw minimum detection limit. In addition, the rule allows alternative monitoring and testing methods to be approved by the Engineering Services Team.

TCC commented that if the commission decides to require the proposed monitoring in the final rule, the requirement for grab sampling during VOC monitor out-of-order periods as detailed in §115.764(1), relating to Monitoring Requirements, should be modified to daily.

The monitoring provisions in §115.764(a)(2) add the requirement that during periods when the VOC monitor(s) are out of order a sample must be collected for total VOC analysis according to the commission air-stripping method (Appendix P, TCEQ Sampling Procedures Manual, December 2002). This sample must be collected at least three times per calendar week, with an interval of no less than 36 hours between samples.

TCC suggested the addition of "skip provisions" for the periodic sampling requirements of §115.764(1) for each CTHES that has demonstrated good historical performance (no leak periods). TCC recommended that such sampling be reduced from: 1) monthly to quarterly after six months of monthly sampling that indicates no leaks into the CTHES, and 2) from quarterly to annually quarterly after 12 months of monthly/quarterly sampling that indicates no leaks into the CTHES. TCC stated that the inclusion of such "skip provisions" in the rule will provide incentives to good performers.

For cooling tower heat exchange systems, leak-skip monitoring is not allowed because there are not enough of these units present for the statistics of skip monitoring to apply. In addition, leaks from these units are not particularly predictable and might operate with low-leak rates for long periods of time and then fail instantaneously with sudden increases in leak rates. Consequently, no matter how many consecutive successful inspections are performed, there is little assurance that a low-leak rate would continue if skipping were allowed.

TCC commented that submittal for approval of the CTHES EMPs should be required no sooner than 180 days after promulgation of the rule, and that the submitted CTHES EMP should receive automatic approval by the executive director if approval or disapproval of the EMP is not issued within 30 days after submittal.

The commission encourages EMPs that incorporate best operating practices and ensure compliance with the rules. Section 115.764(d) specifies the schedule for submittal of monitoring quality assurance plans for approval by the agency. For cooling towers existing on or before June 30, 2004, plans must be submitted no later than April 30, 2004, and for cooling tower heat exchange systems that become subject to the requirements of the division after June 30, 2004, at least 60 days prior to being placed in HRVOC service. In addition, the plan must define each

compound which could potentially leak through the heat exchanger, and therefore directly impact the emissions of the cooling water system.

§115.766(2)
Similar to its comment on §115.184(1), EPA stated that the El Paso stripping method for compliance, required by this rule, is not a federally-approved method. However, EPA stated that the method may have advantages for sampling high volatility compounds, and requested that a copy of the specific procedure be included as part of the SIP revision, and that available information on the precision and accuracy of the method be provided to facilitate the EPA's evaluation.

Commission staff are currently refining this method, and plan to submit the final document to EPA in early 2003, but independent of the submittal of this SIP revision. Since the rules require compliance with the site-wide cap by April 1, 2006, EPA should have adequate time to review and approve this method.

§115.766(4)
EPA stated that the elements of the quality assurance plan should be made more clear so that the commission review and approval can be considered a replicable procedure and thus the sampling plans would not require EPA approval.

The Engineering Services Team is developing a sampling/monitoring plan guidance document for both flares and cooling towers. This guidance is expected to be available shortly after the effective date of the adopted rules.

EPA stated that the rule should explain the minimum leak the system must be able to detect. If, for example, the system must detect a leak of one lb/hr, the facility may have to locate the sampling point further up stream at the inlet and outlet of an individual heat exchanger or group of heat exchangers so that the flow will be small enough that a leak can be detected by the test method. EPA commented that this evaluation should be part of the sampling plan.

The commission has amended the HRVOC rule for cooling towers by eliminating individual unit emission limits and requiring compliance with a site-wide cap. Therefore, it is more appropriate to specify minimum leak criteria in terms of concentration rather than the mass emission rate. The commission has revised the monitoring requirements for cooling towers in §115.764(a)(5) and (b)(5) to require that if the concentration of total strippable VOC is equal to or greater than 50 ppbw, an additional sample must be collected for strippable VOC analysis from each inlet of the affected cooling tower at least once daily. The additional speciated strippable VOC sampling must continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw. Since the rule specifies the minimum detectable concentration at ten ppbw, the rule requirement ensures that speciation is triggered at 50 ppbw, a reasonable concentration above ten ppbw. The actual lb/hr figure that corresponds to either the ten ppbw or 50 ppbw concentration thresholds will depend on the flow rate of circulation water in the cooling tower.

EPA commented that the rule should provide the minimum frequency that the monitoring equipment will be audited and the test methods that will be used for auditing the monitors. EPA stated that with the addition to the rule of a leak detection threshold and audit frequency and methods, the EPA can consider the quality assurance plan evaluation a replicable procedure that does not require individual SIP revisions.

Section 115.766 specifies the minimum leak that the VOC monitor must be able to detect on a concentration basis: ten ppbw in the cooling water. The commission considers a concentration-based value to be an appropriate and achievable detection requirement that does not unfairly bias monitoring expense and technology requirements against high volume cooling towers in favor of smaller cooling towers.

An agency sampling/monitoring plan guidance document which specifies the elements of the plan will be available for industry shortly after the effective date of the rule adoption. The adopted regulations address minimum calibration frequency requirements for monitoring equipment; however, RATAs would be inappropriate and unnecessarily burdensome on industry. An audit of a cooling tower monitoring system could only be scheduled and performed after a leak of sufficient magnitude was detected if meaningful results in such a comparison are to be obtained.

BCCA-AG, Goodyear, and Lyondell commented that the proposed rules requiring continuous flow monitoring for both general VOC and HRVOC cooling towers should be changed to allow the use of design flow rate (via pump curves or a similar technical analysis method).

In principle, certain parameters could be used as surrogates for continuous flow monitoring of cooling tower circulation water. However, caution must be applied in assuming that such surrogates are representative and reliable and remain that way, particularly when compared to a readily available, relatively inexpensive conventional flow monitor. For example, pump curves can deteriorate over time, and the design flow rate may not be representative of actual operating conditions. The rule allows alternative monitoring methods to be approved by the Engineering Services Team. Any alternative monitoring approach must meet the agency's predictive emissions monitoring system protocol and must have an accuracy of ±5%.

Ethyl suggested that some type of criteria, such as vapor pressure or boiling point, be used to exclude heavier complex molecules from the requirements of speciation. Ethyl stated that technology does not exist to readily identify heavy complex molecules on a continuous basis at a practical cost.

The commission has revised the monitoring requirements of §115.764 so that speciation is no longer required on a continuous basis. High-molecular weight compounds would not be expected to be emitted in significant quantities. However, the concern over heavy complex components should be addressed by the rule's requirement that only require 90% of total VOC be speciated on a mass basis. In addition, approval of alternative methods is allowed under the rule.

HRVOC Fugitive Emissions
§115.781(b)(5) and §115.783(5)(A)
BCCA-AG, DuPont, ExxonMobil, Lyondell, Phillips, TCC, and TxOGA stated that the requirement for instrumentation on process drains is technically infeasible. BCCA-AG, Dow, DuPont, Lyondell, Phillips, TCC, and TxOGA suggested that the requirement for daily inspections of process drains with

water seals should be changed to weekly. Phillips stated that this is adequate to control leaks from these sources without level alarms. ExxonMobil stated that a required periodic inspection program is adequate to control leaks from these sources without level alarms. For those seals that have failed three inspections in any 12-month period, BCCA-AG, Lyondell, and TxOGA suggested that daily inspections are appropriate, and TxOGA suggested an alternative would be to require a compliance study. ExxonMobil stated that it presumes that if the water seal is at the proper working level, it is effective.

The commission has revised the water seal inspection schedule in §115.781(b)(5) from daily to weekly, except that daily inspections are required for those seals that have failed three or more inspections in any 12-month period. In addition, the commission has revised §115.783(5)(A)(ii) such that an alarm or flow-monitoring system is an alternative to the weekly water seal inspections. Regarding the ExxonMobil comment, the commission agrees that if the water seal is at the proper working level, it should be effective in preventing a free-flow of emissions.

Dow and TCC stated that §115.781(b)(5) should only apply to sources subject to Subchapter B, Division 4 (Industrial Wastewater).

The commission disagrees. Numerous process drains are not subject to Subchapter B, Division 4, yet the process drains could emit HRVOCs uncontrolled under TCC's proposal.

§115.781(b)(6)
ExxonMobil and TxOGA stated that weekly inspections of process drains not equipped with water seals controls are appropriate, while Dow and TCC suggested monthly inspections.

The commission agrees that process drains not equipped with water seals controls are less likely to leak than process drains with water seals controls, such that a monthly inspection schedule appears adequate. Therefore, the commission has revised the inspection schedule in §115.781(b)(6) from weekly to monthly.

§115.781(b)(7)
Sierra-Houston and Sierra-Lone Star supported monitoring twice during the third quarter when leaks occur more frequently. ATOFINA stated that it contracts outside vendors to implement and maintain a fugitive monitoring program, and that in choosing the vendors, it performs extensive reviews to ensure that they have adequate and qualified personnel. ATOFINA stated that it invests significant time and resources to ensure each technician understands and can work within its work order system, and that these technicians are granted access to the most sensitive areas of ATOFINA's facilities. ATOFINA stated that as a result, each technician must undergo an extensive security review prior to entering ATOFINA process units. ATOFINA stated that since the September 11, 2001 terrorist attacks, industry has been on high alert for anything out of the ordinary, but that even with these security procedures in place, seeing a new face in process areas can create unnecessary concern. ATOFINA expressed concern that requiring two monitoring rounds during the third quarter would be redundant and jeopardize the quality of the technical staff available, and to implement this proposed requirement, fugitive monitoring companies will need to hire and train additional technicians to monitor for the third quarter. However, after the two monitoring rounds are conducted in the third quarter, ATOFINA stated that it will be forced to lay the excess staff off, which could lead to the creation of a less qualified

"temporary fugitive monitoring team" every third quarter and that these unqualified and inexperienced technicians may not operate as efficiently and may place themselves and other personnel in dangerous situations. ATOFINA suggested that the commission remove this requirement. Likewise, EnRUD and Phillips stated that drastic manpower fluctuations resulting from redundant third-quarter fugitive monitoring and re-monitoring required after unit startup are impractical and not expected to produce significant emission reductions. EnRUD suggested that as an alternative, a performance-based extra monitoring program or an NSPS-type monitoring program. BCCA-AG, Dow, DuPont, ExxonMobil, Goodyear-Houston, Lyondell, TCC, and TxOGA expressed similar concerns as ATOFINA and Phillips. Dow, ExxonMobil, and TxOGA suggested limiting additional quarterly monitoring to remonitoring of all DOR components, all components determined to be leaking above 500 ppmv during the last 12 months, and all components which are categorized as "repeat leakers," or components which have leaked more than one quarter in the last two-year period.

The commission agrees with the commenters that an additional round of monitoring during the third quarter presents staffing difficulties and has deleted the proposed §115.781(b)(7).

§115.781(b)(8)
ATOFINA, BCCA-AG, Dow, DuPont, ExxonMobil, Lyondell, Sierra-Houston, Sierra-Lone Star, TCC, and TxOGA commented on the proposed §115.781(b)(8), which requires quarterly monitoring of PRVs in gaseous service and not vented to a closed-vent system. Sierra-Houston and Sierra-Lone Star supported monitoring each PRV every quarter regardless of accessibility and stated that it is time to change piping configurations so that all components are accessible. ATOFINA expressed concern that the proposed rule requires that components that are currently listed as "unsafe" or "difficult" to monitor, be monitored quarterly. ATOFINA agreed that extra steps can and should be made to monitor "difficult" to monitor components, but stated that components that are listed as "unsafe" to monitor should remain on an annual schedule. ATOFINA stated that monitoring these components puts their fugitive technicians in hazardous situations and that by requiring that they be monitored quarterly, quadruples the risk to which the technicians will be exposed. ATOFINA questioned whether the risk of injury outweighs the amount of potential emission reductions that can be achieved by more frequent monitoring. BCCA-AG and Lyondell stated that an exemption for difficult-to-monitor PRVs is routinely included in federal and state LDAR regulations because they are necessary for safe operations. BCCA-AG, Dow, DuPont, ExxonMobil, Lyondell, TCC, and TxOGA asserted that the emissions benefits are far outweighed by safety issues associated with monitoring difficult-to-access PRVs, which usually are elevated. DuPont suggested the addition of wording such as "unless they have been documented to be unsafe-to-monitor or inaccessible." ExxonMobil stated that monitoring of difficult-to-monitor PRVs should remain on an annual basis. Dow suggested that the quarterly monitoring requirement in §115.354(2)(D) and §115.781(b)(8) be replaced using language from HON Subpart H, 40 CFR §63.165.

The commission agrees that difficult-to-monitor PRVs should be monitored annually, as is currently required under §115.354(1)(B), and has revised §115.781(b)(8) accordingly. Similarly, the commission believes that components which are unsafe-to-monitor should be on an alternate monitoring schedule, and therefore has added a new §115.781(b)(7). The commission has included a provision in §115.781(b)(7) which specifies that components which are difficult-to-monitor (i.e., cannot be inspected without elevating the inspecting personnel more than two

meters above a permanent support surface) may instead be monitored annually. No changes were made to §115.354(2)(D) because it was not proposed for revision.

BCCA-AG, ExxonMobil, Lyondell, and TxOGA asserted that for difficult-to-access PRVs, owners and operators should have the option of verifying the integrity of the rupture disk quarterly via a gauge reading or visual inspection.

Verification of the rupture disk integrity using a pressure sensing device (or equivalent device or system) between the PRV and the rupture disk would reasonably be expected to be an appropriate alternative to quarterly monitoring. Therefore, the commission has added §115.787(e) which provides this option.

ExxonMobil and TxOGA suggested that because most such PRVs are located in difficult-to-access locations, an alternative to conventional hydrocarbon gas analyzer procedures should be allowed, such as a sample line from the PRV outlet to grade with sufficient sample draw.

ExxonMobil and TxOGA did not provide sufficient details about their suggested alternative for the commission to be able to determine if it is an acceptable, equivalent method for monitoring a PRV. In addition, the existing RACT requirements of §115.354(2)(D) regarding quarterly PRV monitoring implement federal RACT requirements for fugitive monitoring and, as such, cannot be relaxed. Should ExxonMobil or TxOGA wish to pursue the matter further, the commission suggests that they present the issue to EPA and determine if EPA will agree to relax the federal RACT requirements.

Dow suggested that monitoring at the weep hole be specified as an acceptable way to check a PRV for leakage if the exhaust pipe is purged prior to monitoring.

The commission notes that Section 4.3.1.d. of Test Method 21 states: "The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere." Test Method 21 does not appear to allow monitoring as Dow suggested, and therefore, the commission has made no change in response to this comment.

BCCA-AG, Dow, ExxonMobil, and Lyondell recommended that the requirement to equip each PRV with a rupture disk and pressure sensing device between the PRV and the rupture disk should be an exemption or option in lieu of quarterly monitoring of PRVs under §115.781(b)(8). BCCA-AG and Lyondell stated that a rupture disk and gauge monitoring effectively separates process fluid and the inlet of the PRV and prevents leaking. ExxonMobil expressed similar concerns.

The existing requirements of §115.354(2)(C) for quarterly monitoring of PRVs in gaseous service implement federal RACT requirements for fugitive monitoring and, as such, cannot be relaxed through the suggested exemption from §115.781(b)(8). Should the commenters wish to pursue the matter further, the commission suggests that they present the issue to EPA and determine if EPA will agree to relax the federal RACT requirements.

§115.781(b)(9)
EnRUD suggested that a leak definition of 100 ppmv would result in emission reductions. TCC recommended that pumps have a leak definition of 1,000 ppmv because that is consistent with the HON.

Components either leak, or they do not leak, such that lowering the leak definition from 500 ppmv to 100 ppmv is expected to have little effect. In other words, a component that monitors as a leaker using a 100 ppmv leak definition would probably be leaking at 500 ppmv or more. The HON's leak definition of 1,000 ppmv is based on the need to reduce exposure to HAPs, while Chapter 115's purpose is to reduce emissions which contribute to ozone formation. Because the purposes of the rules are so different, there is no reason they should necessarily have the same thresholds. Therefore, the commission has retained the 500 ppmv leak threshold for pumps.

§115.781(b)(10) and (11)
Comments concerning §115.781(b)(10) and (11) are addressed earlier in this preamble in the comments concerning §115.354(11) and (12).

§115.781(c)
DuPont, ExxonMobil, TCC, and TxOGA commented on proposed §115.781(c), which specifies that pumps, compressors, and agitators must be inspected weekly or equipped with an alarm that alerts operators of leaks. DuPont and TCC recommended that §115.781(c)(1) be revised to clarify that the weekly inspection is a visual inspection. DuPont, ExxonMobil, and TxOGA asserted that alarms are expensive and unnecessary, and DuPont recommended that §115.781(c)(2) be deleted. ExxonMobil and TxOGA commented that "indications of liquid dripping" is not consistent with other standards of seals leaking such as three drips per minute, and that many seal systems will show dark stains as normal weeping of lube oil. ExxonMobil and TxOGA stated that compressors and agitators in gas service will not show apparent leaks as drips.

The commission has revised §115.781(c)(1) to clarify that the weekly inspection is a visual inspection, and has deleted the wording "indications of." However, the commission has retained §115.781(c)(2) because it provides an alternative to weekly inspections.

§115.781(d)
Dow, ExxonMobil, TCC, and TxOGA commented on proposed §115.781(d), which specifies that for closed-vent systems containing bypass valves which are secured in the closed position with a car-seal or a lock-and-key type configuration, inspections of the seal or closure mechanism must be conducted on a weekly basis and after any maintenance activity that requires the seal to be broken. ExxonMobil and TxOGA supported this inspection requirement, while Dow and TCC suggested that the proposed weekly monitoring be changed to monthly for consistency with the HON.

The commission agrees with Dow and TCC that a monthly inspection is adequate, and has revised §115.781(d) accordingly.

§115.781(e)

Ethyl, ExxonMobil, and TxOGA objected to the §115.781(e) requirement for VOC monitoring of any PRV discharge within 24 hours. Ethyl stated that this is unreasonable for its operations in which almost all of the pressure relief devices already vent to the plant flare. Ethyl stated that emissions of the PRV discharge are already controlled to minimize emissions, and that the required monitoring would be impractical and could well present a significant safety hazard as well as increase VOC emissions to the atmosphere. Ethyl and TxOGA stated that this requirement should be limited to PRVs which are routed directly to the atmosphere and not to an existing control device. TCC recommended deletion of the reference to “release event.” TxOGA also requested clarification that this monitoring is of the PRV “outlet,” as opposed to the valve parts (stem, etc.).

The commission has revised §115.781(e) to specify that it applies to PRVs which vent directly to the atmosphere. In addition, the commission has deleted the reference to “release event” because this definition has been deleted. Concerning TxOGA’s question about whether monitoring is of the PRV outlet, as opposed to the valve parts (stem, etc.), the commission notes that the purpose of monitoring any PRV discharge within 24 hours is to ensure that the valve reseated properly. Section 4.3.1.d. of Test Method 21 states: “The configuration of most pressure relief devices prevents sampling at the sealing seat interface. For those devices equipped with an enclosed extension, or horn, place the probe inlet at approximately the center of the exhaust area to the atmosphere.” Therefore, PRV monitoring is done at the relief valve opening (horn), which TxOGA referred to as the “outlet.”

ExxonMobil and TxOGA asked if “after actuation” refers to the beginning or the end of the release event.

A PRV is actuated when the pressure becomes high enough for the PRV to vent. Thus, “actuation” refers to when the PRV initially vents emissions, rather than when the PRV closes.

REPORTING REQUIREMENTS

General VOC Flares

BCCA-AG and Lyondell commented on the ambiguous wording of the provisions stating that reporting requirements apply and data must be submitted to the commission by April 30, 2003 "if a flare at an account has monitoring data for any speciated" VOC or HRVOC. BCCA-AG and Lyondell commented that the phrase "if a flare at an account has data" suggests that the reporting requirements apply by April 30, 2003 if an affected company has any speciated VOC data, even historical data, from any flare at an account. BCCA-AG and Lyondell stated that if the commission merely meant to require that any speciated VOC data routinely being collected should be submitted beginning with the first quarter of 2003, these provisions should be reworded to simply require that, but to delete any reference to applicability of the reporting requirements by April 30, 2003. BCCA-AG and Lyondell further commented that one compliance date should be used for all regulated entities, and that an early reporting obligation places an unfair burden on companies that may have installed such equipment for other reasons, even voluntarily. ED commented that extending the proposed sampling requirements for flares in HRVOC service to flares in general VOC service would not be overly burdensome, and that the sampling should be conducted at the same frequency. ED also suggested that at least 95% of the total VOC in a general VOC stream be speciated.

As noted earlier in this preamble, the commission has withdrawn the proposed general VOC rules for flares in Subchapter B, Division 7. Therefore, the commission has made no changes in response to the comments.

General VOC Flares and Cooling Towers
§§*115.174, 115.183, 115.745, 115.765*
Ethyl stated the 30-day reporting requirements under the proposed regulations are unduly burdensome for smaller specialty chemical plants with limited staffs and budgets, and recommended a 90-day reporting period. Ethyl commented that the commission's resources are too limited to process all of the newly-required data under the proposed regulations within a 30-day period. ED stated concern that the proposed quarterly reporting requirements in §115.174 are insufficient to accomplish the objectives outlined in the preamble, and suggested that the reporting requirements be amended and expanded to account for the temporal variability in the emissions from each flare instead of an average hourly emissions rate each quarter for each VOC.

EPA commented that the requirement for the quarterly reporting of the average hourly speciated VOC emission rate implies that facilities only have to report the average of all of the data for the quarter. EPA stated that hourly emissions based on much shorter averaging times could be estimated based on the sampling which is required twice per week, and recommended that the rules clarify the expectation so that the information for future modeling exercises will be as useful as possible.

As noted earlier in this preamble, the commission has withdrawn the proposed general VOC rules for flares and cooling towers in Subchapter B, Divisions 7 and 8. In addition, the monitoring, testing, recordkeeping, and reporting requirements for HRVOC flares and cooling towers have been revised for consistency with the site-wide HRVOC emissions cap. Therefore, the commission has made no changes in response to the comments.

HRVOC Flares
§*115.745*
TCC recommended that §115.745, relating to Reporting Requirements, be revised to allow semiannual reporting instead of quarterly reporting as proposed. TCC also commented that the term "average hourly emission rate" in §115.745 refers to the average of the hourly emissions for the reporting period.

The proposed quarterly reporting requirements have been removed and replaced by the recordkeeping requirements of §115.726. Therefore, the commenter's concerns are moot.

HRVOC Cooling Towers
§*115.765(1)*
TCC requested clarification on what is intended by the term "average-hourly HRVOC rate" in §115.765(1), and whether the requirement is specifically limited to known leak events. For clarity, TCC suggested that such reporting provisions be kept as part of the Chapter 101 rules. BCCA-AG and Lyondell disagreed with the proposed requirement for cooling towers to submit emissions monitoring reports on a quarterly basis, stating that it is an unnecessary paperwork burden on the regulated entity and the commission which provides the agency with no additional benefit. BCCA-AG and Lyondell

suggested that if there is a concern at a particular facility or source, the commission should use its discretion to require more restrictive reporting on a case-by-case basis, where appropriate. Goodyear-Houston recommended annual reporting.

The commission has withdrawn §115.765, concerning Reporting Requirements. The recordkeeping requirements in §115.767 specify procedures for retention of records.

BCCA-AG and Lyondell commented on the ambiguous wording of the provisions stating that reporting requirements apply and data must be submitted to the commission by April 30, 2003 "if a cooling tower heat exchange system at an account has data that reflects chlorine usage amounts and/or monitoring data for any speciated" VOC or HRVOC. BCCA-AG and Lyondell commented that the phrase "if a cooling tower heat exchange system at an account has data" suggests that the reporting requirements apply by April 30, 2003 if an affected company has any speciated VOC data—even historical data—from any cooling tower system at an account. BCCA-AG and Lyondell stated that if the commission merely meant to require that any speciated VOC data routinely being collected should be submitted beginning with the first quarter of 2003, these provisions should be reworded to simply require that, but to delete any reference to applicability of the reporting requirements by April 30, 2003. BCCA-AG and Lyondell further commented that one compliance date should be used for all regulated entities, and that an early reporting obligation places an unfair burden on companies that may have installed such equipment for other reasons, even voluntarily.

The commission has deleted from §115.769 the requirement to submit speciated monitoring data.

Commenting on §115.765, Reporting Requirements, TCC stated that if the commission decides to retain the quarterly reporting requirement of HRVOCs from each CTHES, the provision should be modified so that if applies only to CTHES's in HRVOC service, and that reports be submitted to the executive director, not the Technical Analysis Division. TCC further commented that the reporting of hourly emissions from each CTHES in HRVOC service could be beneficial to the commission only during leak periods, and that reporting of this hourly information would be covered by the upset reporting provisions of the Chapter 101 rules. TCC stated that reporting hourly emissions is excessive and overly burdensome.

The commission has withdrawn proposed §115.765, so the reporting requirements have been deleted.

TCC commented that it is inappropriate to include the hourly usage of chlorine at a CTHES in the reporting requirements for HRVOCs from a CTHES. Although acknowledging that the contribution of gaseous chlorine emissions to ozone formation in the HGA airshed is not completely understood, TCC suggested that such data gathering efforts would be better accomplished through the annual air emissions inventory. TCC further commented that the commission should account for all sources of gaseous chlorine in the HGA airshed, not just those emitted by industry. TCC stated that total annual chlorine usage (which could be obtained from company purchasing information) rather than hourly usage should be acceptable for inventory purposes.

The commission has withdrawn proposed §117.745 pertaining to Reporting Requirements. The deleted reporting requirements include reporting for chlorine.

BCCA-AG, Lyondell, and TCC favored deletion of the proposed requirement for quarterly reporting of the total amount of chlorine introduced into each cooling tower system on an hourly basis. In their comment, BCCA-AG and Lyondell stated that all sources of gaseous chlorine (not just industrial cooling towers) need to be included in the evaluation, that the contribution of gaseous chlorine emissions from cooling towers is minimal (a cooling tower is normally operated with a 1.0 - 3.0 ppb level of residual chlorine), and that this proposed provision is inappropriate for Chapter 115, which addresses VOCs.

TCC commented that most large petrochemical sites are either already using a liquid chlorination agent such as bleach or are in the process of converting from gaseous chlorine to a liquid chlorination agent, and that the rule should clarify whether the term "chlorine" refers to gaseous chlorine only and/or to sodium hypochlorite or similar chlorination solutions. TCC questioned the basis for requesting "total chlorine" use, stating that if the commission intended such data to be used for leak determination then the parameter of residual chlorine in a CTHES may be of more interest and would be better addressed in the context of an EMP for the CTHES. TCC stated that it is not valid to assume that all gaseous chlorine added to a CTHES is emitted to the atmosphere, and that a "rule of thumb" for cooling towers along the Gulf Coast is that 2.0 lb/day of chlorine gas equivalent for every 1,000 gpm recirculation rate is used as the primary biocide for industrial cooling towers. TCC stated that it is generally accepted than an increase in chlorine demand to 5.0 lb/day for every 1,000 gpm recirculation rate indicates a leak of a process material that reacts with chlorine. TCC emphasized that chlorine demand over and above the minimum application of 2.0 lb/day gaseous chlorine equivalent does not volatilize from the cooling water into the air passing through the tower, but, rather, is reduced to chlorides and remains in the water phase.

The commission has withdrawn proposed §117.745 pertaining to Reporting Requirements. The deleted reporting requirements include reporting for chlorine.

TESTING REQUIREMENTS

Exemption from Testing - Vent Gas

Duke stated that there appears to be an inconsistency between the testing requirements for vent gas streams that are claimed to be exempt under §115.725(a)(1) and the exemption from control requirements under §115.727(c). Duke further stated that in accordance with §115.725(a)(1)(B), vent gas streams, for which testing has demonstrated that VOC emissions do not exceed the appropriate concentration thresholds, are not required to be tested to demonstrate that the VOC mass emission rate is below 14 pounds in any continuous 24-hour period. In addition, Duke stated that in accordance with §115.725(a)(1)(A) and (B), these vent gas streams are not subject to controls. Duke stated that the listed citations appear to conflict with the exemption under §115.727(c), because the exemption is only applicable if VOC emissions don't exceed the appropriate concentration thresholds and 14 pounds in any continuous 24-hour period. Finally, Duke stated that a similar situation exists with respect to §115.725(a)(1)(C) and §115.727(c).

The commission has revised §115.725 and §115.727 to ensure that the rules are consistent.

Dow suggested that §115.725(a) exempt from testing a vent gas stream that is already measured with a CEMS because a CEMS would provide a concentration value that is more accurate than that determined by a portable analyzer.

The commission agrees and has revised §115.725(b) to provide an alternative to testing for vents equipped with CEMS.

Rohm & Haas commented that §115.725 should consider the safety of sampling vent gas streams containing highly toxic substances, such as cyanide.

The unique situation described by the commenters can be taken into consideration as part of the test plan and quality assurance plan review specified in §115.726(a). Therefore, the commission has made no change in response to the comment.

Vent Gas
§115.725
HCPC supported the proposed §115.725 which addresses testing requirements for vent gas streams claiming to be exempt.

The commission appreciates the support.

Sierra-Lone Star supported the new rule as generally proposed, but expressed concerns about exemptions from other requirements for certain vent gas streams where the owner or operator seeks options for weaker pollution control standards. Sierra-Lone Star expressed concern because the rule states that only vent gas streams where the reference method testing determines that the mass emission rate exceeds a combined weight of VOC greater than 14 pounds in any continuous 24-hour period do not have to be directed to a control device. Sierra-Lone Star stated that the 14 pound limitation is too lenient.

As described earlier in this preamble, the commission has replaced the individual emission specifications with a site-wide HRVOC cap. The fundamental goal of this strategy is to ensure that the air quality in HGA is not compromised and, in fact, can be improved from what was demonstrated in the previous SIP. The vast wealth of real physical measurements of what emissions are in the ambient air in HGA provide the commission with a very sound basis for these rules. By limiting the amount of emissions allowed into the ambient atmosphere on a pound-per-hour basis, as opposed to determining how much has to be reduced, the commission believes it will achieve compliance much more effectively.

ATOFINA, BCCA-AG, and Lyondell suggested that the rule language be revised to allow a single performance test for equipment in similar service, e.g., to allow testing of one of ten pellet silos that all receive the same product, and using the results from the one performance test to demonstrate compliance with all ten.

The commission is concerned about the variability of such tests. A similar comment was received during the NO_x RACT rulemaking in 1993 in which a commenter stated that "many of the heaters

at this facility have identical designs and firing rates (i.e. an ethylene unit has five identical furnaces that are all fired at the same rate). One stack test would suffice for identical furnaces." However, the commenter had six ethylene cracking furnaces in Unit 33 performance tested for permit compliance. Furnace No. 2 burns butane, Furnace No. 5 burns propane and ethane, and Furnace Nos. 1, 3, 4, and 6 burn propane. The furnaces are identical in all other respects, yet the testing showed a range of NO_x emissions from 0.053 lb NO_x/MMBtu for Furnace No. 6 to 0.078 lb NO_x/MMBtu for Furnace No. 2. This variability is large enough to warrant testing of each unit. Similar variability may occur if §115.725 was revised to allow a single performance test for equipment in similar service. Finally, because an agency representative will not be required to be present during testing, the commission also believes that all HRVOC vent gas streams should be tested. This requirement would minimize the chance of submitting only the best test results for one unit out of a group of identical equipment.

DuPont and TCC stated that §115.725(a) should be revised to specify that vent gas stream testing is a one-time event to demonstrate compliance with the exemptions, unless operating conditions change.

The referenced provision is not ambiguous with regard to the testing requirements, and therefore the commission has made no change in response to the comments. In addition, the commission notes that it has the right under 30 TAC §101.8 to require additional testing as necessary.

BCCA-AG, Dow, Lyondell, and TCC noted that proposed §115.725(a) provides that the required testing may be conducted with a "portable analyzer" and stated that the term "portable analyzer" is ambiguous. BCCA-AG, Dow, Lyondell, and TCC suggested that the rule language be revised to clarify that this term includes the type of hydrocarbon gas analyzers typically used for leak detection and repair monitoring.

As described earlier in this preamble, the commission has revised §115.725 to specify that reference method testing is required. This is necessary to ensure the accuracy of the data used in the HRVOC site-wide cap.

§115.725(a)(1)
Dow stated that §117.725(a)(1) should be revised to delete the reference to §115.727(b) because this rule requires reference method testing in order to qualify for the exemption. In addition, Dow stated that §117.725(a)(1)(A) and (B) should be revised to clarify the types of portable analyzers that are acceptable for use in testing.

Dow's suggested change to §115.725(a)(1) is unnecessary due to the addition of the site-wide HRVOC cap and the revisions to §115.725 and §115.727 described earlier in this preamble. As described earlier in this preamble, the commission has revised §115.725 to specify reference method testing.

TCC suggested that §115.725(a)(1) be revised to delete the wording "for vent gas streams claimed exempt under §115.127 of this title" and the word "being" in the second sentence. TCC also suggested deleting the last sentence of §115.725(a)(1) and suggested that these changes would result in improved readability.

The commission has replaced the proposed §115.725(a)(1) with §115.725(a) which specifies reference method testing. Therefore, the commenter's suggestion is moot.

§115.725(a)(1)(B)
TCC asserted that the commission established the pound-per-hour exemption on vents based on an extrapolated emission inventory rate and the number of affected sources identified in the inventory, and that there is no technological basis for this exemption. TCC stated that the commission should revisit this exemption threshold as improved monitoring data dictates.

As discussed in Chapter 7 of the HGA SIP, this SIP revision is another phase in the process of continued analysis and review of the science. The data collected as a result of these revisions will further assist the commission as it develops its full reassessment of the attainment demonstration at the MCR. As appropriate, the commission will revisit this exemption threshold as improved data becomes available.

§115.725(a)(1)(C)
Ethyl recommended that the 0.011 standard cubic meter per minute maximum flow rate, which could trigger the routing of a very small vent to a control device, be modified to adjust for batch operations with peak flows of short duration. Ethyl stated that the commission should consider triggering this requirement when the 0.011 cubic meter per minute rate is exceeded for a given number of hours per year and stated further that small facilities with peak flows, the condition required for monitoring, could be subject to costly and unnecessary controls with little, if any, environmental benefit. Alternately, Ethyl suggested the commission consider a minimum annual mass VOC emission rate before this requirement is triggered.

The commission disagrees. Batch operations can have significant short-term emissions. The commenter's suggestions would allow higher emissions on a day when ozone may be a problem and cannot assure the level of control required on the hot summer days when ozone is most likely to form.

§115.725(a)(2)
DuPont and TCC commented on the proposed §115.725(a)(2), which specifies that testing is to be conducted a maximum production rates. DuPont stated that a unit may not be able to run at that rate for test purposes and that the commission should provide some allowance for other operating conditions combined with engineering judgment to determine emission rates. TCC stated that if the operator cannot test at maximum operating conditions, alternate approval should be granted by the regional office on a case-by-case basis.

As described earlier in this preamble, the commission has deleted the proposed §115.725(a)(2). However, the factors described by the commenters can be taken into consideration as part of the test plan and quality assurance plan review specified in §115.726(a).

§115.725(a) and (b)
BCCA-AG, ExxonMobil, Goodyear-Houston, Lyondell, and TCC stated that for §115.725(a) and (b), engineering calculations should be allowed in lieu of testing for certain vents. BCCA-AG, ExxonMobil, Goodyear-Houston, and Lyondell also stated that while the proposed rules contain detailed testing requirements to confirm the applicability of certain exemptions and compliance with the new emission limits, they do not include an alternative for vents located in areas that are difficult or unsafe-to-monitor. In addition, BCCA-AG and Lyondell stated that testing is required for all vents, even where it is obvious that the applicable exemption level or emission rate is met. Dow suggested that testing should be required only when HRVOC are known to be emitted in some quantity via process knowledge or previous testing. BCCA-AG, Goodyear-Houston, and Lyondell recommended addition of a new provision allowing engineering calculations to be used as an alternative to testing for vents that are located in areas that are difficult or unsafe-to-monitor. BCCA-AG, Dow, Lyondell, and TCC stated that the rule should be revised to provide that testing is not required where engineering calculations show that the concentration and/or mass emission rate of the vent stream is less than 50% of the proposed exemption levels.

The commission is aware that sampling ports and platforms are not always available and notes that 30 TAC §101.9 requires the installation of platforms and sampling ports for use in determining the nature and quantity of emissions. The commission recognizes that there may be difficulty in providing these arrangements. One approach to economic reasonableness in installing platforms is that sampling platforms should first be installed on units which are being modified with control equipment during turnarounds or plant outages. The units which are not being modified should have less priority on sampling platform installation. Unique situations, such as vents which are located in areas that are documented to be difficult or unsafe-to-monitor, can be taken into consideration as part of the test plan and quality assurance plan review specified in §115.726(a).

The commission believes that it is critical that the test methods for establishing rule compliance are EPA reference methods. Besides the primary benefit of emissions reductions due to identification of vents which should be controlled to provide continued progress toward attainment of the ozone standard, reference method testing will also enhance the emissions inventory and input to the model. The commission believes that because vent gas streams are major sources of HRVOC emissions, the need for testing to determine the quantity of emissions is reasonable. Various industry representatives have asserted that there should be more emphasis placed on gathering data to properly determine the emission reductions that are necessary for the SIP. Without testing data, compliance with the exemptions and control requirements cannot be determined due to the variability of tester experience, dedication, and technique, particularly if portable analyzers were allowed to be used for compliance testing.

Regarding Dow's comment that testing should be required only when HRVOC are known to be emitted in some quantity, the commission notes that §115.720 specifically limits the applicability of Subchapter H, Division 1, to each vent gas stream which includes an HRVOC.

§115.725(b)
Sierra-Lone Star strongly supported the new stack test rule in §115.725(b) to confirm that the control efficiency requirements are being met, and generally supported the stack test reporting requirements of control devices as proposed.

The commission appreciates the support and notes that the proposed §115.725(b) has been replaced by §115.725(a), which requires reference method testing.

TCC stated that the commission should clarify that, consistent with other rules (e.g., NSPS Subparts NNN, RRR, etc.), vent streams that are routed to a process heater or boiler or that are to be added in the flame zone (40 CFR §60.662(a)) and then, if the boiler or process heater has a design capacity of 150 MMBtu/hr or greater, the initial performance test is waived, in accordance with 40 CFR §60.8(b).

NSPS is based on the need to reduce emissions from new or modified sources, while Chapter 115's purpose is to reduce emissions which contribute to ozone formation. Because the purposes of the rules are so different, there is no reason they should necessarily have the same exemptions. Therefore, the commission has made no changes in response to the comment.

§115.725(c)
TCC suggested deletion of §115.725(c), which specifies that the owner or operator is responsible for providing testing facilities and conducting the sampling and testing operations at its expense. TCC questioned why the commission needs to state that the owner or operator will pay for the test.

The referenced language was proposed to make it clear that the commission will not be underwriting the cost of testing the regulated community's vent gas emissions. While the proposed §115.725(c) is not being adopted, the commission again emphasizes that it will not be underwriting the cost of testing the regulated community's vent gas emissions.

§115.725(c)(1)
Dow commented on the proposed §117.725(c)(1) and stated that a pretest meeting should only be required prior to reference method testing.

While the proposed §115.725(c) is not being adopted, the commission notes that reference method testing is required under §115.725(a), except for vents equipped with CEMS. The pretest meeting can be addressed as part of the test plan and quality assurance plan review specified in §115.726(a).

TCC commented on §117.725(c)(1) and stated that it should not be necessary to provide the name of the testing firm unless the commission plans to regulate this industry.

It would be difficult for agency staff to hold a pretest meeting without knowing with whom they were meeting. In addition, knowing the identity of the testing firm makes it easier for agency staff to take into account the testing firm's experience and history in order to focus the appropriate level of attention to observing the testing and reviewing the test results. Finally, the

commission believes that notification of testing done to comply with the rule is important because agency representatives will not be required to be present during the testing.

§117.725(c)(5)
ExxonMobil also suggested that the submission of all testing data within 60 days would merely burden the commission and the regulated community with unneeded clerical duties. ExxonMobil recommended that the rule be revised to require that covered facilities maintain all test data on site for review by appropriate regulatory officials.

The commission disagrees. Submittal of the final sampling report within 60 days after sampling is completed has been an agency standard for over 20 years. Further submittal of the final sampling report is necessary to allow agency staff an opportunity to review the report and ensure that it is acceptable in a timely manner. The deadline for submittal of the final sampling report can be addressed as part of the test plan and quality assurance plan review specified in §115.726(a).

§115.725(e)
Goodyear-Houston stated that previous vent sampling results should be allowed in lieu of testing for certain vents.

Previous valid test results are allowed under §115.725(e), which has been relettered as §115.725(c).

ATOFINA recognized that the commission seeks to place VOC emission limits on process vents that exit to the atmosphere as well as to document process vents that are exempt from controls. ATOFINA stated that extensive performance testing of several process vents has already been completed as required by air permits, and in some cases, sampling plans for performance tests conducted for air permits have undergone extensive commission review and written reports summarizing the results have been submitted to the commission. ATOFINA suggested that because the proposed rules allow the use of previous performance tests only if approved by the executive director, the rule language should be changed to allow use of previously submitted performance tests without resubmitting for further review. ATOFINA stated that this would avoid the executive director being inundated by previously reviewed performance test reports, review process delays, and unnecessary retesting of vents to ensure compliance by December 31, 2003. ATOFINA suggested that because the proposed rules allow the use of previous performance tests only if approved by the executive director, the rule language should be changed to allow use of previously submitted performance tests without resubmitting for further review. ATOFINA stated that this would avoid the executive director being inundated by previously reviewed performance test reports, review process delays, and unnecessary retesting of vents to ensure compliance by December 31, 2003.

As ATOFINA noted, previous test results are allowed under §115.725(e), which has been relettered as §115.725(c). However, it is necessary that previous test results be reviewed by the Engineering Services Team to ensure that such testing results are valid.

§115.725(f)(2)(D)

TCC stated that §115.725(f)(2)(D) should be deleted because the commission "should not require negative documentation."

The commission disagrees and believes that it is important to document that no changes to the process have occurred since the compliance test was conducted that could result in a significant change in VOC emissions. This is necessary to allow a determination of whether the sufficient process changes have occurred such that the test is no longer representative. Because the commission has replaced §115.725(f) with the test plan and quality assurance plan review specified in §115.726(a), this issue can be addressed as part of that test plan and quality assurance plan.

General VOC and HRVOC Cooling Towers
§115.184 and §115.766(4)
EPA commented that it can approve a provision providing for the executive director to approve minor modifications to test methods, but not to approve alternative methods. EPA stated that either the rules themselves must contain a replicable procedure for the evaluation of alternative test methods, or alternative methods must be approved through a SIP revision process. EPA commented that the proposed §115.184 does not contain a replicable procedure for the evaluation of alternative test methods.

The commission has withdrawn the proposed general VOC requirements for cooling towers in Subchapter B, Division 8. The issue raised by EPA is addressed in the RESPONSE TO COMMENTS section under the corresponding HRVOC rule at §115.744.

§115.184(1) and §115.766(2)
BCCA-AG and Lyondell commented that continuous flow meters on both the inlet and outlet of each cooling tower should not be required, stating that circulation flow is typically determined by the design capacity of the cooling tower pumps in service as well as the addition of makeup water to the cooling tower, not by continuous flow monitoring.

The commission has withdrawn the proposed general VOC requirements for cooling towers in Subchapter B, Division 8.

BCCA-AG and Lyondell commented that the proposed minimum detection limit of no more than ten ppb in water is unrealistic to achieve for each HRVOC in each sample case, and especially so for a cooling tower system with a large circulation rate. BCCA-AG and Lyondell suggested that detection limits should be addressed along with other technical issues as part of the EMP for each cooling water system.

The commission has withdrawn the proposed general VOC requirements for cooling towers in Subchapter B, Division 8.

TCC commented on §115.766 and stated that determination of which method to use (either §115.766(2) or (3)) should be more simply based on the process material contacting any heat exchanger in the CTHES, not on the individual components that make up the material.

The El Paso method air stripping method specified in §115.766(2) must be used at all times. With the revision to the definition of HRVOC, all compounds with a normal boiling point greater than 140 degrees Fahrenheit are no longer included, so only one stripping method applies.

TCC recommended that any specified minimum detection limit be set for total VOCs, not for individual HRVOCs that may be present within the total VOCs. TCC stated that it is unrealistic to assume that the same ten ppbw minimum detection limit be achieved for all HRVOCs that may be included in the VOCs detected in a sample. TCC further commented that it is improper to require that all analyses meet such a low minimum detection limit, which realistically cannot be achieved for the sampling of each and every CTHES. TCC recommended that the minimum detection limit should be set on a case-by-case basis for each CTHES and documented in the CTHES EMP for approval.

The commission disagrees, and believes that a detection level of 10 ppbw is readily achievable, using commonly available flow monitors, over the range of cooling water flow rates expected to be encountered in affected cooling towers. §115.766 now requires that the total strippable VOC, not HRVOC, concentration be determined with a 10 ppbw minimum detection limit. In addition, the rule allows alternative monitoring and testing methods to be approved by the Engineering Services Team.

HRVOC Fugitives
§115.785
Rohm & Haas stated that the testing requirement in §115.785 to demonstrate compliance with §115.783(2) places an unnecessary burden on sources that have recently conducted testing of these systems. Rohm & Haas suggested that recovery systems or control devices that have been tested within the last five years should not be required to retest. DuPont and ExxonMobil expressed similar concerns. DuPont stated that the commission should insert language in §115.785 to clarify that these are procedures for testing new units, or if the commission deems, testing on a specific unit (due to performance issues) is required. Dow and TxOGA stated that §115.785 should make clear that additional testing of control devices that have been previously tested is not necessary. ExxonMobil stated that unless §115.785 requires testing of control devices under circumstances that are not already covered by other rules, then it is redundant and should be deleted.

The commission has added §115.785(5) to allow previous valid test results, and has renumbered proposed §115.785(5) as §115.785(6). In addition, the commission has revised the renumbered §115.785(6) to reference the stack test report requirements of §115.725(f) in order to provide consistent requirements for stack test reports.

Dow stated that the following control devices should be exempt from performance testing requirements under §115.785: a boiler or process heater with a design heat input capacity of 44 megawatts or greater; a boiler or process heater into which the process vent stream is introduced with the primary fuel or is used as the primary fuel; a control device for which a performance test was conducted for determining compliance with a regulation promulgated by the EPA or the commission and the test was conducted using the same methods specified in §115.125 and either no process changes have been made since the test, or the owner or operator can demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process changes; a boiler or process heater burning hazardous waste for which the owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR Part 266, Subpart H, or has certified compliance with the interim status requirements of 40 CFR Part 266, Subpart H; and a hazardous waste incinerator for which the owner or operator has been issued a final permit under 40 CFR Part 270 and complies with the requirements of 40 CFR Part 264, Subpart O, or has certified compliance with the interim status requirements of 40 CFR Part 265, Subpart O.

As noted in the response to the previous comment, the commission has added §115.785(5) to allow previous valid test results. This is expected to address the majority of scenarios Dow described. For other scenarios, the commission believes that it is critical that the control efficiency be determined in order to ensure that the HRVOC emissions which are contributing to ozone exceedances in HGA are controlled properly.

TxOGA stated that it presumes that §115.785 is being added for the case where pressure relief devices are routing to a control device. TxOGA stated that there is not a maximum production rate which can be associated with a stack test for these sources, and that maximum production might not correlate to releases from PRVs in any way. TxOGA stated that §115.785 is redundant and should be eliminated. Dow recommended that §115.785(4) be revised to allow the stack emission testing to be conducted under such conditions based on representative performance (i.e. performance based on normal operating conditions) of the process unit, rather than at maximum production rate, and stated that future production rates should not be limited to the rates established during testing. Dow suggested the addition of language similar to 40 CFR §63.7(e)(1) to address normal operating conditions.

TxOGA presumes correctly that one case would be a pressure relief device which is routed to a control device. Another instance would be a shaft sealing system which is routed to a control device. The testing specified in §115.785 is necessary to determine the control efficiency of the control device and verify that it meets or exceed the minimum acceptable control efficiencies. "Maximum production rate" refers not to the pressure relief device, shaft sealing system, etc., but instead to the underlying process of which the pressure relief device, shaft sealing system, etc. are an integral part. As noted in the response to the previous comment, the commission added §115.785(5) to allow previous valid test results. The commission agrees with Dow that the addition of language similar to 40 CFR §63.7(e)(1) would be beneficial and has revised §115.785(4) accordingly.

ExxonMobil and TxOGA stated that final reports may not always be available from contractors within 60 days following testing.

The requirement to submit a report within 60 days is a standard condition with which most testing contractors are able to comply. Therefore, the commission believes that it is a reasonable schedule.

RECORDKEEPING REQUIREMENTS

First Attempt at Repair

Sierra-Houston and Sierra-Lone Star stated that under §115.142(1)(H), §115.149(f), and anywhere else in Chapter 115 where first attempt at repair within five calendar days is required, such as §115.326 and

§115.356, the commission should require recordkeeping to include the date, time, component, and who made the first repair attempt. Sierra-Houston and Sierra-Lone Star stated that this information is not currently required to be recorded so there is no way to know if a first attempt at repair was made within the specified time frame.

Sections 115.326(2)(G) and 115.356(1)(G) (renumbered as §115.356(2)(F)) already require documentation of the first attempt at repair. Records necessary to document the first attempt at repair required by §115.782(b) are addressed later in this preamble. Regarding §115.142(1)(H), the commission agrees that recordkeeping requirements are necessary. Because §115.146, concerning Recordkeeping Requirements, was not proposed for revision, the commission has revised §115.142(1)(H) to include the appropriate recordkeeping requirement, with the expectation that this will be relocated to §115.146 in the future. For vent gas streams, flares, and cooling towers, the commission has added §115.726(c)(3) and §115.767(a)(4) to include the appropriate recordkeeping requirements for corrective actions and associated emissions.

General VOC Vent Gas Control
§115.126
DuPont and TxOGA stated that the requirement in §115.126 to maintain records for five years, as opposed to two years, should have an effective date assigned. Otherwise, it may be assumed to require retroactive recordkeeping, which is not possible. TxOGA stated that several years from now, it may be confusing as to why five years of records are not available. TCC stated that the current two-year period should be retained. DuPont also stated that not all facilities are required to have Title V permits and it is an unnecessary burden to maintain records for five years. DuPont recommended that the five-year recordkeeping requirement only apply to sites subject to Title V.

The commission believes that it is appropriate for owners and operators to maintain records for five years, but agrees that §115.126 should be revised to provide a transition from the current two-year record retention period. Therefore, the commission has revised §115.126 to specify that the five-year record retention requirement does not apply to records generated before December 31, 2000. This date was selected because it is two years before the estimated effective date of the revised rules, and consequently will ensure that the new five-year record retention requirement is not retroactive to records that were not required to be maintained under the current two-year record retention requirement.

General VOC Cooling Towers
§115.186(3)
EPA commented that the rationale was not clear for keeping records on a weekly basis of the twice per week tests for speciated VOC compounds, and asked whether weekly averages were required by the rule. EPA further commented that the facility should keep all records as required by §115.186(3) and provide reports quarterly as required by §115.183(1).

As noted earlier in this preamble, the commission has withdrawn the proposed general VOC rules for cooling towers in Subchapter B, Division 8. Therefore, the commission has made no changes in response to the comments.

Fugitive Emissions
§115.356(1)
Dow stated that the commission should make the component identification requirements in Subchapter D, Division 3, and Subchapter H, Division 4 consistent throughout each rule. Dow expressed a preference for the multiple means of component identification allowed in the proposed §115.781(a). Dow also stated that individually tagging each component subject to, or exempt from, the rule should not be a requirement. Dow stated that §115.356(1) should include the options for component identification that are provided in §115.786(e).

It is unclear how components could be accurately identified on a unit-wide basis, as opposed to a component-by-component basis. If each component is not identified with a unique component identification code, it would be difficult to identify which specific components had been monitored on a particular date, which components were not monitored, which components were leaking, etc. Therefore, the commission believes that for the rule to be enforceable, each component ideally would be identified with a unique component identification code. However, the commission also recognizes that connectors present a unique difficulty in labeling due to the sheer number of connectors, which is estimated to be three to four times the number of valves. Therefore, the commission has revised §115.781(a) accordingly to specify that each component other than connectors must be labeled with a unique component identification code in order to improve the enforceability of the rule, with connectors not required to be individually labeled if they are clearly identified individually in the master components log. This will also ensure consistency with §115.786 and §115.356.

As noted elsewhere in this preamble, the commission has replaced §115.786(e), relettered as §115.786(d), with a reference to §115.356, and renumbered §115.356(1) as §115.356(2). Section 115.356(4)(C) requires records identifying and justifying each exemption by component claimed under §115.357. The commission revised the relettered §115.786(d) to require records identifying and justifying each exemption claimed exempt under §115.787. The requirement to identify and justify each exemption is necessary to ensure that records of the appropriate data are maintained, thereby improving the enforceability of the rule.

§115.356(1)(E)
Sierra-Houston and Sierra-Lone Star supported the requirement in §115.356(1)(E) which requires that the results of AVO inspections of flanges be recorded.

The commission appreciates the support.

§115.356(1)(E)(ii)
TxOGA commented on §115.356(1)(E)(ii) and stated that all requirements for monitoring, recordkeeping and reporting of flanges should be deleted because connectors are being added to the definition of "component."

Rather than deleting §115.356(1)(E)(ii), which is a necessary requirement for documenting compliance with the existing requirement in §115.354(3) to conduct AVO inspections of flanges, the commission is instead revising §115.356(1)(E)(ii) (renumbered as §115.356(2)(D)) to exclude flanges that are monitored using Test Method 21 as required by §115.781(b)(3).

§115.356(1)(F) and §115.356(2)
Dow commented on §115.356(1)(F) and (2) and stated that the commission should provide flexibility on where all the required records must be kept as long as they can be easily accessed. Dow suggested referencing electronically and/or hard copy records.

The commission agrees and has revised §115.356 accordingly.

§115.356(2)
TxOGA commented on §115.356(2) and recommended deletion of the requirement to maintain records of AVO inspections of connectors other than flanges, but only if a leak is detected.

It is apparent that TxOGA erroneously believes that inspection requirements are being added to §115.354 for connectors other than flanges. While AVO inspections of flanges are already required, there is no requirement to conduct AVO or instrument monitoring of connectors other than flanges in Subchapter B, Division 3. To clarify this, the commission has replaced "records of the…" with "records of any…" in §115.356(2) (renumbered as §115.356(2)(G)).

ExxonMobil and TCC also recommended deletion of §115.356(2). TCC asserted that "this language requires inspection records of all flanges even if they are not leaking," which TCC stated is unnecessary. ExxonMobil expressed similar concerns.

Flanges are one of the types of connectors. The current §115.354(3) requires weekly flange inspections, but there is no requirement under Subchapter B, Division 3, to conduct inspections of connectors other than flanges. Therefore, the commission has revised §115.356(2) (which was renumbered as §115.356(2)(G)) by adding the qualifier "any." The commission has also deleted the phrase "other than flanges" because even though inspections of non-flange connectors are not required, the commission believes that incidents of such components found to be leaking during any non-required inspections should be recorded. Information concerning leaks from non-flange

connectors will enable owners and operators, as well as commission staff, to determine where additional focus on leak inspection and repair is warranted.

§115.356(3)
DuPont suggested that "subject to this division" in §115.356(3) should be changed to "requiring monitoring" to clarify that exempt components are not included in this recordkeeping.

The commission agrees that the phrase "subject to this division" could be overly broad. However, the commission has deleted §115.356(3) because it has updated the recordkeeping requirements of §115.356(1) and (2) to match the exemptions, inspection and monitoring requirements, etc.

§115.356(3)(E)
DuPont suggested the addition of the following wording to §115.356(3)(E): "For components requiring only an audio, visual, or olfactory inspection, such as valves in heavy liquid service, a response factor is not required." TxOGA recommended changing §115.356(3)(E) to reference the composite, representative response factor being used for the unit or stream which the component is in. ExxonMobil stated that the response factor may not be a set value but may change with concentration. ExxonMobil questioned whether it should ignore the concentration effect and record the response factor for the composition of the material contacted at a presumed concentration.

As noted earlier in this preamble, the commission has deleted the requirement for response factors; therefore, the commenters' concerns are moot.

§115.356(3)(F)
DuPont, ExxonMobil, TCC, and TxOGA stated that rule citations for exempted components should be provided on request and on a unit-wide basis, not component by component, and therefore §115.356(3)(F) should be deleted. ExxonMobil and TCC stated that as written, §115.356(3)(F) could be interpreted to include all components in non-VOC service, which would include steam, nitrogen, water, and fuel lines. ExxonMobil and TCC stated that such information could be obtained from existing process and instrument diagrams, for example, and provided upon request. ExxonMobil suggested that §115.356(3)(F) be deleted.

The proposed §115.356(3)(F) was replaced by §115.356(4)(C), as described earlier in this preamble. The new §115.356(4) requires records identifying and justifying each: 1) unsafe-to-monitor valve; 2) nonaccessible (difficult to monitor) valve; and 3) exemption by component claimed under §115.357. This revision will ensure that records of the appropriate data are maintained, thereby improving the enforceability of the rule. However, the commission does not intend that §115.356(4) include components in non-VOC service, such as steam, nitrogen, and water lines. It is unclear how exempted components could be accurately identified on a unit-wide basis, as opposed to a component-by-component basis. Therefore, the commission made no changes in response to the comment. The commission has renumbered the previous §115.356(4) as §115.356(5) to accommodate the new §115.356(4).

§115.356(3)(G)

Goodyear-Beaumont stated that the only reason that a valve is inaccessible is because the valve is more than two meters from a support structure, and therefore the reference to inaccessible valves should be deleted from §115.356(G).

The commission notes that §115.354(1)(C) already requires records of unsafe-to-monitor valves, and §115.352(7) requires that nonaccessible valves be identified in a list to be made available upon request. Such records are necessary to allow identification of valves which have the potential to leak because they are in VOC service, but are not being monitored or inspected for leaks. Therefore, the commission has retained the recordkeeping requirement, although it has relocated §115.356(3)(G) to §115.356(4)(A) and (B).

§115.356(4)
TCC commented on the proposed requirement in §115.356(4) to maintain records for five years, as opposed to two years. TCC stated that the two-year recordkeeping requirement should be retained.

The commission believes that it is appropriate for owners and operators to maintain records for five years, but that §115.356 should be revised to provide a transition from the current two-year record retention period. Therefore, the commission has revised §115.356 to specify that the five-year record retention requirement does not apply to records generated before December 31, 2000. This date was selected because it is two years before the estimated effective date of the revised rules, and consequently will ensure that the new five-year record retention requirement is not retroactive to records that were not required to be maintained under the current two-year record retention requirement. As noted in the response to comments concerning §115.356(3)(G) earlier in this preamble, the commission has renumbered §115.356(4) as §115.356(5).

HRVOC Vent Gas Control
§115.726(b)
Sierra-Lone Star supported the proposed requirement that records which must be kept to provide demonstration of continuous compliance for vapor control systems, but requested that §115.726(b) be amended to require that valid and certified stack test emission reports for all pollution control devices be maintained for the life of the control device.

The commission disagrees because submittal of test reports will be required as part of the test plan and quality assurance plan review specified in §115.726(a). Therefore, the commission will have access to test reports even after the end of the five-year record retention period of §115.726(e).

§115.726(c) and (d)
Dow suggested that §115.726(c), which specifies required records for LDPE plants, allow analyses that are conducted in accordance with the frequencies required in existing new source review permits to be adequate to generate information and records used to show compliance with the ethylene emissions limits for polyethylene plants in §115.722(a). TCC suggested that §115.726(c) be revised to specify that the records are on an annual basis. Dow stated that a one-time test is used to demonstrate compliance with the exemption criteria, and that §115.726(d) should be clarified such that additional testing and recordkeeping are only required when a physical or operational change occurs that may increase the HRVOC concentration or HRVOC emission rates. Dow and TCC stated that the word

"continuous" should be removed from §115.726(d)(1) and (2) because compliance with the exemption criteria is based on the results of the testing.

As noted earlier in this preamble, a site-wide HRVOC emissions cap has replaced individual (i.e., unit-by-unit) emission limits. Therefore, the commission has made no changes in response to the comment. However, the commission disagrees with Dow and TCC concerning the term "continuous" because continuous compliance is the basic intent of the rule.

§115.726(e)
TCC commented on §115.726(e) and stated that records should be kept for two years rather than five years.

Section §115.726(e) has been relettered as §115.726(f). The commission disagrees because most sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records. Therefore, the commission believes that it is appropriate for owners and operators to maintain records for five years.

HRVOC Flares
§115.746
TCC commented on §115.746 and stated that information concerning corrective action data should be retained if required by the Chapter 101 rules (relating to emission events).

As noted earlier in this preamble, under the site-wide HRVOC emissions cap the owner or operator is not required to make repairs on any particular schedule, provided that the 24-hour rolling average HRVOC emission cap is not exceeded. Likewise, the recordkeeping requirements for the site-wide cap have replaced the need for the proposed §115.746 to address corrective action data because under the cap, unit-by-unit compliance does not apply. The site-wide cap simply requires that each site stay below its 24-hour rolling average HRVOC emission cap. Therefore, the commission has made no changes in response to the comments.

HRVOC Cooling Towers
§115.767(2)
Commenting on §115.767(2), relating to Recordkeeping Requirements, TCC stated that records should be maintained that indicate the basis for the circulation rate of the CTHES (design rate, validation testing, etc.).

The rule allows alternative monitoring methods to be approved by the Engineering Services Team. Any alternative monitoring approach must meet the agency's PEMS protocol and must have an accuracy of ±5%. The appropriate recordkeeping requirements for the alternative method will be specified in the agency's approval, if granted. Therefore, there is no need to include such recordkeeping requirements in this rule section.

§115.767(4)
TCC recommended that §115.767(4), which requires that weekly records be maintained that document the pounds per hour emitted for all HRVOC in the process fluid for each cooling tower heat exchange

system with a cooling water circulation rate less than 8,000 gpm must demonstrate continuous compliance with the applicable criteria, be deleted based on the suggested change to the exemption criteria.

The references to the cooling tower circulation rate (either equal to or greater than 8,000 gpm or less than 8,000 gpm) have been deleted from the recordkeeping requirements in §115.767. Records of all monitoring and testing must be kept to demonstrate compliance, regardless of the size of the cooling tower.

§115.767(5)
TCC recommended deletion of the requirement in §115.767(5) for maintenance of records of in-house testing. TCC stated that unless the need for retention of in-house records related to pH, addition of cooling tower chemicals, etc. can be demonstrated, the requirement should be deleted.

The commission has deleted the specific requirement to maintain records of in-house testing. However, §115.767(c) requires that all records necessary to demonstrate compliance, and records of periodic measurements, be maintained for at least five years and made available upon request to the agency staff or other authorized persons.

§115.767(6)
TCC suggested deletion of the phrase “on a weekly basis” in §115.767(6), stating that specifying the frequency of “maintaining” records is overly prescriptive.

The commission has retained this provision, now located in §115.767(4), so that field enforcement staff will have adequate records to review compliance status.

§115.767(7)
TCC recommended deletion of the word “continuous” in §115.767(7) and stated that such a requirement makes no provisions for process upset periods. TCC further commented that maintaining records documenting an engineering review of the normal operating pressure ranges of the cooling water side of all heat exchangers, as compared to the process side of all heat exchangers in a CTHES, should be adequate for compliance purposes.

The commission disagrees with TCC concerning the term "continuous" because continuous compliance is the basic intent of the rule. As noted earlier in this preamble, the individual unit emission specifications have been replaced by a site-wide cap which requires compliance on a rolling 24-hour average. However, compliance with the overall HRVOC emissions cap will require that appropriate corrective actions be taken to remain within the cap on a rolling 24-hour average in the event of a process upset.

§115.767(9)
TCC commented that in §115.767(9), the required period for maintaining records should be changed from five to two years, unless Title V air permits have been issued to the owner or operator for each CTHES in question, in which case the retention period would be five years.

The commission disagrees, because most sources subject to Chapter 115 are also subject to FCAA Title V permit requirements, which specify a five-year period for retention of compliance records. Therefore, the commission believes that it is appropriate for owners and operators to maintain records for five years.

TCC commented that a provision for establishing and maintaining an approved CTHES EMP should be added to §115.767.

The commission supports any company's use of an EMP to determine the best operating practices that will ensure continuing compliance with the rules. Section 115.764(d)(1) and (2) specify the procedures and dates for submitting monitoring quality assurance plans for approval by the Engineering Services Team. The commission believes that the requirements as stated in this rule section are sufficient, and that placing the requirements in the recordkeeping section as well would be redundant.

HRVOC Fugitive Emissions
Phillips stated that its Sweeny refinery is subject to nine different state and federal equipment leak programs with overlapping requirements. Phillips stated that the commission could greatly lessen the reporting and recordkeeping burdens of regulated sources by identifying Chapter 115 fugitives requirements as being more stringent than other state permit and federal equipment leak standards. TxOGA expressed similar concerns.

It can be exceedingly difficult to compare two fugitive monitoring programs and conclude that one is more stringent than another. This is because each fugitive monitoring program may include certain requirements that are more stringent than another, and vice versa. For example, in 1995 - 1996, commission staff and industry representatives attempted to develop a new fugitive monitoring program that would streamline similar state and federal rules, which would have offered the regulated community a one-stop option for complying with LDAR requirements. The LDAR requirements of the following rules were to be consolidated by this new program: Federal Rules - 40 CFR Part 60, Subparts VV, DDD, GGG, and KKK; 40 CFR Part 61, Subparts F, FF, J, and V; 40 CFR Part 63, Subparts F, H, I, JJJ, U, and CC; 40 CFR Part 264, Subparts AA, BB, and CC; 40 CFR Part 265, Subparts AA, BB, and CC; State Rules - Chapter 115; 30 TAC Chapter 335; and the following LDAR programs administered under 30 TAC Chapters 106 and 116: 1) condition 28 VHP; 2) condition 28 RCT; 3) condition 28 MD; 4) condition 28 M; 5) condition 28 Old; and 6) conditions for connector monitoring. Some programs require quarterly monitoring, and others require monthly monitoring. Some programs define a leak as 10,000 ppmv, while others define a leak as 1,000 ppmv or 500 ppmv. Some programs include a two-inch size exemption, while others have no size exemption. Most programs do not require monitoring of connectors and agitators, but some do. Still others require monitoring of process drains. It

simply is not possible to categorically state that the Chapter 115 HRVOC fugitives requirements are more stringent than other state permit and federal equipment leak standards.

§115.786
Sierra-Houston and Sierra-Lone Star urged the commission to require that the date, time, procedures attempted, and person who made the attempt for the leak repair within 24 hours be recorded so that there is documentation that the repair was actually attempted as required by §115.782(b).

The renumbered §115.786(d) requires maintenance of records in accordance with §115.356. Section 115.356(1)(G) was renumbered as §115.356(2)(F) and already requires documentation of the first attempt at repair. Because Subchapter H, Division 3 applies in addition to Subchapter D, Division 3, the records required by the renumbered as §115.356(2)(F) will provide the necessary documentation for the first attempt at repair required by §115.782(b). Therefore, the commission has made no changes in response to the comment.

§115.786(a)
ExxonMobil and TxOGA stated that the flow through the bypass valve may be difficult to determine unless the line is directly monitored, or the total vent stream is diverted and is measured upstream. ExxonMobil and TxOGA questioned whether the flow indicator is required on the total vent stream before any bypass, after any bypass, through each potential bypass, or all of these locations. TxOGA also stated that §115.786(a) is straying from fugitive emissions to process vents, and that the monitoring and recordkeeping should default to §115.726. ExxonMobil expressed similar concerns and recommended that only a flow record be required for the vent stream before any potential bypass, with inspection and exception records being adequate for the rest.

Using a flow indicator to determine whether vent stream flow is present in a bypass line is an option for complying with §115.783(1). The intent is that bypass line be monitored for vent stream flow if this option is chosen, and the commission has revised §115.783(1)(A) to clarify this intent. The commission disagrees with TxOGA's assertion that §115.786(a) is not appropriate for fugitive emissions. It is necessary to address bypass lines in the fugitive monitoring rules to ensure that emissions from PRV discharges which should be routed to a control device are not instead simply being emitted uncontrolled through a bypass line.

§115.786(d)
Sierra-Houston and Sierra-Lone Star stated that the commission should require that all local air pollution programs with jurisdiction receive the non-reparable components records so that the local programs are aware of these leaks and if necessary can take action to reduce emissions from these leaking components.

The proposed §115.786(d) was relettered as §115.786(c) and already includes submittal to local programs. Therefore, the commission has made no changes in response to the comment.

DuPont and TCC stated that the commission is already receiving the information in §115.786(d) semi-annually and asserted that adding another quarterly report does nothing to improve emissions. DuPont recommended deletion of §115.786(d), while TCC suggested changing “quarterly” to “semiannually.”

The commission agrees with TCC that a semiannual report is adequate, and has revised the relettered §115.786(c) accordingly.

Dow stated that §115.786(d)(5) should include a reference to replacement as well as repair.

The proposed §115.786(d)(5) was lettered as §115.786(c)(5). The commission agrees and has revised the relettered §115.786(c)(5) accordingly.

ExxonMobil and TxOGA stated that the report content is not consistent with the information required to demonstrate compliance under §115.782(e). ExxonMobil and TxOGA stated that the estimated leak rate for each component should also be included if the second table option is selected; that the initial date that each component was first measured as leaking is needed; and that the total number of components of each type required to be monitored under this rule is needed to calculate percentages.

The commission agrees with the commenters. However, as described earlier in this preamble in response to comments on §115.782(e)(3), the commission has deleted §115.782(e) in its entirety.

§115.786(e)
TCC stated that the database required under §115.786(e) should be updated on an ongoing basis. Therefore, TCC suggested deleting the wording "and update at least once every 12 months."

For consistency with §115.356, the commission has replaced §115.786(e), relettered as §115.786(d), with language which refers to §115.356. Therefore, the commission has made no changes in response to the comment.

§115.786(e)(6)
ExxonMobil and TxOGA stated that only components with specific exemptions under §115.786(e)(6) should be required, and that components exempt under §115.787(a) because they contact a process fluid that contains less than 1.0% HRVOC should not be required to be in the database. ExxonMobil and TxOGA stated that including these components would unnecessarily overload the database. ExxonMobil and TxOGA stated that exemptions for components exempt under §115.787(a) because they contact a process fluid that contains less than 1.0% HRVOC can be maintained in another database or appropriate records, or supported by other documentation such as process diagrams. TCC stated that the commission should not require a component-by-component listing of rule citations to prove an exemption, and that the commission should provide a simplified approach for certain equipment or lines (such as nitrogen or water lines) that are not in VOC service.

As noted in the response to the previous comment, the commission has replaced §115.786(e), relettered as §115.786(d), with a reference to §115.356. Section 115.356(4) requires records identifying and justifying each: 1) unsafe-to-monitor valve; 2) nonaccessible (difficult-to-monitor) valve; and 3) exemption by component claimed under §115.357. The commission revised the relettered §115.786(d) to require records identifying and justifying each exemption claimed exempt under §115.787. This will ensure that records of the appropriate data are maintained, thereby improving the enforceability of the rule. However, the commission does not intend that §115.356(4) or §115.786(d) include components in non-VOC service, such as steam, nitrogen, and

water lines. The regulated community is free to maintain records of exempted components in a separate database if it desires.

§115.786(f)
TCC stated that the requirement in §115.786 to maintain records for five years should have an effective date assigned. Otherwise, it may be assumed to require retroactive recordkeeping, which is not possible.

The proposed §115.786(f) was lettered as §115.786(e). The compliance date for the recordkeeping requirements is specified in §115.789, and this date is when owners and operators must begin keeping the initial records, which logically would not be retroactive to a time before the owner or operator was subject to the rule. Therefore, TCC's concerns are unfounded.

AUDIT PROVISIONS
HRVOC Fugitive Emissions
§115.788
HCPC fully supported the requirements in proposed §115.788 regarding audit provisions for local air pollution control agency personnel. HCPC specifically supported the requirements in §115.788(e)(3), which will provide a new tool for swift enforcement. Sierra-Houston and Sierra-Lone Star agreed that an audit should be done by an independent third-party to keep the company and the contractor honest. Sierra-Houston and Sierra-Lone Star stated that the commission and local air pollution programs with jurisdiction should also conduct audits to ensure that the company, local contractor, and third-party auditor are honest in the dealings with the leak detection program. OxyChem stated that it does not object to an audit requirement.

The commission appreciates the support and agrees with the commenters that the third-party audit program is an effective means of further assuring compliance with the rules.

ATOFINA, BCCA-AG, Dow, DuPont, ExxonMobil, Goodyear-Houston, Lyondell, Solutia, TCC, and TxOGA opposed the requirement for fugitive monitoring programs to undergo independent third-party audits every two years. BCCA-AG, Dow, DuPont, ExxonMobil, Goodyear-Houston, Lyondell, Solutia, TCC, and TxOGA stated that practical experience with third-party audits shows that they are of considerably less value than internal audits because third parties are not familiar with each facility's unique units and processes, and that such familiarity is critical to conducting an effective fugitives audit. ATOFINA suggested that rather than a third-party audit program, the fugitive monitoring companies themselves should undergo a general certification process overseen by the commission. ATOFINA stated that certifications can focus on training personnel, auditing procedures and protocols, and calibration of equipment, and the certification process could also include observing sampling techniques at a given facility and occasional spot checks. ATOFINA stated that the number of fugitive monitoring companies is much lower than the number of industrial plants they monitor; therefore, by certifying one fugitive monitoring company, the commission would ensure that the fugitive monitoring program for multiple industrial facilities is being operated correctly. OxyChem expressed the belief that its own program is at a minimum equal to that which a third-party auditor could provide. OxyChem requested that internal audits of the fugitive emissions program be allowed at companies that have a certified audit program. ExxonMobil and TxOGA stated that companies that qualify for the commission's environmental management system rules should be exempted from this auditing requirement.

The commission shares the commenters' concern that monitoring contractors need to be competent; however, the commission cannot implement the ATOFINA and OxyChem recommendations at this time. The Chapter 115 rules are authorized by THSC, Chapter 382, but there are no provisions in the THSC that explicitly authorize any type of occupational licensing or certification program for monitoring contractors. It is not commission practice to establish and regulate a licensing program without explicit statutory authority. The commission's licensing programs are based on the authority provided in Texas Water Code (TWC), Chapter 37. Although there is a precedent for requiring explicit statutory authority for the licensing or certification of occupational programs related to gasoline dispensing facilities that the commission currently administers, such as Underground Storage Tank Contractor Registration/Installers and Leaking Petroleum Storage Tank Corrective Action Specialist/Project Managers, there are no provisions in the TWC for the licensing of monitoring contractors.

An additional concern is the issue of staffing. The two primary methods of regulating such an activity are to hold the facilities accountable for the proper implementation of their LDAR program or to license the persons performing the function. The first method can be accomplished with the commission's current staffing while implementation of a licensing program will require additional staffing. Due to current staffing constraints, the commission is not presently in a position to dedicate the additional staff required to establish a new licensing program. Therefore, the commission made no changes in response to this comment. However, the commission has added a new §115.788(f) which specifies that in lieu of complying with the LDAR program audit provisions of §115.788(a) - (d), an owner or operator may request approval from the executive director of an alternative method which demonstrates equivalency with the independent third-party audit. The equivalency demonstration must include a detailed explanation of how the equivalency will be demonstrated, including the appropriate recordkeeping and reporting requirements that will be implemented which are sufficient to demonstrate compliance with the alternative method, and must demonstrate that it is a replicable procedure and detail how the equivalency will be demonstrated. The new §115.788(f) will add flexibility while ensuring equivalency.

Solutia requested that language be added to the rule that would allow for an upfront audit with provisions for skipping subsequent audits if certain criteria are met, similar to the "leak skip" provisions of the current LDAR program.

The commission disagrees that having an upfront audit will accomplish the objective of the independent audit process, which is to ensure that the LDAR program, as implemented, has been done correctly. The commission also disagrees that a skip period is appropriate for the audit program because it likewise is inconsistent with the intent of the program, which is to ensure that the elements of the various LDAR programs are in fact being properly implemented, including those programs with skip period provisions. The commission expects that the affected companies will set up an appropriate program to properly train staff and contractors, and the purpose of the audit requirements is not to replace that function.

ExxonMobil and TxOGA stated that the audit should be allowed to be conducted under the commission's audit privilege rules.

The commission does not agree that this audit may be conducted under the audit privilege act. Section 115.788 requires a copy of the results of each audit authored by the independent third-party organization to be submitted to the commission. Because the report itself is required to be disclosed, the disclosure of this report is not voluntary under the audit privilege act, and the regulated entity will not quality for conditional immunity from civil and administrative penalties Therefore, this particular audit report generated pursuant to this rule cannot be privileged under the audit privilege act (see Texas Environmental, Health, and Safety Audit Privilege Act, Article 4447cc, §10(b)(4) (Vernon 2002).

Furthermore, this particular audit report generated pursuant to this rule cannot be privileged, meaning it will be admissible as evidence or subject to discovery in: 1) a civil action whether legal or equitable; or 2) an administrative proceeding, under §8(a) of the audit privilege act because it is a report required by a regulatory agency to be reported.

It has been argued, however, that the audit privilege act should be broadly construed and that disclosure of this report would be voluntary, and any violations disclosed in the report would qualify for conditional immunity from enforcement, if the report was generated pursuant to an audit done under the audit privilege act because it is "not a report to a regulatory agency required solely by a specific condition of an enforcement order or decree." (See §10(c) of the audit privilege act). The commission has not found this argument to be persuasive.

However, there is nothing to preclude a regulated entity under the audit privilege act from performing an audit of broad scope in which it audits and reviews for everything this rule requires and discloses violations before the actual report required by this rule would be submitted.

§115.788(a)(1)(A)
TCC questioned whether §115.788(a)(1)(A) applies to leakers that were not identified or components with missing tags.

Section 115.788(a)(1)(A) refers to both.

§115.788(a)(2)
TCC suggested replacing "status" with "factor" in §115.788(a)(2).

The suggested change does not appear to clarify the rule language, and therefore the commission has made no change in response to the comment.

§115.788(a)(2)(A)
ExxonMobil and TxOGA stated that most larger companies conduct ongoing fugitive monitoring daily and therefore the seven-day beginning requirement in §115.788(a)(2)(A) is not applicable. TCC also suggested deletion of the seven-day language.

The commission agrees and has revised §115.788(a)(2)(A) accordingly.

§*115.788(a)(2)(C)*
TCC commented on §115.788(a)(2)(C) and stated that the components should be randomly selected during any given audit. ExxonMobil and TxOGA stated that no requirement for selection of monitored components randomly has been included. ExxonMobil and TxOGA expressed concern that the commission could use the facility's own leak data to focus on known leakers, no matter what exceptions or provisions have been provided elsewhere in Subchapter H, Division 3.

For audits conducted by independent third-party contractors, the commission has included a reasonable imitation on the pool of components to include in a current audit and does not believe that any further definition of selection is required. The limitations reasonably exclude components for which an audit would not provide representative results. This is why §115.788(2) excludes components which were included in either of the most recent two audits, unless unavoidable due to the shutdown of process units not included in either of the most recent two audits, or for other reasons agreed upon in advance by the appropriate regional office and any local air pollution control agency having jurisdiction.

For audits conducted under §115.788(e), commission staff have developed guidance documents, *Air Program Investigations Related to Leak Detection and Repair (LDAR),* and *Op-Leaks Forms Package* (October 23, 2001) which describe the investigation protocol used when agency inspectors conduct LDAR investigations intended to: 1) evaluate whether the regulated entity's LDAR program meets the requirements of the rules; and 2) predict the accuracy of the regulate entity's historically reported emissions data. This guidance is quite detailed and ensures that each audit will reveal representative results. The commission does not believe that any further definition of the component selection in an audit is required. Should an owner or operator be concerned that the regulatory agency inspectors may not be selecting the appropriate components for an audit such that the results would not be representative, the owner or operator can request that all components with a unit be audited. Commission staff have, in fact, made such offers to regulated companies in the past in such situations.

§*115.788(d)*
TCC suggested that the 30-day audit submittal requirement in §115.788(d) be changed to 60 days.

The commission has not identified any reason for delaying the audit submittal beyond 30 days and believes that 30 days is sufficient time for submittal of the completed audit results. Therefore, the commission has made no change in response to the comment.

§*115.788(e)(1)(B)*
TCC commented on §115.788(e)(1)(B) and stated that the definition of "major gas leak" should specify 500 ppmv rather than 200 ppmv.

The commission agrees and has revised §115.788(e)(1)(B) accordingly.

§*115.788(e)(1)(C)*

TCC commented on §115.788(e)(1)(C) and stated that the definition of "minor gas leak" should be deleted because it is not used in the rules.

The commission agrees and has made the suggested change.

§115.788(e)(3)
Ethyl opposed the three-drop per minute leak rate being classified as an automatic violation of the LDAR program and stated that this classification makes no allowance for the vapor pressure of the organic compound being leaked, such as heavy oils or very low vapor pressure organic compounds or wastewater containing VOCs, which Ethyl asserted would not release any significant VOCs into the air. Ethyl did support the timely repair of such leaks. Dow stated that the commission should not automatically treat a major gas leak (over 50,000 ppmv) as a violation unless the leak was determined to be a violation under §101.201 (Emissions Event Reporting and Recordkeeping Requirements) or a violation under the applicable LDAR program. Dow stated that multiple regulations on the same major gas leak creates a scenario where sometimes one or the other regulation applies and other times, both regulations apply. Dow stated that this can become very difficult to implement and difficult to give detailed understanding to all site personnel who have a role and responsibility in environmental reporting.

The commission has reevaluated §115.788(e) and believes that the "extraordinary effort" requirements specified in §115.782(c)(2) and the audits conducted by regional and local program inspectors will largely eliminate the need for limitations on the number of leaking components specified in §115.788(e)(1) - (4). Therefore, the commission has deleted §115.788(e)(1) - (4).

§115.788(e)(4)
Ethyl stated that the maximum number of leaking components in §115.788(e)(4), including connectors, should always be a percentage of the total component type amount and not an absolute amount, to account for differences in size and complexity of facilities. ExxonMobil and TxOGA stated that the set number limits of allowable major leakers does not give due consideration to the larger facilities. Ethyl also stated that newly monitored components should be exempt from violation criteria until after the first or second round of monitoring of the newly required components, to allow adequate time to repair or replace leaking components which are new to the LDAR system.

The commission agrees with the commenters. However, as described earlier in this preamble in response to the previous comment, the commission has deleted §115.788(e)(1) - (4).

COMPLIANCE SCHEDULE
ExxonMobil stated that the compliance schedule for any needed HRVOC controls should be extended to March 31, 2007, as it is unreasonable to expect a facility to plan, engineer, construct, and initiate start-up and post start-up actions on a control device with a single year. ExxonMobil stated that a compliance date of March 31, 2007 would allow facilities to complete testing as proposed on December 31, and mandate that they are in compliance by the start of the ozone season for the attainment year. BCCA-AG and Lyondell expressed similar concerns as ExxonMobil and suggested the following compliance dates: for vent gas, March 31, 2007; for the cooling tower monitoring requirements, July 31, 2004 (with the availability of an extension if a process unit shutdown is required to install a

monitoring device); and for flares, a date that is consistent with unit turnaround schedules specific to each owner or operator (with owners and operators allowed to request alternate implementation schedules along with their monitoring plans). Phillips stated that the compliance schedule for implementation of many of the proposed requirements is infeasible and that monitoring equipment and analyzer installation projects would be expected to require a timeline of at least 18 months for engineering, procurement, and construction. Phillips commented that additional complicating considerations are the number of construction projects already required for NO_x reduction and low-sulfur fuels, the demand for similar systems by a large number of sources in the area (supply and installation issues), and the potential need to coordinate unit shutdowns for installation. OxyChem suggested a compliance schedule of at least two years for all initial requirements, and at least three years for rules which require a process modification or addition of equipment. TCC stated that the monitoring requirements are excessive and cannot be implemented according to the proposed schedule.

The commission has made a number of revisions to the proposed rules, as described elsewhere in this preamble, to address the concerns raised by the commenters about conducting tests, as well as installation of control equipment and monitoring equipment, necessary to comply with these rules. The commission believes it is reasonable and practical to comply with the limitations by the specified compliance dates for the reasons given in the following paragraphs in this section of the preamble.

Industrial Wastewater
§115.149(e)
Dow, DuPont, TCC, and TxOGA stated that the compliance date in §115.149(e) is inadequate where new process drain controls are required. Specifically, Dow and DuPont recommended a December 31, 2003 compliance date, while TxOGA stated that the proposed April 30, 2003 compliance date is adequate for existing controlled drains, but that the compliance date for new required controls on wastewater systems should be December 31, 2005. TxOGA suggested that at a minimum, an extension provision is needed where new controls are required on process drains involving construction. TCC also recommended inclusion of a provision that would allow an extension approved by the executive director beyond the December 31, 2003 compliance date if a process unit shutdown is required to install the required equipment.

The commission agrees with Dow and DuPont and has revised the compliance date to December 31, 2003. The commission has not added a compliance date extension because §115.950 provides that an owner or operator may meet the emission control requirements of Chapter 115, in whole or in part, by obtaining ERCs, mobile emission reduction credits (MERC), DERCs, or mobile discrete emission reduction credits (MDERC) in accordance with §115.950 and Chapter 101, Subchapter H, Division 1 (Emission Credit Banking and Trading) or Chapter 101, Subchapter H, Division 4 (Discrete Emission Reduction Banking and Trading). Therefore, Chapter 115 already includes an appropriate mechanism for addressing situations in which a process unit shutdown is necessary to install the controls on process drains.

§115.149(f)
Dow, DuPont, and TCC stated that the compliance date in §115.149(f), which establishes a repair schedule, should be extended to December 31, 2003 for consistency with §115.149(e).

The commission agrees and has revised the compliance date to December 31, 2003.

§115.149(g)
Dow and DuPont stated that the compliance date in §115.149(g), which establishes an inspection for water seals and process drains not equipped with water seals, should be extended to December 31, 2003 for consistency with §115.149(e).

The commission agrees and has revised the compliance date to December 31, 2003.

TCC stated that §115.149(g) should be changed to reflect weekly water seal inspections rather than daily.

The commission has revised §115.149(g) for consistency with the changes to §115.144(5) and (6) described earlier in this preamble.

VOC Fugitive Emissions
§115.359(1)
TxOGA commented on §115.359(1) and stated that §115.930 speaks for itself and does not need to be repeated in this section.

The reference to §115.930 is included to make clear the compliance date for requirements for which a specific compliance date is not given in the rules. This reference is necessary and was added in previous rulemaking due to confusion expressed by TxOGA member companies.

§115.359(2) and (3)
DuPont, ExxonMobil, TCC, and TxOGA stated that the compliance date in §115.359(2) and (3) is inadequate. DuPont recommended a December 31, 2003 compliance date, while ExxonMobil, TCC, and TxOGA recommended a compliance date of 12 months after promulgation (essentially identical to a December 31, 2003 compliance date). TCC also suggested adding the availability of extensions by the executive director for special circumstances (e.g., if a supplier was not able to modify purchased LDAR database software for the company to meet the deadline).

The commission agrees with the commenters and has revised the compliance date in §115.359(2) and (3) to December 31, 2003. Because the commission has extended the compliance date, it has not added a compliance date extension. However, the commission has revised §115.359(2) to clarify that the compliance date applies to the requirements of §115.356(1)(E)(ii).

§115.359(4)
TCC commented on §115.359(4), which specifies a December 31, 2003 compliance date for adjusting the measured VOC concentration using the appropriate relative response factor specified in §115.354(11). TCC stated that §115.359(4) should be deleted because §115.354(11) is impractical to implement.

As noted earlier in this preamble, the commission concluded that issues associated with response factors are complex. Therefore, the commission has deleted §115.354(11) and §115.781(b)(10) and

has renumbered subsequent paragraphs accordingly. The commission also deleted the compliance schedule in §115.359(4) and §115.789(9) for the now-deleted §115.354(11) and §115.781(b)(10).

HRVOC Vent Gas
Dow commented that paragraphs within other sections of this division are lettered (a), (b), (c), etc., and §115.729 is numbered (1) and (2). Dow stated that a consistent numbering system should be used throughout the division.

The numbering of proposed §115.729 is in accordance with *Texas Register* requirements.

§115.729(1)
DuPont and Goodyear-Houston commented on the December 31, 2003 compliance date in the proposed §115.729(1) and recommended that testing of process vents be completed within 18 months of rule promulgation (i.e., June 30, 2004) and test results be submitted within 30 days of testing. Goodyear-Houston recommended a December 31, 2004 compliance date due to the large number of vents that may need to be tested. TCC recommended that completion of testing be required by December 31, 2003, with the submittal of the test results within 30 days after completion of the test or as soon as practical, whichever is sooner.

The proposed §115.729(1) was renumbered as §115.729(1)(A). The commission has considered the comments and believes that the most appropriate compliance date for completion and submittal of testing results is June 30, 2004. This will allow approximately 18 months from the effective date of the rule revisions for testing of process vents. The additional six months being added to the proposed compliance date is necessary due to the number of vents that will need to be tested. If a later compliance date were selected, such as the December 31, 2004 date suggested by Goodyear-Houston, there might not be enough time remaining for affected companies to install controls on vents that need to be controlled by the April 1, 2006 compliance date described in the response to the following comment.

§115.729(2)
Dow, DuPont, Goodyear-Houston, and TCC commented on the December 31, 2004 compliance date in the proposed §115.729(2). Dow stated that any future control requirements for low density polyethylene production facilities subject to §115.722(a) should have a compliance date no earlier than December 31, 2005, based on its estimate of 29 months needed to implement multiple LDPE production line retrofits. Dow and TCC stated that a December 31, 2005 compliance date will also be consistent with the flare and cooling tower compliance dates. DuPont expressed similar comments and also recommended a December 31, 2005 compliance date. Goodyear-Houston recommended a March 31, 2007 compliance date. TCC stated that the compliance date should include a provision that would allow extension on a case-by-case basis approved by the executive director if the installation of any needed emission controls requires a process unit shutdown and that process unit shutdown is not planned prior to the recommended December 31, 2005 compliance date.

The proposed §115.729(2) was renumbered as §115.729(1)(B). The commission has considered the comments and believes that the most appropriate compliance date is April 1, 2006. This compliance date will allow 21 months after the testing deadline for the installation of controls on

vents that need to be controlled, and is slightly more than three years from the effective date of the rule revisions. The commission notes that 42 USC, §7410 and §7502(a)(2), require the state to submit a revised SIP which demonstrates that the area will attain the ozone standard as expeditiously as practicable. A compliance schedule that shifted the HRVOC vent gas emission reductions beyond April 1, 2006 would not meet the "as expeditiously as practicable" requirement.

Because the commission has extended the compliance date, it has not added a compliance date extension. In addition, §115.722 establishes a site-wide cap which limits HRVOC emissions at a site to a capped value. The site-wide cap provides each owner or operator with the maximum flexibility to select the most cost-effective and technically feasible method of controlling emissions, and to address situations such as those described by the commenters. Therefore, Chapter 115 already includes an appropriate mechanism for addressing situations in which the installation of any needed emission controls requires a process unit shutdown and that process unit shutdown is not planned prior to the April 1, 2006 compliance date.

HRVOC Flares
TCC commented that the April 30, 2003 compliance date for submittal of data if it is already available should be deleted, and that one compliance date should be used for all regulated entities. TCC and Dow also commented that the compliance date for instrumentation and emissions limits should be changed to December 31, 2005 (for HRVOC flares), and TCC recommended to July 31, 2004 (for HRVOC cooling towers), citing the lengthy timing required to coordinate a project of this magnitude.

The proposed §115.749 was relocated to §115.729(2). The commission has considered the comments and believes that the most appropriate compliance date is December 31, 2004 for demonstrating compliance with the flare monitoring, testing, recordkeeping, and reporting requirements. The commission further believes that the most appropriate compliance date is April 1, 2006 for demonstrating continuous compliance with the site-wide HRVOC cap. This compliance date will allow 15 months after the deadline for the flare monitoring, testing, recordkeeping, and reporting requirements, and is slightly more than three years from the effective date of the rule revisions. The commission notes that 42 USC, §7410 and §7502(a)(2), require the state to submit a revised SIP which demonstrates that the area will attain the ozone standard as expeditiously as practicable. A compliance schedule that shifted the HRVOC emission reductions beyond 2005 would not meet the "as expeditiously as practicable" requirement.

Because the commission has extended the compliance date, it has not added a compliance date extension. In addition, §115.722 establishes a site-wide cap which limits HRVOC emissions at a site to a capped value. The site-wide cap provides each owner or operator with the maximum flexibility to select the most cost-effective and technically feasible method of controlling emissions, and to address situations such as those described by the commenters. Therefore, Chapter 115 already includes an appropriate mechanism for addressing situations in which the installation of any needed emission controls requires a process unit shutdown and that process unit shutdown is not planned prior to the April 1, 2006 compliance date.

HRVOC Flares and Cooling Towers
§115.749 and §115.769

ED stated that although the flare and cooling tower monitoring rules are required by December 2003, implementation of controls does not take place until December 2005. ED asserted that the commission has not provided any basis for a three-year schedule for compliance with rules that it expects industry to comply with through best management practices. ED stated that the compliance date should be advanced in order to ensure that the next major air quality field study can determine the effectiveness of these rules. ED stated that commission staff and the Texas Environmental Research Consortium have discussed the possibility of a major follow-up to TexAQS 2000 in 2005. ED asserted that the commission should require that its industrial VOC control strategy be in place before that field study, although the commission could extend deadlines on a case-by-case basis.

The commission disagrees. The commission believes that in order for industry to comply with the emission limitations specified in the rules, that it will need to develop detailed and effective emission mitigation plans. The commission believes that before emission mitigation plans can be conducted, industry must have adequate monitoring information to characterize the streams and develop what appropriate mitigation measures can occur at reasonable interim thresholds. The commission does not believe that an April 1, 2006 compliance date represents an unreasonable amount of time to expect this to occur and believes that in many cases, requiring compliance any sooner may result in ineffective plans.

HRVOC Cooling Towers
§115.769
BCCA-AG, Goodyear, and Lyondell opposed the December 31, 2003 compliance date. BCCA-AG and Lyondell commented that meeting the proposed December 31, 2003 compliance date will be very difficult due to potential shortages in supply of on-line monitoring systems. BCCA-AG and Lyondell recommended that the compliance date be extended to July 31, 2004, and that the rule should allow for extensions of this deadline if process unit shutdowns are required to install monitoring systems. BCCA-AG and Lyondell commented that the December 31, 2003 compliance deadline for the completion of design, engineering, procurement, construction, and startup of all new facilities should be harmonized with planned turnarounds, and that affected companies should be allowed to request alternate implementation schedules along with their monitoring plans.

The commission has considered the comments and believes that the most appropriate compliance date is December 31, 2004 for demonstrating compliance with the cooling tower monitoring, testing, recordkeeping, and reporting requirements. The commission further believes that the most appropriate compliance date is April 1, 2006 for demonstrating continuous compliance with the site-wide HRVOC cap. This compliance date will allow 15 months after the deadline for the cooling tower monitoring, testing, recordkeeping, and reporting requirements, and is slightly more than three years from the effective date of the rule revisions. The commission notes that 42 USC, §7410 and §7502(a)(2), require the state to submit a revised SIP which demonstrates that the area will attain the ozone standard as expeditiously as practicable. A compliance schedule that shifted the HRVOC emission reductions beyond April 1, 2006 would not meet the "as expeditiously as practicable" requirement.

Because the commission has extended the compliance date, it has not added a compliance date extension. In addition, §115.761 establishes a site-wide cap which limits HRVOC emissions at a site to a capped value. The site-wide cap provides each owner or operator with the maximum flexibility to select the most cost-effective and technically feasible method of controlling emissions, and to address situations such as those described by the commenters. Therefore, Chapter 115 already includes an appropriate mechanism for addressing situations in which the installation of any needed emission controls requires a process unit shutdown and that process unit shutdown is not planned prior to the April 1, 2006 compliance date.

HRVOC Fugitive Emissions
§115.789
Sierra-Lone Star fully supported December 31, 2002 as the first compliance date, but Sierra-Houston and Sierra-Lone Star objected to the final compliance date of March 31, 2007 because it places compliance too late in the ozone nonattainment schedule to make a determination if the rules are being complied with in a meaningful way. Sierra-Houston and Sierra-Lone Star requested a compliance date of 2005 to give additional time for the program to work and to give the commission two years to see how ambient ozone concentrations are affected by the fugitive emissions control measure. ExxonMobil stated that in general, the compliance dates in §115.789 are too soon to be practicably met, and that many changes will require much more time to properly implement. ExxonMobil also stated that some of the more difficult changes with less emission reduction impact should be dropped until seen to be justified at the MCR in 2004. ATOFINA expressed a belief that identifying and tagging components

will require significant input from its operations and engineering staff, and just entering this new data into the existing database for thousands of components will be a major undertaking which cannot be completed by December 31, 2003. ATOFINA suggested that the commission establish a more realistic schedule requiring completion by December 31, 2005. DuPont, and TxOGA expressed similar concerns. DuPont, TCC, and TxOGA suggested adding the availability of extensions by the executive director for special circumstances (e.g., if a supplier was not able to modify purchased LDAR database software for the company to meet the deadline). TxOGA also recommended that §115.789(1) provide at least 18 months from rule promulgation (i.e., approximately June 30, 2004) for the addition of components to be monitored, while TCC believed that §115.789(1) and (5) should provide a compliance date at least 12 months from rule promulgation (i.e., approximately December 31, 2003). TCC stated that a transitional stage, as was done in the HON, should be provided in §115.789(1) for monitoring of additional components such as flanges and heat exchanger heads because these components have not historically been monitored.

The revisions to §115.783, described earlier in this preamble, deleted requirements for equipment upgrades on pumps, compressors, agitators, PRVs (for rupture disks), and valves other than PRVs. The remaining situations in which an equipment upgrade are required are expected to be relatively limited in number and difficulty. For example, installation of a car seal to secure a bypass valve in a closed position could be readily accomplished in under an hour. As noted earlier in this preamble, §115.781(f) provides the availability of a leak-skip option for connectors, bolted manways, heat exchanger heads, hatches, and sump covers. Also, the commission clarified that connectors do not have to be individually tagged. For any equipment upgrades for which a process unit shutdown is necessary, but for which the shutdown will not occur by the compliance date, §115.950 provides that an owner or operator may meet the emission control requirements of Chapter 115, in whole or in part, by obtaining ERCs, MERCs, DERCs, or MDERCs in accordance with §115.950 and Chapter 101, Subchapter H, Division 1 (Emission Credit Banking and Trading) or Chapter 101, Subchapter H, Division 4 (Discrete Emission Reduction Banking and Trading). Therefore, the commission believes that a December 31, 2003 compliance date is appropriate because it provides an adequate amount of time for implementation of the new requirements. In addition, due to the revisions to §115.786(e) (relettered as §115.786(d)) described earlier in this preamble, the commission revised §115.789(5) to refer to the recordkeeping requirements of §115.786 rather than the master components list.

ATOFINA stated that it self-imposed a leak definition rate of 500 ppmv prior to the rule proposal and is already monitoring many of the components identified in the proposed fugitive monitoring rules. ATOFINA stated that the number of leakers found in each unit increased significantly upon implementing the 500 ppmv limit, and that initially the company was unable to meet repair deadlines. ATOFINA stated that it took about one year to be able to respond to leaks in the specified time periods, and expressed a belief that companies imposing the 500 ppmv leak definition for the first time will face the same situation. ATOFINA recommended that the final rule allow facilities to slowly phase in repair requirements over a reasonable time period.

The commission questions how ATOFINA could have "self-imposed" a leak definition rate of 500 ppmv when 500 ppmv is already the leak definition for some components as required by the existing Subchapter D, Division 3. The commission believes that the compliance schedule, in

conjunction with the availability of a leak-skip option in §115.781(f) for connectors, bolted manways, heat exchanger heads, hatches, and sump covers, provides an adequate amount of time for implementation of the new requirements.

§115.789(2)
TxOGA stated that the installation of controls on all process drains not currently controlled by either a water seal or cap or plug needs to be clarified as being an "equipment upgrade" for the purpose of §115.789(2). TxOGA also stated there may be isolated cases where the equipment upgrade cannot be done at the next unit shutdown, and suggested changing the phrase "at the next unit shutdown after December 31, 2002" to "as soon as practicable." TCC stated that the compliance date should be revised to "at the next planned unit shutdown after July 1, 2003 but no later than 5 years after the effective date of this rule" (i.e., approximately December 31, 2007). Dow stated that the compliance date should be revised to "at the next scheduled or planned unit shutdown after December 31, 2004, but no later than 5 years after the effective date of this rule" (i.e., approximately December 31, 2007). Dow stated that it was important to clarify that the retrofit requirements are only triggered when there is a planned or scheduled shutdown, not an unplanned shutdown. Dow stated that otherwise, it will be difficult to complete the engineering needed, order additional equipment, and have the parts ready to install if an unplanned unit shutdown occurs.

The revisions to §115.783, described earlier in this preamble, deleted requirements for equipment upgrades on pumps, compressors, agitators, pressure relief valves (for rupture disks), and valves other than pressure relief valves. The remaining situations in which an equipment upgrade are required are expected to be relatively limited in number and difficulty. For example, installation of a car seal to secure a bypass valve in a closed position could be readily accomplished in under an hour. The commission has retained the compliance date of December 31, 2003 and has not added a compliance date extension because §115.950 provides that an owner or operator may meet the emission control requirements of Chapter 115, in whole or in part, by obtaining ERCs, MERCs, DERCs, or MDERCs in accordance with §115.950 and Chapter 101, Subchapter H, Division 1 (Emission Credit Banking and Trading) or Chapter 101, Subchapter H, Division 4 (Discrete Emission Reduction Banking and Trading). Therefore, Chapter 115 already includes an appropriate mechanism for addressing situations in which a process unit shutdown is necessary to install the controls on process drains.

§115.789(3)
Dow and TCC commented on §117.789(3) and stated that the compliance date for the first third-party audit should be 12 months after the complete implementation of other requirements of the rule. Dow and TCC stated that if the timing remains the same as the timing requirement for implementing these other requirements, the audit will not provide an appropriate indication of how well the new requirements have been implemented.

The commission agrees that the initial should occur after the final compliance date for the other HRVOC fugitive monitoring requirements. Because §115.788(a)(2)(B) references the average of the most recent four quarters in the determination of the number of components in a process unit to be audited, the commission agrees that the appropriate compliance date for the initial audit is

12 months after the final compliance date for the other HRVOC fugitive monitoring requirements. Therefore, the commission has revised §115.789(3) accordingly.

§115.789(4)
TCC stated that §115.789(4), which establishes a compliance date for the testing required by §115.785, should include a provision which would allow the use of historical performance tests that are substantially similar in lieu of conducting another performance test at the same control device.

As noted earlier in this preamble, the commission added §115.785(5) to allow previous valid test results.

§115.789(7)
DuPont and TCC recommended deletion of §115.789(7).

As noted earlier in this preamble, the commission agrees that an additional round of monitoring during the third quarter presents staffing difficulties and deleted the proposed §115.781(b)(7). Therefore, the commission has also deleted §115.789(7).

§115.789(9)
TCC recommended deletion of §115.789(9), which establishes a compliance date for adjustment of measured VOC concentration using the appropriate relative response factor specified in §115.781(b)(10). TCC referred to its earlier comments in which it asserted that §115.781(b)(10) is impractical to implement.

As noted earlier in this preamble, the commission concluded that issues associated with response factors are complex. Therefore, the commission has deleted §115.354(11) and §115.781(b)(10) and has renumbered subsequent paragraphs accordingly. The commission also deleted the compliance schedule in §115.359(4) and §115.789(9) for the now-deleted §115.354(11) and §115.781(b)(10).

COST
Phillips gave several examples of cost-effective requirements to update emissions inventories which included monthly monitoring of cooling towers for determination of VOC leaks and emissions inventory; periodic grab samples of normal, routine flare flow to establish baselines and improved emission inventory data; weekly visual monitoring of process drains and unsegregated stormwater drains; and requirements to use correlation equations and actual data from fugitives monitoring to provide a better representation of emissions for the emissions inventory.

The commission appreciates the support.

Ethyl stated that many companies (including Ethyl) have already committed to reduce NO_x emissions according to the existing SIP, and that the proposed HRVOC requirements will cause “undue financial harm” to such companies trying to reduce emissions in an orderly, cost-effective manner.

Ethyl did not include documentation to support its claim of “undue financial harm.” However, the commission appreciates the support for the current requirements.

TCC stated that the commission underestimated the costs for compliance with the rules and has provided no estimate of environmental benefits in terms of cost of control per ton of emission reduction. Because of the costs involves in the VOC/HRVOC portions of the proposed rules, TxOGA expressed the belief that the commission must promulgate only requirements with commensurate environmental value. ATOFINA expressed a concern that the proposed rules will impose an unnecessary significant financial burden on industry. Ethyl stated that the commission has underestimated the annual reporting costs for increased flare, cooling tower, and LDAR monitoring, and that the commission has not provided adequate substantiation for the estimates of the increased costs associated with the reporting requirements. BCCA-AG and Lyondell stated that the monitoring requirements are costly.

The commission complied with the requirements to provide estimated costs for compliance. The cost note in the proposal attempted to identify all additional costs to industry due to implementation of the proposed amendments. The analysis provided both capital and operating costs, including recordkeeping costs, by the various types of sources affected by the rules. The costs were provided for each of the particular subchapters where the commission has identified likely increased costs due to implementation of rule amendments. Although the commission identified significant costs to industry to implement the proposed VOC rule amendments, concurrent rulemaking that proposes the revisions of NO_x ESADs in Chapter 117 is estimated to save industry considerable capital and annual operating expenses. Therefore, the commission disagrees that it underestimated the cost to comply with the proposed rules. Further, since the commission is not adopting the general VOC monitoring rules proposed in Subchapter B, Divisions 7 and 8, the costs to comply will be lower than those included in the fiscal note.

The commission has complied with the requirement to provide the public benefits expected and probable economic costs for compliance with the rule. There is no specific requirement to provide the estimate of environmental benefits in any specific units, such as cost of control per ton of emission reduction. In addition, there is no specific requirement that the limits the commission to only adopting rules with environmental value that is commensurate with the costs.

LDPE Plants
Dow and ExxonMobil commented that there does not appear to be adequate cost analysis for the proposed emission levels in §115.722(a) for low and high-pressure polyethylene processes. Dow stated that, based upon a preferred technology of replacing existing extruders with a vacuum type extruder, the capital cost will range from $7 million per manufacturing line for its smaller processing areas to $13 million per manufacturing line for its larger processing areas. TCC stated that in certain polyethylene manufacturing operations, the finishing area for the polyethylene flakes and pellets consists of tanks, numerous vents that are open to atmosphere, and loading facilities that move polyethylene pellets and flakes to railcars. TCC stated that the emissions from these processes are expected to be relatively small in comparison to other VOC sources, but the cost to capture these emissions and convey them to a recovery system is expected to be so costly ($40,000/ton of emission reduced) as to necessitate the need for some type of VOC trading program.

As noted earlier in this preamble, the commission is adopting a site-wide HRVOC emissions cap in place of the proposed individual (i.e., unit by unit) emission limits. The site-wide cap addresses

the commenters' concerns because it enables each owner or operator to select the most cost-effective and technically feasible means of maintaining continuous compliance with the site-wide cap. Therefore, the commission has made no changes in response to the comments.

Flares
BCCA-AG and Lyondell commented that the commission did not provide an analysis and summary of the installation costs for flare gas compression and other similar flare gas recovery devices which would be necessary to comply with the proposed rule. BCCA-AG and Lyondell stated that the costs can easily range from $5 million to $10 million per flare system.

The commission has not contacted vendors of alternative technology; however, these system costs could be substantial, and costs in the suggested range or more might be possible. It is important to note that control systems as complex and expensive as those mentioned by the commenters will not be necessary in all cases to comply with the rule. Devices which control vent gas streams on the process side, such as recovery devices (including, but not limited to, absorbers, carbon adsorbers, and condensers), would be preferred from the cost standpoint, and more costly alternatives on the flare side, such as flare gas compression and similar flare gas recovery devices, should be considered as the solution of last resort.

BCCA-AG and Lyondell commented that the commission significantly underestimated the costs of continuous flow monitoring for HRVOC flares. BCCA-AG and Lyondell cited the commission's estimate that the combined cost of the on-line analyzer, flow monitor, and temperature and pressure gauges for each HRVOC flare would be only $90,000 in the first year and $20,000 in subsequent years. BCCA-AG and Lyondell disagreed, stating that the cost of installation alone of flow monitoring systems is estimated to be about $75,000 per flare.

The cited cost figures are considerably higher than the cost information available to the commission. The commission's $2,000-10,000 cost estimate for flow monitors was based on vendor contacts, and the commission estimated GC costs of $30,000 - 50,000 per instrument. The commission's experience indicates that $75,000 is extremely high for a flow monitor installation. Installation costs for the VOC monitor will depend on availability of existing facilities to house the monitor system.

Cooling Towers
BCCA-AG and Lyondell commented that the preamble to the proposed rules grossly underestimates the necessary costs by a factor of three to four. BCCA-AG and Lyondell stated that the commission has estimated the initial capital costs and annual operating expenses for the first year for continuous monitors and on-line gas analyzers for each HRVOC cooling tower system in the HGA at $88,000. BCCA-AG and Lyondell also stated that because the rule would require flow meters and analyzers to be installed on both the inlet and the outlet of each cooling tower, at a cost of at least $30,000 per flow meter and $115,000 per analyzer, the cost of this equipment alone is at least $235,000. BCCA-AG and Lyondell commented that when the costs of analyzer housing facilities, installation, and process computer tie-ins are included, the total capital costs for a cooling tower system that serves many process units and has cooling water supply and return loops will be in the $1 - 2 million range. BCCA-

AG and Lyondell stated that when annual operating costs are considered, the commission's estimates are even further underestimated.

The commission has obtained vendor estimates of $20,000 to 88,000 for HRVOC monitors, with the low-end cost corresponding to total VOC monitors and the upper end corresponding to speciated VOC monitors. Information supplied by instrument suppliers indicates that the cost of a cooling tower flow monitor to handle water flows up to 180,000 gpm is approximately $6,000 - 8,000. The commission has eliminated the requirement to install a flow monitor on each cooling tower outlet. The commission realizes that there are additional costs to install monitor systems, with installed costs depending on the cooling tower size and complexity. A cost of $1 - 2 million as suggested by BCCA-AG and Lyondell appears to be quite high, considering that the adopted rules contain cooling tower monitoring requirements that are less stringent than those proposed. A continuous speciated VOC monitor may offset the cost of monthly or daily speciated lab analyses. Finally, smaller cooling tower systems (less than 8,000 gpm) do not have continuous VOC monitoring requirements.

Fugitive Emissions
TCC asserted that the commission has underestimated the complexity and cost of retrofitting existing PRV systems. TCC stated that the one-time cost for installation of rupture disks at a typical petrochemical plant is expected to be $6,000 - 8,000 per device plus installation, but that costs could easily escalate if significant piping changes are required or if vessel nozzles must be changed to meet inlet line pressure loss constraints. TCC stated that the installation of a rupture disk upstream of a PRV will result in increased pressure drop in the line and, as a result, will require the relief system to be reevaluated. TCC stated that whenever a rupture disk is installed upstream of a relief valve, there is a need to derate the available relief area by 10% per ASME Section VIII, such that the size of the relief valve may need to be increased to accommodate the derating. TCC stated that this is expensive.

The commission appreciates TCC's concerns. However, as noted earlier in this preamble, the commission has revised the requirements for PRVs such that retrofitting with rupture disks is not required.

Dow, EnRUD, and Goodyear-Beaumont commented that the mass emissions sampling method ("bagging") of the EPA guidance document "Protocol for Equipment Leak Emission Estimates," Chapter 4, Mass Emission Sampling (EPA-453/R-95-017, November 1995) is a costly task.

The commission agrees and has revised the rules to specify that bagging is not required, but is an available method for estimating mass emissions.

DuPont stated that the proposed fugitive monitoring requirements are extremely burdensome and expressed concern that the commission has significantly underestimated the cost of the proposed rules. DuPont also expressed concern that economically stressed businesses will be burdened, with little or no environmental benefit.

As described earlier in this preamble, the commission has made numerous revisions in the proposed rules to address commenters' concerns and ensure that the requirements are reasonable and appropriate.

SUBCHAPTER A: DEFINITIONS
§115.10

STATUTORY AUTHORITY
The amendment is adopted under Texas Water Code (TWC), §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendment is also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.10. Definitions.

Unless specifically defined in the Texas Clean Air Act (TCAA) or in the rules of the commission, the terms used by the commission have the meanings commonly ascribed to them in the field of air pollution control. In addition to the terms which are defined by the TCAA, the following terms, when used in this chapter (relating to Control of Air Pollution from Volatile Organic Compounds), shall have the following meanings, unless the context clearly indicates otherwise. Additional definitions for terms used in this chapter are found in §3.2 and §101.1 of this title (relating to Definitions).

(1) **Background** - The ambient concentration of volatile organic compounds (VOC) in the air, determined at least one meter upwind of the component to be monitored. Test Method 21 (40 Code of Federal Regulations (CFR) 60, Appendix A) shall be used to determine the background.

(2) **Beaumont/Port Arthur area** - Hardin, Jefferson, and Orange Counties.

(3) **Capture efficiency** - The amount of VOC collected by a capture system which is expressed as a percentage derived from the weight per unit time of VOC entering a capture system and delivered to a control device divided by the weight per unit time of total VOC generated by a source of VOC.

(4) **Carbon adsorption system** - A carbon adsorber with an inlet and outlet for exhaust gases and a system to regenerate the saturated adsorbent.

(5) **Closed-vent system -** A system that:

(A) is not open to the atmosphere;

(B) is composed of piping, ductwork, connections, and, if necessary, flow-inducing devices; and

(C) transports gas or vapor from a piece or pieces of equipment directly to a control device.

(6) **Component** - A piece of equipment, including, but not limited to, pumps, valves, compressors, connectors, and pressure relief valves, which has the potential to leak VOC.

(7) **Connector** - A flanged, screwed, or other joined fitting used to connect two pipe lines or a pipe line and a piece of equipment. The term connector does not include joined fittings welded completely around the circumference of the interface. A union connecting two pipes is considered to be one connector.

(8) **Continuous monitoring** - Any monitoring device used to comply with a continuous monitoring requirement of this chapter will be considered continuous if it can be demonstrated that at least 95% of the required data is captured.

(9) **Covered attainment counties** - Anderson, Angelina, Aransas, Atascosa, Austin, Bastrop, Bee, Bell, Bexar, Bosque, Bowie, Brazos, Burleson, Caldwell, Calhoun, Camp, Cass, Cherokee, Colorado, Comal, Cooke, Coryell, De Witt, Delta, Ellis, Falls, Fannin, Fayette, Franklin, Freestone, Goliad, Gonzales, Grayson, Gregg, Grimes, Guadalupe, Harrison, Hays, Henderson, Hill, Hood, Hopkins, Houston, Hunt, Jackson, Jasper, Johnson, Karnes, Kaufman, Lamar, Lavaca, Lee, Leon, Limestone, Live Oak, Madison, Marion, Matagorda, McLennan, Milam, Morris, Nacogdoches, Navarro, Newton, Nueces, Panola, Parker, Polk, Rains, Red River, Refugio, Robertson, Rockwall, Rusk, Sabine, San Jacinto, San Patricio, San Augustine, Shelby, Smith, Somervell, Titus, Travis, Trinity, Tyler, Upshur, Van Zandt, Victoria, Walker, Washington, Wharton, Williamson, Wilson, Wise, and Wood Counties.

(10) **Dallas/Fort Worth area** - Collin, Dallas, Denton, and Tarrant Counties.

(11) **El Paso area** - El Paso County.

(12) **External floating roof** - A cover or roof in an open-top tank which rests upon or is floated upon the liquid being contained and is equipped with a single or double seal to close the space between the roof edge and tank shell. A double seal consists of two complete and separate closure seals, one above the other, containing an enclosed space between them. For the purposes of this chapter, an external floating roof storage tank which is equipped with a self-supporting fixed roof (typically a bolted aluminum geodesic dome) shall be considered to be an internal floating roof storage tank.

(13) **Fugitive emission** - Any VOC entering the atmosphere which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening designed to direct or control its flow.

(14) **Gasoline bulk plant** - A gasoline loading and/or unloading facility, excluding marine terminals, having a gasoline throughput less than 20,000 gallons (75,708 liters) per day, averaged over each consecutive 30-day period. A motor vehicle fuel dispensing facility is not a gasoline bulk plant.

(15) **Gasoline terminal** - A gasoline loading and/or unloading facility, excluding marine terminals, having a gasoline throughput equal to or greater than 20,000 gallons (75,708 liters) per day, averaged over each consecutive 30-day period.

(16) **Heavy liquid** - VOCs which have a true vapor pressure equal to or less than 0.044 pounds per square inch absolute (psia) (0.3 kPa) at 68 degrees Fahrenheit (20 degrees Celsius).

(17) **Highly-reactive volatile organic compound (HRVOC)** - As follows.

(A) In Harris County, one or more of the following VOCs: 1,3-butadiene; all isomers of butene (i.e., alpha-butylene (ethylethylene) and beta-butylene (dimethylethylene, including both cis- and trans- isomers)); ethylene; and propylene.

(B) In Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery, and Waller Counties, one or more of the following VOCs: ethylene and propylene.

(18) **Houston/Galveston area** - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties.

(19) **Incinerator** - For the purposes of this chapter, an enclosed control device that combusts or oxidizes VOC gases or vapors.

(20) **Internal floating cover** - A cover or floating roof in a fixed roof tank which rests upon or is floated upon the liquid being contained, and is equipped with a closure seal or seals to close the space between the cover edge and tank shell. For the purposes of this chapter, an external floating roof storage tank which is equipped with a self-supporting fixed roof (typically a bolted aluminum geodesic dome) shall be considered to be an internal floating roof storage tank.

(21) **Leak-free marine vessel** - A marine vessel whose cargo tank closures (hatch covers, expansion domes, ullage openings, butterworth covers, and gauging covers) were inspected prior to cargo transfer operations and all such closures were properly secured such that no leaks of liquid or vapors can be detected by sight, sound, or smell. Cargo tank closures shall meet the applicable rules or regulations of the marine vessel's classification society or flag state. Cargo tank pressure/vacuum valves shall be operating within the range specified by the marine vessel's classification society or flag state and seated when tank pressure is less than 80% of set point pressure

such that no vapor leaks can be detected by sight, sound, or smell. As an alternative, a marine vessel operated at negative pressure is assumed to be leak-free for the purpose of this standard.

(22) **Light liquid** - VOCs which have a true vapor pressure greater than 0.044 psia (0.3 kPa) at 68 degrees Fahrenheit (20 degrees Celsius), and are a liquid at operating conditions.

(23) **Liquefied petroleum gas** - Any material that is composed predominantly of any of the following hydrocarbons or mixtures of hydrocarbons: propane, propylene, normal butane, isobutane, and butylenes.

(24) **Low-density polyethylene** - A thermoplastic polymer or copolymer comprised of at least 50% ethylene by weight and having a density of 0.940 grams per cubic centimeter (g/cm^3) or less.

(25) **Marine loading facility** - The loading arm(s), pumps, meters, shutoff valves, relief valves, and other piping and valves that are part of a single system used to fill a marine vessel at a single geographic site. Loading equipment that is physically separate (i.e., does not share common piping, valves, and other loading equipment) is considered to be a separate marine loading facility.

(26) **Marine loading operation** - The transfer of oil, gasoline, or other volatile organic liquids at any affected marine terminal, beginning with the connections made to a marine vessel and ending with the disconnection from the marine vessel.

(27) **Marine terminal** - Any marine facility or structure constructed to transfer oil, gasoline, or other volatile organic liquid bulk cargo to or from a marine vessel. A marine terminal may include one or more marine loading facilities.

(28) **Metal-to-metal seal** - A connection formed by a swage ring which exerts an elastic, radial preload on narrow sealing lands, plastically deforming the pipe being connected, and maintaining sealing pressure indefinitely.

(29) **Natural gas/gasoline processing** - A process that extracts condensate from gases obtained from natural gas production and/or fractionates natural gas liquids into component products, such as ethane, propane, butane, and natural gasoline. The following facilities shall be included in this definition if, and only if, located on the same property as a natural gas/gasoline processing operation previously defined: compressor stations, dehydration units, sweetening units, field treatment, underground storage, liquified natural gas units, and field gas gathering systems.

(30) **Petroleum refinery** - Any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through distillation of crude oil, or through the redistillation, cracking, extraction, reforming, or other processing of unfinished petroleum derivatives.

(31) **Polymer or resin manufacturing process** - A process that produces any of the following polymers or resins: polyethylene, polypropylene, polystyrene, and styrenebutadiene latex.

(32) **Pressure relief valve** - A safety device used to prevent operating pressures from exceeding the maximum allowable working pressure of the process equipment. A pressure relief valve is automatically actuated by the static pressure upstream of the valve, but does not include:

(A) a rupture disk; or

(B) a conservation vent or other device on an atmospheric storage tank that is actuated either by a vacuum or a pressure of no more than 2.5 pounds per square inch gauge (psig).

(33) **Process unit** - The smallest set of process equipment that can operate independently and includes all operations necessary to achieve its process objective.

(34) **Printing line** - An operation consisting of a series of one or more printing processes and including associated drying areas.

(35) **Process drain** - Any opening (including a covered or controlled opening) which is installed or used to receive or convey wastewater into the wastewater system.

(36) **Rupture disk** - A diaphragm held between flanges for the purpose of isolating a VOC from the atmosphere or from a downstream pressure relief valve.

(37) **Shutdown or turnaround** - For the purposes of this chapter, a work practice or operational procedure that stops production from a process unit or part of a unit during which time it is technically feasible to clear process material from a process unit or part of a unit consistent with safety constraints, and repairs can be accomplished.

(A) The term shutdown or turnaround does not include a work practice that would stop production from a process unit or part of a unit:

(i) for less than 24 hours; or

(ii) for a shorter period of time than would be required to clear the process unit or part of the unit and start up the unit.

(B) Operation of a process unit or part of a unit in recycle mode (i.e., process material is circulated, but production does not occur) is not considered shutdown.

(38) **Startup** - For the purposes of this chapter, the setting into operation of a piece of equipment or process unit for the purpose of production or waste management.

(39) **Synthetic organic chemical manufacturing process** - A process that produces, as intermediates or final products, one or more of the chemicals listed in 40 Code of Federal Regulations §60.489 (October 17, 2000).

(40) **Tank-truck tank** - Any storage tank having a capacity greater than 1,000 gallons, mounted on a tank-truck or trailer. Vacuum trucks used exclusively for maintenance and spill response are not considered to be tank-truck tanks.

(41) **Transport vessel** - Any land-based mode of transportation (truck or rail) that is equipped with a storage tank having a capacity greater than 1,000 gallons which is used to transport oil, gasoline, or other volatile organic liquid bulk cargo. Vacuum trucks used exclusively for maintenance and spill response are not considered to be transport vessels.

(42) **True partial pressure** - The absolute aggregate partial pressure (psia) of all VOC in a gas stream.

(43) **Vapor balance system** - A system which provides for containment of hydrocarbon vapors by returning displaced vapors from the receiving vessel back to the originating vessel.

(44) **Vapor control system or vapor recovery system** - Any control system which utilizes vapor collection equipment to route VOC to a control device that reduces VOC emissions.

(45) **Vapor-tight** - Not capable of allowing the passage of gases at the pressures encountered except where other acceptable leak-tight conditions are prescribed in this chapter.

(46) **Waxy, high pour point crude oil** - A crude oil with a pour point of 50 degrees Fahrenheit (10 degrees Celsius) or higher as determined by the American Society for Testing and Materials Standard D97-66, “Test for Pour Point of Petroleum Oils.”

SUBCHAPTER B: GENERAL VOLATILE ORGANIC COMPOUND SOURCES
DIVISION 2: VENT GAS CONTROL
§§115.120 - 115.123, 115.126, 115.127, 115.129

STATUTORY AUTHORITY
The amendments are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendments are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.120. Vent Gas Definitions.

The following words and terms, when used in this division (relating to Vent Gas Control), shall 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) **Bakery oven** - An oven for baking bread or any other yeast-leavened products.

(2) **Synthetic Organic Chemical Manufacturing Industry (SOCMI) batch distillation operation** - A SOCMI noncontinuous distillation operation in which a discrete quantity or batch of liquid feed is charged into a distillation unit and distilled at one time. After the initial charging of the liquid feed, no additional liquid is added during the distillation operation.

(3) **Synthetic Organic Chemical Manufacturing Industry (SOCMI) batch process** - Any SOCMI noncontinuous reactor process which is not characterized by steady-state conditions, and in which reactants are not added and products are not removed simultaneously.

(4) **Synthetic Organic Chemical Manufacturing Industry (SOCMI) distillation operation** - A SOCMI operation separating one or more feed stream(s) into two or more exit streams, each exit stream having component concentrations different from those in the feed stream(s). The separation is achieved by the redistribution of the components between the liquid and vapor-phase as they approach equilibrium within the distillation unit.

(5) **Synthetic Organic Chemical Manufacturing Industry (SOCMI) distillation unit** - A SOCMI device or vessel in which distillation operations occur, including all associated internals

(including, but not limited to, trays and packing), accessories (including, but not limited to, reboilers, condensers, vacuum pumps, and steam jets), and recovery devices (such as absorbers, carbon adsorbers, and condensers) which are capable of, and used for, recovering chemicals for use, reuse, or sale.

(6) **Synthetic Organic Chemical Manufacturing Industry (SOCMI) reactor process** - A SOCMI unit operation in which one or more chemicals, or reactants other than air, are combined or decomposed in such a way that their molecular structures are altered and one or more new organic compounds are formed.

§115.121. Emission Specifications.

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

(1) No person may allow a vent gas stream containing volatile organic compounds (VOC) to be emitted from any process vent, unless the vent gas stream is controlled properly in accordance with §115.122(a)(1) of this title (relating to Control Requirements).

(2) No person may allow a vent gas stream to be emitted from the following processes unless the vent gas stream is controlled properly in accordance with §115.122(a)(2) of this title:

(A) any synthetic organic chemical manufacturing industry reactor process or distillation operation;

(B) any air oxidation synthetic organic chemical manufacturing process;

(C) any liquid phase polypropylene manufacturing process;

(D) any liquid phase slurry high-density polyethylene manufacturing process; or

(E) any continuous polystyrene manufacturing process.

(3) In the Dallas/Fort Worth, El Paso, and Houston/Galveston areas, VOC emissions from bakery ovens, as defined in §115.10 of this title, shall be controlled properly in accordance with §115.122(a)(3) of this title.

(4) Any vent gas stream in the Houston/Galveston area which includes a HRVOC, as defined in §115.10 of this title, is subject to the requirements of Subchapter H of this chapter (relating to Highly-Reactive Volatile Organic Compounds) in addition to the applicable requirements of this division (relating to Vent Gas Control).

(b) In Nueces and Victoria Counties, no person may allow a vent gas stream to be emitted from any process vent containing one or more of the following VOC or classes of VOC, unless the vent gas stream is controlled properly in accordance with §115.122(b) of this title:

(1) emissions of ethylene associated with the formation, handling, and storage of solidified low-density polyethylene;

(2) emissions of the following specific VOC: ethylene, butadiene, isobutylene, styrene, isoprene, propylene, methylstyrene; and

(3) emissions of specified classes of VOC, including aldehydes, alcohols, aromatics, ethers, olefins, peroxides, amines, acids, esters, ketones, sulfides, and branched chain hydrocarbons (C_8 and above).

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

(1) No person may allow a vent gas stream to be emitted from any process vent containing one or more of the following VOC or classes of VOC, unless the vent gas stream is controlled properly in accordance with §115.122(c)(1) of this title:

(A) emissions of ethylene associated with the formation, handling, and storage of solidified low-density polyethylene;

(B) emissions of the following specific VOC: ethylene, butadiene, isobutylene, styrene, isoprene, propylene, and methylstyrene; and

(C) emissions of specified classes of VOC, including aldehydes, alcohols, aromatics, ethers, olefins, peroxides, amines, acids, esters, ketones, sulfides, and branched chain hydrocarbons (C_8 and above).

(2) No person may allow a vent gas stream to be emitted from any catalyst regeneration of a petroleum or chemical process system, basic oxygen furnace, or fluid coking unit into the atmosphere, unless the vent gas stream is properly controlled in accordance with §115.122(c)(2) of this title.

(3) No person may allow a vent gas stream to be emitted from any iron cupola into the atmosphere, unless the vent gas stream is properly controlled in accordance with §115.122(c)(3) of this title.

(4) Vent gas streams from blast furnaces shall be controlled properly in accordance with §115.122(c)(4) of this title.

§115.122. Control Requirements.

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

(1) Any vent gas streams affected by §115.121(a)(1) of this title (relating to Emission Specifications) must be controlled properly with a control efficiency of at least 90% or to a volatile organic compound (VOC) concentration of no more than 20 parts per million by volume (ppmv) (on a dry basis corrected to 3.0% oxygen for combustion devices):

(A) in a direct-flame incinerator at a temperature equal to or greater than 1,300 degrees Fahrenheit (704 degrees Celsius);

(B) in a smokeless flare; or

(C) by any other vapor control system, as defined in §115.10 of this title (relating to Definitions).

(2) Any vent gas streams affected by §115.121(a)(2) of this title must be controlled properly with a control efficiency of at least 98% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices):

(A) in a smokeless flare; or

(B) by any other vapor control system, as defined in §115.10 of this title.

(3) For the Dallas/Fort Worth, El Paso, and Houston/Galveston areas, VOC emissions from each bakery with a bakery oven vent gas stream(s) affected by §115.121(a)(3) of this title shall be reduced as follows.

(A) Each bakery in the Houston/Galveston area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 25 tons per calendar year shall ensure that the overall emission reduction from the uncontrolled VOC emission rate of the oven(s) is at least 80%.

(B) Each bakery in the Dallas/Fort Worth area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 50 tons per calendar year, shall ensure that the overall emission reduction from the uncontrolled VOC emission rate of the oven(s) is at least 80%.

(C) Each bakery in the Dallas/Fort Worth area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 25 tons per calendar year, but less than 50 tons per calendar year, shall reduce total VOC emissions by at least 30% from the bakery's 1990 emissions inventory in accordance with the schedule specified in §115.129(d) of this title (relating to Counties and Compliance Schedules).

(D) Each bakery in the El Paso area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 25 tons per calendar year shall reduce total VOC emissions by at least 30% from the bakery's 1990 emissions inventory in accordance with the schedule specified in §115.129(e) of this title.

(E) Emission reductions in the 30% to 90% range are not creditable under Chapter 101, Subchapter H, Division 1 of this title (relating to Emission Credit Banking and Trading) for the following bakeries:

(i) each bakery in the Houston/Galveston area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 25 tons per calendar year;

(ii) each bakery in the Dallas/Fort Worth area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 50 tons per calendar year;

(iii) each bakery in the El Paso area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 50 tons per calendar year.

(4) Any vent gas stream that becomes subject to the provisions of paragraphs (1), (2), or (3) of this subsection by exceeding provisions of §115.127(a) of this title (relating to Exemptions) shall remain subject to the provisions of this subsection, even if throughput or emissions later fall below the exemption limits unless and until emissions are reduced to no more than the controlled emissions level existing before implementation of the project by which throughput or emission rate was reduced to less than the applicable exemption limits in §115.127(a) of this title; and:

(A) the project by which throughput or emission rate was reduced is authorized by any permit or permit amendment or standard permit or permit by rule required by Chapter 116 or Chapter 106 of this title (relating to Control of Air Pollution by Permits for New Construction or Modification; and Permits by Rule). If a permit by rule is available for the project, compliance with this subsection must be maintained for 30 days after the filing of documentation of compliance with that permit by rule; or

(B) if authorization by permit, permit amendment, standard permit, or permit by rule is not required for the project, the owner or operator has given the executive director 30 days' notice of the project in writing.

(b) For all persons in Nueces and Victoria Counties, any vent gas streams affected by §115.121(b) of this title must be controlled properly with a control efficiency of at least 90% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices):

(1) in a direct-flame incinerator at a temperature equal to or greater than 1,300 degrees Fahrenheit (704 degrees Celsius);

(2) in a smokeless flare; or

(3) by any other vapor control system, as defined in §115.10 of this title.

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

(1) Any vent gas streams affected by §115.121(c)(1) of this title must be controlled properly:

(A) in a direct-flame incinerator at a temperature equal to or greater than 1,300 degrees Fahrenheit (704 degrees Celsius);

(B) in a smokeless flare; or

(C) by any other vapor control system, as defined in §115.10 of this title, with a control efficiency of at least 90% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices).

(2) Any vent gas streams affected by §115.121(c)(2) of this title must be controlled properly:

(A) in a direct-flame incinerator or boiler at a temperature equal to or greater than 1,300 degrees Fahrenheit (704 degrees Celsius); or

(B) by any other vapor control system, as defined in §115.10 of this title, with a control efficiency of at least 90% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices).

(3) Any vent gas streams affected by §115.121(c)(3) of this title must be controlled properly:

(A) at a temperature equal to or greater than 1,300 degrees Fahrenheit (704 degrees Celsius) in an afterburner having a retention time of at least one-fourth of a second, and having a steady flame that is not affected by the cupola charge and relights automatically if extinguished; or

(B) by any other vapor control system, as defined in §115.10 of this title, with a control efficiency of at least 90% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices).

(4) Any vent gas streams affected by §115.121(c)(4) of this title must be controlled properly:

(A) in a smokeless flare or in a combustion device used in a heating process associated with the operation of a blast furnace; or

(B) by any other vapor control system, as defined in §115.10 of this title, with a control efficiency of at least 90% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices).

§115.123. Alternate Control Requirements.

(a) The alternate control requirements for vent gas streams in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas are as follows.

(1) Alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division (relating to Vent Gas Control) 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.

(2) The owner or operator of a synthetic organic chemical manufacturing industry (SOCMI) reactor process or distillation operation in which vent gas stream emissions are controlled by a control device with a control efficiency of at least 90% which was installed before December 3, 1993 may request an alternate reasonably available control technology (ARACT) determination. The executive director may approve the ARACT if it is determined to be economically unreasonable to replace the control device with a new control device meeting the requirements of §115.122(a)(2) of this title (relating to Control Requirements). Each ARACT approved by the executive director shall include a requirement that the control device be operated at its maximum efficiency. Each ARACT shall only be valid until the control device undergoes a replacement, a modification as defined in 40 Code of Federal Regulations (CFR) §60.14 (October 17, 2000), or a reconstruction as defined in 40 CFR §60.15 (December 16, 1975), at which time the replacement, modified, or reconstructed control device shall meet the requirements of §115.122(a)(2) of this title. Any request for an ARACT determination shall be submitted to the executive director in writing no later than May 31, 1994. The executive director may direct the holder of an ARACT to reapply for an ARACT if it is more than ten years since the date of installation of the control device and there is good cause to believe that it is now economically reasonable to meet the requirements of §115.122(a)(2) of this title. Within three months of an executive director request, the holder of an ARACT shall reapply for an ARACT. If the reapplication for an ARACT is denied, the holder of the ARACT shall meet the requirements of §115.122(a)(2) of this title as soon as practicable, but no later than two years from the date of the executive director's written notification of denial.

(b) For all persons in Nueces and Victoria Counties, alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division may be approved by the executive director in accordance with §115.910 of this title if emission reductions are demonstrated to be substantially equivalent.

(c) For all persons in Aransas, Bexar, Calhoun, Matagorda, San Patricio, and Travis Counties, alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division may be approved by the executive director in accordance with §115.910 of this title if emission reductions are demonstrated to be substantially equivalent.

§115.126. Monitoring and Recordkeeping Requirements.

The owner or operator of any facility which emits volatile organic compounds (VOC) through a stationary vent in Aransas, Bexar, Calhoun, Matagorda, Nueces, San Patricio, Travis, and Victoria Counties or in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas shall maintain the following information at the facility for at least five years, except that the five-year record retention requirement does not apply to records generated before December 31, 2000. The owner or operator shall make the information available upon request to representatives of the executive director, EPA, or any local air pollution control agency having jurisdiction in the area.

(1) Vapor control systems. For vapor control systems used to control emissions in Victoria County and in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas from vents subject to the provisions of §115.121 of this title (relating to Emission Specifications), records of appropriate parameters to demonstrate compliance, including:

(A) continuous monitoring and recording of:

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

(ii) the inlet and outlet gas temperatures of a catalytic incinerator or chiller;

(iii) the exhaust gas VOC concentration of any carbon adsorption system, as defined in §101.1 of this title (relating to Definitions); and

(iv) the exhaust gas temperature immediately downstream of a vapor combustor. Alternatively, the owner or operator of a vapor combustor may consider the unit to be a flare and meet the requirements specified in 40 Code of Federal Regulations (CFR) §60.18(b) and Chapter 111 of this title (relating to Control of Air Pollution from Visible Emissions and Particulate Matter) for flares;

(B) in the Beaumont/Port Arthur, Dallas/Fort Worth, and Houston/Galveston areas, the requirements specified in 40 CFR §60.18(b) and Chapter 111 of this title for flares; and

(C) for vapor control systems other than those specified in subparagraphs (A) and (B) of this paragraph, records of appropriate operating parameters.

(2) Test results. A record of the results of any testing conducted in accordance with §115.125 of this title (relating to Testing Requirements).

(3) Records for exempted vents. Records for each vent exempted from control requirements in accordance with §115.127 of this title (relating to Exemptions) shall be sufficient to demonstrate compliance with the applicable exemption limit, including the following, as appropriate:

(A) the pounds of ethylene emitted per 1,000 pounds of low-density polyethylene produced;

(B) the combined weight of VOC of each vent gas stream on a daily basis;

(C) the concentration of VOC in each vent gas stream on a daily basis;

(D) the maximum design flow rate or VOC concentration of each vent gas stream exempt under §115.127(a)(4)(C) of this title; and

(E) the total design capacity of process units exempt under §115.127(a)(4)(B) of this title.

(4) Alternative records for exempted vents. As an alternative to the requirements of paragraph (3)(B) and (C) of this section, records for each vent exempted from control requirements in accordance with §115.127 of this title and having a VOC emission rate or concentration less than the applicable exemption limits at maximum actual operating conditions shall be sufficient to demonstrate continuous compliance with the applicable exemption limit. These records shall include complete information from either test results or appropriate calculations which clearly documents that the emission characteristics at maximum actual operating conditions are less than the applicable exemption limit. This documentation shall include the operating parameter levels that occurred during any testing, and the maximum levels feasible (either VOC concentration or mass emission rate) for the process.

(5) Bakeries. For bakeries subject to §115.122(a)(3)(A) - (B) of this title (relating to Control Requirements), the following additional requirements apply.

(A) The owner or operator of each bakery in the Houston/Galveston area with a total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, equal to or greater than 25 tons per calendar year, shall submit a control plan no later than March 31, 2001, to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction. The plan shall demonstrate that the overall emission reduction from the uncontrolled VOC emission rate of the oven(s) will be at least 80% by December 31, 2001. At a minimum, the control plan shall include the emission point number (EPN) and the facility identification number (FIN) of each bakery oven and any associated control device, a plot plan showing the location, EPN, and FIN of each bakery oven and any associated control device, and the 2000 VOC emission rates (consistent with the bakery's 2000 emissions inventory). The projected 2002 VOC emission rates shall be calculated in a manner consistent with the 2000 emissions inventory.

(B) All representations in control plans become enforceable conditions. It shall be unlawful for any person to vary from such representations if the variation will cause a change in the identity of the specific emission sources being controlled or the method of control of emissions unless the owner or operator of the bakery submits a revised control plan to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction within 30 days of the change. All control plans shall include documentation that the overall emission reduction from the uncontrolled VOC emission rate of the bakery's oven(s) continues to be at least the specified percentage reduction. The emission rates shall be calculated in a manner consistent with the most recent emissions inventory.

(6) Bakeries (contingency measures). For bakeries subject to §115.122(a)(3)(C) and (D) of this title, the following additional requirements apply.

(A) No later than six months after the commission publishes notification in the *Texas Register* as specified in §115.129(d) or (e) of this title (relating to Counties and Compliance Schedules), the owner or operator of each bakery shall submit an initial control plan to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction which demonstrates that the overall reduction of VOC emissions from the bakery's 1990 emissions inventory will be at least 30%. At a minimum, the control plan shall include the EPN and the FIN of each bakery oven and any associated control device, a plot plan showing the location, EPN, and FIN of each bakery oven and any associated control device, and the 1990 VOC emission rates (consistent with the bakery's 1990 emissions inventory). The projected VOC emission rates shall be calculated in a manner consistent with the 1990 emissions inventory.

(B) In order to document continued compliance with §115.122(a)(3) of this title, the owner or operator of each bakery shall submit an annual report no later than March 31 of each year to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction which demonstrates that the overall reduction of VOC emissions from the bakery's 1990 emissions inventory during the preceding calendar year is at least 30%. At a minimum, the report shall include the EPN and FIN of each bakery oven and any associated control device, a plot plan showing the location, EPN, and FIN of each bakery oven and any associated control device, and the VOC emission rates. The emission rates for the proceeding calendar year shall be calculated in a manner consistent with the 1990 emissions inventory.

(C) All representations in control plans and annual reports become enforceable conditions. It shall be unlawful for any person to vary from such representations if the variation will cause a change in the identity of the specific emission sources being controlled or the method of control of emissions unless the owner or operator of the bakery submits a revised control plan to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction within 30 days of the change. All control plans and reports shall include documentation that the overall reduction of VOC emissions from the bakery's 1990 emissions inventory continues to be at least 30%. The emission rates shall be calculated in a manner consistent with the 1990 emissions inventory.

(7) Additional flare requirements. The owner or operator of a facility that uses a flare to meet the requirements of §115.122(a)(2) of this title shall install, calibrate, maintain, and operate

according to the manufacturer's specifications, a heat-sensing device, such as an ultraviolet beam sensor or thermocouple, at the pilot light to indicate continuous presence of a flame.

§115.127. Exemptions.

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

(1) A vent gas stream from a low-density polyethylene plant is exempt from the requirements of §115.121(a)(1) of this title (relating to Emission Specifications) if no more than 1.1 pounds of ethylene per 1,000 pounds (1.1 kg/1,000 kg) of product are emitted from all the vent gas streams associated with the formation, handling, and storage of solidified product.

(2) The following vent gas streams are exempt from the requirements of §115.121(a)(1) of this title:

(A) a vent gas stream having a combined weight of volatile organic compounds (VOC) equal to or less than 100 pounds (45.4 kg) in any continuous 24-hour period;

(B) a vent gas stream specified in §115.121(a)(1) of this title with a concentration of VOC less than 612 parts per million by volume (ppmv);

(C) a vent gas stream which is subject to §115.121(a)(2) or (3) of this title; and

(D) a vent gas stream which qualifies for exemption under paragraphs (3), (4)(B), (4)(C), (4)(D), (4)(E), or (5) of this subsection.

(3) The following vent gas streams are exempt from the requirements of §115.121(a)(2)(B) - (E) of this title:

(A) a vent gas stream having a combined weight of VOC equal to or less than 100 pounds (45.4 kilograms) in any continuous 24-hour period;

(B) a vent gas stream from any air oxidation synthetic organic chemical manufacturing process with a concentration of VOC less than 612 ppmv; and

(C) a vent gas stream from any liquid phase polypropylene manufacturing process, any liquid phase slurry high-density polyethylene manufacturing process, and any continuous polystyrene manufacturing process with a concentration of VOC less than 408 ppmv.

(4) For synthetic organic chemical manufacturing industry (SOCMI) reactor processes and distillation operations, the following exemptions apply.

(A) Any reactor process or distillation operation that is designed and operated in a batch mode is exempt from the requirements of §115.121(a)(2)(A) of this title. For the purposes of this subparagraph, batch mode means any noncontinuous reactor process or distillation operation which is not characterized by steady-state conditions, and in which the addition of reactants does not occur simultaneously with the removal of products.

(B) Any reactor process or distillation operation operating in a process unit with a total design capacity of less than 1,100 tons per year, for all chemicals produced within that unit, is exempt from the requirements of §115.121(a)(2)(A) of this title.

(C) Any reactor process or distillation operation vent gas stream with a flow rate less than 0.011 standard cubic meters per minute or a VOC concentration less than 500 ppmv is exempt from the requirements of §115.121(a)(2)(A) of this title.

(D) Any distillation operation vent gas stream which meets the requirements of 40 Code of Federal Regulations (CFR) §60.660(c)(4) or §60.662(c) (concerning Subpart NNN--Standards of Performance for VOC Emissions From SOCMI Distillation Operations, December 14, 2000) is exempt from the requirements of §115.121(a)(2)(A) of this title.

(E) Any reactor process vent gas stream which meets the requirements of 40 CFR §60.700(c)(2) or §60.702(c) (concerning Subpart RRR--Standards of Performance for VOC Emissions From SOCMI Reactor Processes, December 14, 2000) is exempt from the requirements of §115.121(a)(2)(A) of this title.

(5) Bakeries are exempt from the requirements of §115.121(a)(3) and §115.122(a)(3) of this title (relating to Emission Specifications and Control Requirements) if the total weight of VOC emitted from all bakery ovens on the property, when uncontrolled, is less than 25 tons per calendar year.

(6) A vent gas stream is exempt from this division (relating to Vent Gas Control) if all of the VOCs in the vent gas stream originate from a source(s) for which another division within Chapter 115 (for example, Storage of Volatile Organic Compounds) has established a control requirement(s), emission specification(s), or exemption(s) which applies to that VOC source category in that county.

(7) A combustion unit exhaust stream is exempt from this division provided that the unit is not being used as a control device for any vent gas stream which is subject to this division and which originates from a non-combustion source.

(8) As an alternative to complying with the requirements of this division (or, in the case of bakeries, as an alternative to complying with the requirements of §115.121(a)(1) and §115.122(a)(1) of this title) for a source that is addressed by a Chapter 115 contingency rule (i.e., one in which Chapter 115 requirements are triggered for that source by the commission publishing notification in the *Texas Register* that implementation of the contingency rule is necessary), the owner or operator of that source may instead choose to comply with the requirements of the contingency rule as though the contingency rule already had been implemented for that source. The owner or operator of each source choosing this option shall submit written notification to the executive director and any local air pollution control program with jurisdiction. When the executive director and the local program (if

any) receive such notification, the source will then be considered subject to the contingency rule as though the contingency rule already had been implemented for that source.

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

(1) A vent gas stream from a low-density polyethylene plant is exempt from the requirements of §115.121(b)(1) of this title if no more than 1.1 pounds of ethylene per 1,000 pounds (1.1 kg/1,000 kg) of product are emitted from all the vent gas streams associated with the formation, handling, and storage of the solidified product.

(2) The following vent gas streams are exempt from the requirements of §115.121(b) of this title:

(A) a vent gas stream having a combined weight of the VOC or classes of compounds specified in §115.121(b)(2) and (3) of this title equal to or less than 100 pounds (45.4 kg) in any continuous 24-hour period; and

(B) a vent gas stream with a concentration of the VOC or classes of compounds specified in §115.121(b)(2) and (3) of this title less than 30,000 ppmv.

(3) A vent gas stream is exempt from this division if all of the VOCs in the vent gas stream originate from a source(s) for which another division within Chapter 115 (for example, Storage of Volatile Organic Compounds) has established a control requirement(s), emission specification(s), or exemption(s) which applies to that VOC source category in that county.

(4) A combustion unit exhaust stream is exempt from this division provided that the unit is not being used as a control device for any vent gas stream which is subject to this division and which originates from a non-combustion source.

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

(1) The following vent gas streams are exempt from the requirements of §115.121(c)(1) of this title:

(A) a vent gas stream from a low-density polyethylene plant provided that no more than 1.1 pounds of ethylene per 1,000 pounds (1.1 kg/1,000 kg) of product are emitted from all the vent gas streams associated with the formation, handling, and storage of solidified product;

(B) a vent gas stream having a combined weight of the VOC or classes of compounds specified in §115.121(c)(1)(B) - (C) of this title equal to or less than 100 pounds (45.4 kg) in any continuous 24-hour period; and

(C) a vent gas stream having a concentration of the VOC specified in §115.121(c)(1)(B) and (C) of this title less than 30,000 ppmv.

(2) A vent gas stream specified in §115.121(c)(2) of this title which emits less than or equal to five tons (4,536 kg) of total uncontrolled VOC in any one calendar year is exempt from the requirements of §115.121(c)(2) of this title.

(3) A vent gas stream is exempt from this division if all of the VOCs in the vent gas stream originate from a source(s) for which another division within Chapter 115 (for example, Storage of Volatile Organic Compounds) has established a control requirement(s), emission specification(s), or exemption(s) which applies to that VOC source category in that county.

(4) A combustion unit exhaust stream is exempt from this division provided that the unit is not being used as a control device for any vent gas stream which is subject to this division and which originates from a non-combustion source.

§115.129. Counties and Compliance Schedules.

(a) The owner or operator of each vent gas stream in Aransas, Bexar, Brazoria, Calhoun, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Matagorda, Montgomery, Nueces, Orange, San Patricio, Tarrant, Travis, Victoria, and Waller Counties shall continue to comply with this division (relating to Vent Gas Control) as required by §115.930 of this title (relating to Compliance Dates).

(b) The owner or operator of each bakery in Collin, Dallas, Denton, and Tarrant Counties subject to §115.122(a)(3)(C) of this title (relating to Control Requirements) shall comply with §§115.121(a)(3), 115.122(a)(3)(C), and 115.126(6) of this title (relating to Emission Specifications; Control Requirements; and Monitoring and Recordkeeping Requirements) 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 FCAA, §172(c)(9).

(c) The owner or operator of each bakery in El Paso County subject to §115.122(a)(3)(D) of this title shall comply with §§115.121(a)(3), 115.122(a)(3)(D), and 115.126(6) of this title 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 FCAA, §172(c)(9).

SUBCHAPTER B: GENERAL VOLATILE ORGANIC COMPOUND SOURCES
DIVISION 4: INDUSTRIAL WASTEWATER
§§115.142 - 115.144, 115.147, 115.149

STATUTORY AUTHORITY
The amendments are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendments are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.142. Control Requirements.

The owner or operator of an affected source category within a plant in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas, as defined in §115.10 of this title (relating to Definitions), shall comply with the following control requirements. Any component of a wastewater storage, handling, transfer, or treatment facility, if the component contains an affected volatile organic compounds (VOC) wastewater stream, shall be controlled in accordance with either paragraph (1) or (2) of this section, except for properly operated biotreatment units which shall meet the requirements of paragraph (3) of this section. In the Dallas/Fort Worth and El Paso areas, and until December 31, 2002 in the Houston/Galveston area, the control requirements apply from the point of generation of an affected VOC wastewater stream until the affected VOC wastewater stream is either returned to a process unit or is treated to remove VOC so that the wastewater stream no longer meets the definition of an affected VOC wastewater stream. In the Beaumont/Port Arthur area, and after December 31, 2002 in the Houston/Galveston area, the control requirements apply from the point of generation of an affected VOC wastewater stream until the affected VOC wastewater stream is either returned to a process unit, or is treated to reduce the VOC content of the wastewater stream by 90% by weight and also reduce the VOC content of the same VOC wastewater stream to less than 1,000 parts per million by weight. For wastewater streams which are combined and then treated to remove VOC, the amount of VOC to be removed from the combined wastewater stream shall be at least the total amount of VOC that would be removed to treat each individual affected VOC wastewater stream so that they no longer meet the definition of affected VOC wastewater stream, except for properly operated biotreatment units which shall meet the requirements of paragraph (3) of this section. For this division, a component of a wastewater storage, handling, transfer, or treatment facility shall include, but is not limited to, wastewater storage tanks, surface impoundments, wastewater drains, junction boxes, lift stations, weirs, and oil-water separators.

(1) The wastewater component shall meet the following requirements.

(A) All components shall be fully covered or be equipped with water seal controls. For any component equipped with water seal controls, the only acceptable alternative to water as the sealing liquid in a water seal is the use of ethylene glycol, propylene glycol, or other low vapor pressure antifreeze, which may be used only during the period of November through February. For any process drain not equipped with water seal controls, the process drain shall be equipped with a gasketed seal, or a tightly-fitting cap or plug.

(B) All openings shall be closed and sealed, except when the opening is in actual use for its intended purpose or the component is maintained at a pressure less than atmospheric pressure.

(C) All liquid contents shall be totally enclosed.

(D) For junction boxes and vented covers, the following requirements apply.

(i) In the Dallas/Fort Worth and El Paso areas, and until December 31, 2002 in the Houston/Galveston area, if any cover, other than a junction box cover, is equipped with a vent, the vent shall be equipped with either a vapor control system which maintains a minimum control efficiency of 90% or a closed system which prevents the flow of VOC vapors from the vent during normal operation. Any junction box vent shall be equipped with a vent pipe at least 90 centimeters (cm) (36 inches (in.)) in length and no more than 10.2 cm (4.0 in.) in diameter.

(ii) In the Beaumont/Port Arthur area, and after December 31, 2002 in the Houston/Galveston area, the following requirements apply.

(I) If any cover or junction box cover, except for junction boxes described in subclause (II) of this clause, is equipped with a vent, the vent shall be equipped with either a vapor control system which maintains a minimum control efficiency of 90% or a closed system which prevents the flow of VOC vapors from the vent during normal operation.

(II) Any junction box that is filled and emptied by gravity flow (i.e., there is no pump) or is operated with no more than slight fluctuations in the liquid level may be vented to the atmosphere, provided it is equipped with:

(-a-) a vent pipe at least 90 cm (36 in.) in length and no more than 10.2 cm (4.0 in.) in diameter; and

(-b-) water seal controls which are installed and maintained at the wastewater entrance(s) to or exit from the junction box restricting ventilation in the individual drain system and between components in the individual drain system.

(E) All gauging and sampling devices shall be vapor-tight except during gauging or sampling.

(F) Any loading or unloading to or from a portable container by pumping shall be performed with a submerged fill pipe.

(G) All seals and cover connections shall be maintained in proper condition. For purposes of this paragraph, "proper condition" means that covers shall have a tight seal around the edge and shall be kept in place except as allowed by this division, that seals shall not be broken or have gaps, and that sewer lines shall have no visible gaps or cracks in joints, seals, or other emission interfaces.

(H) If any seal or cover connection is found to not be in proper condition, a first attempt at repair shall be made no later than five calendar days after the leak or improper condition is found. The repair or correction shall be completed as soon as possible but no later than 15 calendar days after detection, unless the repair or correction is technically infeasible without requiring a process unit shutdown, in which case the repair or correction shall be made at the next process unit shutdown. Test Method 21 must be used to confirm that a leak or improper condition is repaired, and the following records shall be maintained:

(i) the date on which a leak or improper condition is discovered;

(ii) the date on which a first attempt at repair was made to correct the leak or improper condition;

(iii) the date on which a leak or improper condition is repaired; and

(iv) the date and instrument reading of the recheck procedure after a leak or improper condition is repaired.

(2) If a wastewater component is equipped with an internal or external floating roof, it shall meet the following requirements.

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

(B) Automatic bleeder vents (vacuum breaker vents) shall 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, shall 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 provided 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, the secondary seals shall be the rim-mounted type (i.e., the seal shall be continuous from the floating roof to the tank wall). The accumulated area of gaps that exceed 1/8 in. (0.32 cm) in width between the secondary seal and tank wall shall be no greater than 1.0 $in.^2$ per foot (21 cm^2/meter) of tank diameter.

(3) In the Beaumont/Port Arthur area, and after December 31, 2002 in the Houston/Galveston area, each properly operated biotreatment unit shall meet the following requirements.

(A) The VOC content of the wastewater shall be reduced by 90% by weight; and

(B) The average concentration of suspended biomass maintained in the aeration basin of the biotreatment unit shall equal or exceed 1.0 kilogram per cubic meter (kg/m3), measured as total suspended solids.

(4) Any wastewater component that becomes subject to this division by exceeding the provisions of §115.147 of this title (relating to Exemptions) or an affected VOC wastewater stream as defined in §115.140 of this title (relating to Industrial Wastewater Definitions) will remain subject to the requirements of this division, even if the component later falls below those provisions, unless and until emissions are reduced to no more than the controlled emissions level existing prior to the implementation of the project by which throughput or emission rate was reduced to less than the applicable exemption levels in §115.147 of this title; and

(A) the project by which throughput or emission rate was reduced is authorized by any permit or permit amendment or standard permit or permit by rule required by Chapter 116 or Chapter 106 of this title (relating to Control of Air Pollution by Permits for New Construction or Modification; and Permits by Rule). If a permit by rule is available for the project, compliance with this division must be maintained for 30 days after the filing of documentation of compliance with that permit by rule; or

(B) if authorization by permit, permit amendment, standard permit, or permit by rule is not required for the project, the owner or operator has given the executive director 30 days' notice of the project in writing.

§115.143. Alternate Control Requirements.

(a) Alternate means of control. Alternate methods of demonstrating and documenting continuous compliance with the applicable control requirements or exemption criteria in this division (relating to Industrial Wastewater) 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.

(b) 90% overall control option. As an alternative to the control requirements of §115.142 of this title (relating to Control Requirements), the owner or operator of a wastewater storage, handling, transfer, or treatment facility may elect to ensure that the overall control of volatile organic compounds (VOC) emissions at the account from wastewater from affected source categories is at least 90% less than the 1990 baseline emissions inventory, provided that the following requirements are met.

(1) To qualify for the control option available under this subsection after December 31, 1996, the owner or operator of a wastewater component for which a control plan was not previously submitted shall submit a control plan to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction which demonstrates that the overall control of VOC emissions at the account from wastewater from affected source categories will be at least 90% less than the 1990 baseline emissions inventory. Any control plan submitted after December 31, 1996, must be approved by the executive director before the owner or operator may use the control option available under this subsection for compliance. At a minimum, the control plan shall include the applicable emission point number (EPN); the facility identification number (FIN); the calendar year 1990 emission rates of wastewater from affected source categories (consistent with the 1990 emissions inventory); a plot plan showing the location, EPN, and FIN associated with a wastewater storage, handling, transfer, or treatment facility; the VOC emission rates for the preceding calendar year; and an explanation of the recordkeeping procedure and calculations which will be used to demonstrate compliance. The VOC emission rates shall be calculated in a manner consistent with the 1990 emissions inventory.

(2) The owner or operator shall submit an annual report no later than March 31 of each year to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction, which demonstrates that the overall control of VOC emissions at the account from wastewater from affected source categories during the preceding calendar year is at least 90% less than the 1990 baseline emissions inventory. At a minimum, the report shall include the EPN; FIN; the throughput of wastewater from affected source categories; a plot plan showing the location, EPN, and FIN associated with a wastewater storage, handling, transfer, or treatment facility; and the VOC emission rates for the preceding calendar year. The emission rates for the preceding calendar year shall be calculated in a manner consistent with the 1990 emissions inventory.

(3) All representations in control plans and annual reports become enforceable conditions. It shall be unlawful for any person to vary from such representations if the variation will cause a change in the identity of the specific emission sources being controlled or the method of control of emissions unless the owner or operator submits a revised control plan to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction no later than 30 days after the change. All control plans and reports shall include documentation that the overall reduction of VOC emissions at the account from wastewater from affected source categories continues to be at least 90% less than the 1990 baseline emissions inventory. The emission rates shall be calculated in a manner consistent with the 1990 emissions inventory.

(c) The owner or operator of an affected source category within a plant may elect to comply with the provisions of 40 Code of Federal Regulations 63, Subpart G (National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for

Process Vents, Storage Vessels, Transfer Operations, and Wastewater, January 22, 2001) as an alternative to complying with this division, provided that:

(1) the term "VOC" is substituted each place that Subpart G references the term "hazardous air pollutant" or "HAP";

(2) in Table 9 of Appendix to Subpart G - Table and Figures, the average fraction removed (FR) value required for VOC not specifically listed in this table is 0.90; and

(3) before implementing the option available under this subsection, the owner or operator provides written notice to the executive director, the appropriate regional office, and any local air pollution control program with jurisdiction of the intention to use this option.

§115.144. Inspection and Monitoring Requirements.

The owner or operator of an affected source category within a plant in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas shall comply with the following inspection and monitoring requirements.

(1) All seals and covers used to comply with §115.142(1) of this title (relating to Control Requirements) shall be inspected according to the following schedules to ensure compliance with §115.142(1)(G) and (H) of this title:

(A) initially and semiannually thereafter to ensure compliance with §115.142(1)(G) of this title; and

(B) upon completion of repair to ensure compliance with §115.142(1)(G) and (H) of this title.

(2) Floating roofs and internal floating covers used to comply with §115.142(2) of this title shall be subject to the following requirements. All secondary seals shall be inspected according to the following schedules to ensure compliance with §115.142(2)(E) and (F) of this title.

(A) If the primary seal is vapor-mounted, the secondary seal gap area shall be physically measured annually to ensure compliance with §115.142(2)(F) of this title.

(B) If the tank is equipped with a mechanical shoe or liquid-mounted primary seal, compliance with §115.142(2)(F) of this title may be determined by visual inspection.

(C) All secondary seals shall be visually inspected semiannually to ensure compliance with §115.142(2)(E) and (F) of this title.

(3) Monitors shall be installed and maintained as required by this section to measure operational parameters of any emission control device or other device installed to comply with §115.142 of this title. Such monitoring and parameters shall be sufficient to demonstrate proper

functioning of those devices to design specifications, and include the monitoring and parameters listed in subparagraphs (A) - (H) of this paragraph, as applicable. In lieu of the monitoring and parameters listed in subparagraphs (A) - (H) of this paragraph, other monitoring and parameters may be approved or required by the executive director:

(A) for an enclosed non-catalytic combustion device (including, but not limited to, a thermal incinerator, boiler, or process heater), continuously monitor and record the temperature of the gas stream either in the combustion chamber or immediately downstream before any substantial heat exchange;

(B) for a catalytic incinerator, continuously monitor and record the temperature of the gas stream immediately before and after the catalyst bed;

(C) for a condenser (chiller), continuously monitor and record the temperature of the gas stream at the condenser exit;

(D) for a carbon adsorber, continuously monitor and record the VOC concentration of exhaust gas stream to determine if breakthrough has occurred. If the carbon adsorber does not regenerate the carbon bed directly in the control device (e.g., a carbon canister), the exhaust gas stream shall be monitored daily or at intervals no greater than 20% of the design replacement interval, whichever is greater, or as an alternative to conducting monitoring, the carbon may be replaced with fresh carbon at a regular predetermined time interval that is less than the carbon replacement interval that is determined by the maximum design flow rate and the VOC concentration in the gas stream vented to the carbon adsorber;

(E) for a flare, meet the requirements specified in 40 Code of Federal Regulations §60.18(b) and Chapter 111 of this title (relating to Control of Air Pollution from Visible Emissions and Particulate Matter);

(F) for a steam stripper, continuously monitor and record the steam flow rate, the wastewater feed mass flow rate, the wastewater feed temperature, and condenser vapor outlet temperature;

(G) for a vapor combustor, continuously monitor and record the exhaust gas temperature either in the combustion chamber or immediately downstream before any substantial heat exchange. Alternatively, the owner or operator of a vapor combustor may consider the unit to be a flare and meet the requirements of subparagraph (E) of this paragraph; and

(H) for vapor control systems other than those specified in subparagraphs (A) - (G) of this paragraph, continuously monitor and record the appropriate operating parameters.

(4) In the Beaumont/Port Arthur and Houston/Galveston areas, units used to comply with §115.142(3) of this title shall:

(A) initially demonstrate a 90% reduction in VOCs by using the methods in §115.145 of this title (relating to Approved Test Methods); and

(B) measure on a weekly basis the total suspended solids in the aeration basin of the biotreatment unit.

(5) All water seal controls shall be inspected weekly to ensure that the water seal controls are effective in preventing ventilation, except that daily inspections are required for those seals that have failed three or more inspections in any 12-month period. Upon request by the executive director, EPA, or any local program with jurisdiction, the owner or operator shall demonstrate (e.g., by visual inspection or smoke test) that the water seal controls are properly designed and restrict ventilation.

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

§115.147. Exemptions.

The following exemptions apply in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas.

(1) Any plant with an annual volatile organic compounds (VOC) loading in wastewater, as determined in accordance with §115.148 of this title (relating to Determination of Wastewater Characteristics), less than or equal to ten megagrams (Mg) (11.03 tons) is exempt from the control requirements of §115.142 of this title (relating to Control Requirements).

(2) At any plant with an annual VOC loading in wastewater, as determined in accordance with §115.148 of this title greater than ten Mg (11.03 tons), any person who is the owner or operator of the plant may exempt from the control requirements of §115.142 of this title one or more affected VOC wastewater streams for which the sum of the annual VOC loading in wastewater for all of the exempted streams is less than or equal to ten Mg (11.03 tons).

(3) Unless specifically required by this division (relating to Industrial Wastewater), any piece of equipment of a wastewater storage, handling, transfer, or treatment facility to which the control requirements of §115.142 of this title apply is exempt from the requirements of any other division of this chapter. This paragraph does not apply to pieces of equipment or components which are subject to the requirements of Subchapter D, Division 3, and/or Subchapter H of this chapter (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas; and Highly-Reactive Volatile Organic Compounds).

(4) If compliance with the control requirements of §115.142 of this title would create a safety hazard in a component of a wastewater storage, handling, transfer, or treatment facility, the

owner or operator may request the executive director to exempt that component from the control requirements of §115.142 of this title. The executive director shall approve the request if justified by the likelihood and magnitude of the potential injury and if the executive director determines that reducing or eliminating the hazard is technologically or economically unreasonable based on the emissions reductions that would be achieved.

(5) Wet weather retention basins are exempt from the requirements of this division.

(6) Petroleum refineries in the Beaumont/Port Arthur area are exempt from the requirements of this division.

(7) The following exemptions apply to petroleum refineries in the Houston/Galveston area.

(A) Petroleum refineries are exempt from the requirement in §115.142 of this title that after December 31, 2002, the control requirements apply from the point of generation of an affected VOC wastewater stream until the affected VOC wastewater stream is either returned to a process unit, or is treated to reduce the VOC content of the wastewater stream by 90% by weight and also reduce the VOC content of the same VOC wastewater stream to less than 1,000 parts per million by weight, provided that petroleum refineries continue to apply the requirement in §115.142 of this title that the control requirements apply from the point of generation of an affected VOC wastewater stream until the affected VOC wastewater stream is either returned to a process unit, or is treated to remove VOC so that the wastewater stream no longer meets the definition of an affected VOC wastewater stream.

(B) Junction boxes are exempt from the requirements of §115.142(1)(D)(ii) of this title, provided that after December 31, 2002 they continue to comply with the requirements of §115.142(1)(D)(i) of this title.

(C) Properly operated biotreatment units are exempt from the requirements of §§115.142(3), 115.144(4), and 115.145(7) and (8) of this title (relating to Control Requirements; Inspection and Monitoring Requirements; and Approved Test Methods).

§115.149. Counties and Compliance Schedules.

(a) The owner or operator of each affected source category within a plant in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Harris, Liberty, Montgomery, Tarrant, and Waller Counties shall continue to comply with this division (relating to Industrial Wastewater) as required by §115.930 of this title (relating to Compliance Dates).

(b) The owner or operator of each affected source category within a plant in Hardin, Jefferson, and Orange Counties shall be in compliance with this division as soon as practicable, but no later than December 31, 2002.

(c) The owner or operator of each affected source category within a plant in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall control all junction boxes equipped with pumps in accordance with §115.142(1)(D)(ii)(II) of this title (relating to Control Requirements) as soon as practicable, but no later than December 31, 2002.

(d) The owner or operator of each affected source category within a plant in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall control all biotreatment units in accordance with §115.142(3) and §115.144(4) of this title (relating to Control Requirements; and Inspection and Monitoring Requirements) as soon as practicable, but no later than December 31, 2002.

(e) The owner or operator of each affected source category within a plant in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, Tarrant, and Waller Counties shall comply with the requirement in §115.142(1)(A) of this title for gasketed seals or tightly-fitting caps or plugs on process drains not equipped with water seal controls as soon as practicable, but no later than December 31, 2003.

(f) The owner or operator of each affected source category within a plant in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, Tarrant, and Waller Counties shall comply with the requirement in §115.142(1)(H) of this title for a first attempt at repair within five calendar days and for follow-up monitoring as soon as practicable, but no later than December 31, 2003.

(g) The owner or operator of each affected source category within a plant in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, Tarrant, and Waller Counties shall comply with the requirements in §115.144(5) and (6) of this title for water seal inspections and inspections of process drains not equipped with water seals as soon as practicable, but no later than December 31, 2003.

SUBCHAPTER B: GENERAL VOLATILE ORGANIC COMPOUND SOURCES
DIVISION 6: BATCH PROCESSES
§§115.160, 115.161, 115.166, 115.167

STATUTORY AUTHORITY
The amendments are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendments are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.160. Batch Process Definitions.

The following words and terms, when used in this division (relating to Batch Processes), shall 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) **Aggregated** - The summation of all process vents containing volatile organic compounds (VOC) within a process.

(2) **Annual mass emissions total** - The sum of all VOC emissions (pounds per year), evaluated before control but after the last recovery device, from a process vent. Annual mass emissions shall be calculated from an individual process vent or groups of process vents by using emission estimation equations contained in Chapter 3 of EPA's Control of Volatile Organic Compound Emissions from Batch Processes-Alternative Control Techniques Information Document (EPA-453/R-94-020, February 1994) and then multiplying by the historical duration and frequency of the emission or groups of emissions over the course of a year. For process vents that are included in a new source review air permit, standard permit, or permit by rule registered by Form PI-8, the annual mass emissions total shall be based on the maximum allowable emission rate (MAER) levels in the permit or Form PI-8 (adjusted to represent the level before control, but after the last recovery device), whether they correspond to the maximum design production potential or to the actual annual production estimate.

(3) **Average flow rate** - The flow rate in standard cubic feet per minute (scfm) averaged over the amount of time that VOCs are emitted during an emission event. For the evaluation of average flow rate from an aggregate of sources, the average flow rate is the weighted average of the average flow rates of the emission events and their annual venting time, or:

Figure: 30 TAC §115.160(3)

$$\text{Average flow rate} = \frac{\sum(F)(D)}{\sum D}$$

where:

F = Average flow rate per emission event

D = Annual duration of emission event

(4) **Batch** - A noncontinuous process involving the bulk movement of material through sequential manufacturing steps. Mass, temperature, concentration, and other properties of a system vary with time. Batch processes are not characterized by steady-state conditions. Reactants are not added and products are not removed simultaneously.

(5) **Batch cycle** - A manufacturing event of an intermediate or product from start to finish in a batch process.

(6) **Batch process (for the purpose of determining reasonably available control technology (RACT) applicability)** - The batch equipment assembled and connected by pipes, or otherwise operated in a sequence of steps, to manufacture a product in a batch fashion.

(7) **Batch process train** - An equipment train that is used to produce a product or intermediates in batch fashion. A typical equipment train consists of equipment used for the synthesis, mixing, and purification of a material.

(8) **Emissions before control** - The emissions total before the application of a control device but after the last recovery device, or the emissions total if no control device is used. The emissions total may not be reduced to account for discharge of VOC into wastewater if the wastewater is further handled or processed with the potential for VOC emissions to the atmosphere.

(9) **Primary fuel** - The fuel that provides the principal heat input to a device. To be considered a primary fuel, the fuel must be able to sustain operation without the addition of other fuels.

(10) **Process vent** - A vent gas stream that is discharged from a batch process. Process vents include gas streams that are discharged directly to the atmosphere or are discharged to the atmosphere after diversion through a recovery device. Process vents exclude relief valve discharges, leaks from equipment, vents from storage tanks, vents from transfer/loading operations, and vents from wastewater. Process gaseous streams that are used as primary fuels are also excluded. The lines that transfer such fuels to a plant fuel gas system are not considered to be vents.

(11) **RACT** - Reasonably available control technology.

(12) **Recovery device** - An individual unit of equipment capable of and used for recovering chemicals for use, reuse, or sale. Recovery devices include, but are not limited to, absorbers, carbon adsorbers, and condensers.

(13) **Unit operations** - Those discrete processing steps that occur within distinct equipment that are used to prepare reactants, facilitate reactions, separate and purify products, and recycle materials.

(14) **Volatility** - As follows.

(A) Low volatility VOCs are those which have a vapor pressure less than or equal to 75 millimeters of mercury (mm Hg) at 20 degrees Celsius.

(B) Moderate volatility VOCs are those which have a vapor pressure greater than 75 and less than or equal to 150 mm Hg at 20 degrees Celsius.

(C) High volatility VOCs are those which have a vapor pressure greater than 150 mm Hg at 20 degrees Celsius.

(D) To evaluate VOC volatility for single unit operations that service numerous VOCs or for processes handling multiple VOCs, the weighted average volatility can be calculated from the total amount of each VOC emitted in a year and the individual component vapor pressure, as follows.

Figure: 30 TAC §115.160(14)(D)

$$\text{Weighted average volatility} = \frac{\sum Vp_i \times (M_i / MW_i)}{\sum (M_i / MW_i)}$$

where:

Vp_i = Vapor pressure of VOC component i
M_i = Mass of VOC component i
MW_i = Molecular weight of VOC component i

§115.161. Applicability.

(a) The provisions of §§115.162 - 115.167 of this title (relating to Control Requirements; Alternate Control Requirements; Determination of Emissions and Flow Rates; Approved Test Methods and Testing Requirements; Monitoring and Recordkeeping Requirements; and Exemptions) apply to vent gas streams at batch process operations in the Beaumont/Port Arthur and Houston/Galveston areas, as defined in §115.10 of this title (relating to Definitions), under the following Standard Industrial Classification (SIC) codes:

(1) 2821 (plastic resins and materials);

(2) 2833 (medicinals and botanicals);

(3) 2834 (pharmaceutical preparations);

(4) 2861 (gum and wood chemicals);

(5) 2865 (cyclic crudes and intermediates);

(6) 2869 (industrial organic chemicals, not elsewhere classified); and

(7) 2879 (agricultural chemicals, not elsewhere classified).

(b) Any batch process operation that is exempt under §115.167(1) or (2)(A) of this title is subject to the requirements of Division 2 of this subchapter (relating to Vent Gas Control).

(c) Any batch process in the Houston/Galveston area in which a highly-reactive volatile organic compound, as defined in §115.10 of this title, is a raw material, intermediate, final product, or in a waste stream is subject to the requirements of Subchapter H of this chapter (relating to Highly-Reactive Volatile Organic Compounds) in addition to the applicable requirements of either this division (relating to Batch Processes) or Division 2 of this subchapter, whichever of these two divisions applies.

§115.166. Monitoring and Recordkeeping Requirements.

The owner or operator of each batch process operation in the Beaumont/Port Arthur and Houston/Galveston areas shall maintain the following information for at least five years at the plant, as defined by its air quality account number, except that the five-year record retention requirement does not apply to records generated before December 31, 2000. The owner or operator shall make the information available upon request to representatives of the executive director, EPA, or any local air pollution control agency having jurisdiction in the area:

(1) Vapor control systems. For vapor control systems used to control emissions from batch process operations, records of appropriate parameters to demonstrate compliance, including:

(A) continuous monitoring and recording of:

(i) for a direct-flame incinerator, the exhaust gas temperature in the firebox or in the ductwork immediately downstream of the firebox before any substantial heat exchange. The temperature monitoring device shall have an accuracy of ±0.5 degrees Celsius, or alternatively, ±1.0%;

(ii) for a catalytic incinerator, the exhaust gas temperature immediately before and after the catalyst bed. The temperature monitoring device shall have an accuracy of ±0.5 degrees Celsius, or alternatively, ±1.0%;

(iii) for an absorber, either:

(I) the scrubbing liquid temperature. The temperature monitoring device shall have an accuracy of ±1.0% of the temperature being monitored in degrees Celsius, or alternatively, ±0.02 specific gravity unit; or

(II) the concentration level of volatile organic compounds (VOC) exiting the recovery device based on a detection principle such as infrared, photoionization, or thermal conductivity;

(iv) for a condenser or refrigeration system, either:

(I) the condenser exit temperature. The temperature monitoring device shall have an accuracy of ±1.0% of the temperature being monitored in degrees Celsius, or alternatively, ±0.5 degrees Celsius; or

(II) the concentration level of VOC exiting the recovery device based on a detection principle such as infrared, photoionization, or thermal conductivity;

(v) for a carbon adsorption system, as defined in §101.1 of this title (relating to Definitions), either:

(I) steam flow (using an integrating steam flow monitoring device) and the carbon bed temperature. The steam flow monitor shall have an accuracy of ±10%. The temperature monitor shall have an accuracy of ±1.0% of the temperature being monitored in degrees Celsius, or ±0.5 degrees Celsius, whichever is greater; or

(II) the concentration level of VOC exiting the recovery device based on a detection principle such as infrared, photoionization, or thermal conductivity;

(vi) for a pressure swing adsorption unit that is the final recovery device, the temperature of the bed near the inlet and near the outlet. The temperature monitoring device shall have an accuracy of ±1.0% of the temperature being monitored in degrees Celsius, or ±0.5 degrees Celsius; and

(vii) for a vapor combustor, the exhaust gas temperature in the firebox or in the ductwork immediately downstream of the firebox before any substantial heat exchange. The temperature monitoring device shall have an accuracy of ±0.5 degrees Celsius, or alternatively, ±1.0%. Alternatively, the owner or operator of a vapor combustor may consider the unit to be a flare and meet the requirements of subparagraph (B) of this paragraph;

(B) for flares, the requirements specified in 40 Code of Federal Regulations §60.18(b) and Chapter 111 of this title (relating to Control of Air Pollution from Visible Emissions and Particulate Matter); and

(C) for vapor control systems other than those specified in subparagraphs (A) and (B) of this paragraph, records of appropriate operating parameters.

(2) Process vents. A record of the following emission stream parameters for each process vent contained in the batch process:

(A) the annual mass emission total and documentation verifying these values. If emission estimate equations are used, the documentation shall be the calculations coupled with the expected or permitted (if available) number of emission events per year; and

(B) the average flow rate in standard cubic feet per minute and documentation verifying these values.

(3) Performance test monitoring parameters. Records of the following parameters required to be measured during a performance test required under §115.165 of this title (relating to Approved Test Methods and Testing Requirements) and required to be monitored under paragraph (1) of this section:

(A) where an owner or operator seeks to demonstrate compliance with §115.162 of this title (relating to Control Requirements) through use of either a direct-flame or catalytic incinerator, the average firebox temperature of the incinerator (or the average temperature upstream and downstream of the catalyst bed for a catalytic incinerator), measured continuously and averaged over the same time period as the performance test;

(B) where an owner or operator seeks to demonstrate compliance with §115.162 of this title through use of a smokeless flare, the flare design (i.e., steam-assisted, air-assisted, or nonassisted), all visible emissions readings, heat content determinations, flow rate measurements, and exit velocity determinations made during the performance test; continuous flare pilot flame monitoring; and all periods of operations during which the pilot flame is absent; and

(C) where an owner or operator seeks to demonstrate compliance with §115.162 of this title:

(i) with an absorber as the final control device, the exit specific gravity (or alternative parameter which is a measure of the degree of absorbing liquid saturation, if approved by the executive director) and average exit temperature of the absorbing liquid measured continuously and averaged over the same time period as the performance test (both measured while the vent stream is routed normally);

(ii) with a condenser as the control device, the average exit (product side) temperature measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally;

(iii) with a carbon adsorption system as the control device, the total steam mass flow measured continuously and averaged over the same time period as the performance test (full carbon bed cycle), temperature of the carbon bed after regeneration (and within 15 minutes of completion of any cooling cycle(s)), and duration of the carbon bed steaming cycle (all measured while the vent stream is routed normally);

(iv) the concentration level or reading indicated by an organic monitoring device at the outlet of the absorber, condenser, or carbon adsorption system, measured continuously and averaged over the same time period as the performance test while the vent stream is routed normally; and

(v) with a pressure swing adsorption unit as the final recovery device, the temperature of the bed near the inlet and near the outlet. The temperature monitoring device shall have an accuracy of ±1.0% of the temperature being monitored in degrees Celsius, or ±0.5 degrees Celsius.

§115.167. Exemptions.

The following exemptions apply.

(1) Batch process operations at an account which has total volatile organic compound (VOC) emissions (determined before control but after the last recovery device) of less than the following rates from all stationary emission sources included in the account are exempt from the requirements of this division (relating to Batch Processes), except for §115.161(b) and (c) of this title (relating to Applicability):

(A) 100 tons per year (tpy) in the Beaumont/Port Arthur area; and

(B) 25 tpy in the Houston/Galveston area.

(2) The following are exempt from the requirements of this division, except for §§115.161(b) and (c), 115.164, and 115.166(2) and (3) of this title (relating to Applicability; Determination of Emissions and Flow Rates; and Monitoring and Recordkeeping Requirements).

(A) Combined vents from a batch process train which have the following annual mass emissions total.

Figure: 30 TAC §115.167(2)(A)

Volatility Range	**Lower Limit of Annual Mass Emissions Total in pounds per year (lb/yr)**
Low	26,014
Moderate	15,935

High	23,154

(B) Single unit operations that have an annual mass emissions total of 500 pounds per year or less.

SUBCHAPTER C: VOLATILE ORGANIC COMPOUND TRANSFER OPERATIONS
DIVISION 1: LOADING AND UNLOADING OF VOLATILE ORGANIC COMPOUNDS
§§115.211, 115.215, 115.219

STATUTORY AUTHORITY
The amendments are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendments are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.211. Emission Specifications.

The owner or operator of each gasoline terminal in the covered attainment counties and in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas, as defined in §115.10 of this title (relating to Definitions), shall ensure that volatile organic compound (VOC) emissions from the vapor control system vent at gasoline terminals do not exceed the following rates:

(1) in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas, 0.09 pound per 1,000 gallons (10.8 mg/liter) of gasoline loaded into transport vessels.

(2) in the covered attainment counties, 0.17 pound per 1,000 gallons (20 mg/liter) of gasoline loaded into transport vessels.

§115.215. Approved Test Methods.

Compliance with the emission specifications, vapor control system efficiency, and certain control requirements, inspection requirements, and exemption criteria of §§115.211 - 115.214 and 115.217 of this title (relating to Loading and Unloading of Volatile Organic Compounds) shall be determined by applying one or more of the following test methods and procedures, as appropriate.

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

(2) Concentration of volatile organic compounds (VOC).

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

(B) Test Method 25 (40 CFR Part 60, Appendix A) is used for determining total gaseous nonmethane organic emissions as carbon.

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

(3) Performance requirements for flares and vapor combustors.

(A) For flares, the performance test requirements of 40 CFR §60.18(b) shall apply.

(B) For vapor combustors, the owner or operator may consider the unit to be a flare and meet the performance test requirements of 40 CFR §60.18(b) rather than the procedures of paragraphs (1) and (2) of this section.

(C) Compliance with the requirements of 40 CFR §60.18(b) will be considered to demonstrate compliance with the emission specifications and control efficiency requirements of §115.211 and §115.212 of this title (relating to Emission Specifications; and Control Requirements).

(4) Vapor pressure. Use standard reference texts or American Society for Testing and Materials (ASTM) Test Methods D323-89, D2879, D4953, D5190, or D5191 for the measurement of vapor pressure.

(5) Leak determination by instrument method. Use Test Method 21 (40 CFR Part 60, Appendix A) for determining VOC leaks.

(6) Gasoline terminal test procedures. Use the additional test procedures described in 40 CFR §60.503(b) - (d) (February 14, 1989), for pre-test leak determination, emission specifications test for vapor control systems, and pressure limit in transport vessel.

(7) Vapor-tightness test procedures for marine vessels. Use 40 CFR §63.565(c) (September 19, 1995) or 40 CFR §61.304(f) (October 17, 2000) for determination of marine vessel vapor tightness.

(8) Flash point. Use ASTM Test Method D93 for the measurement of flash point.

(9) Minor modifications. Minor modifications to these test methods may be used, if approved by the executive director.

(10) Alternate test methods. Test methods other than those specified in paragraphs (1) - (8) of this section may be used if validated by 40 CFR Part 63, Appendix A, Test Method 301

(December 29, 1992). For the purposes of this paragraph, substitute "executive director" each place that Test Method 301 references "administrator."

§115.219. Counties and Compliance Schedules.

(a) The owner or operator of each volatile organic compound (VOC) transfer operation in Aransas, Bexar, Brazoria, Calhoun, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Gregg, Hardin, Harris, Jefferson, Liberty, Matagorda, Montgomery, Nueces, Orange, San Patricio, Tarrant, Travis, Victoria, and Waller Counties shall continue to comply with this division (relating to Loading and Unloading of Volatile Organic Compounds) as required by §115.930 of this title (relating to Compliance Dates).

(b) The owner or operator of each gasoline bulk plant in the covered attainment counties, as defined in §115.10 of this title (relating to Definitions), shall continue to comply with this division as required by §115.930 of this title.

(c) The owner or operator of each gasoline terminal in the covered attainment counties, as defined in §115.10 of this title, shall continue to comply with this division as required by §115.930 of this title.

(d) The owner or operator of each marine terminal in Hardin, Jefferson, and Orange Counties shall comply with this division as soon as practicable but no later than three years after the earliest of the following occurs:

(1) 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 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, §172(c)(9);

(2) the EPA publishes notification in the *Federal Register* of its determination to deny the petition to redesignate the Beaumont/Port Arthur ozone nonattainment area as an ozone attainment area; or

(3) the EPA publishes notification in the *Federal Register* of its determination to deny approval of the demonstration of attainment for the Beaumont/Port Arthur ozone nonattainment area based upon Urban Airshed Model modeling.

SUBCHAPTER C: VOLATILE ORGANIC COMPOUND TRANSFER OPERATIONS
DIVISION 2: FILLING OF GASOLINE STORAGE VESSELS
(STAGE I) FOR MOTOR VEHICLE FUEL DISPENSING FACILITIES
§115.229

STATUTORY AUTHORITY

The amendment is adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendment is also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.229. Counties and Compliance Schedules.

(a) The owner or operator of each motor vehicle fuel dispensing facility 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 Filling of Gasoline Storage Vessels (Stage I) for Motor Vehicle Fuel Dispensing Facilities) as required by §115.930 of this title (relating to Compliance Dates).

(b) The owner or operator of each motor vehicle fuel dispensing facility in the covered attainment counties, as defined in §115.10 of this title (relating to Definitions), shall continue to comply with this division as required by §115.930 of this title.

SUBCHAPTER C: VOLATILE ORGANIC COMPOUND TRANSFER OPERATIONS
DIVISION 3: CONTROL OF VOLATILE ORGANIC COMPOUND
LEAKS FROM TRANSPORT VESSELS
§115.239

STATUTORY AUTHORITY

The amendment is adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendment is also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.239. Counties and Compliance Schedules.

(a) The owner or operator of each tank-truck tank 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 Control of Volatile Organic Compound Leaks from Transport Vessels) as required by §115.930 of this title (relating to Compliance Dates).

(b) The owner or operator of each gasoline tank-truck tank in the covered attainment counties, as defined in §115.10 of this title (relating to Definitions), shall continue to comply with this division as required by §115.930 of this title.

SUBCHAPTER D: PETROLEUM REFINING, NATURAL GAS PROCESSING, AND PETROCHEMICAL PROCESSES
DIVISION 1: PROCESS UNIT TURNAROUND AND VACUUM-PRODUCING SYSTEMS IN PETROLEUM REFINERIES
§115.312

STATUTORY AUTHORITY
The amendment is adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendment is also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.312. Control Requirements.

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

(1) Volatile organic compound (VOC) emissions from petroleum refineries shall be controlled during process unit shutdown or turnaround with the following procedure:

(A) recover and store all pumpable or drainable liquid; and

(B) reduce vessel gas pressure to 5.0 pounds per square inch gauge (psig) (34.5 kPa gauge) or less by recovery or combustion before venting to the atmosphere.

(2) Vent gas streams affected by §115.311(a) of this title (relating to Emission Specifications) must be controlled properly with a control efficiency of at least 90% or to a VOC concentration of no more than 20 parts per million by volume (ppmv) (on a dry basis corrected to 3.0% oxygen for combustion devices):

(A) in a direct-flame incinerator at a temperature equal to or greater than 1,300 degrees Fahrenheit (704 degrees Celsius);

(B) in a smokeless flare; or

(C) by any other vapor control system, as defined in §115.10 of this title (relating to Definitions).

(3) In the Houston/Galveston area, the following are subject to the requirements of Subchapter H of this chapter (relating to Highly-Reactive Volatile Organic Compounds) in addition to the applicable requirements of this division (relating to Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries):

(A) any vent gas stream which is subject to §115.311(a) of this title and which includes a HRVOC, as defined in §115.10 of this title; and

(B) any process unit shutdown or turnaround of a unit in which a HRVOC is a raw material, intermediate, final product, or in a waste stream.

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

(1) VOC emissions from petroleum refineries shall be controlled during process unit shutdown or turnaround with the following procedure:

(A) recover and store all pumpable or drainable liquid; and

(B) reduce vessel gas pressure to five psig (34.5 kPa gauge) or less by recovery or combustion before venting to the atmosphere.

(2) Vent gas streams affected by §115.311(b) of this title must be controlled properly with a control efficiency of at least 90% or to a VOC concentration of no more than 20 ppmv (on a dry basis corrected to 3.0% oxygen for combustion devices):

(A) in a direct-flame incinerator at a temperature equal to or greater than 1,300 degrees Fahrenheit (704 degrees Celsius);

(B) in a smokeless flare; or

(C) by any other vapor control system, as defined in §115.10 of this title.

SUBCHAPTER D: PETROLEUM REFINING, NATURAL GAS PROCESSING, AND PETROCHEMICAL PROCESSES
DIVISION 2: FUGITIVE EMISSION CONTROL IN PETROLEUM REFINERIES IN GREGG, NUECES, AND VICTORIA COUNTIES
§115.326

STATUTORY AUTHORITY
The amendment is adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendment is also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.326. Recordkeeping Requirements.

For Gregg, Nueces, and Victoria Counties, the owner or operator of a petroleum refinery shall have the following recordkeeping requirements.

(1) Submit to the executive director a monitoring program plan. This plan shall contain, at a minimum, a list of the refinery units and the quarter in which they will be monitored, a copy of the log book format, and the make and model of the monitoring equipment to be used.

(2) Maintain a leaking-components monitoring log for all leaks of more than 10,000 parts per million by volume (ppmv) of volatile organic compound detected by the monitoring program required by §115.324 of this title (relating to Inspection Requirements). This log shall contain, at a minimum, the following data:

(A) the name of the process unit where the component is located;

(B) the type of component (e.g., valve or seal);

(C) the tag number of the component;

(D) the date the component was monitored;

(E) the results of the monitoring (in ppmv);

(F) a record of the calibration of the monitoring instrument;

(G) if a component is found leaking:

(i) the date on which a leaking component is discovered;

(ii) the date on which a first attempt at repair was made to a leaking component;

(iii) the date on which a leaking component is repaired;

(iv) the date and instrument reading of the recheck procedure after a leaking component is repaired; and

(v) those leaks that cannot be repaired until turnaround and the date on which the leaking component is placed on the shutdown list;

(H) the total number of components checked and the total number of components found leaking; and

(I) the test method used (Test Method 21, or sight/sound/smell).

(3) Retain copies of the monitoring log for a minimum of five years after the date on which the record was made or the report prepared.

(4) Maintain all monitoring records for at least five years and make them available for review upon request by authorized representatives of the executive director, EPA, or local air pollution control agencies with jurisdiction.

SUBCHAPTER D: PETROLEUM REFINING, NATURAL GAS PROCESSING, AND PETROCHEMICAL PROCESSES
DIVISION 3: FUGITIVE EMISSION CONTROL IN PETROLEUM REFINING, NATURAL GAS/GASOLINE PROCESSING, AND PETROCHEMICAL PROCESSES IN OZONE NONATTAINMENT AREAS
§§115.352, 115.354, 115.356, 115.357, 115.359

STATUTORY AUTHORITY
The amendments are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendments are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.352. Control Requirements.

For the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas as defined in §115.10 of this title (relating to Definitions), no person shall operate a petroleum refinery; a synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or a natural gas/gasoline processing operation, as defined in §115.10 of this title, without complying with the following requirements.

(1) Except as provided in paragraph (2) of this section, no component shall be allowed to have a volatile organic compound (VOC) leak for more than 15 calendar days after the leak is found which exceeds the following:

(A) for all components except pump seals and compressor seals, a screening concentration greater than 500 parts per million by volume (ppmv) above background as methane, or the dripping or exuding of process fluid based on sight, smell, or sound; and

(B) for pump seals and compressor seals, a screening concentration greater than 10,000 ppmv above background as methane, or the dripping or exuding of process fluid based on sight, smell, or sound.

(2) A first attempt at repair shall be made no later than five calendar days after the leak is found and the component shall be repaired no later than 15 calendar days after the leak is found,

except as provided in subparagraphs (A) - (C) of this paragraph. A component in gas/vapor or light liquid service is considered to be repaired when it is monitored with an instrument using Test Method 21 and shown to no longer have a leak after adjustments or alterations to the component. A component in heavy liquid service is considered to be repaired when it is monitored by audio, visual, and olfactory means and shown to no longer have a leak after adjustments or alterations to the component.

(A) If the repair of a component would require a process unit shutdown, the repair may be delayed until the next scheduled process unit shutdown, provided that:

(i) the owner or operator maintains, and makes available upon request, documentation to authorized representatives of EPA, the executive director, and any local air pollution control agency having jurisdiction which includes a calculation of:

(I) the expected mass emissions resulting from the next scheduled process unit shutdown of the unit, including the basis for the calculation and all assumptions made;

(II) the mass emission rates from each leaking component in the process unit for which delay of repair is sought as determined by using the methods in the EPA correlation approach in Section 2.3.3 of the EPA guidance document "Protocol for Equipment Leak Emission Estimates,"(EPA-453/R-95-017, November, 1995) alone or in combination with the mass emission sampling approach in Chapter 4 of the guidance document (EPA-453/R-95-017, November, 1995). To use the EPA correlation approach, the estimated hourly mass emission rate for each component shall be based on the average of the component's current screening concentration and the previous screening concentration using Test Method 21 for the days between the two monitoring efforts, and the last screening concentration shall be used for the days following that last monitoring through the date of the planned process unit shutdown. Where the monitoring instrument is not calibrated to read past the leak definition or 100,000 ppmv, the pegged emission rate values in Tables 2-13 and 2-14 in Section 2.3.3 of the EPA guidance document "Protocol for Equipment Leak Emission Estimates" shall be used as appropriate. Leaking components in heavy liquid service shall be assigned the appropriate screening range leak rate for greater than 10,000 ppmv as defined in Section 2.3.2 of the guidance document. If the mass emission sampling approach is used, it replaces the estimated emissions rate of the EPA correlation approach in the calculation;

(III) the cumulative mass emissions from each leaking component in the process unit for which delay of repair is sought, from the last day it was monitored and was not leaking through the date of the next planned process unit shutdown; and

(IV) the total cumulative mass emissions in the process unit from the calculations made in subclause (III) of this clause for leaking components in the unit for which delay of repair is sought;

(ii) the total cumulative mass emissions from leaking components in the process unit for which delay of repair is sought as determined in subclause (IV) of this clause are less than the mass emissions resulting from shutdown of the unit as determined in subclause (IV) of this clause; and

(iii) as an alternative to the requirements of clause (i) and (ii) of this subparagraph, delay of repair is allowed for each leaking component for which the owner or operator has chosen to undertake “extraordinary efforts” to repair the leak. For purposes of this subparagraph, “extraordinary efforts” is defined as nonroutine repair methods (e.g., sealant injection) or utilization of a closed-vent system to capture and control the leaks by at least 90%. For leaks detected over 10,000 ppmv, extraordinary efforts shall be undertaken within seven days of the valve being placed on the shutdown list; however, the owner or operator may keep the leaking valve on the shutdown list only after two unsuccessful attempts to repair a leaking valve through extraordinary efforts, provided that the second extraordinary effort attempt is made within 15 days of the first extraordinary effort attempt. For all other leaks, extraordinary efforts shall be undertaken within 15 days of the valve being placed on the shutdown list, and a second extraordinary effort attempt is not required.

(B) Process unit shutdown and component repairs are required within 15 days of the day that leaks are determined to exceed the requirement of subparagraph (A)(ii) of this paragraph for components that were not subjected to extraordinary efforts, and except as provided in subparagraph (C) of this paragraph, each component for which repair has been delayed must be repaired or replaced at the next process unit shutdown.

(C) Delay of repair beyond a process unit shutdown will be allowed for a component if that component is isolated from the process and does not remain in VOC service.

(D) Valves which can be safely repaired without a process unit shutdown may not be placed on the shutdown list.

(E) All components for which a repair attempt was made during a shutdown shall be monitored (with a hydrocarbon gas analyzer) and inspected for leaks within 30 days or at the next monitoring period, whichever occurs first, after startup is completed following the process unit shutdown.

(3) All leaking components, as defined in paragraph (1) of this section, which cannot be repaired until a process unit shutdown shall be identified for such repair by tagging. The executive director, at his discretion, may require an early process unit shutdown or other appropriate action based on the number and severity of tagged leaks awaiting a process unit shutdown.

(4) Except for pressure relief valves, no valves shall be installed or operated at the end of a pipe or line containing VOC unless the pipe or line is sealed with a second valve, a blind flange, or a tightly-fitting plug or cap. The sealing device may be removed only while a sample is being taken or during maintenance operations, and when closing the line, the upstream valve shall be closed first.

(5) Construction of new and reworked piping, valves, and pump and compressor systems shall conform to applicable American National Standards Institute, American Petroleum Institute, American Society of Mechanical Engineers, or equivalent codes.

(6) New and reworked underground process pipelines shall contain no buried valves such that fugitive emission monitoring is rendered impractical.

(7) To the extent that good engineering practice will permit, new and reworked valves and piping connections shall be so located to be reasonably accessible for leak-checking during plant operation. Valves elevated more than two meters above a support surface will be considered nonaccessible. Nonaccessible valves shall be identified in a list to be made available upon request.

(8) New and reworked piping connections shall be welded, flanged, or consist of pressed and permanently formed metal-to-metal seals. Screwed connections are permissible only on new piping smaller than two inches in diameter. All new connections shall be checked for leaks within 30 days of being placed in VOC service by monitoring with a hydrocarbon gas analyzer for components in light liquid and gas service and by using visual, audio, and/or olfactory means for components in heavy liquid service.

(9) For pressure relief valves installed in series with a rupture disk, pin, second relief valve, or other similar leak-tight pressure relief component, a pressure gauge or an equivalent device or system shall be installed between the relief valve and the other pressure relief component to monitor for leakage past the first component. When leakage is detected past the first component, that component shall be repaired or replaced at the earliest opportunity, but no later than the next process unit shutdown. Equivalent devices or systems shall be identified in a list to be made available upon request and must have been approved by the methods required by §115.353 of this title (relating to Alternate Control Requirements).

(10) Any petroleum refinery; synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation in the Houston/Galveston area in which a HRVOC, as defined in §115.10 of this title, is a raw material, intermediate, final product, or in a waste stream is subject to the requirements of Subchapter H of this chapter (relating to Highly-Reactive Volatile Organic Compounds) in addition to the applicable requirements of this division (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas).

§115.354. Inspection Requirements.

All affected persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas shall conduct a monitoring program consistent with the following provisions.

(1) Measure yearly (with a hydrocarbon gas analyzer) the emissions from all:

(A) process drains;

(B) nonaccessible valves as identified in §115.352(7) of this title (relating to Control Requirements); and

(C) unsafe to monitor valves. An unsafe to monitor valve is a valve that the owner or operator determines is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (2) of this section. Valves which are unsafe to monitor shall be identified in a list made available upon request. If an unsafe to monitor valve is not considered safe to monitor within a calendar year, then it shall be monitored as soon as possible during safe to monitor times.

(2) Measure each calendar quarter (with a hydrocarbon gas analyzer) the screening concentration from all:

(A) compressor seals;

(B) pump seals;

(C) accessible valves; and

(D) pressure relief valves in gaseous service.

(3) Inspect weekly, by visual, audio, and/or olfactory means, all flanges, excluding flanges in the Houston/Galveston area that are monitored using Test Method 21 as required by §115.781(b)(3) of this title (relating to General Monitoring and Inspection Requirements).

(4) Measure (with a hydrocarbon gas analyzer) emissions from any relief valve which has vented to the atmosphere within 24 hours.

(5) Upon the detection of a leaking component, affix to the leaking component a weatherproof and readily visible tag, bearing an identification number and the date the leak was detected. This tag shall remain in place until the leaking component is repaired.

(6) The monitoring schedule of paragraphs (1) - (3) of this section may be modified to require an increase in the frequency of monitoring in a given process area if the executive director determines that there is an excessive number of leaks in that process area.

(7) After completion of the required quarterly valve monitoring for a period of at least two years, the operator of a petroleum refinery; synthetic organic chemical, polymer, resin, or methyl-tert-butyl ether manufacturing process; or a natural gas/gasoline processing operation may request in writing to the executive director that the valve monitoring schedule be revised based on the percent of valves leaking. The percent of valves leaking shall be determined by dividing the sum of valves leaking during current monitoring and valves for which repair has been delayed (including valves which have been classified as non-repairable under §115.357(8) of this title (relating to Exemptions)) by the total number of valves subject to the requirements. This request shall include all data that have been developed to justify the following modifications in the monitoring schedule.

(A) After two consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0%, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(B) After five consecutive quarterly leak detection periods with the percent of valves leaking equal to or less than 2.0%, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves in gas/vapor and light liquid service.

(8) Alternate monitoring schedules approved before November 15, 1996, under §§115.324(a)(8)(A), 115.334(3)(A), and 115.344(3)(A) of this title (relating to Inspection Requirements), as in effect December 3, 1993, are approved monitoring schedules for the purposes of paragraph (7) of this section.

(9) All component monitoring shall occur when the component is in contact with process material and the process unit is in service. If a unit is not operating during the required monitoring period but a component in that unit is in contact with process fluid which is circulating or under pressure, then that component is considered to be in service and is required to be monitored. Valves must be in gaseous or light liquid service to be considered in the total valve count for alternate valve monitoring schedules of paragraph (7) of this section.

(10) Except as provided in subparagraph (B) of this paragraph, the owner or operator shall use dataloggers and/or electronic data collection devices during all monitoring required by this section. The owner or operator shall use best efforts to transfer, on a daily basis, electronic data from electronic datalogging devices to the electronic database required by §115.356(2) of this title (relating to Monitoring and Recordkeeping Requirements).

(A) For all monitoring events in which an electronic data collection device is used, the collected monitoring data shall include the identification of each component and each calibration run, the maximum screening concentration detected, the time of monitoring (beginning and end), a date stamp, an operator identification, an instrument identification, and calibration gas concentrations and certification dates. The acceptable rate for recording data shall be determined individually by each owner or operator considering such factors including, but not limited to, the size of the equipment, the equipment type, the accessibility of the equipment, the number of leakers being found, and the skill of the monitoring technicians. Each owner or operator shall have a documented auditing process in place to assure proper calibration, identify response time failures, and assess pace anomalies.

(B) The owner or operator may use paper logs where necessary or more feasible (e.g., small rounds (less than 100 components), re-monitoring following component repair, or when dataloggers are broken or not available), and shall record, at a minimum, the information required in subparagraph (A) of this paragraph. For audio, visual, and olfactory inspections, the owner or operator shall record, at a minimum, the identification of the person conducting the inspection, the date, and the area that was inspected. The owner or operator shall transfer any manually recorded monitoring data to the electronic database required by §115.356(2) of this title within seven days of monitoring.

(C) Each change to the database shall be detailed in a log or inserted as a notation in the database. All such changes shall include the name of the person who made the change, the date of the change, and an explanation to support the change.

(11) Monitored screening concentrations must be recorded for each component. Notations such as "pegged," "off scale," "leaking," "not leaking," or "below leak definition" may not be substituted for hydrocarbon gas analyzer results. For readings that are higher than the upper end of the scale (i.e., pegged) even when using the highest scale setting or a dilution probe, record a default pegged value of 100,000 parts per million by volume.

(12) All exemptions for valves with a nominal size of two inches or less expired on July 31, 1992 (final compliance date).

§115.356. Monitoring and Recordkeeping Requirements.

All affected persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/ Galveston areas shall have the following recordkeeping requirements, maintained either electronically or in hard copy form:

(1) records identifying each process unit subject to fugitive monitoring in accordance with this division (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas) including, at a minimum, the following information:

(A) the name of each process unit;

(B) a scale plot plan showing the location of each process unit;

(C) process flow diagrams for each process unit showing the general process streams and major equipment on which the components are located; and

(D) the expected volatile organic compound (VOC) emissions if the process unit is shut down for repair of components or other equipment, including:

(i) the total emissions;

(ii) the calculations used; and

(iii) engineering assumptions applied;

(2) records on components and process areas that contain, at a minimum, the following data:

(A) the name of the process unit where the component is located;

(B) the type of component (e.g., pump, compressor, valve, pressure relief valve, etc.;

(C) all data required to be collected by the monitoring and inspection requirements of §115.354 of this title (relating to Inspection Requirements) for each component required to be monitored with a hydrocarbon gas analyzer;

(D) the weekly audio, visual, and olfactory inspections of flanges, including, at a minimum, the identification of the person conducting the inspection and the area that was inspected. Flanges in the Houston/Galveston area that are monitored using Test Method 21 as required by §115.781(b)(3) of this title (relating to General Monitoring and Inspection Requirements) are excluded from this recordkeeping requirement;

(E) the calibration of the monitoring instrument data required in §115.354(10) of this title;

(F) if a component is found leaking:

(i) the component identification and method of leak determination (Test Method 21, sight/sound/smell, or inert gas or hydraulic testing);

(ii) the date on which a leaking component is discovered;

(iii) the date on which a first attempt at repair was made to a leaking component;

(iv) the date on which a leaking component is repaired;

(v) the date and instrument reading of the recheck procedure after a leaking component is repaired;

(vi) the dates and nature of each extraordinary effort to repair the leaking component;

(vii) the date on which the leaking component is placed on the shutdown list;

(viii) the date on which the leaking component was taken out of service as allowed by §115.352(2)(C) of this title (relating to Control Requirements); and

(ix) the calculation showing the estimated VOC emission rates of the component as required by §115.352(2)(A)(i)(II) of this title if extraordinary efforts are not going to be initiated; and

(G) maintain records of any audio, visual, and olfactory inspections of connectors, but only if a leak is detected;

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

(A) the date, calculations, and estimated emissions of VOC as required by §115.352(2)(A)(i)(III) of this title;

(B) the date, calculations, and comparison of emissions of VOC as required by §115.352(2)(A)(i)(IV) of this title; and

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

(4) records by process unit identifying and justifying each:

(A) unsafe to monitor valve;

(B) nonaccessible (difficult to monitor) valve; and

(C) each exemption by component claimed under §115.357 of this title (relating to Exemptions); and

(5) maintain all monitoring records for at least five years and make them available for review upon request by authorized representatives of the executive director, EPA, or local air pollution control agencies with jurisdiction, except that the five-year record retention requirement does not apply to records generated before December 31, 2000.

§115.357. Exemptions.

For all affected persons in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas, the following exemptions shall apply.

(1) Components which contact a process fluid containing volatile organic compounds (VOCs) having a true vapor pressure equal to or less than 0.044 pounds per square inch absolute (psia) (0.3 kPa) at 68 degrees Fahrenheit (20 degrees Celsius) are exempt from the instrument monitoring (with a hydrocarbon gas analyzer) requirements of §115.354(1) and (2) of this title (relating to Inspection Requirements) if the components are inspected visually according to the inspection schedules specified in §115.354(1) and (2) of this title.

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

relief valves equipped with a rupture disk or venting to a control device, components in continuous vacuum service, and valves that are not externally regulated (such as in-line check valves) are exempt from the requirements of this division (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas), except that each pressure relief valve equipped with a rupture disk shall comply with §115.352(9) of this title (relating to Control Requirements).

(3) Compressors in hydrogen service are exempt from the requirements of §115.354 of this title if the owner or operator demonstrates that the percent hydrogen content can be reasonably expected to always exceed 50.0% by volume.

(4) All pumps and compressors which are equipped with a shaft sealing system that prevents or detects emissions of VOC from the seal are exempt from the monitoring requirement of §115.354 of this title. These seal systems may include, but are not limited to, dual pump seals with barrier fluid at higher pressure than process pressure, seals degassing to vent control systems kept in good working order, or seals equipped with an automatic seal failure detection and alarm system. Submerged pumps or sealless pumps (including, but not limited to, diaphragm, canned or magnetic driven pumps) may be used to satisfy the requirements of this paragraph.

(5) Reciprocating compressors and positive displacement pumps used in natural gas/gasoline processing operations are exempt from the requirements of this division.

(6) Components at a petroleum refinery or synthetic organic chemical, polymer, resin, or methyl-tert-butyl ether manufacturing process, which contact a process fluid that contains less than 10% VOC by weight and components at a natural gas/gasoline processing operation which contact a process fluid that contains less than 1.0% VOC by weight are exempt from the requirements of this division.

(7) Facilities with less than 250 components in VOC service are exempt from the requirements of this division.

(8) Components in ethylene, propane, or propylene service, not to exceed 5.0% of the total components, may be classified as non-repairable beyond the second repair attempt at 500 parts per million by volume (ppmv). These components will remain in the fugitive monitoring program and be repaired no later than 15 calendar days after the concentration of VOC detected via Test Method 21 exceeds 10,000 ppmv. For the purposes of this division, components which contact a process fluid with greater than 85% ethylene, propane, or propylene by weight are considered in ethylene, propane, or propylene service, respectively.

(9) Valves rated greater than 10,000 psig are exempt from the requirements of §115.352(4) of this title.

(10) In the Houston/Galveston area, the requirements of Subchapter H of this chapter (relating to Highly-Reactive Volatile Organic Compounds) apply to components which qualify for one or more of the exemptions in paragraphs (1) - (9) of this section at any petroleum refinery; synthetic

organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation in which a HRVOC, as defined in §115.10 of this title (relating to Definitions), is a raw material, intermediate, final product, or in a waste stream.

§115.359. Counties and Compliance Schedules.

The owner or operator of each affected source in Brazoria, Chambers, Collin, El Paso, Dallas, Denton, Fort Bend, Galveston, Hardin, Harris, Jefferson, Liberty, Montgomery, Orange, Tarrant, and Waller Counties shall:

(1) continue to comply with this division (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas) as required by §115.930 of this title (relating to Compliance Dates); and

(2) comply with §115.356(2)(C) and (D) of this title (relating to Monitoring and Recordkeeping Requirements) as soon as practicable, but no later than December 31, 2003; and

(3) develop and make available upon request to the appropriate regional office, EPA, and any local air pollution control agency having jurisdiction the recordkeeping required by §115.356(1), (3), and (4) of this title as soon as practicable, but no later than December 31, 2003.

SUBCHAPTER E: SOLVENT-USING PROCESSES
DIVISION 2: SURFACE COATING PROCESSES
§§115.420, 115.421, 115.427, 115.429

STATUTORY AUTHORITY

The amendments are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The amendments are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.420. Surface Coating Definitions.

(a) General surface coating definitions. The following terms, when used in this division (relating to Surface Coating Processes), shall 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) **Aerosol coating (spray paint)** - A hand-held, pressurized, nonrefillable container that expels an adhesive or a coating in a finely divided spray when a valve on the container is depressed.

(2) **Coating** - A material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. Such materials include, but are not limited to, paints, varnishes, sealants, adhesives, thinners, diluents, inks, maskants, and temporary protective coatings.

(3) **Coating application system** - Devices or equipment designed for the purpose of applying a coating material to a surface. The devices may include, but are not be limited to, brushes, sprayers, flow coaters, dip tanks, rollers, knife coaters, and extrusion coaters.

(4) **Coating line** - An operation consisting of a series of one or more coating application systems and including associated flashoff area(s), drying area(s), and oven(s) wherein a surface coating is applied, dried, or cured.

(5) **Coating solids (or solids)** - The part of a coating that remains after the coating is dried or cured.

(6) **Daily weighted average** - The total weight of volatile organic compound (VOC) emissions from all coatings subject to the same emission standard in §115.421 of this title (relating to Emission Specifications), divided by the total volume of those coatings (minus water and exempt solvent) delivered to the application system each day. Coatings subject to different emission standards in §115.421 of this title shall not be combined for purposes of calculating the daily weighted average. In addition, determination of compliance is based on each individual coating line.

(7) **High-volume low-pressure spray guns** - Equipment used to apply coatings by means of a spray gun which operates between 0.1 and 10.0 pounds per square inch gauge air pressure at the air cap.

(8) **Normally closed container** - A container that is closed unless an operator is actively engaged in activities such as adding or removing material.

(9) **Pounds of VOC per gallon of coating (minus water and exempt solvents)** - Basis for emission limits for surface coating processes. Can be calculated by the following equation:

Figure: 30 TAC §115.420(a)(9)

$$\text{Pounds of VOC per gallon of coating (minus water and exempt solvents)} = \frac{W_v}{V_m - V_w - V_{es}}$$

Where:

W_v = weight of VOC, in pounds, contained in V_m gallons of coating
V_m = volume of coating, generally assumed to be one gallon
V_w = volume of water, in gallons, contained in V_m gallons of coating
V_{es} = volume of exempt solvents, in gallons, contained in V_m gallons of coating

(10) **Pounds of VOC per gallon of solids** - Basis for emission limits for surface coating process. Can be calculated by the following equation:

Figure: 30 TAC §115.420(a)(10)

$$\text{Pounds of VOC per gallon of solids} = \frac{W_v}{V_m - V_v - V_w - V_{es}}$$

Where:

W_v = weight of VOC, in pounds, contained in V_m gallons of coating
V_m = volume of coating, generally assumed to be one gallon
V_v = volume of VOC, in gallons, contained in V_m gallons of coating

V_w = volume of water, in gallons, contained in V_m gallons of coating
V_{es} = volume of exempt solvents, in gallons, contained in V_m gallons of coating

(11) **Spray gun** - A device that atomizes a coating or other material and projects the particulates or other material onto a substrate.

(12) **Surface coating processes** - Operations which utilize a coating application system.

(13) **Transfer efficiency** - The amount of coating solids deposited onto the surface of a part or product divided by the total amount of coating solids delivered to the coating application system.

(b) Specific surface coating definitions. The following terms, when used in this division, shall have the following meanings, unless the context clearly indicates otherwise.

(1) **Aerospace coating.**

(A) **Ablative coating** - A coating that chars when exposed to open flame or extreme temperatures, as would occur during the failure of an engine casing or during aerodynamic heating. The ablative char surface serves as an insulative barrier, protecting adjacent components from the heat or open flame.

(B) **Adhesion promoter** - A very thin coating applied to a substrate to promote wetting and form a chemical bond with the subsequently applied material.

(C) **Adhesive bonding primer** - A primer applied in a thin film to aerospace components for the purpose of corrosion inhibition and increased adhesive bond strength by attachment. There are two categories of adhesive bonding primers: primers with a design cure at 250 degrees Fahrenheit or below and primers with a design cure above 250 degrees Fahrenheit.

(D) **Aerospace vehicle or component** - Any fabricated part, processed part, assembly of parts, or completed unit, with the exception of electronic components, of any aircraft including but not limited to airplanes, helicopters, missiles, rockets, and space vehicles.

(E) **Aircraft fluid systems** - Those systems that handle hydraulic fluids, fuel, cooling fluids, or oils.

(F) **Aircraft transparency** - The aircraft windshield, canopy, passenger windows, lenses, and other components which are constructed of transparent materials.

(G) **Antichafe coating** - A coating applied to areas of moving aerospace components that may rub during normal operations or installation.

(H) **Antique aerospace vehicle or component** - An aerospace vehicle or component thereof that was built at least 30 years ago. An antique aerospace vehicle would not routinely be in commercial or military service in the capacity for which it was designed.

(I) **Aqueous cleaning solvent** - A solvent in which water is at least 80% by volume of the solvent as applied.

(J) **Bearing coating** - A coating applied to an antifriction bearing, a bearing housing, or the area adjacent to such a bearing in order to facilitate bearing function or to protect base material from excessive wear. A material shall not be classified as a bearing coating if it can also be classified as a dry lubricative material or a solid film lubricant.

(K) **Bonding maskant** - A temporary coating used to protect selected areas of aerospace parts from strong acid or alkaline solutions during processing for bonding.

(L) **Caulking and smoothing compounds** - Semi-solid materials which are applied by hand application methods and are used to aerodynamically smooth exterior vehicle surfaces or fill cavities such as bolt hole accesses. A material shall not be classified as a caulking and smoothing compound if it can also be classified as a sealant.

(M) **Chemical agent-resistant coating** - An exterior topcoat designed to withstand exposure to chemical warfare agents or the decontaminants used on these agents.

(N) **Chemical milling maskant** - A coating that is applied directly to aluminum components to protect surface areas when chemically milling the component with a Type I or II etchant. Type I chemical milling maskants are used with a Type I etchant and Type II chemical milling maskants are used with a Type II etchant. This definition does not include bonding maskants, critical use and line sealer maskants, and seal coat maskants. Additionally, maskants that must be used with a combination of Type I or II etchants and any of the above types of maskants (i.e., bonding, critical use and line sealer, and seal coat) are not included. Maskants that are defined as specialty coatings are not included under this definition.

(O) **Cleaning operation** - Spray-gun, hand-wipe, and flush cleaning operations.

(P) **Cleaning solvent** - A liquid material used for hand-wipe, spray gun, or flush cleaning. This definition does not include solutions that contain no VOC.

(Q) **Clear coating** - A transparent coating usually applied over a colored opaque coating, metallic substrate, or placard to give improved gloss and protection to the color coat.

(R) **Closed-cycle depainting system** - A dust free, automated process that removes permanent coating in small sections at a time, and maintains a continuous vacuum around the area(s) being depainted to capture emissions.

(S) **Coating operation** - Using a spray booth, tank, or other enclosure or any area (such as a hangar) for applying a single type of coating (e.g., primer); using the same spray booth for applying another type of coating (e.g., topcoat) constitutes a separate coating operation for which compliance determinations are performed separately.

(T) **Coating unit** - A series of one or more coating applicators and any associated drying area and/or oven wherein a coating is applied, dried, and/or cured. A coating unit ends at the point where the coating is dried or cured, or prior to any subsequent application of a different coating.

(U) **Commercial exterior aerodynamic structure primer** - A primer used on aerodynamic components and structures that protrude from the fuselage, such as wings and attached components, control surfaces, horizontal stabilizers, vertical fins, wing-to-body fairings, antennae, and landing gear and doors, for the purpose of extended corrosion protection and enhanced adhesion.

(V) **Commercial interior adhesive** - Materials used in the bonding of passenger cabin interior components. These components must meet the Federal Aviation Administration (FAA) fireworthiness requirements.

(W) **Compatible substrate primer** - Either compatible epoxy primer or adhesive primer. Compatible epoxy primer is primer that is compatible with the filled elastomeric coating and is epoxy based. The compatible substrate primer is an epoxy-polyamide primer used to promote adhesion of elastomeric coatings such as impact-resistant coatings. Adhesive primer is a coating that:

(i) inhibits corrosion and serves as a primer applied to bare metal surfaces or prior to adhesive application; or

(ii) is applied to surfaces that can be expected to contain fuel. Fuel tank coatings are excluded from this category.

(X) **Confined space** - A space that:

(i) is large enough and so configured that a person can bodily enter and perform assigned work;

(ii) has limited or restricted means for entry or exit (for example, fuel tanks, fuel vessels, and other spaces that have limited means of entry); and

(iii) is not suitable for continuous occupancy.

(Y) **Corrosion prevention compound** - A coating system or compound that provides corrosion protection by displacing water and penetrating mating surfaces, forming a protective barrier between the metal surface and moisture. Coatings containing oils or waxes are excluded from this category.

(Z) **Critical use and line sealer maskant** - A temporary coating, not covered under other maskant categories, used to protect selected areas of aerospace parts from strong acid or alkaline solutions such as those used in anodizing, plating, chemical milling and processing of magnesium, titanium, or high- strength steel, high-precision aluminum chemical milling of deep cuts, and aluminum chemical milling of complex shapes. Materials used for repairs or to bridge gaps left by scribing operations (i.e., line sealer) are also included in this category.

(AA) **Cryogenic flexible primer** - A primer designed to provide corrosion resistance, flexibility, and adhesion of subsequent coating systems when exposed to loads up to and surpassing the yield point of the substrate at cryogenic temperatures (-275 degrees Fahrenheit and below).

(BB) **Cryoprotective coating** - A coating that insulates cryogenic or subcooled surfaces to limit propellant boil-off, maintain structural integrity of metallic structures during ascent or re-entry, and prevent ice formation.

(CC) **Cyanoacrylate adhesive** - A fast-setting, single component adhesive that cures at room temperature. Also known as "super glue."

(DD) **Dry lubricative material** - A coating consisting of lauric acid, cetyl alcohol, waxes, or other noncross linked or resin-bound materials that act as a dry lubricant.

(EE) **Electric or radiation-effect coating** - A coating or coating system engineered to interact, through absorption or reflection, with specific regions of the electromagnetic energy spectrum, such as the ultraviolet, visible, infrared, or microwave regions. Uses include, but are not limited to, lightning strike protection, electromagnetic pulse (EMP) protection, and radar avoidance. Coatings that have been designated as "classified" by the Department of Defense are excluded.

(FF) **Electrostatic discharge and electromagnetic interference coating** - A coating applied to space vehicles, missiles, aircraft radomes, and helicopter blades to disperse static energy or reduce electromagnetic interference.

(GG) **Elevated-temperature Skydrol-resistant commercial primer** - A primer applied primarily to commercial aircraft (or commercial aircraft adapted for military use) that must withstand immersion in phosphate-ester hydraulic fluid (Skydrol 500b or equivalent) at the elevated temperature of 150 degrees Fahrenheit for 1,000 hours.

(HH) **Epoxy polyamide topcoat** - A coating used where harder films are required or in some areas where engraving is accomplished in camouflage colors.

(II) **Fire-resistant (interior) coating** - For civilian aircraft, fire-resistant interior coatings are used on passenger cabin interior parts that are subject to the FAA fireworthiness requirements. For military aircraft, fire-resistant interior coatings are used on parts that are subject to the flammability requirements of MIL-STD-1630A and MIL-A-87721. For space applications, these coatings are used on parts that are subject to the flammability requirements of SE-R-0006 and SSP 30233.

(JJ) **Flexible primer** - A primer that meets flexibility requirements such as those needed for adhesive bond primed fastener heads or on surfaces expected to contain fuel. The flexible coating is required because it provides a compatible, flexible substrate over bonded sheet rubber and rubber-type coatings as well as a flexible bridge between the fasteners, skin, and skin-to-skin joints on outer aircraft skins. This flexible bridge allows more topcoat flexibility around fasteners and decreases the chance of the topcoat cracking around the fasteners. The result is better corrosion resistance.

(KK) **Flight test coating** - A coating applied to aircraft other than missiles or single-use aircraft prior to flight testing to protect the aircraft from corrosion and to provide required marking during flight test evaluation.

(LL) **Flush cleaning** - Removal of contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component or coating equipment by passing solvent over, into, or through the item being cleaned. The solvent may simply be poured into the item being cleaned and then drained, or assisted by air or hydraulic pressure, or by pumping. Hand-wipe cleaning operations where wiping, scrubbing, mopping, or other hand action are used are not included.

(MM) **Fuel tank adhesive** - An adhesive used to bond components exposed to fuel and must be compatible with fuel tank coatings.

(NN) **Fuel tank coating** - A coating applied to fuel tank components for the purpose of corrosion and/or bacterial growth inhibition and to assure sealant adhesion in extreme environmental conditions.

(OO) **Grams of VOC per liter of coating (less water and less exempt solvent)** - The weight of VOC per combined volume of total volatiles and coating solids, less water and exempt compounds. Can be calculated by the following equation:

Figure: 30 TAC §115.420(b)(1)(OO)

$$\begin{array}{c}\text{grams of VOC per liter of coating}\\ \text{(less water and less exempt solvent)}\end{array} = \frac{W_s - W_w - W_{es}}{V_s - V_w - V_{es}}$$

W_s = weight of total volatiles in grams
W_w = weight of water in grams
W_{es} = weight of exempt compounds in grams
V_s = volume of coating in liters
V_w = volume of water in liters
V_{es} = volume of exempt compounds in liters

(PP) **Hand-wipe cleaning operation** - Removing contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component by physically rubbing it with a material such as a rag, paper, or cotton swab that has been moistened with a cleaning solvent.

(QQ) **High temperature coating** - A coating designed to withstand temperatures of more than 350 degrees Fahrenheit.

(RR) **Hydrocarbon-based cleaning solvent** - A solvent which is composed of VOC (photochemically reactive hydrocarbons) and/or oxygenated hydrocarbons, has a maximum vapor pressure of seven millimeters of mercury (mm Hg) at 20 degrees Celsius (68 degrees Fahrenheit), and contains no hazardous air pollutant (HAP) identified in the 1990 Amendments to the Federal Clean Air Act (FCAA), §112(b).

(SS) **Insulation covering** - Material that is applied to foam insulation to protect the insulation from mechanical or environmental damage.

(TT) **Intermediate release coating** - A thin coating applied beneath topcoats to assist in removing the topcoat in depainting operations and generally to allow the use of less hazardous depainting methods.

(UU) **Lacquer** - A clear or pigmented coating formulated with a nitrocellulose or synthetic resin to dry by evaporation without a chemical reaction. Lacquers are resoluble in their original solvent.

(VV) **Limited access space** - Internal surfaces or passages of an aerospace vehicle or component that cannot be reached without the aid of an airbrush or a spray gun extension for the application of coatings.

(WW) **Metalized epoxy coating** - A coating that contains relatively large quantities of metallic pigmentation for appearance and/or added protection.

(XX) **Mold release** - A coating applied to a mold surface to prevent the molded piece from sticking to the mold as it is removed.

(YY) **Monthly weighted average** - The total weight of VOC emission from all coatings divided by the total volume of those coatings (minus water and exempt solvents) delivered to the application system each calender month. Coatings shall not be combined for purposes of calculating the monthly weighted average. In addition, determination of compliance is based on each individual coating operation.

(ZZ) **Nonstructural adhesive** - An adhesive that bonds nonload bearing aerospace components in noncritical applications and is not covered in any other specialty adhesive categories.

(AAA) **Operating parameter value** - A minimum or maximum value established for a control equipment or process parameter that, if achieved by itself or in combination with one or more other operating parameter values, determines that an owner or operator has continued to comply with an applicable emission limitation.

(BBB) **Optical antireflection coating** - A coating with a low reflectance in the infrared and visible wavelength ranges that is used for antireflection on or near optical and laser hardware.

(CCC) **Part marking coating** - Coatings or inks used to make identifying markings on materials, components, and/or assemblies of aerospace vehicles. These markings may be either permanent or temporary.

(DDD) **Pretreatment coating** - An organic coating that contains at least 0.5% acids by weight and is applied directly to metal or composite surfaces to provide surface etching, corrosion resistance, adhesion, and ease of stripping.

(EEE) **Primer** - The first layer and any subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, protection from the environment, functional fluid resistance, and adhesion of subsequent coatings. Primers that are defined as specialty coatings are not included under this definition.

(FFF) **Radome** - The nonmetallic protective housing for electromagnetic transmitters and receivers (e.g., radar, electronic countermeasures, etc.).

(GGG) **Rain erosion-resistant coating** - A coating or coating system used to protect the leading edges of parts such as flaps, stabilizers, radomes, engine inlet nacelles, etc. against erosion caused by rain impact during flight.

(HHH) **Research and development** - An operation whose primary purpose is for research and development of new processes and products and that is conducted under the close supervision of technically trained personnel and is not involved in the manufacture of final or intermediate products for commercial purposes, except in a de minimis manner.

(III) **Rocket motor bonding adhesive** - An adhesive used in rocket motor bonding applications.

(JJJ) **Rocket motor nozzle coating** - A catalyzed epoxy coating system used in elevated temperature applications on rocket motor nozzles.

(KKK) **Rubber-based adhesive** - A quick setting contact cement that provides a strong, yet flexible bond between two mating surfaces that may be of dissimilar materials.

(LLL) **Scale inhibitor** - A coating that is applied to the surface of a part prior to thermal processing to inhibit the formation of scale.

(MMM) **Screen print ink** - An ink used in screen printing processes during fabrication of decorative laminates and decals.

(NNN) **Sealant** - A material used to prevent the intrusion of water, fuel, air, or other liquids or solids from certain areas of aerospace vehicles or components. There are two categories of sealants: extrudable/rollable/brushable sealants and sprayable sealants.

(OOO) **Seal coat maskant** - An overcoat applied over a maskant to improve abrasion and chemical resistance during production operations.

(PPP) **Self-priming topcoat** - A topcoat that is applied directly to an uncoated aerospace vehicle or component for purposes of corrosion prevention, environmental protection, and functional fluid resistance. More than one layer of identical coating formulation may be applied to the vehicle or component.

(QQQ) **Semiaqueous cleaning solvent** - A solution in which water is a primary ingredient. More than 60% by volume of the solvent solution as applied must be water.

(RRR) **Silicone insulation material** - An insulating material applied to exterior metal surfaces for protection from high temperatures caused by atmospheric friction or engine exhaust. These materials differ from ablative coatings in that they are not "sacrificial."

(SSS) **Solid film lubricant** - A very thin coating consisting of a binder system containing as its chief pigment material one or more of the following: molybdenum, graphite, polytetrafluoroethylene, or other solids that act as a dry lubricant between faying (i.e., closely or tightly fitting) surfaces.

(TTT) **Space vehicle** - A man-made device, either manned or unmanned, designed for operation beyond earth's atmosphere. This definition includes integral equipment such as models, mock-ups, prototypes, molds, jigs, tooling, hardware jackets, and test coupons. Also included is auxiliary equipment associated with test, transport, and storage, that through contamination can compromise the space vehicle performance.

(UUU) **Specialty coating** - A coating that, even though it meets the definition of a primer, topcoat, or self-priming topcoat, has additional performance criteria beyond those of primers, topcoats, and self-priming topcoats for specific applications. These performance criteria may include, but are not limited to, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealing, adhesively joining substrates, or enhanced corrosion protection.

(VVV) **Specialized function coating** - A coating that fulfills extremely specific engineering requirements that are limited in application and are characterized by low volume usage. This category excludes coatings covered in other specialty coating categories.

(WWW) **Structural autoclavable adhesive** - An adhesive used to bond load-carrying aerospace components that is cured by heat and pressure in an autoclave.

(XXX) **Structural nonautoclavable adhesive** - An adhesive cured under ambient conditions that is used to bond load-carrying aerospace components or other critical functions, such as nonstructural bonding in the proximity of engines.

(YYY) **Surface preparation** - The removal of contaminants from the surface of an aerospace vehicle or component or the activation or reactivation of the surface in preparation for the application of a coating.

(ZZZ) **Temporary protective coating** - A coating applied to provide scratch or corrosion protection during manufacturing, storage, or transportation. Two types include peelable protective coatings and alkaline removable coatings. These materials are not intended to protect against strong acid or alkaline solutions. Coatings that provide this type of protection from chemical processing are not included in this category.

(AAAA) **Thermal control coating** - A coating formulated with specific thermal conductive or radiative properties to permit temperature control of the substrate.

(BBBB) **Topcoat** - A coating that is applied over a primer on an aerospace vehicle or component for appearance, identification, camouflage, or protection. Topcoats that are defined as specialty coatings are not included under this definition.

(CCCC) **Touch-up and repair coating** - A coating used to cover minor coating imperfections appearing after the main coating operation.

(DDDD) **Touch-up and repair operation** - That portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage. This definition includes out-of-sequence or out-of-cycle coating.

(EEEE) **VOC composite vapor pressure** - The sum of the partial pressures of the compounds defined as VOCs, determined by the following calculation:

Figure: 30 TAC §115.420(b)(1)(EEEE)

$$PP_c = \sum_{i=1}^{n} \frac{\dfrac{W_i}{MW_i} \times VP_i}{\dfrac{W_w}{MW_w} + \sum_{e=1}^{n} \dfrac{W_e}{MW_e} + \sum_{i=1}^{n} \dfrac{W_i}{MW_i}}$$

Where:

W_i = Weight of the "i"th VOC compound, grams.
W_w = Weight of water, grams.
W_e = Weight of nonwater, non-VOC compound, grams.
MW_i = Molecular weight of the "i"th VOC compound, g/g-mole.
MW_w = Molecular weight of water, g/g-mole.
MW_e = Molecular weight of exempt compound, g/g-mole.
PP_c = VOC composite partial pressure at 20 degrees Celsius, millimeters of mercury (mm Hg).
VP_i = Vapor pressure of the "i"th VOC compound at 20 degrees Celsius, mm Hg.

(FFFF) **Waterborne (water-reducible) coating** - A coating which contains more than 5.0% water by weight as applied in its volatile fraction.

(GGGG) **Wet fastener installation coating** - A primer or sealant applied by dipping, brushing, or daubing to fasteners that are installed before the coating is cured.

(HHHH) **Wing coating** - A corrosion-resistant topcoat that is resilient enough to withstand the flexing of the wings.

(2) **Can coating** - The coating of cans for beverages (including beer), edible products (including meats, fruit, vegetables, and others), tennis balls, motor oil, paints, and other mass-produced cans.

(3) **Coil coating** - The coating of any flat metal sheet or strip supplied in rolls or coils.

(4) **Fabric coating** - The application of coatings to fabric, which includes rubber application (rainwear, tents, and industrial products such as gaskets and diaphragms).

(5) **Factory surface coating of flat wood paneling** - Coating of flat wood paneling products, including hardboard, hardwood plywood, particle board, printed interior paneling, and tile board.

(6) **Large appliance coating** - The coating of doors, cases, lids, panels, and interior support parts of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, and other large appliances.

(7) **Metal furniture coating** - The coating of metal furniture (tables, chairs, wastebaskets, beds, desks, lockers, benches, shelves, file cabinets, lamps, and other metal furniture products) or the coating of any metal part which will be a part of a nonmetal furniture product.

(8) **Mirror backing coating** - The application of coatings to the silvered surface of a mirror.

(9) **Miscellaneous metal parts and products coating**.

(A) **Clear coat** - A coating which lacks opacity or which is transparent and which may or may not have an undercoat that is used as a reflectant base or undertone color.

(B) **Drum (metal)** - Any cylindrical metal shipping container with a nominal capacity equal to or greater than 12 gallons (45.4 liters) but equal to or less than 110 gallons (416 liters).

(C) **Extreme performance coating** - A coating intended for exposure to extreme environmental conditions, such as continuous outdoor exposure; temperatures frequently above 95 degrees Celsius (203 degrees Fahrenheit); detergents; abrasive and scouring agents; solvents; and corrosive solutions, chemicals, or atmospheres.

(D) **High-bake coatings** - Coatings designed to cure at temperatures above 194 degrees Fahrenheit.

(E) **Low-bake coatings** - Coatings designed to cure at temperatures of 194 degrees Fahrenheit or less.

(F) **Miscellaneous metal parts and products (MMPP) coating** - The coating of MMPP in the following categories at original equipment manufacturing operations; designated on-site maintenance shops which recoat used parts and products; and off-site job shops which coat new parts and products or which recoat used parts and products:

(i) large farm machinery (harvesting, fertilizing, and planting machines, tractors, combines, etc.);

(ii) small farm machinery (lawn and garden tractors, lawn mowers, rototillers, etc.);

(iii) small appliances (fans, mixers, blenders, crock pots, dehumidifiers, vacuum cleaners, etc.);

(iv) commercial machinery (computers and auxiliary equipment, typewriters, calculators, vending machines, etc.);

(v) industrial machinery (pumps, compressors, conveyor components, fans, blowers, transformers, etc.);

(vi) fabricated metal products (metal-covered doors, frames, etc.); and

(vii) any other category of coated metal products, including, but not limited to, those which are included in the Standard Industrial Classification Code major group 33 (primary metal industries), major group 34 (fabricated metal products), major group 35 (nonelectrical machinery), major group 36 (electrical machinery), major group 37 (transportation equipment), major group 38 (miscellaneous instruments), and major group 39 (miscellaneous manufacturing industries). Excluded are those surface coating processes specified in paragraphs (1) - (8) and (10) - (14) of this subsection.

(G) **Pail (metal)** - Any cylindrical metal shipping container with a nominal capacity equal to or greater than 1 gallon (3.8 liters) but less than 12 gallons (45.4 liters) and constructed of 29 gauge or heavier material.

(10) **Paper coating** - The coating of paper and pressure-sensitive tapes (regardless of substrate and including paper, fabric, and plastic film) and related web coating processes on plastic film (including typewriter ribbons, photographic film, and magnetic tape) and metal foil (including decorative, gift wrap, and packaging).

(11) **Marine coatings**.

(A) **Air flask specialty coating** - Any special composition coating applied to interior surfaces of high pressure breathing air flasks to provide corrosion resistance and that is certified safe for use with breathing air supplies.

(B) **Antenna specialty coating** - Any coating applied to equipment through which electromagnetic signals must pass for reception or transmission.

(C) **Antifoulant specialty coating** - Any coating that is applied to the underwater portion of a vessel to prevent or reduce the attachment of biological organisms and that is registered with the EPA as a pesticide under the Federal Insecticide, Fungicide, and Rodenticide Act.

(D) **Batch** - The product of an individual production run of a coating manufacturer's process. (A batch may vary in composition from other batches of the same product.)

(E) **Bitumens** - Black or brown materials that are soluble in carbon disulfide, which consist mainly of hydrocarbons.

(F) **Bituminous resin coating** - Any coating that incorporates bitumens as a principal component and is formulated primarily to be applied to a substrate or surface to resist ultraviolet radiation and/or water.

(G) **Epoxy** - Any thermoset coating formed by reaction of an epoxy resin (i.e., a resin containing a reactive epoxide with a curing agent).

(H) **General use coating** - Any coating that is not a specialty coating.

(I) **Heat resistant specialty coating** - Any coating that during normal use must withstand a temperature of at least 204 degrees Celsius (400 degrees Fahrenheit).

(J) **High-gloss specialty coating** - Any coating that achieves at least 85% reflectance on a 60 degree meter when tested by the American Society for Testing and Materials (ASTM) Method D-523.

(K) **High-temperature specialty coating** - Any coating that during normal use must withstand a temperature of at least 426 degrees Celsius (800 degrees Fahrenheit).

(L) **Inorganic zinc (high-build) specialty coating** - A coating that contains 960 grams per liter (eight pounds per gallon) or more elemental zinc incorporated into an inorganic silicate binder that is applied to steel to provide galvanic corrosion resistance. (These coatings are typically applied at more than two mil dry film thickness.)

(M) **Maximum allowable thinning ratio** - The maximum volume of thinner that can be added per volume of coating without exceeding the applicable VOC limit of §115.421(a)(15)(A) of this title.

(N) **Military exterior specialty coating** - Any exterior topcoat applied to military or United States Coast Guard vessels that are subject to specific chemical, biological, and radiological washdown requirements.

(O) **Mist specialty coating** - Any low viscosity, thin film, epoxy coating applied to an inorganic zinc primer that penetrates the porous zinc primer and allows the occluded air to escape through the paint film prior to curing.

(P) **Navigational aids specialty coating** - Any coating applied to Coast Guard buoys or other Coast Guard waterway markers when they are recoated aboard ship at their usage site and immediately returned to the water.

(Q) **Nonskid specialty coating** - Any coating applied to the horizontal surfaces of a marine vessel for the specific purpose of providing slip resistance for personnel, vehicles, or aircraft.

(R) **Nonvolatiles (or volume solids)** - Substances that do not evaporate readily. This term refers to the film-forming material of a coating.

(S) **Nuclear specialty coating** - Any protective coating used to seal porous surfaces such as steel (or concrete) that otherwise would be subject to intrusion by radioactive materials. These coatings must be resistant to long-term (service life) cumulative radiation exposure (ASTM D4082-83), relatively easy to decontaminate (ASTM D4256-83), and resistant to various chemicals to which the coatings are likely to be exposed (ASTM 3912-80). (For nuclear coatings, see the general protective requirements outlined by the U.S. Atomic Energy Commission in a report entitled "U.S. Atomic Energy Commission Regulatory Guide 1.54" dated June 1973, available through the Government Printing Office at (202) 512-2249 as document number A74062-00001.)

(T) **Organic zinc specialty coating** - Any coating derived from zinc dust incorporated into an organic binder that contains more than 960 grams of elemental zinc per liter (eight pounds per gallon) of coating, as applied, and that is used for the expressed purpose of corrosion protection.

(U) **Pleasure craft** - Any marine or fresh-water vessel used by individuals for noncommercial, nonmilitary, and recreational purposes that is less than 20 meters (65.6 feet) in length. A vessel rented exclusively to, or chartered for, individuals for such purposes shall be considered a pleasure craft.

(V) **Pretreatment wash primer specialty coating** - Any coating that contains a minimum of 0.5% acid by weight that is applied only to bare metal surfaces to etch the metal surface for corrosion resistance and adhesion of subsequent coatings.

(W) **Repair and maintenance of thermoplastic coating of commercial vessels (specialty coating)** - Any vinyl, chlorinated rubber, or bituminous resin coating that is applied over the same type of existing coating to perform the partial recoating of any in-use commercial vessel. (This definition does not include coal tar epoxy coatings, which are considered "general use" coatings.)

(X) **Rubber camouflage specialty coating** - Any specially formulated epoxy coating used as a camouflage topcoat for exterior submarine hulls and sonar domes.

(Y) **Sealant for thermal spray aluminum** - Any epoxy coating applied to thermal spray aluminum surfaces at a maximum thickness of one dry mil.

(Z) **Ship** - Any marine or fresh-water vessel, including self-propelled vessels, those propelled by other craft (barges), and navigational aids (buoys). This definition includes, but is not limited to, all military and Coast Guard vessels, commercial cargo and passenger (cruise) ships, ferries, barges, tankers, container ships, patrol and pilot boats, and dredges. Pleasure craft and offshore oil or gas drilling platforms are not considered ships.

(AA) **Shipbuilding and ship repair operations** - Any building, repair, repainting, converting, or alteration of ships or offshore oil or gas drilling platforms.

(BB) **Special marking specialty coating** - Any coating that is used for safety or identification applications, such as ship numbers and markings on flight decks.

(CC) **Specialty interior coating** - Any coating used on interior surfaces aboard United States military vessels pursuant to a coating specification that requires the coating to meet specified fire retardant and low toxicity requirements, in addition to the other applicable military physical and performance requirements.

(DD) **Tack coat specialty coating** - Any thin film epoxy coating applied at a maximum thickness of two dry mils to prepare an epoxy coating that has dried beyond the time limit specified by the manufacturer for the application of the next coat.

(EE) **Undersea weapons systems specialty coating** - Any coating applied to any component of a weapons system intended to be launched or fired from under the sea.

(FF) **Weld-through preconstruction primer (specialty coating)** - A coating that provides corrosion protection for steel during inventory, is typically applied at less than one mil dry film thickness, does not require removal prior to welding, is temperature resistant (burn back from a weld is less than 1.25 centimeters (0.5 inches)), and does not normally require removal before applying film-building coatings, including inorganic zinc high-build coatings. When constructing new vessels, there may be a need to remove areas of weld-through preconstruction primer due to surface damage or contamination prior to application of film-building coatings.

(12) **Vehicle coating.**

(A) Automobile and light-duty truck manufacturing.

(i) Automobile coating - The assembly-line coating of passenger cars, or passenger car derivatives, capable of seating 12 or fewer passengers.

(ii) Light-duty truck coating - The assembly-line coating of motor vehicles rated at 8,500 pounds (3,855.5 kg) gross vehicle weight or less and designed primarily for the transportation of property, or derivatives such as pickups, vans, and window vans.

(B) Vehicle refinishing (body shops).

(i) **Basecoat/clearcoat system** - A topcoat system composed of a pigmented basecoat portion and a transparent clearcoat portion. The VOC content of a basecoat (BCCA-AG)/clearcoat (cc) system shall be calculated according to the following formula.

Figure: 30 TAC §115.420(b)(12)(B)(i)

$$VOC\ T_{bc/cc} = \frac{VOC_{bc} + (2 \times VOC_{cc})}{3}$$

where:

$VOC\ T_{bc/cc}$ is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, in the basecoat/clearcoat system;
VOC_{bc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given basecoat; and
VOC_{cc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given clearcoat.

(ii) **Precoat** - Any coating that is applied to bare metal to deactivate the metal surface for corrosion resistance to a subsequent water-based primer. This coating is applied to bare metal solely for the prevention of flash rusting.

(iii) **Pretreatment** - Any coating which contains a minimum of 0.5% acid by weight that is applied directly to bare metal surfaces to etch the metal surface for corrosion resistance and adhesion of subsequent coatings.

(iv) **Primer or primer surfacers** - Any base coat, sealer, or intermediate coat which is applied prior to colorant or aesthetic coats.

(v) **Sealers** - Coatings that are formulated with resins which, when dried, are not readily soluble in typical solvents. These coatings act as a shield for surfaces over which they are sprayed by resisting the penetration of solvents which are in the final topcoat.

(vi) **Specialty coatings** - Coatings or additives which are necessary due to unusual job performance requirements. These coatings or additives prevent the occurrence of surface defects and impart or improve desirable coating properties. These products include, but are not limited to, uniform finish blenders, elastomeric materials for coating of flexible plastic parts, coatings for non-metallic parts, jambing clear coatings, gloss flatteners, and anti-glare/safety coatings.

(vii) **Three-stage system** - A topcoat system composed of a pigmented basecoat portion, a semitransparent midcoat portion, and a transparent clearcoat portion. The VOC content of a three-stage system shall be calculated according to the following formula:

Figure: 30 TAC §115.420(b)(12)(B)(vii)

$$VOC\ T_{3\text{-stage}} = \frac{VOC_{bc} + VOC_{mc} + (2 \times VOC_{cc})}{4}$$

where:

$VOC\ T_{3\text{-stage}}$ is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, in the three-stage system;

VOC_{bc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given basecoat;

VOC_{mc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given midcoat; and

VOC_{cc} is the VOC content, in pounds of VOC per gallon (less water and exempt solvent) as applied, of any given clearcoat.

(viii) **Vehicle refinishing (body shops)** - The coating of motor vehicles, as defined in §114.620 of this title (relating to Definitions), including, but not limited to, motorcycles, passenger cars, vans, light-duty trucks, medium-duty trucks, heavy-duty trucks, buses, and other vehicle body parts, bodies, and cabs by an operation other than the original manufacturer. The coating of non-road vehicles and non-road equipment, as these terms are defined in §114.3 and §114.6 of this title (relating to Low Emission Vehicle Fleet Definitions; and Low Emission Fuel Definitions), and trailers is not included.

(ix) **Wipe-down solutions** - Any solution used for cleaning and surface preparation.

(13) **Vinyl coating** - The use of printing or any decorative or protective topcoat applied over vinyl sheets or vinyl-coated fabric.

(14) **Wood parts and products coating**.

(A) The following terms apply to wood parts and products coating facilities subject to §115.421(a)(13) of this title.

(i) **Clear coat** - A coating which lacks opacity or which is transparent and uses the undercoat as a reflectant base or undertone color.

(ii) **Clear sealers** - Liquids applied over stains, toners, and other coatings to protect these coatings from marring during handling and to limit absorption of succeeding coatings.

(iii) **Final repair coat** - Liquids applied to correct imperfections or damage to the topcoat.

(iv) **Opaque ground coats and enamels** - Colored, opaque liquids applied to wood or wood composition substrates which completely hide the color of the substrate in a single coat.

(v) **Semitransparent spray stains and toners** - Colored liquids applied to wood to change or enhance the surface without concealing the surface, including but not limited to, toners and nongrain-raising stains.

(vi) **Semitransparent wiping and glazing stains** - Colored liquids applied to wood that require multiple wiping steps to enhance the grain character and to partially fill the porous surface of the wood.

(vii) **Shellacs** - Coatings formulated solely with the resinous secretions of the lac beetle (laccifer lacca), thinned with alcohol, and formulated to dry by evaporation without a chemical reaction.

(viii) **Topcoat** - A coating which provides the final protective and aesthetic properties to wood finishes.

(ix) **Varnishes** - Clear wood finishes formulated with various resins to dry by chemical reaction on exposure to air.

(x) **Wash coat** - A low-solids clear liquid applied over semitransparent stains and toners to protect the color coats and to set the fibers for subsequent sanding or to separate spray stains from wiping stains to enhance color depth.

(xi) **Wood parts and products coating** - The coating of wood parts and products, excluding factory surface coating of flat wood paneling.

(B) The following terms apply to wood furniture manufacturing facilities subject to §115.421(a)(14) of this title.

(i) **Adhesive** - Any chemical substance that is applied for the purpose of bonding two surfaces together other than by mechanical means. Adhesives are not considered to be coatings or finishing materials for wood furniture manufacturing facilities subject to §115.421(a)(14) of this title.

(ii) **Basecoat** - A coat of colored material, usually opaque, that is applied before graining inks, glazing coats, or other opaque finishing materials and is usually topcoated for protection.

(iii) **Cleaning operations** - Operations in which organic solvent is used to remove coating materials from equipment used in wood furniture manufacturing operations.

(iv) **Continuous coater** - A finishing system that continuously applies finishing materials onto furniture parts moving along a conveyor system. Finishing materials that are not transferred to the part are recycled to the finishing material reservoir. Several types of application methods can be used with a continuous coater, including spraying, curtain coating, roll coating, dip coating, and flow coating.

(v) **Conventional air spray** - A spray coating method in which the coating is atomized by mixing it with compressed air at an air pressure greater than 10 pounds per square inch gauge (psig) at the point of atomization. Airless and air-assisted airless spray technologies are not conventional air spray because the coating is not atomized by mixing it with compressed air. Electrostatic spray technology is also not conventional air spray because an electrostatic charge is employed to attract the coating to the workpiece. In addition, high-volume low-pressure (HVLP) spray technology is not conventional air spray because its pressure is less than 10 psig.

(vi) **Finishing application station** - The part of a finishing operation where the finishing material is applied (for example, a spray booth).

(vii) **Finishing material** - A coating used in the wood furniture industry. For the wood furniture manufacturing industry, such materials include, but are not limited to, basecoats, stains, washcoats, sealers, and topcoats.

(viii) **Finishing operation** - Those activities in which a finishing material is applied to a substrate and is subsequently air-dried, cured in an oven, or cured by radiation.

(ix) **Organic solvent** - A liquid containing VOCs that is used for dissolving or dispersing constituents in a coating; adjusting the viscosity of a coating; cleaning; or washoff. When used in a coating, the organic solvent evaporates during drying and does not become a part of the dried film.

(x) **Sealer** - A finishing material used to seal the pores of a wood substrate before additional coats of finishing material are applied. Washcoats, which are used in some finishing systems to optimize aesthetics, are not sealers.

(xi) **Stain** - Any color coat having a solids content of no more than 8.0% by weight that is applied in single or multiple coats directly to the substrate. Includes, but is not limited to, nongrain raising stains, equalizer stains, sap stains, body stains, no-wipe stains, penetrating stains, and toners.

(xii) **Strippable booth coating** - A coating that is applied to a booth wall to provide a protective film to receive overspray during finishing operations; is subsequently peeled off and disposed; and reduces or eliminates the need to use organic solvents to clean booth walls.

(xiii) **Topcoat** - The last film-building finishing material applied in a finishing system. A material such as a wax, polish, nonoxidizing oil, or similar substance that must be periodically reapplied to a surface over its lifetime to maintain or restore the reapplied material's intended effect is not considered to be a topcoat.

(xiv) **Touch-up and repair** - The application of finishing materials to cover minor finishing imperfections.

(xv) **Washcoat** - A transparent special purpose coating having a solids content of 12% by weight or less. Washcoats are applied over initial stains to protect and control color and to stiffen the wood fibers in order to aid sanding.

(xvi) **Washoff operations** - Those operations in which organic solvent is used to remove coating from a substrate.

(xvii) **Wood furniture** - Any product made of wood, a wood product such as rattan or wicker, or an engineered wood product such as particleboard that is manufactured under any of the following standard industrial classification codes: 2434 (wood kitchen cabinets), 2511 (wood household furniture, except upholstered), 2512 (wood household furniture, upholstered), 2517 (wood television, radios, phonograph and sewing machine cabinets), 2519 (household furniture not elsewhere classified), 2521 (wood office furniture), 2531 (public building and related furniture), 2541 (wood office and store fixtures, partitions, shelving and lockers), 2599 (furniture and fixtures not elsewhere classified), or 5712 (custom kitchen cabinets).

(xviii) **Wood furniture component** - Any part that is used in the manufacture of wood furniture. Examples include, but are not limited to, drawer sides, cabinet doors, seat cushions, and laminated tops. However, foam seat cushions manufactured and fabricated at a facility that does not engage in any other wood furniture or wood furniture component manufacturing operation are excluded from this definition.

(xix) **Wood furniture manufacturing operations** - The finishing, cleaning, and washoff operations associated with the production of wood furniture or wood furniture components.

§115.421. Emission Specifications.

(a) No person in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas as defined in §115.10 of this title (relating to Definitions) may cause, suffer, allow, or permit volatile organic compound (VOC) emissions from the surface coating processes affected by paragraphs (1) - (15) of this subsection to exceed the specified emission limits. These limitations are based on the daily weighted average of all coatings delivered to each coating line, except for those in paragraph (10) of this subsection which are based on paneling surface area, and those in paragraph (14) of this subsection which, if using an averaging approach, must use one of the daily averaging equations within that paragraph. The owner or operator of a surface coating operation subject to paragraph (11) of the subsection may choose to comply by using the monthly weighted average option as defined in §115.420(b)(1)(XX) of this title (relating to Surface Coating Definitions).

(1) Large appliance coating. VOC emissions from the application, flashoff, and oven areas during the coating of large appliances (prime and topcoat, or single coat) shall not exceed 2.8 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.34 kg/liter).

(2) Metal furniture coating. VOC emissions from metal furniture coating lines (prime and topcoat, or single coat) shall not exceed 3.0 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.36 kg/liter).

(3) Coil coating. VOC emissions from the coating (prime and topcoat, or single coat) of metal coils shall not exceed 2.6 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.31 kg/liter).

(4) Paper coating. VOC emissions from the coating of paper (or specified tapes or films) shall not exceed 2.9 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.35 kg/liter).

(5) Fabric coating. VOC emissions from the coating of fabric shall not exceed 2.9 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.35 kg/liter).

(6) Vinyl coating. VOC emissions from the coating of vinyl fabrics or sheets shall not exceed 3.8 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.45 kg/liter). Plastisol coatings should not be included in calculations.

(7) Can coating. The following VOC emission limits shall be achieved, on the basis of solvent content per gallon of coating (minus water and exempt solvent) delivered to the application system:

Figure: 30 TAC §115.421(a)(7)

Affected Operation	VOC Emission Limitation	
	pounds per gallon of coating	kg per liter of coating
sheet basecoat (exterior and interior) and over-varnish	2.8	0.34
two-piece can exterior (base-coat and over-varnish)	2.8	0.34
two- and three-piece can interior body spray, two-piece can exterior end (spray or roll coat)	4.2	0.51
three-piece can side-seam spray	5.5	0.66
end sealing compound	3.7	0.44

(8) Vehicle coating.

(A) The following VOC emission limits shall be achieved for all automobile and light-duty truck manufacturing, on the basis of solvent content per gallon of coating (minus water and exempt solvents) delivered to the application system or for primer surfacer and top coat application, compliance may be demonstrated on the basis of VOC emissions per gallon of solids deposited as determined by §115.425(3) of this title (relating to Testing Requirements).

Figure: 30 TAC §115.421(a)(8)(A)

Operation (including application, flashoff, and oven areas)	VOC Emission Limitation: Coating delivered (minus water and exempt solvent)		VOC Emission Limitation: Solids deposited	
	lb/gal	kg/liter	lb/gal	kg/liter
prime application (body and front-end sheet metal)	1.2	0.15	N/A	N/A
primer surfacer application	2.8	0.34	15.1	1.81
topcoat application	2.8	0.34	15.1	1.81
final repair application	4.8	0.58	*	*

* As an alternative to the emission limitation of 4.8 pounds of VOC per gallon of coating applied for final repair, if a source owner does not compile records sufficient to enable determination of a daily weighted average VOC content, compliance with the final repair emission limitation may be demonstrated each day by meeting a standard of 4.8 pounds of VOC per gallon of coating (minus water and exempt solvents) on an occurrence weighted average basis. Compliance with such alternative emission limitation shall be determined in accordance with the procedure specified in §115.425(3) of this title.

(B) VOC emissions from the coatings or solvents used in vehicle refinishing (body shops) shall not exceed the following limits, as delivered to the application system:

(i) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for primers or primer surfacers;

(ii) 5.5 pounds per gallon (0.66 kg/liter) of coating (minus water and exempt solvent) for precoat;

(iii) 6.5 pounds per gallon (0.78 kg/liter) of coating (minus water and exempt solvent) for pretreatment;

(iv) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for single-stage topcoats;

(v) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for basecoat/clearcoat systems;

(vi) 5.2 pounds per gallon (0.62 kg/liter) of coating (minus water and exempt solvent) for three-stage systems;

(vii) 7.0 pounds per gallon (0.84 kg/liter) of coating (minus water and exempt solvent) for specialty coatings;

(viii) 6.0 pounds per gallon (0.72 kg/liter) of coating (minus water and exempt solvent) for sealers; and

(ix) 1.4 pounds per gallon (0.17 kg/liter) of wipe-down solutions.

(C) Additional control requirements for vehicle refinishing (body shops) are referenced in §115.422 of this title (relating to Control Requirements).

(9) Miscellaneous metal parts and products (MMPP) coating.

(A) VOC emissions from the coating of MMPP shall not exceed the following limits for each surface coating type:

(i) 4.3 pounds per gallon (0.52 kg/liter) of coating (minus water and exempt solvent) delivered to the application system as a clear coat; or as an interior protective coating for pails and drums;

(ii) 3.5 pounds per gallon (0.42 kg/liter) of coating (minus water and exempt solvent) delivered to the application system as a low-bake coating; or that utilizes air or forced air driers;

(iii) 3.5 pounds per gallon (0.42 kg/liter) of coating (minus water and exempt solvent) delivered to the application system as an extreme performance coating, including chemical milling maskants; and

(iv) 3.0 pounds per gallon (0.36 kg/liter) of coating (minus water and exempt solvent) delivered to the application system for all other coating applications, including high-bake coatings, that pertain to MMPP.

(B) If more than one emission limitation in subparagraph (A) of this paragraph applies to a specific coating, then the least stringent emission limitation shall apply.

(C) All VOC emissions from non-exempt solvent washings shall be included in determination of compliance with the emission limitations in subparagraph (A) of this paragraph unless the solvent is directed into containers that prevent evaporation into the atmosphere.

(10) Factory surface coating of flat wood paneling. The following emission limits shall apply to each product category of factory-finished paneling (regardless of the number of coats applied):

Figure: 30 TAC §115.421(a)(10)

Product Category	VOC Emission Limitation lb VOC/ 1000 ft^2 of coated surface	VOC Emission Limitation kg VOC/ 100 m^2 of coated surface
printed interior wall panels made of hardwood plywood and thin particle board (less than 1/4 inch (0.64 cm)) in thickness	6.0	2.9
natural finish hardwood plywood panels	12.0	5.8
hardwood paneling with Class II finish (ANSI Standard PS-59-73)	10.0	4.8

(11) Aerospace coatings. The VOC content of coatings, including any VOC-containing materials added to the original coating supplied by the manufacturer, which are applied to aerospace vehicles or components shall not exceed the following limits (in grams of VOC per liter of coating, less water and exempt solvent). The following applications are exempt from the VOC content limits of this paragraph: manufacturing or re-work of space vehicles or antique aerospace vehicles or components of each; touchup; United States Department of Defense classified coatings; and separate coating formulations in volumes less than 50 gallons per year to a maximum of 200 gallons per year for all such formulations at an account.

(A) For the broad categories of primers, topcoats, and chemical milling maskants (Type I/II) which are not specialty coatings as listed in subparagraph (B) of this paragraph:

(i) primer, 350;

(ii) topcoats (including self-priming topcoats), 420; and

(iii) chemical milling maskants:

(I) Type I, 622; and

(II) Type II, 160.

(B) For specialty coatings:

Figure: 30 TAC §115.421(a)(11)(B)

VOC LIMITS FOR SPECIALTY COATINGS (IN GRAMS OF VOC PER LITER OF COATING, LESS WATER AND EXEMPT SOLVENT)

Coating type	Limit
Ablative Coating	600
Adhesion Promoter	890
Adhesive Bonding Primers:	
Cured at 250°F or below	850
Cured above 250°F	1030
Adhesives:	
Commercial Interior Adhesive	760
Cyanoacrylate Adhesive	1,020
Fuel Tank Adhesive	620
Nonstructural Adhesive	360
Rocket Motor Bonding Adhesive	890
Rubber-based Adhesive	850
Structural Autoclavable Adhesive	60
Structural Nonautoclavable Adhesive	850
Antichafe Coating	660
Bearing Coating	620
Caulking and Smoothing Compounds	850
Chemical Agent-Resistant Coating	550
Clear Coating	720
Commercial Exterior Aerodynamic Structure Primer	650
Compatible Substrate Primer	780
Corrosion Prevention Compound	710
Cryogenic Flexible Primer	645
Dry Lubricative Material	880
Cryoprotective Coating	600
Electric or Radiation-Effect Coating	800
Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	800
Elevated-Temperature Skydrol-Resistant Commercial Primer	740
Epoxy Polyamide Topcoat	660
Fire-Resistant (interior) Coating	800
Flexible Primer	640
Flight-Test Coatings:	
Missile or Single Use Aircraft	420
All Other	840
Fuel-Tank Coating	720
High-Temperature Coating	850
Insulation Covering	740
Intermediate Release Coating	750
Lacquer	830
Maskants:	
Bonding Maskant	1,230
Critical Use and Line Sealer Maskant	1,020
Seal Coat Maskant	1,230
Metallized Epoxy Coating	740
Mold Release	780
Optical Anti-Reflective Coating	750
Part Marking Coating	850
Pretreatment Coating	780
Rain Erosion-Resistant Coating	850
Rocket Motor Nozzle Coating	660
Scale Inhibitor	880
Screen Print Ink	840
Sealants:	
Extrudable/Rollable/Brushable Sealant	280
Sprayable Sealant	600
Silicone Insulation Material	850
Solid Film Lubricant	880
Specialized Function Coating	890
Temporary Protective Coating	320
Thermal Control Coating	800
Wet Fastener Installation Coating	675
Wing Coating	850

(12) Surface coating of mirror backing.

(A) VOC emissions from the coating of mirror backing shall not exceed the following limits for each surface coating application method:

(i) 4.2 pounds per gallon (0.50 kg/liter) of coating (minus water and exempt solvent) delivered to a curtain coating application system; and

(ii) 3.6 pounds per gallon (0.43 kg/liter) of coating (minus water and exempt solvent) delivered to a roll coating application system.

(B) All VOC emissions from solvent washings shall be included in determination of compliance with the emission limitations in subparagraph (A) of this paragraph, unless the solvent is directed into containers that prevent evaporation into the atmosphere.

(13) Surface coating of wood parts and products.

(A) In the Dallas/Fort Worth, El Paso, and Houston/Galveston areas, VOC emissions from the coating of wood parts and products shall not exceed the following limits, as delivered to the application system, for each surface coating type:

(i) 5.9 pounds per gallon (0.71 kg/liter) of coating (minus water and exempt solvent) for clear topcoats;

(ii) 6.5 pounds per gallon (0.78 kg/liter) of coating (minus water and exempt solvent) for wash coats;

(iii) 6.0 pounds per gallon (0.72 kg/liter) of coating (minus water and exempt solvent) for final repair coats;

(iv) 6.6 pounds per gallon (0.79 kg/liter) of coating (minus water and exempt solvent) for semitransparent wiping and glazing stains;

(v) 6.9 pounds per gallon (0.83 kg/liter) of coating (minus water and exempt solvent) for semitransparent spray stains and toners;

(vi) 5.5 pounds per gallon (0.66 kg/liter) of coating (minus water and exempt solvent) for opaque ground coats and enamels;

(vii) 6.2 pounds per gallon (0.74 kg/liter) of coating (minus water and exempt solvent) for clear sealers;

(viii) for shellac:

(I) 5.4 pounds per gallon (0.65 kg/liter) of coating (minus water and exempt solvent) for clear shellac; and

(II) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for opaque shellac;

(ix) 5.0 pounds per gallon (0.60 kg/liter) of coating (minus water and exempt solvent) for varnish; and

(x) 7.0 pounds per gallon (0.84 kg/liter) of coating (minus water and exempt solvent) for all other coatings.

(B) All VOC emissions from solvent washings shall be included in determination of compliance with the emission limitations in subparagraph (A) of this paragraph, unless the solvent is directed into containers that prevent evaporation into the atmosphere.

(C) The requirements of §115.423(3) of this title (relating to Alternate Control Requirements) do not apply at wood parts and products coating facilities if:

(i) a vapor control system is used to control emissions from wood parts and products coating operations; and

(ii) all wood parts and products coatings comply with the emission limitations in subparagraph (A) of this paragraph.

(14) Surface coating at wood furniture manufacturing facilities. The following requirements apply to wood furniture manufacturing facilities in the Beaumont/Port Arthur, Dallas/Fort Worth, El Paso, and Houston/Galveston areas. For facilities which are subject to this paragraph, adhesives are not considered to be coatings or finishing materials.

(A) VOC emissions from finishing operations shall be limited by:

(i) using topcoats with a VOC content no greater than 0.8 kilograms of VOC per kilogram of solids (0.8 pounds of VOC per pound of solids), as delivered to the application system; or

(ii) using a finishing system of sealers with a VOC content no greater than 1.9 kilograms of VOC per kilogram of solids (1.9 pounds of VOC per pound of solids), as applied, and topcoats with a VOC content no greater than 1.8 kilograms of VOC per kilogram of solids (1.8 pounds of VOC per pound of solids), as delivered to the application system; or

(iii) for wood furniture manufacturing facilities using acid-cured alkyd amino vinyl sealers or acid-cured alkyd amino conversion varnish topcoats, using sealers and topcoats which meet the following criteria:

(I) if the wood furniture manufacturing facility uses acid-cured alkyd amino vinyl sealers and acid-cured alkyd amino conversion varnish topcoats, the sealer shall contain no more than 2.3 kilograms of VOC per kilogram of solids (2.3 pounds of VOC per pound of solids), as applied, and the topcoat shall contain no more than 2.0 kilograms of VOC per kilogram of solids (2.0 pounds of VOC per pound of solids), as delivered to the application system; or

(II) if the wood furniture manufacturing facility uses a sealer other than an acid-cured alkyd amino vinyl sealer and acid-cured alkyd amino conversion varnish topcoats, the sealer shall contain no more than 1.9 kilograms of VOC per kilogram of solids (1.9 pounds of VOC per pound of solids), as applied, and the topcoat shall contain no more than 2.0 kilograms of VOC per kilogram of solids (2.0 pounds of VOC per pound of solids), as delivered to the application system; or

(III) if the wood furniture manufacturing facility uses an acid-cured alkyd amino vinyl sealer and a topcoat other than an acid-cured alkyd amino conversion varnish topcoat, the sealer shall contain no more than 2.3 kilograms of VOC per kilogram of solids (2.3 pounds of VOC per pound of solids), as applied, and the topcoat shall contain no more than 1.8 kilograms of VOC per kilogram of solids (1.8 pounds of VOC per pound of solids), as delivered to the application system; or

(iv) using an averaging approach and demonstrating that actual daily emissions from the wood furniture manufacturing facility are less than or equal to the lower of the actual versus allowable emissions using one of the following inequalities:

Figure: 30 TAC §115.421(a)(14)(A)(iv)

$$0.9\,(0.8\ (TC_1 + TC_2 + \ldots)) \geq (ER_{TC1})\,(TC_1) + (ER_{TC2})\,(TC_2) + \ldots) \qquad \text{(Inequality 1)}$$

$$\begin{aligned} &0.9\,\{1.8\,(TC_1 + TC_2 + \ldots)\} + \{1.9\,(SE_1 + SE_2 + \ldots)\} + \qquad \text{(Inequality 2)}\\ &\{9.0\,(WC_1 + WC_2 + \ldots)\} + \{1.2\,(BC_1 + BC_2 + \ldots)\} +\\ &\{0.791\,(ST_1 + ST_2 + \ldots)\} \geq \{ER_{TC1}\,(TC_1) + ER_{TC2}\,(TC_2) + \ldots\} +\\ &\{ER_{SE1}\,(SE_1) + ER_{SE2}\,(SE_2) + \ldots\} + (ER_{WC1}\,(WC_1) + ER_{WC2}\,(WC_2) + \ldots\} +\\ &\{ER_{BC1}\,(BC_1) + ER_{BC2}\,(BC_2) + \ldots\} + \{ER_{ST1}\,(ST_1) + ER_{ST2}\,(ST_2) + \ldots\} \end{aligned}$$

where:

TC_i = kilograms of solids of topcoat "i" used;
SE_i = kilograms of solids of sealer "i" used;
WC_i = kilograms of solids of washcoat "i" used;
BC_i = kilograms of solids of basecoat "i" used;
ST_i = liters of stain "i" used;
ER_{TCi} = VOC content of topcoat "i" in kilograms of VOC per kilogram of solids, as delivered to the application system;
ER_{SEi} = VOC content of sealer "i" in kilograms of VOC per kilogram of solids, as delivered to the application system;

ER_{WCi} = VOC content of washcoat "i" in kilograms of VOC per kilogram of solids, as delivered to the application system;
ER_{BCi} = VOC content of basecoat "i" in kilograms of VOC per kilogram of solids, as delivered to the application system; and
ER_{STi} = VOC content of stain "i" in kilograms of VOC per kilogram of solids, as delivered to the application system.

In inequalities (1) and (2) the facility must use the actual VOC content of the finishing materials used before they were subject to this paragraph if the VOC content is less than the allowed VOC content. For example, if the facility was using topcoats with a VOC content of 1.7 kilograms of VOC per kilogram of solids (1.7 pounds of VOC per pound of solids) before being subject to this paragraph, they must use that value in Inequality (2) rather than 1.8; or

(v) using a vapor control system that will achieve an equivalent reduction in emissions as the requirements of clauses (i) or (ii) of this subparagraph. If this option is used, the requirements of §115.423(3) of this title do not apply; or

(vi) using a combination of the methods presented in clauses (i) - (v) of this subparagraph.

(B) Strippable booth coatings used in cleaning operations shall contain no more than 0.8 kilograms of VOC per kilogram of solids (0.8 pounds of VOC per pound of solids), as delivered to the application system.

(15) Marine coatings. The following requirements apply to shipbuilding and ship repair operations in the Beaumont/Port Arthur and Houston/Galveston areas.

(A) The following VOC emission limits apply to the surface coating of ships and offshore oil or gas drilling platforms at shipbuilding and ship repair operations, and are based upon the VOC content of the coatings as delivered to the application system.

Figure: 30 TAC §115.421(a)(15)(A)

	VOC limits[a, b]			
Coating Category	Grams/liter coating (minus water and exempt solvent)	Pounds/gallon coating (minus water and exempt solvent)	Grams/liter solids[c] t ≥4.5°C (40°F)	Grams/liter solids[c] t<4.5°C (40°F)[d]
General use	340	2.83	571	728
Specialty:				
Air flask	340	2.83	571	728
Antenna	530	4.42	1,439	----
Antifoulant	400	3.33	765	971
Heat resistant	420	3.50	841	1,069
High-gloss	420	3.50	841	1,069
High-temperature	500	4.17	1,237	1,597
Inorganic zinc high-build	340	2.83	571	728
Military exterior	340	2.83	571	728
Mist	610	5.08	2,235	----
Navigational aids	550	4.58	1,597	----
Nonskid	340	2.83	571	728
Nuclear	420	3.50	841	1,069
Organic zinc	360	3.00	630	802
Pretreatment wash primer	780	6.50	11,095	----
Repair and maintenance of thermoplastics	550	4.58	1,597	----
Rubber camouflage	340	2.83	571	728
Sealant for thermal spray aluminum	610	5.08	2,235	----
Special marking	490	4.08	1,178	----
Speciality interior	340	2.83	571	728
Tack coat	610	5.08	2,235	----
Undersea weapons systems	340	2.83	571	728
Weld-through preconstruction primer	650	5.42	2,885	----

[a] The limits are expressed in two sets of equivalent units: grams per liter of coating (minus water and exempt solvent); and grams per liter of solids. Either set of limits may be used to demonstrate compliance.
[b] To convert from grams/liter to pounds/gallon, multiply by (3.785 liters/gallon)(pound/453.6 grams) or 1/120. For compliance purposes, metric units define the standards.
[c] VOC limits expressed in units of mass of VOC per volume of solids were derived from the VOC limits expressed in units of mass of VOC per volume of coating assuming the coatings contain no water or exempt compounds and that the volumes of all components within a coating are additive.
[d] These limits apply during cold-weather time periods (i.e., temperatures below 4.5 degrees Celsius (40 degrees Fahrenheit)). Cold-weather allowances are not given to coatings in categories that permit

less than 40% solids nonvolatiles) content by volume. Such coatings are subject to the same limits regardless of weather conditions.

(B) For a coating to which thinning solvent is routinely or sometimes added, the owner or operator shall determine the VOC content as follows.

(i) Prior to the first application of each batch, designate a single thinner for the coating and calculate the maximum allowable thinning ratio (or ratios, if the shipbuilding and ship repair operation complies with the cold-weather limits in addition to the other limits specified in subparagraph (A) of this paragraph) for each batch as follows.

Figure: 30 TAC §115.421(a)(15)(B)(i)

$$R = \frac{(V_S)(\text{VOC limit}) - m_{VOC}}{D_{th}} \qquad \text{(Equation 1)}$$

where:

R	=	Maximum allowable thinning ratio for a given batch (liters of thinner per liter of coating as supplied);
V_s	=	Volume fraction of solids in the batch as supplied (liter of solids per liter of coating as supplied);
VOC limit	=	Maximum allowable as-applied VOC content of the coating (grams of VOC per liter of solids);
m_{VOC}	=	VOC content of the batch as supplied (grams of VOC per liter of coating as supplied); and
D_{th}	=	Density of the thinner (grams per liter).

(ii) If the volume fraction of solids in the batch as supplied (V_s) is not supplied directly by the coating manufacturer, the owner or operator shall determine V_s as follows.

Figure: 30 TAC §115.421(a)(15)(B)(ii)

$$V_s = \frac{1 - (m_{volatiles})}{D_{avg}} \qquad \text{(Equation 2)}$$

where:

$m_{volatiles}$ = Total volatiles in the batch, including VOC, water, and exempt compounds (grams per liter of coating); and
D_{avg} = Average density of volatiles in the batch (grams per liter).

(b) No person in Gregg, Nueces, and Victoria Counties may cause, suffer, allow, or permit VOC emissions from the surface coating processes affected by paragraphs (1) - (9) of this subsection to exceed the specified emission limits. These limitations are based on the daily weighted average of all coatings delivered to each coating line, except for those in paragraph (9) of this subsection which are based on paneling surface area.

(1) Large appliance coating. VOC emissions from the application, flashoff, and oven areas during the coating of large appliances (prime and topcoat, or single coat) shall not exceed 2.8 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.34 kg/liter).

(2) Metal furniture coating. VOC emissions from metal furniture coating lines (prime and topcoat, or single coat) shall not exceed 3.0 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.36 kg/liter).

(3) Coil coating. VOC emissions from the coating (prime and topcoat, or single coat) of metal coils shall not exceed 2.6 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.31 kg/liter).

(4) Paper coating. VOC emissions from the coating of paper (or specified tapes or films) shall not exceed 2.9 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.35 kg/liter).

(5) Fabric coating. VOC emissions from the coating of fabric shall not exceed 2.9 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.35 kg/liter).

(6) Vinyl coating. VOC emissions from the coating of vinyl fabrics or sheets shall not exceed 3.8 pounds per gallon of coating (minus water and exempt solvent) delivered to the application system (0.45 kg/liter). Plastisol coatings should not be included in calculations.

(7) Can coating. The following VOC emission limits shall be achieved, on the basis of solvent content per gallon of coating (minus water and exempt solvent) delivered to the application system.

Figure: 30 TAC §115.421(b)(7)

Affected Operation	VOC Emission Limitation

	pounds per gallon of coating	kg per liter of coating
sheet basecoat (exterior and interior) and over-varnish	2.8	0.34
two-piece can exterior (base-coat and over-varnish)	2.8	0.34
two- and three-piece can interior body spray, two-piece can exterior end (spray or roll coat)	4.2	0.51
three-piece can side-seam spray	5.5	0.66
end sealing compound	3.7	0.44

(8) Miscellaneous metal parts and products (MMPP) coating.

(A) VOC emissions from the coating of MMPP shall not exceed the following limits for each surface coating type:

(i) 4.3 pounds per gallon (0.52 kg/liter) of coating (minus water and exempt solvent) delivered to the application system as a clear coat; or as an interior protective coating for pails and drums;

(ii) 3.5 pounds per gallon (0.42 kg/liter) of coating (minus water and exempt solvent) delivered to the application system as a low-bake coating; or that utilizes air or forced air driers;

(iii) 3.5 pounds per gallon (0.42 kg/liter) of coating (minus water and exempt solvent) delivered to the application system as an extreme performance coating, including chemical milling maskants; and

(iv) 3.0 pounds per gallon (0.36 kg/liter) of coating (minus water and exempt solvent) delivered to the application system for all other coating applications, including high-bake coatings, that pertain to MMPP.

(B) If more than one emission limitation in subparagraph (A) of this paragraph applies to a specific coating, then the least stringent emission limitation shall apply.

(C) All VOC emissions from nonexempt solvent washings shall be included in determination of compliance with the emission limitations in subparagraph (A) of this paragraph, unless the solvent is directed into containers that prevent evaporation into the atmosphere.

(9) Factory surface coating of flat wood paneling. The following emission limits shall apply to each product category of factory-finished paneling (regardless of the number of coats applied).

Figure: 30 TAC §115.421(b)(9)

Product Category	VOC Emission Limitation lb VOC/ 1000 ft^2 of coated surface	kg VOC/ 100 m^2 of coated surface
printed interior wall panels made of hardwood plywood and thin particle board (less than 1/4 inch (0.64 cm)) in thickness	6.0	2.9
natural finish hardwood plywood panels	12.0	5.8
hardwood paneling with Class II finish (ANSI Standard PS-59-73)	10.0	4.8

(10) Aerospace coatings. Coatings applied to aerospace vehicles or components shall meet the requirements specified in subsection (a)(11) of this section and §115.422(5) of this title, unless exempted under §115.427(b) of this title (relating to Exemptions).

§115.427. Exemptions.

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

(1) The following coating operations are exempt from §115.421(a)(9) of this title (relating to Emission Specifications):

(A) aerospace vehicles and components;

(B) vehicle refinishing (body shops), except as required by §115.421(a)(8)(B) and (C) of this title; and

(C) ships and offshore oil or gas drilling platforms, except as required by §115.421(a)(15) of this title.

(2) The following coating operations are exempt from §115.421(a)(10) of this title:

(A) the manufacture of exterior siding;

(B) tile board; or

(C) particle board used as a furniture component.

(3) The following exemptions apply to surface coating operations, except for vehicle refinishing (body shops) controlled by §115.421(a)(8)(B) and (C) of this title. Excluded from the volatile organic compound (VOC) emission calculations are coatings and solvents used in surface coating activities which are not addressed by the surface coating categories of §115.421(a)(1) - (15) of this title. For example, architectural coatings (i.e., coatings which are applied in the field to stationary structures and their appurtenances, to portable buildings, to pavements, or to curbs) at a property would not be included in the calculations.

(A) Surface coating operations on a property which, when uncontrolled, will emit a combined weight of VOC of less than three pounds per hour and 15 pounds in any consecutive 24-hour period are exempt from §115.421(a) of this title and §115.423 of this title (relating to Alternate Control Requirements).

(B) Surface coating operations on a property which, when uncontrolled, will emit a combined weight of VOC of less than 100 pounds in any consecutive 24-hour period are exempt from §115.421(a) and §115.423 of this title if documentation is provided to and approved by both the executive director and the EPA to demonstrate that necessary coating performance criteria cannot be achieved with coatings which satisfy applicable emission specifications and that control equipment is not technically or economically feasible.

(C) Surface coating operations on a property for which total coating and solvent usage does not exceed 150 gallons in any consecutive 12-month period are exempt from §115.421(a) and §115.423 of this title.

(D) Mirror backing coating operations located on a property which, when uncontrolled, emit a combined weight of VOC less than 25 tons in one year (based on historical coating and solvent usage) are exempt from this division (relating to Surface Coating Processes).

(E) Wood furniture manufacturing facilities which are subject to and are complying with §115.421(a)(14) of this title and §115.422(3) of this title (relating to Control Requirements) are exempt from §115.421(a)(13) of this title. These wood furniture manufacturing facilities shall continue to comply with §115.421(a)(13) of this title until these facilities are in compliance with §115.421(a)(14) and §115.422(3) of this title.

(F) Wood furniture manufacturing facilities which, when uncontrolled, emit a combined weight of VOC from wood furniture manufacturing operations less than 25 tons per year are exempt from §115.421(a)(14) and §115.422(3) of this title.

(G) Wood parts and products coating facilities in Hardin, Jefferson, and Orange Counties are exempt from §115.421(a)(13) of this title.

(H) Shipbuilding and ship repair operations in Hardin, Jefferson, and Orange Counties which, when uncontrolled, emit a combined weight of VOC from ship and offshore oil or gas drilling platform surface coating operations less than 100 tons per year are exempt from §115.421(a)(15) and §115.422(4) of this title.

(I) Shipbuilding and ship repair operations in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties which, when uncontrolled, emit a combined weight of VOC from ship and offshore oil or gas drilling platform surface coating operations less than 25 tons per year are exempt from §115.421(a)(15) and §115.422(4) of this title.

(J) The following activities where cleaning and coating of aerospace vehicles or components may take place are exempt from this division: research and development, quality control, laboratory testing, and electronic parts and assemblies; except for cleaning and coating of completed assemblies.

(4) Vehicle refinishing (body shops) in Hardin, Jefferson, and Orange Counties are exempt from §115.421(a)(8)(B) and §115.422(1) and (2) of this title.

(5) The coating of vehicles at in-house (fleet) vehicle refinishing operations and the coating of vehicles by private individuals are exempt from §115.421(a)(8)(B) and §115.422(1) and (2) of this title. This exemption is not applicable if the coating of a vehicle by a private individual occurs at a commercial operation.

(6) Aerosol coatings (spray paint) are exempt from this division.

(b) For Gregg, Nueces, and Victoria Counties, the following exemptions shall apply.

(1) Surface coating operations located at any property which, when uncontrolled, will emit a combined weight of VOC less than 550 pounds (249.5 kg) in any continuous 24-hour period are exempt from §115.421(b) of this title. Excluded from this calculation are coatings and solvents used in surface coating activities which are not addressed by the surface coating categories of §115.421(b)(1) - (10) of this title. For example, architectural coatings (i.e., coatings which are applied in the field to stationary structures and their appurtenances, to portable buildings, to pavements, or to curbs) at a property would not be included in the calculation.

(2) The following coating operations are exempt from §115.421(b)(8) of this title:

(A) aerospace vehicles and components;

(B) vehicle refinishing (body shops); and

(C) ships and offshore oil or gas drilling platforms.

(3) The following coating operations are exempt from §115.421(b)(9) of this title:

(A) the manufacture of exterior siding;

(B) tile board; or

(C) particle board used as a furniture component.

(4) Aerosol coatings (spray paint) are exempt from this division.

§115.429. Counties and Compliance Schedules.

The owner or operator of each surface coating operation in Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Fort Bend, Galveston, Gregg, Hardin, Harris, Jefferson, Liberty, Montgomery, Nueces, Orange, Tarrant, Victoria, and Waller Counties shall continue to comply with this division (relating to Surface Coating Processes) as required by §115.930 of this title (relating to Compliance Dates).

SUBCHAPTER H: HIGHLY-REACTIVE VOLATILE ORGANIC COMPOUNDS
DIVISION 1: VENT GAS CONTROL
§§115.720, 115.722, 115.725 - 115.727, 115.729

STATUTORY AUTHORITY
The new sections are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The new sections are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.720. Applicability and Definitions.

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

(b) Definitions. The following terms, when used in this division, shall 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) **Supplementary fuel** - Natural gas or fuel gas added to the gas stream to increase the net heating value to the minimum required value.

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

§115.722. Site-wide Cap and Control Requirements.

(a) Emissions of highly-reactive volatile organic compounds (HRVOC) at each account subject to this division (relating to Vent Gas Control) or Division 2 of this subchapter (relating to Cooling Tower Heat Exchange Systems) are limited to a 24-hour rolling average as specified in Table 6-2.1, Initial HRVOC Site-Cap Allocations: Harris County, and Table 6-2.2, Initial HRVOC Site-Cap Allocations: Seven Surrounding Counties, of the *Post-1999 Rate-of-Progress and Attainment Demonstration Follow-up SIP for the Houston/Galveston Ozone Nonattainment Area* adopted on December 13, 2002.

(b) All flares shall continuously comply with 40 Code of Federal Regulations §60.18(c) - (f) as amended through October 17, 2000 (65 FR 61744) when vent gas containing volatile organic compounds (VOC) is being routed to the flare.

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

§115.725. Monitoring and Testing Requirements.

(a) Each vent gas stream at an account must be tested by applying the appropriate reference method tests and procedures specified in §115.125 of this title (relating to Testing Requirements) to establish actual and expected highly-reactive volatile organic compound (HRVOC) emission data in accordance with the test plan required under §115.726 of this title (relating to Recordkeeping and Reporting Requirements) to demonstrate compliance with the control requirement of §115.722(a) of this title (relating to Site-wide Cap and Control Requirements).

(b) As an alternative to the testing requirements of subsection (a) of this section, a vent gas stream which is not controlled by a flare may be equipped with a continuous emissions monitoring system (CEMS), provided that:

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

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

(c) Testing using the appropriate reference method tests and procedures specified in §115.125 of this title which was conducted before December 31, 2002 and which establishes actual and expected HRVOC emissions data may be used in lieu of conducting the testing specified in subsection (a) of this section, provided that the owner or operator of the affected source obtains approval for the testing from the Engineering Services Team.

(d) Except as specified in subsection (e) of this section, the owner or operator of an affected flare shall conduct continuous monitoring, as follows:

(1) install, calibrate, maintain, and operate a continuous flow monitoring system on the main flare header (located after the knock-out pot and addition of any supplementary fuel) capable of measuring the flow rate over the full potential range of operation. For correcting flow rate to standard conditions (defined as 68 degrees Fahrenheit and 760 millimeters of mercury (mm Hg)), temperature and pressure in the main flare header shall be monitored continuously. The monitors shall be calibrated on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg;

(2) install, calibrate, maintain, and operate an on-line analyzer capable of determining highly-reactive volatile organic compounds (HRVOC) and other potential constituents, including, but not limited to, hydrogen, carbon monoxide, oxygen, nitrogen, carbon dioxide, methane, and ethane, at least once every 15 minutes. Samples shall be collected from a location on the main flare header after the knock-out pot and the addition of any supplementary fuel. Calibration of the on-line analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B, Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of once every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744). The samples shall be used to demonstrate continual compliance with minimum net heating value requirements of 40 CFR §60.18 and the site-wide cap of §115.722 of this title. Pilot gas shall not be included in the determination of the net heating value;

(3) continuously operate each monitoring system as required by this section at least 95% of the time when the flare is operational, averaged over a calendar year;

(4) during any period of monitor downtime of the on-line analyzer specified in paragraph (2) of this subsection, take one sample every four hours from a location on the main flare header which is after both the knock-out pot and the introduction of any supplementary fuel. For determining the HRVOC concentrations in the flare header gas, the samples shall be analyzed for the concentrations of HRVOC according to the procedures in 40 CFR Part 60, Appendix A, Method 18 as amended through October 17, 2000 (65 FR 61744). Samples shall also be analyzed by American Standard of Testing Materials Standard D1946-77 to determine other potential major constituents including, but not limited to, methane, ethane, hydrogen, carbon monoxide, oxygen, nitrogen, and carbon dioxide. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3). During periods of monitor downtime, these samples shall be used to demonstrate compliance with minimum net heating value requirements of 40 CFR §60.18 and the site-wide cap of §115.722 of this title;

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

(6) calculate the HRVOC hourly average mass emission rates from the flare using the data gathered according to paragraphs (1) - (4) of this subsection, assuming a 98% destruction efficiency when the flare is in compliance with heating value and exit velocity requirements of 40 CFR §60.18. During periods when the flare is not in compliance with the heating value and exit velocity requirements of 40 CFR §60.18, a destruction efficiency of 93% shall be assumed to calculate HRVOC mass emission rates;

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

(8) submit for approval by the Engineering Services Team any minor modifications to these monitoring methods. Monitoring methods other than those specified in paragraphs (1) and (2) of this subsection may be used if pre-approved by the Engineering Services Team and validated by 40 CFR Part 63, Appendix A, Test Method 301 (December 29, 1992).

(e) Flares used solely for abatement of emissions from loading operations for transport vessels are not required to comply with the monitoring requirements of subsection (a) of this section, provided the following requirements are satisfied.

(1) A calorimeter shall be calibrated, installed, operated, and maintained, in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

(2) Records of each loading activity are maintained, including, but not limited to:

(A) the type of vessel being loaded;

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

(C) the compounds loaded, in addition to the compounds loaded immediately previous to the current loading operation, if the vessel being loaded is not clean;

(D) the quantity of material loaded;

(E) the loading rate in gallons per minute;

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

(G) additional parameters as needed for emissions calculations.

(3) The flare's actual exit velocity for each loading activity shall be calculated every 15 minutes, based on the maximum loading rate and the supplemental fuel rate corrected to standard temperature and pressure and the unobstructed (free) cross-sectional area of the flare tip, according to 40 CFR §60.18(f)(4).

(4) The HRVOC hourly average mass emission rates from the flare shall be calculated, using total HRVOC sent to the flare calculated based on loading emission calculations approved by the commission, and the speciated composition of the material being sent to the flare, assuming a 98% destruction efficiency when the flare is in compliance with heating value and exit velocity requirements of 40 CFR §60.18. During periods when the flare is not in compliance with the heating value and exit velocity requirements of 40 CFR §60.18, a destruction efficiency of 93% shall be assumed to calculate HRVOC mass emission rates.

§115.726. Recordkeeping and Reporting Requirements.

(a) The owner or operator of each affected flare or vent gas stream shall submit for review and approval by the Engineering Services Team a test plan and a quality assurance plan for the testing requirements and for the monitoring requirements (including installation, calibration, operation, and maintenance of continuous emissions monitoring systems) of this division (relating to Vent Gas Control) as follows:

(1) for flares and vent gas streams existing on or before June 30, 2004, no later than April 30, 2004; or

(2) for flares/vent gas streams that become subject to the requirements of this division after June 30, 2004, at least 60 days prior to being placed in highly-reactive volatile organic compound (HRVOC) service.

(b) The owner or operator shall maintain a record of the results of all testing conducted in accordance with §115.725 of this title (relating to Monitoring and Testing Requirements).

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

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

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

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

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

(5) maintain all records required in this subsection for five years and make available for review upon request by authorized representatives of the executive director, EPA, or any local air pollution control agency with jurisdiction.

(d) Records for exemptions shall include the following.

(1) The owner or operator of any account claiming exemption under §115.727(a) of this title (relating to Exemptions) shall maintain records to document that each vent gas stream and each vent routed to a flare does not exceed 100 parts per million by volume HRVOC at any time.

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

(e) The owner or operator of each account subject to §115.722 of this title shall maintain records that update hourly the 24-hour rolling average HRVOC emissions which include:

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

(2) all continuously monitored vent gas and flare emissions; and

(3) the maximum potential emission rate from vent gas streams and flares which are not continuously monitored.

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

§115.727. Exemptions.

(a) Any account for which no gas stream that is routed to a flare contains 5.0% or greater by weight of highly-reactive volatile organic compounds (HRVOC) at any time and no vent gas stream that is not routed to a flare contains more than 100 parts per million by volume HRVOC at any time is exempt from the requirements of §115.722 of this title (relating to Site-wide Cap and Control Requirements), with the exception of the recordkeeping requirements of §115.726(d) and (f) of this title (relating to Recordkeeping and Reporting Requirements).

(b) Flares that at no time receive a gas stream containing 5.0% or greater HRVOC are exempt from the continuous monitoring requirements of §115.725(d) and (e) of this title (relating to Monitoring and Testing Requirements) and §115.726(c) of this title. The gas stream directed to the flare shall be treated as a vent gas stream for purposes of determining compliance with the site-wide cap of §115.722(a) of this title.

(c) Emissions from scheduled maintenance, startup, or shutdown activities in compliance with §101.211 of this title (relating to Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements) are exempt from the requirements of §115.722 of this title.

(d) Emissions from emissions events in compliance with §101.201 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements) are exempt from the requirements of §115.722 of this title.

§115.729. Counties and Compliance Schedules.

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

(1) Vent gas.

(A) The testing required by §115.725 of this title (relating to Monitoring and Testing Requirements) shall be completed and the results submitted to the executive director as soon as practicable, but no later than June 30, 2004.

(B) The owner or operator shall demonstrate compliance with all other requirements of this division applicable to vent gas streams as soon as practicable, but no later than April 1, 2006.

(2) Flares. The owner or operator of each flare shall demonstrate compliance with all sections of this division as soon as practicable, but no later than December 31, 2004, with the exception of the site-wide cap in §115.722 of this title (relating to Site-wide Cap and Control Requirements) for which the owner or operator shall demonstrate compliance as soon as practicable, but no later than April 1, 2006.

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

STATUTORY AUTHORITY
The new sections are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The new sections are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

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

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

(b) Definitions. The following term, when used in this division, shall have the following meaning, unless the context clearly indicates otherwise. Additional definitions for terms used in this division are found in §§3.2, 101.1, and 115.10 of this title (relating to Definitions). **Cooling tower heat exchange system** - Cooling towers, associated heat exchangers, pumps, and ancillary equipment where water is used as a cooling medium and the heat from process fluids is transferred to cooling water. This does not include fin-fan coolers. This also does not include comfort cooling tower heat exchange systems (i.e., those which are used exclusively in cooling, heating, ventilation, and air conditioning systems).

§115.761. Site-wide Cap.

(a) Emissions of highly-reactive volatile organic compounds at each account subject to this division (relating to Cooling Tower Heat Exchange Systems) and Division 1 of this subchapter (relating to Vent Gas Control) are limited to a 24-hour rolling average as specified in Table 6-2.1, Initial HRVOC Site-Cap Allocations: Harris County, and Table 6-2.2, Initial HRVOC Site-Cap Allocations:

Seven Surrounding Counties, of the *Post-1999 Rate-of-Progress and Attainment Demonstration Follow-up SIP for the Houston/Galveston Ozone Nonattainment Area* adopted on December 13, 2002.

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

§115.764. Monitoring Requirements.

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

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

(2) install, calibrate, operate, and maintain a system to continuously determine the total strippable volatile organic compound (VOC) concentration at each inlet of each cooling tower. During out-of-order periods of the VOC monitor(s), a sample shall be collected for total VOC analysis according to the Texas Commission on Environmental Quality (TCEQ) air-stripping method (Appendix P, TCEQ Sampling Procedures Manual, January 2003). This sample shall be collected at least three times per calendar week, with an interval of no less than 36 hours between samples;

(3) continuously operate each monitoring system as required by this section at least 95% of the time when the cooling tower is operational, averaged over a calendar year.

(4) determine the speciated strippable VOC concentration by collecting samples from each inlet of each cooling tower at least once per month in accordance with appropriate methods in §115.766 of this title (relating to Testing Requirements). For each sample, the speciated concentration of at least 90% of the total VOC on a mass basis shall be determined;

(5) if the concentration of total strippable VOC is equal to or greater than 50 parts per billion by weight (ppbw), collect an additional sample for strippable VOC speciation in accordance with §115.766 of this title from each inlet of the affected cooling tower at least once daily. The additional sampling for speciated strippable VOC shall continue on a daily basis until the concentration of total strippable VOC drops below 50 ppbw.

(b) The owner or operator of a cooling tower heat exchange system with a design capacity to circulate less than 8,000 gpm of cooling water shall:

(1) install, calibrate, operate, and maintain a continuous flow monitor on each inlet of each cooling tower. Each monitor shall be calibrated on an annual basis to within ±5.0% accuracy. When the cooling tower flow monitor is down, flow measurements shall be used for the most recent 24-

hour period in which the flow measurements are representative of cooling tower operations during monitor downtime;

(2) determine the total strippable VOC concentration by collecting samples from each inlet of each cooling tower at least twice per week in accordance with appropriate methods in §115.766 of this title, with an interval of not less than 48 hours between samples;

(3) each monitoring system shall be operated as required by this section at least 95% of the time when the cooling tower is operational, averaged over a calendar year;

(4) determine the speciated strippable VOC concentration by collecting samples from each inlet of each cooling tower at least once per month in accordance with appropriate methods in §115.766 of this title. For each sample, the speciated concentration of at least 90% of the total VOC on a mass basis shall be determined; and

(5) if the calculated total strippable VOC concentration is equal to or greater than 50 ppbw, collect additional samples for strippable VOC analysis, in accordance with §115.766 of this title from each inlet of the affected cooling tower at least once daily. The additional speciated strippable VOC sampling shall continue until the concentration of total strippable VOC drops below 50 ppbw.

(c) The owner or operator of the cooling tower heat exchange system shall determine the speciated strippable VOC or highly-reactive volatile organic compound (HRVOC) concentration as soon as this information is available, but no later than 48 hours after the sample(s) have been collected.

(d) The owner or operator of an affected cooling tower heat exchange system shall submit for review and approval by the Engineering Services Team a quality assurance plan for the installation, calibration, operation, and maintenance for the monitoring requirements of this division as follows:

(1) for cooling towers existing on or before June 30, 2004, no later than April 30, 2004; or

(2) for cooling tower heat exchange systems that become subject to the requirements of this division after June 30, 2004, at least 60 days prior to being placed in HRVOC service. This plan shall be submitted prior to initiating a monitoring program to comply with the requirements of subsections (a) and (b) of this section. Additionally, the plan must define each compound which could potentially leak through the heat exchanger and therefore directly impact the emissions of the cooling water system.

§115.766. Testing Requirements.

Compliance with this division (relating to Cooling Tower Heat Exchange Systems) shall be determined by applying the following test methods.

(1) For determining the total strippable volatile organic compound (VOC) concentration in cooling tower water where a continuous monitoring system is required, the minimum detection limit

of the continuous monitoring system shall be no more than ten parts per billion by weight (ppbw) in the cooling tower water. The continuous monitor shall be calibrated with methane or a VOC which best represents potential leakage into the cooling tower system and the emissions from the system. Calibration shall be checked weekly or more frequently, as necessary, to maintain a monitor drift of less than 3.0%.

(2) For determining the speciated strippable VOC in cooling water, the samples shall be obtained using the air-stripping method in Appendix P of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual (January 2003). The samples shall be analyzed according to the procedures in Test Method 18, 40 Code of Federal Regulations (CFR) Part 60, Appendix A, and/or Method TO-14A, published in "U.S. EPA Compendium for Determination of Toxic Organic Compounds in Ambient Air (1996)," EPA Document Number 625/R96/010B. The minimum detection limit of the testing system shall be no more than ten ppbw in the cooling tower water.

(3) Modifications to these test methods or alternative test methods may be approved by the Engineering Services Team. Test methods other than those specified in paragraphs (1) and (2) of this section may be used if validated by 40 CFR Part 63, Appendix A, Test Method 301 (December 29, 1992).

§115.767. Recordkeeping Requirements.

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

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

(2) maintain records of all monitoring, testing, and calibrations performed in accordance with the provisions of §115.764 and §115.766 of this title (relating to Monitoring Requirements; and Testing Requirements);

(3) maintain hourly records that document the emission rate in pounds per hour (lb/hr) for each hour for total strippable volatile organic compounds (VOC), speciated highly-reactive volatile organic compounds (HRVOC), and total HRVOC from the cooling water for each cooling tower heat exchange system as required by §115.764(a) and (b) of this title. The flow rate of the cooling water in conjunction with the monitored concentration of the total strippable VOC, speciated HRVOC, or total HRVOC, shall be used to calculate the respective emission rate in lb/hr.

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

(5) update hourly the 24-hour rolling average HRVOC emissions, including:

(A) vent gas and flare emissions which are subject to Division 1 of this subchapter (relating to Vent Gas Control); and

(B) the hourly emissions determined in paragraph (3) of this subsection.

(b) The owner or operator of any cooling tower heat exchange system claiming exemption under §115.768 of this title (relating to Exemptions) shall comply with the following recordkeeping requirements:

(1) maintain records of the heat exchanger pressure differential to document continuous compliance with the exemption criteria of §115.768(1) of this title; or

(2) maintain records of the content of the process side fluid in each heat exchanger to demonstrate continuous compliance with the exemption criteria of §115.768(2) of this title.

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

§115.768. Exemptions.

The following exemptions shall apply.

(1) Any cooling tower heat exchange system in which each individual heat exchanger is operated with the minimum pressure on the cooling water side at least five pounds per square inch gauge (psig) greater than the maximum pressure on the process side, as demonstrated by continuous pressure monitoring and recording at all heat exchangers, is exempt from the requirements of this division (relating to Cooling Tower Heat Exchange Systems), with the exception of the recordkeeping requirements of §115.767(b) and (c) of this title (relating to Recordkeeping Requirements).

(2) Any cooling tower heat exchange system in which no individual heat exchanger has highly-reactive volatile organic compounds (HRVOC) in the process side fluid is exempt from the requirements of this division, with the exception of the recordkeeping requirements of §115.767(b) and (c) of this title.

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

(4) Emissions from emissions events in compliance with §101.201 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements) are exempt from the requirements of §115.761 of this title.

§115.769. Counties and Compliance Schedules.

The owner or operator of each cooling tower heat exchange system in Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties shall demonstrate compliance with this division (relating to Cooling Tower Heat Exchange Systems) as soon as practicable, but no later than December 31, 2004, with the exception of the site-wide cap in §115.761 of this title (relating to Site-wide Cap) for which the owner or operator shall demonstrate compliance as soon as practicable, but no later than April 1, 2006.

SUBCHAPTER H: HIGHLY-REACTIVE VOLATILE ORGANIC COMPOUNDS
DIVISION 3: FUGITIVE EMISSIONS
§§115.780 - 115.783, 115.785 - 115.789

STATUTORY AUTHORITY
The new sections are adopted under TWC, §5.103, which provides the commission the authority to adopt rules necessary to carry out its powers and duties under the TWC; and under THSC, TCAA, §382.017, concerning Rules, which provides the commission the authority to adopt rules consistent with the policy and purposes of the TCAA. The new sections are also adopted under TCAA, §382.011, concerning General Powers and Duties, which authorizes the commission to control the quality of the state's air; §382.012, concerning State Air Control Plan, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air; §382.016, concerning Monitoring Requirements; Examination of Records, which authorizes the commission to prescribe requirements for owners or operators of sources to make and maintain records of emissions measurements; §382.034, concerning Research and Investigations, which authorizes the commission to require any research it considers advisable and necessary to perform its duties; and §382.051(d), concerning Permitting Authority of Commission; Rules, which authorizes the commission to adopt rules as necessary to comply with changes in federal law or regulations applicable to permits under Chapter 382; and FCAA, 42 USC, §§7401 *et seq*.

§115.780. Applicability.

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

§115.781. General Monitoring and Inspection Requirements.

(a) The owner or operator shall identify the components of each process unit in highly-reactive volatile organic compound (HRVOC) service which is subject to this division (relating to Fugitive Emissions). Such identification must allow for ready identification of the components, and distinction from any components which are not subject to this division. Except for connectors, each component shall be labeled with a unique component identification code. Connectors are not required to be individually labeled if they are clearly identified individually in the master components log. The components also must be identified by one or more of the following methods:

(1) a plant site plan;

(2) color coding;

(3) a written or electronic database;

(4) designation of process unit boundaries;

(5) some form of weatherproof identification; or

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

(b) Each component in the process unit must be monitored according to the requirements of Subchapter D, Division 3 of this chapter (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas), except that the following additional requirements apply.

(1) The exemptions of §115.357(1) - (9) of this title (relating to Exemptions) do not apply.

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

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

(4) All components for which a repair attempt was made during a shutdown shall be monitored (with a hydrocarbon gas analyzer) and inspected for leaks within 30 days or at the next monitoring period, whichever occurs first, after startup is completed following the shutdown.

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

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

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

(A) An unsafe-to-monitor component is a component that the owner or operator determines is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of conducting quarterly monitoring. Components which are unsafe to monitor shall be identified in a list made available upon request. For components in light liquid or heavy liquid service, inert gas or hydraulic testing shall be conducted at normal operating temperature and pressure to assure in-place leak-free performance before each startup of the process unit where the unsafe-to-monitor component is located. Inert gas or hydraulic testing is not required more than four times per year or more than once a month if the unsafe-to-monitor component has not been found to leak in the 12 consecutive months preceding startup. Leak-free performance shall be evaluated by audio and visual inspections in concert with ability to hold operating pressure for hydraulic testing and soap bubble screening for gas testing.

(B) A difficult-to-monitor component is a component that cannot be inspected without elevating the monitoring personnel more than two meters above a permanent support surface.

(8) All pressure relief valves in gaseous service which are not vented to a closed-vent system shall be monitored each calendar quarter (with a hydrocarbon gas analyzer) .

(9) A leak is defined as a screening concentration greater than 500 parts per million by volume (ppmv) above background as methane for all components.

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

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

(1) inspected visually each calendar week for liquid dripping from the seals; or

(2) equipped with an alarm that alerts the operator of a leak.

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

(1) on a monthly basis; and

(2) after any maintenance activity that requires the seal to be broken.

(e) Any pressure relief device which has vented to the atmosphere shall be monitored (with a hydrocarbon gas analyzer) and inspected within 24 hours after actuation and the results reported in accordance with §115.786 of this title (relating to Recordkeeping Requirements).

(f) As an alternative to the requirements of subsection (b)(3) of this section for connectors, bolted manways, heat exchanger heads, hatches, and sump covers, the owner or operator may elect to monitor all of these components in a process unit by April 1, 2006 and then conduct subsequent monitoring at the following frequencies:

(1) once per year (i.e., 12-month period), if the percent leaking connectors, bolted manways, heat exchanger heads, hatches, and sump covers in the process unit was 0.5% or greater during the last required annual or biennial monitoring period;

(2) once every two years, if the percent leaking connectors, bolted manways, heat exchanger heads, hatches, and sump covers was less than 0.5% during the last required monitoring period. An owner or operator may comply with this paragraph by monitoring at least 40% of the components in the first year and the remainder of the components in the second year. The percent leaking connectors, bolted manways, heat exchanger heads, hatches, and sump covers will be calculated for the total of all monitoring performed during the two-year period;

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

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

(5) if a process unit complying with requirements of paragraph (3) of this subsection using a four-year monitoring interval program has greater than or equal to 1.0% but less than 2.0% leaking connectors, bolted manways, heat exchanger heads, hatches, and sump covers, the owner or operator shall increase the monitoring frequency to one time per year. The owner or operator may again elect to use the provisions of paragraph (3) of this subsection when the percent leaking components decreases to less than 0.5%; and

(6) if a process unit complying with requirements of paragraph (3) of this subsection using a four-year monitoring interval program has 2.0% or greater leaking connectors, bolted

manways, heat exchanger heads, hatches, and sump covers, the owner or operator shall increase the monitoring frequency to quarterly. The owner or operator may again elect to use the provisions of paragraph (3) of this subsection when the percent leaking components decreases to less than 0.5%.

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

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

(b) General rule - time to repair.

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

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

(c) Delay of repair.

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

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

(B) if the repair of a component within seven or 15 days (as specified in subsection (b) of this section) after the leak is detected would require a process unit shutdown which would create more emissions than the repair would eliminate, the repair may be delayed until the next shutdown, provided that:

(i) the owner or operator complies with the requirements of §115.352(2)(A) of this title (relating to Control Requirements); and

(ii) repair or replacement of the component occurs at the next shutdown. The executive director, at his discretion, may require an early process unit shutdown, or other appropriate action, based on the number and severity of leaks awaiting a shutdown; or

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

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

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

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

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

(ii) repair is completed as soon as practicable, but not later than six months after the leak was detected.

(2) For valves which are not pressure relief valves or automatic control valves, repair may only be delayed beyond the period designated in subsection (b) of this section if:

(A) repair or replacement of these valves occurs at the next scheduled process unit shutdown; and

(i) the owner or operator has undertaken “extraordinary efforts” to repair the leaking valve. For purposes of this subparagraph, “extraordinary efforts” is defined as nonroutine repair methods (e.g., sealant injection) or utilization of a closed-vent system to capture and control the leaks by at least 90%. For leaks detected over 10,000 ppmv, extraordinary efforts shall be undertaken within seven days of the valve being placed on the shutdown list; however, the owner or operator may keep the leaking valve on the shutdown list only after two unsuccessful attempts to repair a leaking valve through extraordinary efforts, provided that the second extraordinary effort attempt is made within 15 days of the first extraordinary effort attempt. For all other leaks, extraordinary efforts shall be undertaken within 15 days of the valve being placed on the shutdown list, and a second extraordinary effort attempt is not required; or

(ii) the owner or operator maintains, and makes available upon request, documentation to authorized representatives of EPA, the executive director, and any local air pollution control agency having jurisdiction which demonstrates that there is a safety, mechanical, or major environmental concern posed by repairing the leak by using “extraordinary efforts”; or

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

§115.783. Equipment Standards.

The following equipment standards shall apply.

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

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

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

(2) Whenever volatile organic compound (VOC) emissions are vented to a closed-vent system, control device, or recovery device used to comply with the provisions of this chapter, such system or control device must be operating properly.

(A) Recovery devices (e.g., condensers and absorbers) used to comply with this paragraph must be designed and operated to recover the VOC emissions vented to them with an efficiency of 95% or greater.

(B) Flares used to comply with this paragraph must meet the requirements of:

(i) Division 1 of this subchapter (relating to Vent Gas Control); and

(ii) 40 Code of Federal Regulations §60.18(b) or §63.11(b).

(C) All other control devices used to comply with this paragraph must reduce VOC emissions with a control efficiency of at least 98% or to a VOC concentration of no more than 20 parts per million by volume (on a dry basis corrected to 3.0% oxygen for combustion devices).

(3) Each pressure relief valve in gaseous HRVOC service that vents to atmosphere which is installed in series with a rupture disk, pin, second relief valve, or other similar leak-tight pressure relief component, shall be equipped with a pressure sensing device or an equivalent device or system between the pressure relief valve and the other pressure relief component to monitor for leakage past the first component. When leakage is detected past the first component, that component shall be repaired or replaced as soon as practicable, but no later than 30 calendar days after the failure is detected.

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

(A) Acceptable shaft sealing systems include:

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

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

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

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

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

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

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

(iii) is the Engineering Services Team, Office of Compliance and Enforcement, for purposes of this section.

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

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

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

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

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

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

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

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

(i) a gasketed seal; or

(ii) a tightly-fitting cap or plug.

§115.785. Testing Requirements.

The owner or operator shall perform testing to demonstrate compliance with §115.783(2) of this title (relating to Equipment Standards) using the test methods specified in §115.125 of this title (relating to Testing Requirements). The owner or operator is responsible for providing testing facilities and conducting the sampling and testing operations at its expense.

(1) The appropriate regional office shall be contacted as soon as testing is scheduled, but not less than 45 days prior to testing to schedule a pretest meeting. The notice shall include:

(A) the date for pretest meeting;

(B) the date the testing will occur;

(C) the name of the firm conducting testing;

(D) the type of testing equipment to be used; and

(E) the method or procedure to be used in testing.

(2) The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test reports.

(3) A written proposed description of any minor test method modifications allowed under §115.125(4) of this title shall be made available to the regional office before the pretest meeting. The regional director or the manager of the Engineering Services Team, Office of Compliance and Enforcement, will approve or disapprove of any deviation from specified sampling procedures.

(4) Performance tests shall be conducted under such conditions as the executive director specifies to the owner or operator based on representative performance (i.e., performance based on normal operating conditions) of the affected source.

(5) Early testing conducted before December 31, 2002 may be used to demonstrate compliance with the standards specified in this division (relating to Fugitive Emissions), if the owner or operator of an affected source demonstrates to the satisfaction of the executive director that the prior compliance testing meets the requirements of paragraphs (1) - (4) of this section. For early testing, the compliance stack test report required by paragraph (6) of this section shall be as complete as necessary

to demonstrate to the executive director that the stack test was valid and the source has complied with the rule. The executive director reserves the right to request compliance testing or monitoring system performance evaluation at any time.

(6) The owner or operator shall furnish the Office of Compliance and Enforcement, the appropriate regional office, and any local air pollution control agency having jurisdiction a copy of the final sampling report within 60 days after sampling is completed. The stack test report shall meet the requirements of §115.725(f) of this title (relating to Monitoring and Testing Requirements).

§115.786. Recordkeeping Requirements.

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

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

(2) record all periods when:

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

(B) the flow indicator is not operating.

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

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

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

(A) the seal mechanism is broken;

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

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

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

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

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

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

(D) the flow through the valve; and

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

(c) Records of all non-repairable components subject to §115.782(e) of this title (relating to Procedures and Schedule for Leak Repair and Follow-up) shall be maintained and submitted semiannually to the Office of Compliance and Enforcement, the appropriate regional office, and any local air pollution control agency having jurisdiction. The report shall contain:

(1) the component identification code;

(2) the component type;

(3) the leak concentration measurement and date;

(4) the date of the last process unit turnaround; and

(5) the total number of non-repairable components awaiting repair or replacement.

(d) The owner or operator shall maintain records in accordance with§115.356 of this title (relating to Monitoring and Recordkeeping Requirements), including records identifying and justifying each exemption claimed exempt under §115.787 of this title (relating to Exemptions).

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

§115.787. Exemptions.

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

(b) The following are exempt from the shaft sealing system requirements of §115.783(4) of this title (relating to Equipment Standards):

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

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

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

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

(2) components in continuous vacuum service;

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

(4) plant sites covered by a single account number with less than 250 components in volatile organic compounds (VOC) service;

(5) components which are insulated, making them inaccessible to monitoring with an hydrocarbon gas analyzer; and

(6) sampling connection systems which are in compliance with 40 Code of Federal Regulations §63.166(a) and (b).

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

(e) Each pressure relief valve equipped with a rupture disk is exempt from the requirements of §115.781(b)(8) of this title, provided that the pressure relief valve complies with §115.783(3) of this title.

(f) Valves rated greater than 10,000 psig are exempt from the requirements of §115.781(b) of this title.

§115.788. Audit Provisions.

(a) At least once every two calendar years, the owner or operator of the petroleum refinery; synthetic organic chemical, polymer, resin, or methyl tert-butyl ether manufacturing process; or natural gas/gasoline processing operation shall retain the services of an independent third-party organization to conduct an audit of each process unit subject to this division (relating to Fugitive Emissions), including:

(1) all components which:

(A) were not tagged, but which should have been tagged; or

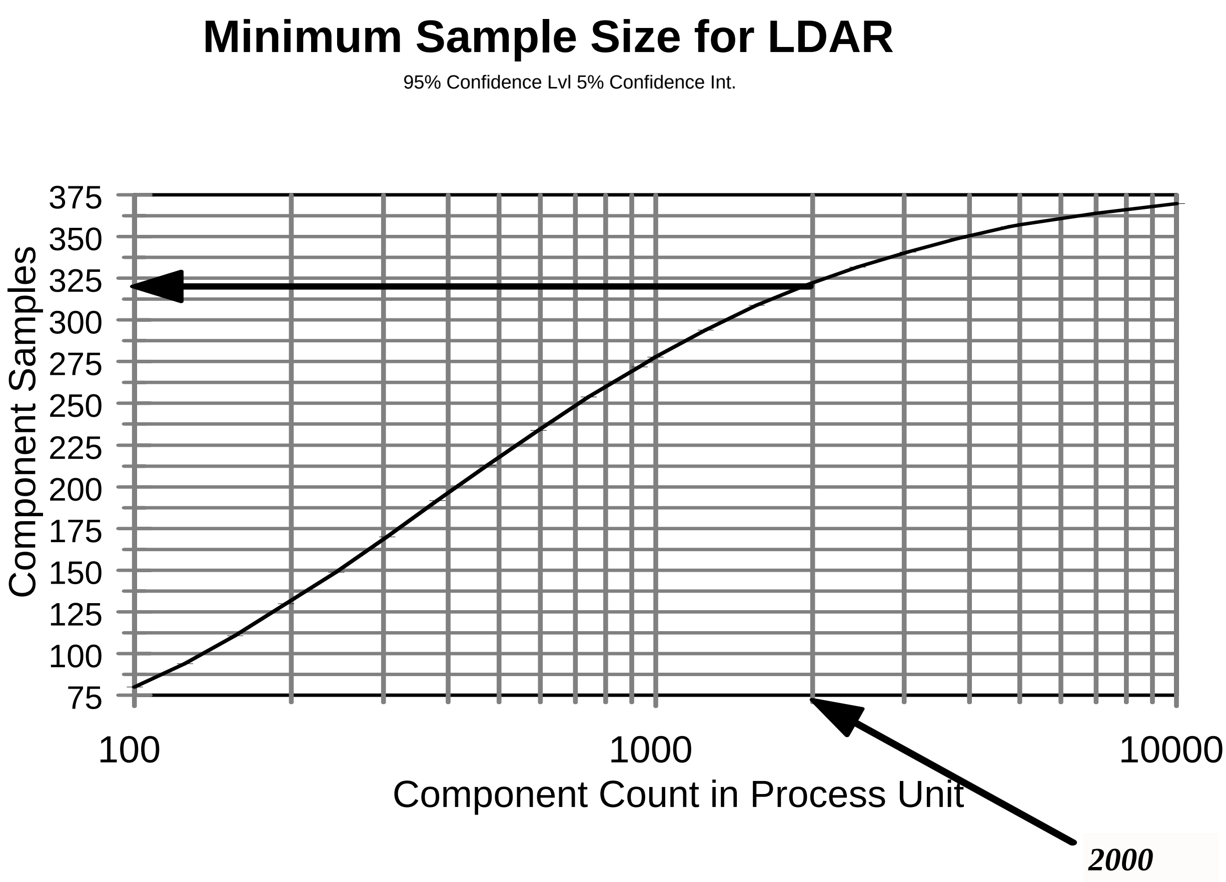
(B) were not included in the list of components to be monitored (with a hydrocarbon gas analyzer) or visually inspected, but which should have been included on that list;

(2) the leak/no-leak status and measured volatile organic compound (VOC) concentration for all components for which monitoring (with a hydrocarbon gas analyzer) or visual inspection is required that monitoring period, as follows:

(A) the monitoring/inspection audit shall begin when the owner or operator's contracted or usual monitoring service begins monitoring components for that monitoring period;

(B) the following graph shall be used to determine the number of components required to be monitored in the audit out of the total number of components in each process unit which are required to be monitored by §115.781 of this title (relating to General Monitoring and Inspection Requirements), based on an average of the most recent four quarters; and

Figure: 30 TAC §115.788(a)(2)(B)
The x-axis represents the total number of components required to be monitored by §115.781 of this title



(relating to General Monitoring and Inspection Requirements) in a process unit, based on an average of the number of components required to be monitored in the four most recent quarters. The y-axis represents the minimum number of components required to be monitored in the audit to achieve a 95% confidence level with a 5% confidence interval.

The number of components to be monitored in the audit, as read from the graph, is rounded up to the next highest number on the y-axis which is divisible by 25. In the example shown, at least 325 components must be audited in a process unit with 2,000 components. In another example, at least 175 components must be audited in a process unit with 300 components.

In units with 100 or fewer components, all components in the process unit must be audited.

In units with 10,000 or more components, at least 400 components in the process unit must be audited.

(C) the audit shall not include components which were included in either of the most recent two audits, unless unavoidable due to the shutdown of process units not included in either of the most recent two audits, or for other reasons agreed upon in advance by the appropriate regional office and any local air pollution control agency having jurisdiction; and

(3) all data generated by monitoring technicians in the previous quarter. This shall include:

(A) a review of the number of components monitored per technician;

(B) a review of the time between monitoring events;

(C) identification of abnormal data patterns; and

(D) identification of any discrepancies between the data in the electronic database required by §115.356(2) of this title (relating to Monitoring and Recordkeeping Requirements) and the data in the datalogger and/or field notes of §115.354(10)(A) and (B) of this title (relating to Inspection Requirements), respectively.

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

(c) The owner or operator shall submit notification to the appropriate regional office and any local air pollution control agency having jurisdiction as follows:

(1) verbal notification of the date that the independent third-party organization is scheduled to begin the audit at least 30 days prior to such date; and

(2) written notification within 15 days after the audit is completed.

(d) The owner or operator shall furnish the Office of Compliance and Enforcement, the appropriate regional office, and any local air pollution control agency having jurisdiction a copy of the results of each audit authored by the independent third-party organization within 30 days after completion of the audit, including:

(1) the number of components which were not tagged, but which should have been tagged;

(2) the number of components which were not included in the list of components to be monitored (with a hydrocarbon gas analyzer) or visually inspected, but which should have been included on that list;

(3) the number of components monitored, the number of leaking components, and the percentage of leaking components identified by the independent third-party organization and by the owner or operator’s contracted or usual monitoring service in each of the following categories:

(A) valves (excluding pressure relief valves);

(B) pressure relief valves;

(C) pumps;

(D) compressors; and

(E) connectors; and

(4) a summary of the independent third-party organization's review of all data generated by monitoring technicians in the previous quarter by the owner or operator’s contracted or usual monitoring service for each of the following categories:

(A) the number of components monitored per technician;

(B) the time between monitoring events, including identification of specific instances in which a monitoring technician recorded data faster than was physically possible due to the hydrocarbon gas analyzer response time and/or the time required for the technician to move to the next component; and

(C) identification of abnormal data patterns.

(e) Authorized representatives of the executive director, EPA, or any local air pollution control agency with jurisdiction may conduct an audit of the owner or operator’s leak detection and repair program.

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

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

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

§115.789. Counties and Compliance Schedules.

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

(1) The initial monitoring of all components for which monitoring is required under this division, but which are not required to be monitored under Subchapter D, Division 3 of this chapter (relating to Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes in Ozone Nonattainment Areas), shall occur as soon as practicable, but no later than December 31, 2003.

(2) All equipment upgrades required by §115.783 of this title (relating to Equipment Standards) must be made as soon as practicable, but no later than December 31, 2003.

(3) The initial independent third-party audit required by §115.788 of this title (relating to Audit Provisions) shall be completed and the results of the audit submitted to the executive director as soon as practicable, but no later than December 31, 2004.

(4) The testing required by §115.785 of this title (relating to Testing Requirements) shall be conducted as soon as practicable, but no later than December 31, 2003.

(5) Compliance with the recordkeeping required by §115.786 of this title (relating to Recordkeeping Requirements) shall be implemented and made available upon request to authorized representatives of the executive director, EPA, or any local air pollution control agency having jurisdiction as soon as practicable, but no later than December 31, 2003.

(6) The initial monitoring of pump seals and compressor seals using a leak definition of 500 parts per million by volume, as required by §115.781(b)(9) of this title (relating to General Monitoring and Inspection Requirements), shall begin as soon as practicable, but no later than December 31, 2003.